

Faculty of Social Sciences and Humanities

Performance Evaluation of High-Quality Farmer Training in Jiangxi Province, China

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Performance Evaluation of High-Quality Farmer Training in Jiangxi Province, China

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DECLARATION

I declare that the work in this thesis was carried out in accordance with the regulations of Universiti Malaysia Sarawak. Except where due acknowledgements have been made, the work is that of the author alone. The thesis has not been accepted for any degree and is not concurrently submitted in candidature of any other degree.

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My three-year doctoral journey at the UNIMAS, undertaken alongside teaching responsibilities at Jiangxi Biotech Vocational College, was a testament to resilience and collaboration. Balancing academic rigor with parental duties—caring for two children while managing research, writing, and fieldwork—presented immense challenges. Yet, the unwavering support of mentors, colleagues, and family transformed this arduous journey into a rewarding academic endeavor.

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ABSTRACT

The key to the implementation of the rural revitalization strategy is to cultivate a team of high-quality farmers (HQF) with "culture, knowledge of technology, and good management". Vocational training is fundamental of the development of high-quality peasant team, and performance evaluation is its necessary precondition. Performance evaluation of high-quality farmer training (HQFT) is not just for reference of the government to efficiently allocate resources, but it is also as a guide for training institutions to optimize training programs to ensure effective training quality. In order to evaluate the training performance of HQF scientifically, this study focuses on Jiangxi Province and comprehensively uses qualitative and quantitative research methods such as interview, questionnaire and expert consultation to address the following key questions: How should we evaluate the training performance of HQF? What is the performance of HQFT and what factors affect the training performance of HQF? How to improve the quality of HQFT? Taking training status of HQF and performance evaluation problems as the starting point, this study collects data through researcher designed questionnaires, establishes "HQF Performance Evaluation Questionnaire", and assigns the index system step by step through the analytic hierarchy process. Finally, a HQF training performance evaluation standard is formed, which includes four first-level indexes and twelve second-level indexes, such as training intention, training satisfaction, professional quality and training benefit. By means of random sampling, a questionnaire survey was then conducted on 514 HQF in Jiangxi Province who had participated in the training on production and management, technical skills and social service. It was found that the training performance of provincial HQF is good generally, but there are hierarchical and individual differences. Current training was found to have the best performance on professional quality and the worst performance on

training efficiency. Based on the perspective of training transfer, a framework of factors influencing the training performance of HQF was developed. It is found that policy, training and farmers are the three key factors influencing the training performance of HQF. On the basis of the above analysis, a systematic support system comprising of "top-level design - organization management - program innovation" is thus proposed to improve the training performance of HQF.

Keywords: Evaluation, HQF, influencing factors, performance evaluation, training performance

Penilaian Prestasi Latihan Petani Berkualiti Tinggi di Wilayah Jiangxi, China

ABSTRAK

Kunci kepada pelaksanaan strategi pemulihan luar bandar adalah untuk memupuk pasukan petani berkualiti tinggi dengan "budaya, pengetahuan teknologi, dan pengurusan yang baik". Latihan vokasional adalah asas kepada pembangunan pasukan petani berkualiti tinggi, dan penilaian prestasi adalah prasyarat yang diperlukan. Penilaian prestasi latihan petani berkualiti tinggi bukan sahaja menjadi rujukan kepada pihak kerajaan untuk memperuntukkan sumber dengan cekap, tetapi ia juga bertindak sebagai panduan kepada institusi latihan untuk mengoptimumkan program latihan untuk menjamin kualiti latihan yang berkesan. Untuk menilai prestasi latihan petani berkualiti tinggi secara saintifik, kajian ini berfocuskan Wilayah Jiangxi dan menggunakan kaedah penyelidikan kualitatif dan kuantitatif secara komprehensif seperti temu bual, soal selidik dan perundingan pakar untuk menjawab persoalan kajian berikut: Bagaimanakah kita harus menilai prestasi latihan petani berkualiti tinggi? Apakah prestasi latihan petani berkualiti tinggi dan apakah faktor yang mempengaruhi prestasi latihan petani berkualiti tinggi? Bagaimana untuk meningkatkan kualiti latihan petani berkualiti tinggi? Dengan mengambilkira status latihan petani berkualiti tinggi dan masalah penilaian prestasi sebagai titik tolak, kajian ini mengumpul data melalui soal selidik yang ditadbir sendiri, mewujudkan "Soal selidik penilaian prestasi petani berkualiti tinggi", dan menetapkan sistem indeks langkah demi langkah melalui proses hierarki analitik. Akhir sekali, piawaian penilaian prestasi latihan petani berkualiti dibentuk, yang merangkumi empat indeks peringkat pertama dan dua belas indeks peringkat kedua, seperti niat latihan, kepuasan latihan, kualiti profesional dan faedah latihan. Melalui persampelan rawak, tinjauan soal selidik telah dijalankan ke atas 514 petani berkualiti tinggi di Wilayah

Jiangxi yang telah mengambil bahagian dalam latihan pengeluaran dan pengurusan, kemahiran teknikal dan perkhidmatan sosial. Didapati bahawa prestasi latihan petani berkualiti tinggi wilayah adalah baik secara keseluruhannya, tetapi terdapat perbezaan hierarki dan individu. Latihan semasa didapati mempunyai prestasi terbaik pada kualiti profesional dan prestasi terburuk pada kecekapan latihan. Berdasarkan perspektif pemindahan latihan, rangka kerja faktor yang mempengaruhi prestasi latihan petani berkualiti tinggi telah dibangunkan. Didapati bahawa dasar, latihan dan petani merupakan tiga factor utama yang mempengaruhi prestasi latihan petani berkualiti tinggi. Berdasarkan analisis di atas, satu sistem sokongan sistematik yang merangkumi "reka bentuk peringkat atas – pengurusan organisasi – inovasi program" telah dicadangkan untuk meningkatkan prestasi latihan petani berkualiti tinggi.

Kata kunci: *Penilaian, HQF, faktor yang mempengaruhi, penilaian prestasi, prestasi latihan*

TABLE OF CONTENTS

		Page
DECLARATION		i
ACKNOWLEDGEMENT		ii
ABSTRACT		vi
ABSTRAK		viii
TABLE OF CONTENTS		x
LIST OF TABLES		xx
LIST OF FIGURES		xxvi
LIST OF ABBREVIATIONS		xxviii
CHAPER 1： INTRODUCTION		1
1.1	Study Background	1
1.2	Problem Statement	5
1.3	Research Questions	7
1.4	Research Aim	7
1.5	Research Objectives	7
1.6	Scope of Research	7
1.7	Research Significance	9
1.7.1	Theoretical Significance	10
1.7.2	Application Value	11
1.8	Research Framework	12

1.9 Organisation of the Thesis 13

1.10 Define Several Key Concepts 14

1.10.1 High-quality farmer 14

1.10.2 Expert 14

1.10.3 AHP method 14

CHAPTER 2： LITERATURE REVIEW 16

2.1 Introduction 16

2.2 Human Capital Theory 16

2.2.1 Adult Education Theory 17

2.2.2 Training Performance Evaluation Model 21

2.2.3 Application of Related Theories 24

2.3 High-Quality Farmer (HQF) 26

2.3.1 Evolution of the Concept of High-Quality Farmer 26

2.3.2 New Professional Farmers 28

2.3.3 Definition of HQF 28

2.3.4 The Connection Between New Professional Farmers and HQF 30

2.4 High-Quality Farmer Training (HQFT) 30

2.4.1 The Basic Theory of HQFT 31

2.4.2 Necessity of HQFT 31

2.4.3 HQFT Model 32

2.4.4 The Objects of HQFT 34

2.4.5 Content and Way of HQFT 34

2.4.6 The Problems of HQFT 36

2.5 Factors influencing the Training Performance of HQF 36

2.6 Performance Evaluation 37

2.7 Performance Evaluation of HQFT 39

2.8 Summary 41

2.9 Research Gap 41

2.10 Filling The Gap 42

CHAPTER 3：METHODOLOGY 43

3.1 Introduction 43

3.2 Study Area 44

3.3 Research Process 46

3.4 Methods And Processes of Data Collection 47

3.4.1 Desktop Research 48

3.4.2 Interview Method 49

3.4.3 Questionnaire Survey 55

3.5 Method of Data Analysis 56

3.5.1 Text Analysis 56

3.5.2 Hierarchical Analysis 57

3.5.3 Statistical Analysis 58

3.6 Ethical Consideration 59

3.7 Summary 60

3.7.1 Ensure the reliability and validity of the research results 60

3.7.2 The operational methods for achieving the objectives of this research 61

CHAPTER 4： ESTABBLISH THE PERFORMANCE EVALUATION OF HIGH-QUALITY FARMERS TRAINING 64

4.1 Introduction 64

4.2 The Overall Situation of Performance Evaluation of HQFT in Jiangxi Province 64

4.3 Problems Existing in Performance Evaluation of Training for HQF 66

4.3.1 Emphasis on "Training Organization" and Leglecting on "Training Effectiveness" 67

4.3.2 Emphasis on "Management Performance" and Leglecting on "Career Development" 69

4.3.3 Emphasis on "Training Satisfaction" and Neglecting on "Vocational Ability Improvement" 70

4.3.4 Emphasis on "Immediate Performance" and Neglecting on "Delayed Benefit" 73

4.3.5 Emphasis on "Economic Benefits", Neglecting on "Development Benefits" 74

4.4 Analysis of the Causes of Problems in Performance Evaluation of HQF' Training 75

4.4.1 Ignoring the Subjectivity of Trained Farmers 75

4.4.2 Lack of Scientific Evaluation Tools 76

4.5 Establish A Performance Evaluation Tool 77

4.6 Thought Process and Method of Index System Construction 77

4.6.1 Ideas for Constructing the Index System 78

4.6.2 Principles of Index System Construction 78

4.7 Process of Index System Construction 81

4.7.1 The Framework Construction of The Performance Evaluation Index System of HQFT. 82

4.7.2 The Construction of the Index Standard of the Performance Evaluation Index System of HQFT 83

4.7.3 The Determination of The Weight of The Performance Evaluation Index System of HQFT. 84

4.8 The Initial Establishment of the Performance Evaluation Index System of HQFT 84

4.8.1 Select Indicators Based on Literature Data 85

4.8.2 Index Construction Based on Interview 93

4.8.3 Formation of Initial Indicators Based on Integration and Complementarity 103

4.9 Improvement of The Index System 110

4.9.1 Purpose and Object of Questionnaire Survey 110

4.9.2 Questionnaire Item Design 112

4.9.3 Test The Questionnaire 117

4.10 Correcting the Questionnaire 140

4.10.1 Empowerment of the Index System 142

4.11 Summary 151

4.11.1 Investigated the Current Training Situation Of HQF 151

4.11.2 Constructed A Performance Evaluation Tool 153

CHAPTER 5: PERFORMANCE EVALUATION OF HIGH-QUALITY FARMERS TRAINING 155

5.1 Introduction 155

5.2 Analysis of the Performance Results of High-Quality Farmers' Training 155

5.2.1 Design and Implementation of Training Performance of HQF 155

5.3 Analysis of the Investigation Results of the Training Performance of HQF 161

5.3.1 Results of the Overall Training Performance 162

5.3.2 Results of the Evaluation on Training Intention 164

5.3.3 Results of the Evaluation on Training Satisfaction 165

5.3.4 Professional Accomplishment Evaluation Results 166

5.3.5 Training Benefit Evaluation Results 167

5.4 Analysis of Training Performance of HQF Based on Individual Demographic Characteristics 168

5.4.1 The Overall Performance of Training for HQF Based on Individual Demographic Characteristics 169

5.4.2 Training Satisfaction of HQF Based on Individual Demographic Characteristics 178

5.4.3 Professional Literacy of HQF Based on Individual Demographic Characteristics 185

5.4.4 Benefit Analysis of HQFT Based on Individual Demographic Characteristics 190

5.5 Training Performance of HQF Based on Individual Experience Characteristics 195

5.5.1 The Overall Training Performance of HQF Based on Individual Experience Characteristics 195

5.5.2 Training Satisfaction of HQF Based on Individual Experience Characteristics 202

5.5.3 The Training Professionalism of HQF Based on The Characteristics of Individual Operation 210

5.5.4 Benefit Analysis of Training for HQF Based on the Characteristics of Individual Operation 216

5.6 Training Performance of HQF Based on Individual Management Characteristics 222

5.6.1 the Total Training Performance of HQF Based on the Characteristics of Individual Operation 223

5.6.2 Training Satisfaction Analysis of HQF Based on the Characteristics of Individual Operation 230

5.6.3 Analysis of the Training Professionalism of HQF Based on the Characteristics of Individual Operation 237

5.6.4 Training Benefit of HQFT Based on the Characteristics of Individual Operation 242

5.7 Research Findings and Discussion 248

5.7.1 The Good overall performance of HQFT and the not-so-obvious social benefits 248

5.7.2 There Are Differences in the Training Performance of HQF with Different Demographic Characteristics 250

5.7.3 There Are Differences in Training Performance of HQF with Different Experience Characteristics 254

5.7.4 There Are Differences in the Training Performance of HQF With Different Management Characteristics 256

5.7.5 Chapter Summary 257

5.8 The Introduction of the Main Influencing Factors for the Performance of HQFT 259

5.9 Government Level: Allocation and Implementation of Policies and Systems 261

5.9.1 Comprehensive and Systematic Policy Allocation Is the Guarantee for The Effective Implementation of HQFT 261

5.9.2 The Multi-Level Training System: Basis for Effective HQFT Development" 263

5.9.3 Demand-Aligned Project Design: Basis for Effective HQFT Development 268

5.10 Training Institution Level: Training Design and Implementation 269

5.10.1 The Premise of Effective Training：Accurate Preparation Before Training 269

5.10.2 The Key to Achieve Effective Training：Scientific Training Process 275

5.10.3 The Pillar of Effective Training: Standardized Process Management 278

5.11 Farmer Level: Individual Psychological Characteristics 279

5.11.1 The Starting Point for Farmers to Improve Farmers Professional Quality: Good Psychological Characteristics 279

5.12 Influencing Factors and Mechanism of Training Performance of HQF 282

5.13 Systematically Carry Out the Top-Level Design of HQFT 288

5.13.1 Establish a Diversified and HQFT Market 288

5.13.2 Strengthen the Standardized Management of HQFT 297

5.13.3 Scientific Implementation of HQFT Activities 300

5.13.4 Summary 310

CHAPTER 6： CONCLUSION AND RECOMMENDATION 312

6.1 Introduction 312

6.2 Concluding Remarks 313

6.2.1 The Benefit-Oriented Multi-Index System: The Ideal Standard for the Performance Evaluation of HQF' Training 314

6.2.2 Good Whole Performance and Hierarchical and Individual Differences 315

6.2.3 Multiple Factors Affecting the Training Performance of HQF 318

6.2.4 Establish a Systematic Support System of "Top-Level Design -- Organization Management -- Program Innovation". 318

6.3 Research Innovation and Reflection 320

6.3.1 Innovation of Research Perspective 321

6.3.2 The Innovation of Research Content 321

6.3.3 The Innovation of Research Methods 323

6.4 Limitations of the Study and Recommendation for Future Studies 323

REFERENCES 326

APPENDICES 360

LIST OF TABLES

		Page
Table 1.1	Percentage in the Proportion of Rural Population in the Word by Region (1960-2020)	1
Table 1.2	Research on the Performance of HQFT in the Past Decade	6
Table 2.1	The Main Content of Cipp Evaluation ModelStep	23
Table 2.2	The Evolution of the Concept of HQF	27
Table 2.3	Typical Modes of Farmer Education and Training	33
Table 2.4	The Counter and Measures of Cultivating HQF	35
Table 2.5	Representative research on performance evaluation index of HQFT.	40
Table 3.1	The research method corresponding to the research objective i n study	44
Table 3.2	Survey basic information	51
Table 4.1	Jiangxi Province in the past five years provincial-level high- quality farmers training information table	65
Table 4.2	Survey information is shown in the table	66
Table 4.3	Selection of Overall Training Satisfaction Indicators	87
Table 4.4	Representative Literatures on the Connotation and Characteristics of HQF	89
Table 4.5	Selection of Dimension Indicators of Professional Literacy	91
Table 4.6	Training Benefit Dimension index Selection	93
Table 4.7	Basic Information of the Interviewees	97
Table 4.8	Collation and Analysis of Research Data	100
Table 4.9	Sample Open Coding Table	102
Table 4.10	HQFT Performance Evaluation Index System and Sources (Draft)	104
Table 4.11	Basic Information of Experts	106
Table 4.12	The Second Draft of The Performance Evaluation Index System of HQFT	109

Table 4.13	Initial Questions of The Questionnaire on The Training Performance of HQF	113
Table 4.14	Basic Information About a Sample (N=139)	118
Table 4.15	Summary Table of Critical Value Ratio Method for Questionnaire Analysis of Training Performance of HQF (N=139)	121
Table 4.16	Summary Table of Homogeneity Test Method for Item Analysis of Questionnaire on Training Performance of HQF (N=139)	131
Table 4.17	KMO and Bartlett Tests on the Training Performance Questionnaires of HQF	135
Table 4.18	Training Intention Rotation Component Matrix (N=139)	136
Table 4.19	Rotational Component Matrix of Training Satisfaction (N=139)	137
Table 4.20	Occupational Literacy Rotation Component Matrix (N=139)	138
Table 4.21	Training Benefit Rotation Component Matrix (N=139)	139
Table 4.22	Reliability of the Questionnaire on the Training Performance of HQF (N=139)	140
Table 4.23	Performance Evaluation Index System of HQFT	141
Table 4.24	Common Methods for Determining Indicator Weights	144
Table 4.25	Comparison of the first-order dimensions of training performance	146
Table 4.26	Comparison of second-order dimensions of training satisfaction	147
Table 4.27	Comparison of second-order dimensions of professional literacycultivation	147
Table 4.28	Comparison of second-order dimensions of training benefits	148
Table 4.29	Basic Conditions of Experts	150
Table4.30	Weight Coefficient of Quality Farmer Training Performance Evaluation Index System	151
Table 5.1	List of Basic Information of Valid Formal Questionnaires (N=514)	158
Table5.2	Descriptive Statistical Results of the Overall Level of Trainin Performance of HQF (N=514)	162

Table 5.3	Descriptive Statistical Results of the Training Intention Dimension (N=514)	164
Table 5.4	Descriptive Statistical Results of Training Satisfaction Dimension (N=514)	166
Table 5.5	Descriptive Statistical Results of The Dimensions of Vocational Literacy Cultivation (N=514)	167
Table 5.6	Descriptive Statistical Results of Training Benefits (N=51)	168
Table 5.7	Comparison of Differences in Training Performance of Farmers of Different Genders	170
Table 5.8	Chi-Square Test of Gender * Education Level	171
Table 5.9	Cross-Tabulation of Gender * Education Level	172
Table 5.10	Testing the Difference of Overall Training Performance of Farmers in Different Age Groups	173
Table 5.11	Testing the Difference of Farmers' Training Performance in Different Education Levels	177
Table 5.12	Statistical Results of Gender Difference in Training Satisfaction Dimension	180
Table 5.13	Test of Age Difference in Training Satisfaction Level	181
Table 5.14	Test of The Difference of Education Level in The Level of Training Satisfaction	184
Table 5.15	Statistical Results of Gender Differences in Occupational Literacy Dimension	186
Table 5.16	Tests of Age Differences in Terms of Professional Literacy	188
Table 5.17	Test of The Difference of Education Level in Occupational Quality	189
Table 5.18	Statistical Results of Gender Difference in Training Effectiveness Dimension	191
Table 5.19	Test of Age Gap in Training Benefit Level	192
Table 5.20	Test of The Difference of Education Level in The Level of Training Benefits	194
Table 5.21	Differential Examination of the Impact of Occupational Experience on Training Performance	196

Table 5.22	Difference Test of the Impact of Training Time on Training Performance	199
Table 5.23	Difference Test of the Impact of Training Times on the Total Training Performance	201
Table 5.24	Shows the Difference Test of the Influence of Pre-Agricultural Occupations on Training Satisfaction	203
Table 5.25	Difference Test of the Influence of Farming Time on Training Satisfaction Dimension	206
Table 5.26	Difference Test of the Influence of Training Frequency on Training Satisfaction Dimension	209
Table5.27	Difference Test of The Influence of Occupational Experience on The Dimensions of Professional Literacy	210
Table 5.28	Shows the Difference Test of the Influence of Farming Time on the Dimensions of Professional Literacy	213
Table5.29	Difference Test of the Influence of Training Times on the Di mensions of Professional Competence	215
Table 5.30	Difference Test of The Impact of Vocational Experience on the Training Efficiency Level	217
Table 5.31	Shows the Difference Test of the Impact of Farming Time on Training Efficiency	220
Table 5.32	Difference Test of the Impact of Training Times on Training Benefit Dimension	222
Table 5.33	Differential Test of the Impact of Different Business Scales on Training Performance	224
Table 5.34	Difference Test of the Impact of Different Business Entities on Training Performance	226
Table 5.35	Difference Test of the Impact of Different Business Income on Training Performance	229
Table 5.36	Differential Test of the Impact of Different Operation Scales on Tra ining Satisfaction	231
Table 5.37	Differential Test of the Impact of Different Business Entities on Training Satisfaction	233
Table 5.38	Difference Test of the Impact of Different Business Income on Training Satisfaction	235

Table 5.39	Differential Test of the Impact of Different Operation Scales on Professional Literacy	238
Table 5.40	Difference Test of the Influence of Different Business Entities on Professional Literacy	239
Table 5.41	Difference Test of the Impact of Different Business Income on Occupational Literacy	241
Table 5.42	Difference Test of the Impact of Different Business Scales on Training Benefits	243
Table 5.43	Differential Test of the Impact of Different Business Entities on Training Benefits	245
Table 5.44	Difference Test of the Impact of Different Business Income on Training Efficiency	247
Table 5.45	Documents Related to the Cultivation of HQF in Jiangxi Province	262
Table 6.1	Comparative Summary of Differences in Training Performance of HQF	316

LIST OF FIGURES

		Page
Figure 1.1	Comparison Chart of China's Total Population and Rural Population (2015--2024)	2
Figure 1.2	China grain production vs demand (2015-2024)	3
Figure 1.3	A comparison chart of China’s population size and food demand (2015 --2024)	4
Figure 1.4	Training Performance Evaluation and Path Optimization Strategy Diagram	12
Figure 4.1	Flowchart of The Construction of The Performance Evaluation Index System of HQFT	82
Figure 4.2	Job Responsibility Framework Structure of HQF in Production and Operation	90
Figure 4.3	Hierarchical Model of Performance Evaluation of HQFT	146
Figure 5.1	Framework diagram for the analysis of performance evaluationresults of high-quality farmers' training	161
Figure 5.2	Frame Diagram of Influencing Factors of Training Performance of HQF	260
Figure 5.3	Relationship Between Levels and Responsibilities of HQF' Training Subjects in Jiangxi Province	265
Figure 5.4	Composition of Factors Influencing the Training Performance of HQF	284
Figure 5.5	Interaction Mechanism of Factors Influencing the Training Perf ormance of HQF	286
Figure 5.6	Hierarchy of Training Goals for HQF	296
Figure 5.7	Steps of Training Demand Analysis in Performance Analysis Mode	301
Figure 5.8	Conditions of Use of Performance Analysis Model (Zhao & Liang, 2010)	302
Figure 5.9	Main Contents of Opt Requirement Analysis Mode	303

Figure 5.10 Training Program Design Process of School 305

Figure 5.11 Learning Pyramid Model 307

Figure 6.1 A mind map of the main influencing factors of the training performance of high-quality farmers and strategies for improving performance 312

LIST OF ABBREVIATIONS

HQE	High-Quality Farmer
HQET	High-Quality Farmer Training
OECD	Organization for Economic Cooperation and Development
EU	European Union
CIPP	Context, Input, Process, Product
CIRO	Current situation assessment, Input assessment, Reflection assessment, Outcome assessment
OTP	Organization-task-person

CHAPTER 1

INTRODUCTION

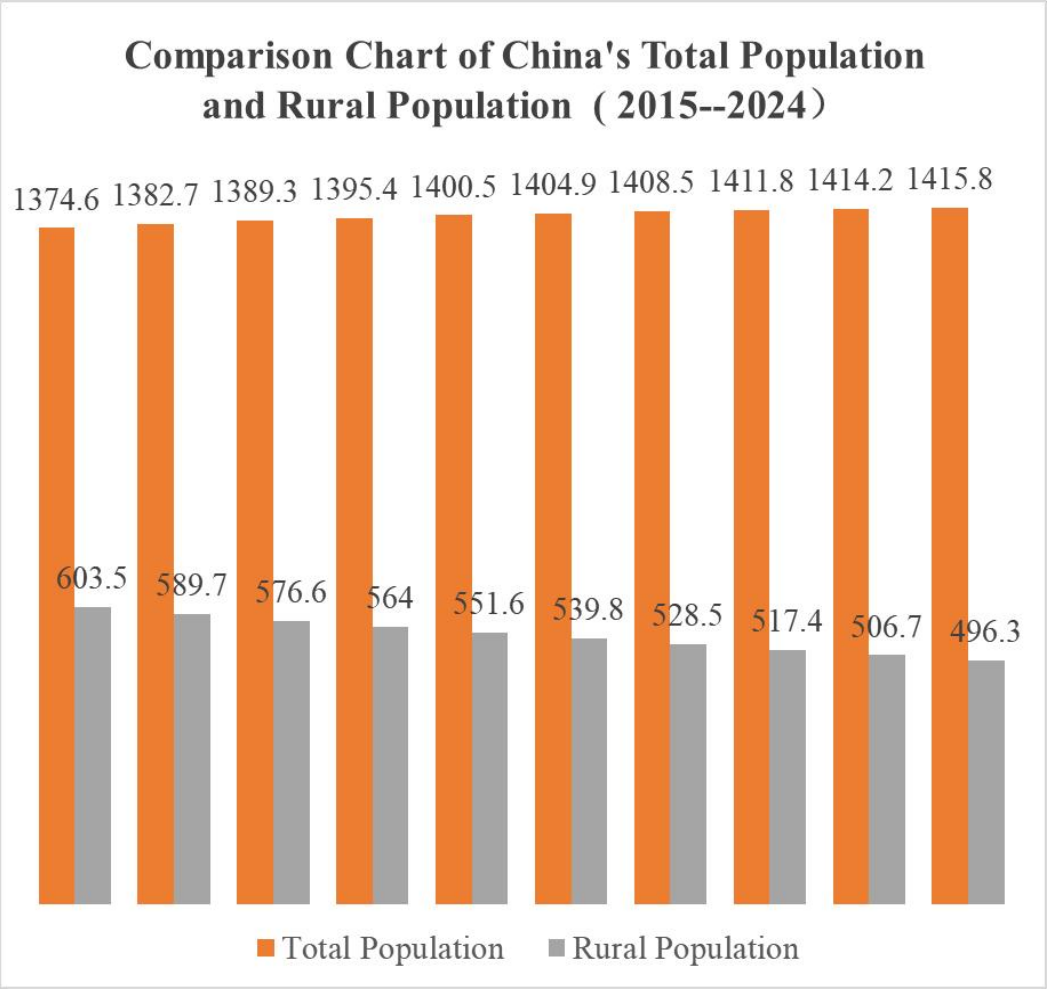
1.1 Study Background

From the perspective of the development process of world history, with the rapid development of science and technology and the continuous flow of rural population to cities, the phenomenon of land abandonment and rural industry hollowing has appeared in different degrees all over the world. During the decades from 1960 to 2020, the proportion of rural population out of in the total local population in OECD (Organization for Economic Cooperation and Development), EU (European Union), North America and other high-income countries and regions all showed a sharp decline, as shown in Table 1.1. The trend continues even after 2020. China is one of the fast developing countries in the word. China also shows this similar trend.

Table 1.1: Percentage in the Proportion of Rural Population in the World by Region (1960-2020)

	1960	1970	1980	1990	2000	2010	2020
High-income countries	35.97	30.92	27.87	25.45	23.15	19.98	18.58
Middle-income countries	75.52	72.17	68.34	63.23	58.42	52.27	48.64
Low-income countries	88.21	84.44	80.91	77.38	74.58	71.3	68.82
The least developed countries	90.41	87.22	82.98	78.91	75.54	71.02	67.91
OECD member	37.54	32.58	29.57	26.75	24.3	21	19.51
North America	30.08	26.2	26.07	24.57	20.9	19.21	18.19
European Union	50.72	34.32	31.06	29.5	28.44	26.29	24.97
East Asia and the Pacific	77.52	75.16	72.5	66.36	58.79	48.21	42.5
Latin America and the Caribbean	50.72	42.98	35.76	29.56	24.75	21.57	19.92
Sub-saharan region	85.36	81.89	77.7	72.89	69.18	64.75	61.73
World	66.43	63.47	60.72	57.08	53.48	48.55	45.71

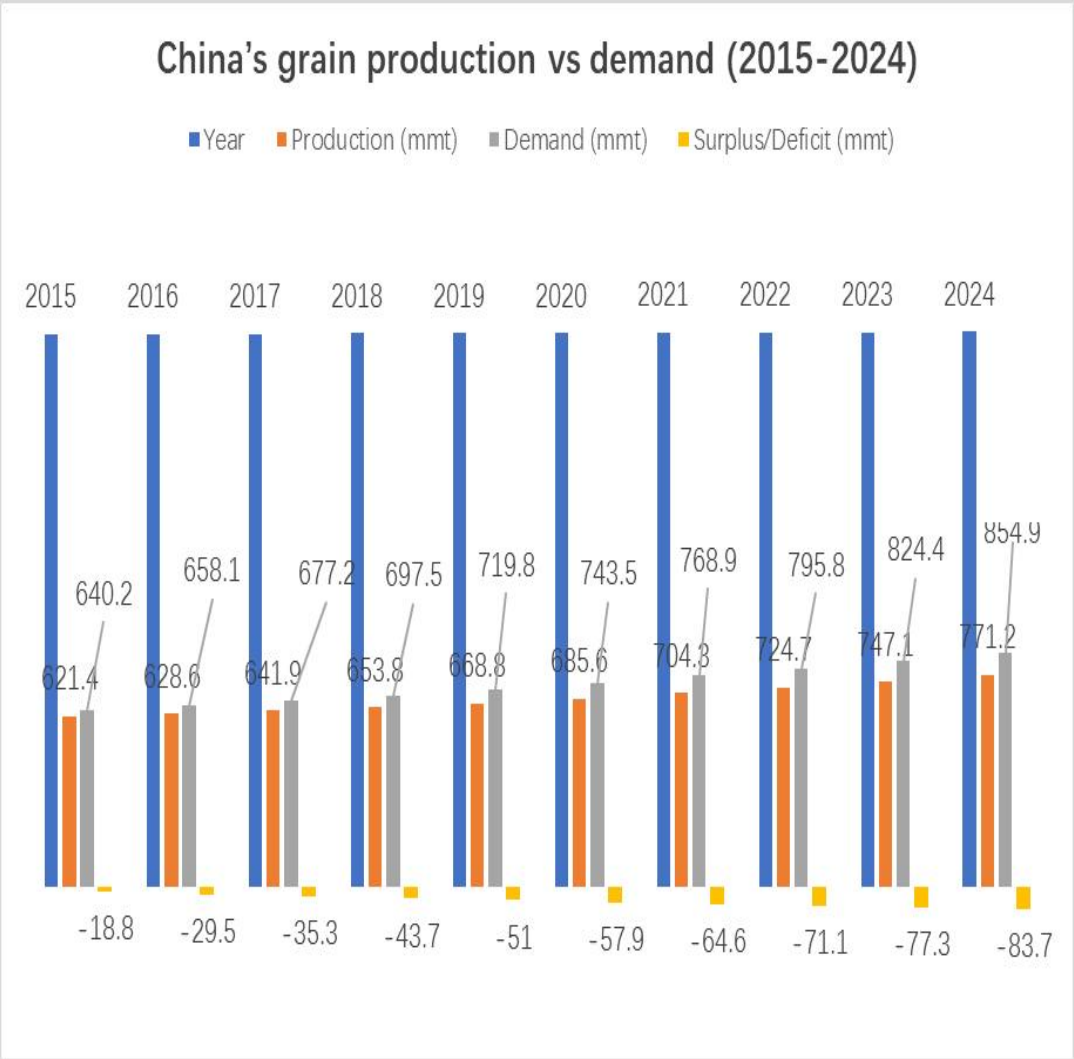
Source: World Bank Database（2021）（http://data.wordbank.org.cn）



Source: State Statistics Bureau

Figure 1.1: Comparison Chart of China's Total Population and Rural Population (2015--2024）

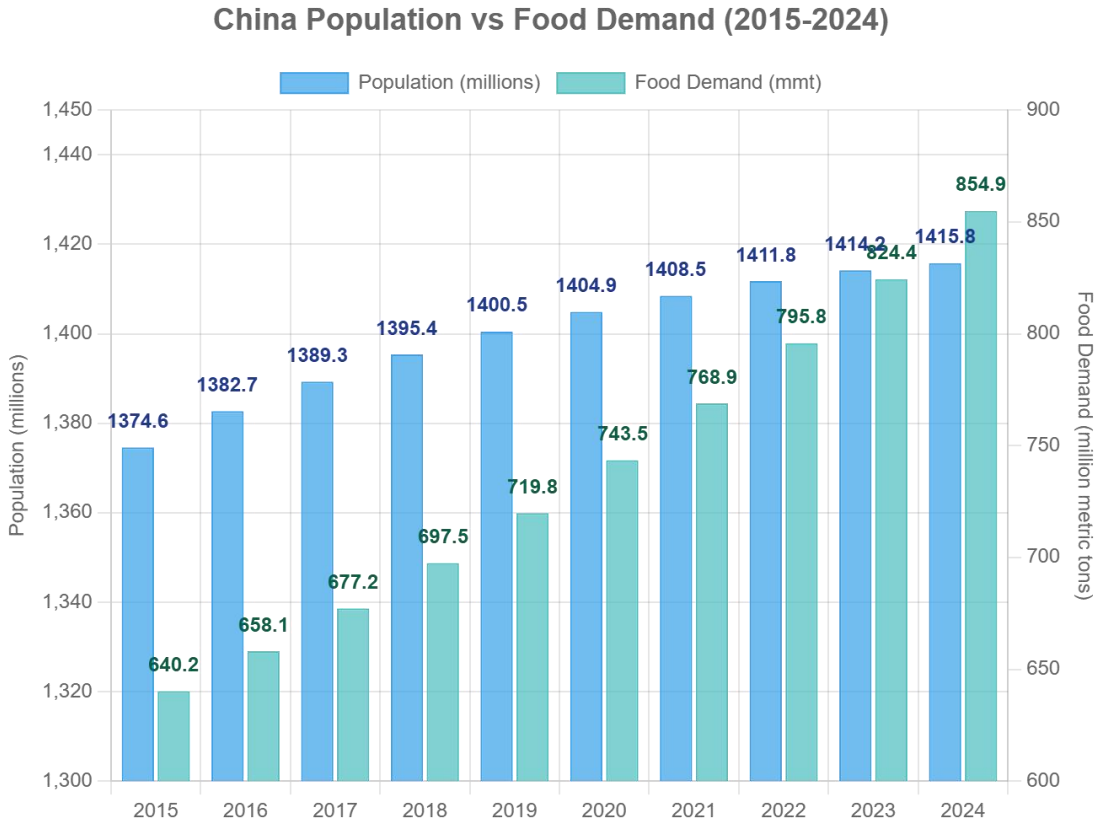
From 2015 to 2024, China's total population grew slightly from 1.375 billion to 1.416 billion (a 3.0% inrease in the past 10 years), while rural population declined significantly. When total population in China is growing while rural population declined drastically, this implies fewer people are involved in agricultural sector.



Source: China Agricultural Outlook Report (2015 - 2024)

Figure 1.2: China grain production vs demand (2015-2024)

Thus, food requirement is increasing at a faster rate compared to increase in food production causing an increasing shortage of food in China over the years.



Note: Date based on National Bureau of Statistics of China. Food demand include grain, meat, dairy and other staple foods.

Figure 1.3: A comparison chart of China's population size and food demand (2015--2024)

The graphical statistical data shows that China's total population has grown relatively slowly in the past 10 years, but the growth rate of food demand has been quite significant. Furthermore, the land use for food production in China is only 1.8 billionacres (Ministry of Agriculture and Rural Affairs of the People's Republic of China, 2024).

How to meet people's increasing demands of food both in terms of quantity and quality with limited land used for food production? To address this problem, the China government is trying to enhance the quality of farmers through high-quality farmer training.

1.2 Problem Statement

Some scholars （China） have found that government-led farmer training performance is poor, with problems such as imprecise training targets, training contents not meeting farmers' actual needs, participation of farmers in training is not voluntary, farmers being trained, and going through the motions in order to complete quantitative targets, mainly because the performance evaluation of HQF （high-quality farmer) has not yet attracted attention. All these can be summarized and reflected in the following aspects.

i. The need for evaluation is relatively arbitrary.

ii. The evaluation method is arbitrary.

iii. The evaluation process is arbitrary.

iv. The evaluation is nonstandard.

Much research (Yang, 2023; Dong & Wu, 2023; Wang, 2022；Liang & Liu，2021) was done on the training of HQF, mainly on theoretical aspect (Dong & Wu, 2023); about the training intention (Li et al., 2022; Xue, 2021); and training mode (Ma, 2022; Wang, 2020). However, previous studies on the performance evaluation of training for HQF are scanty, and empirical studies on the performance evaluation of training for HQF are even fewer.

The high-quality farmer training is very crucial but HQFT performance evaluation in the past was arbitrary. The past studies only focused on one aspect of farmers satisfaction immediately after the training. The HQFT was evaluated based on the teaching delivery methods, contents, and service, but not the farmers' performance in a holistic and comprehensive manner before, during and after the training.

Table 1.2: Research on the Performance of High-Quality Farmers' Training in the Past Decade

Year	Author(s)	Research Method	Key Findings	Citation
2022	Zhang & Wang	Structured questionnaires (N=1,200)	85% satisfaction rate; content relevance most valued aspect	Journal of Rural Education, 15(3), 45-62
2021	Li et al.	Mixed methods (survey + interviews)	Practical skills training had highest satisfaction (92%)	Agriculture and Human Values, 38(2), 389-402
2020	Chen & Liu	Longitudinal study (3-year follow-up)	Satisfaction correlated with subsequent adoption of new techniques	Rural Sociology, 85(1), 112-130
2019	FAO Research Group	Multi-country comparative survey	China's satisfaction rates 12% above global average	FAO Technical Report Series #184
2018	Yang	Case studies (5 training programs)	Interactive methods increased satisfaction by 25%	Journal of Agricultural Education, 59(2), 78-95
2017	Zhao & Huang	Pre-post assessment design	72% reported income increase linked to training satisfaction	China Agricultural Economic Review, 9(3), 412-428
2016	Davis and Sun	Randomized control trial	Digital training tools boosted satisfaction by 18 percentage points	World Development, 88, 19-31

1.3 Research Questions

Few following research questions would be answered in this study:

i. How to establish the current high-quality farmer training (HQFT) performance evaluation tool?

i. How to evaluate the current level of HQFT performance?

ii. Which are the main influencing factors and how to improve the current HQFT performance?

1.4 Research Aim

The aim of this study is to evaluate the current training performance of HQF in Jiangxi Province by establishing a long-term and convenient training evaluation system with the hope of improving the quality of training, and cultivating a HQF team that can adapt to the development of modern agriculture and rural areas, and finally contributing to the successful practice and realization of the rural revitalization strategy.

1.5 Research Objectives

i. To establish a HQFT performance evaluation tool.

ii. To evaluate the current training performance of HQF;

iii. To analyze the main factors affecting the current training performance of HQF, and to establish a framework for improving the training performance of HQF.

1.6 Scope of Research

i. Type of HQF

This study focuses on the HQF who are professional farmers involved in the production management of agriculture produce, practice skilled farmers and social service

type of farmers. The first type of professional farmers involved in the production management mainly include large breeding households, family farmers and the backbone of farmers' professional cooperatives. The second type of practice skilled professional farmers encompasses agricultural workers, agricultural employees and other professional and skilled farmers engaged in agricultural labor force as their main source of income. The third type of social service professional farmers mainly include rural information officer, agricultural product broker, agricultural machine operator, substitute cultivator, machine prevention operator and animal epidemic prevention officer.

ii. Capability Level of HQFT

Currently, some places in China have not yet identified the level of HQFT, while some other places have identified different levels but a systematic gradual improved training level for high quality farmers is not available yet. Considering the situation of current training of HQF in many places, this study involves the three types of HQF including the elementary, intermediate and advanced levels.

iii. Scope of HQFT Projects

There are many kinds of Chinese farmer training projects. The training involved in this study mainly includes the training of young farmers, the training of farmers' entrepreneurship, the training of high- quality leaders in production management, and the training of practical skills in rural areas, All the above high quality farmers trainings are for agricultural training, and it does not include rural labour transition training from agriculture to non-agricultural sectors.

iv. Scope of HQFT Institutions

This study mainly investigates the government-led public welfare institutions in which Jiangxi Academy of Agricultural Sciences and Jiangxi Vocational College of Biotechnology are in charge of.

v. Mixmethod

This study employed a mixed research method combining quantitative and qualitative approaches, following the three target procedures of this study. Firstly, to achieve goal one, a combination of qualitative and quantitative methods was adopted. Interviews were conducted with trainees, agricultural experts, and staff from training institutions. The interview results were coded using the grounded theory approach at three levels, and an initial indicator system was established. A predictive questionnaire was used for online surveys, and the survey results were analyzed at the item level and subjected to exploratory factor analysis. Secondly, for goal two, a quantitative study was conducted. With four-dimensional indicators as the dependent variables and the nine characteristics of farmers as the independent variables, a one-to-one matching was performed for single-factor variance analysis. Thirdly, for goal three, a mixed research approach was employed, using the interview records from goal one and the quantitative analysis results from goal two for triangulation verification.

1.7 Research Significance

HQF are the key to the national strategies of rural revitalization, agricultural and rural modernization and development. Below are significances of evaluating the current training performance of HQF in Jiangxi Province and establishing a framework for long-term and a more convenient training evaluation system in this study.

1.7.1 Theoretical Significance

i. Improvement of the Theoretical Framework on Rural Revitalization and Rural Vocational Education

HQFT is an important way to develop rural human resources, improve the overall quality of agricultural practitioners and realize rural revitalization. Based on extensive review of literature and policy text materials on rural revitalization and HQF cultivation, this study analyzes the specific requirements of rural revitalization on rural human resources development based on adult education theory, This helps to explore a path of rural human resources development based on rural revitalization and it provides a theoretical basis for improving the theoretical framework related to rural revitalization and rural vocational education.

ii. Leading and Expansion of the Theoretical Research on the Training of High-Quality Farmers

Based on the existing training performance assessment models and connotation analysis of training performance in foreign countries, this study conducts multi-faceted and multi-level in-depth interviews with participating farmers, training teachers, organization managers, and research experts through field research to obtain first-hand information and relevant data, This is imperative toconstructs a localized performance assessment index system for HQF' training, measures farmers' training performance, and explores the influencing factors, which helps to enrich the theory of farmers' education and training as well as the theory of performance evaluation. In addition, this also helps to promote further development and expansion of the research on cultivating HQF, and provide reference for further research.

iii. Enrichment of the Empirical Research Results of Farmers' Education and Training

Most of the existing studies on the performance evaluation of HQFT are summarized by practical experience or qualitative analysis. Only few studies have been conducted to measure the performance of HQFT by constructing evaluation criteria through empirical methods. This study adds value by adopting a combination of qualitative and quantitative methods to construct evaluation indicators of HQF' training performance, which helps to enrich the empirical research results of farmers' education and training in China.

1.7.2 Application Value

i. Providing an Operational Assessment Tool for the Assessment of the Training Performance of Highly Qualified Farmers

Based on scientific and rigorous literature research and in-depth field surveys, this study develops a questionnaire with high reliability and validity to assess the training performance of HQF, providing an operational tool for assessing the training performance of participants.

ii. Providing Strong Evidence for Training Institutions to Optimize Training Programs for HQF

Using the high-quality farmer training performance assessment questionnaire developed in this study to measure the training performance of high quality farmers helps to judge the achievement of training objectives. Besides that, it also provides a strong basis for each training body to optimize high quality farmer training programs while providing a reference for improving training performance and promoting a scientific and orderly implementation of high- quality farmer training.

iii. Providing a New Perspective for Decision Makers to Cultivate HQF

The questionnaire in this study will be prepared strictly according to the educational assessment questionnaire preparation process. Moreover, the questionnaire survey will be scientific and standardized, providing scientific and objective data support for exploring influencing factors and optimization strategies of HQF' training performance.

1.8 Research Framework

This study takes the current situation of HQFT performance assessment in rural revitalization as the logical starting - point, the adult pedagogy and Malcolm.S.Knowles' hierarchical assessment model as the theoretical basis, and the gap between the pursuit and realization of HQFT value as the entry - point. After scientifically defining core concepts, it clearly defines the research boundary and comprehensively and objectively presents the problems in China's high - quality farmer training performance assessment. The specific research framework is shown in Figure 1.4

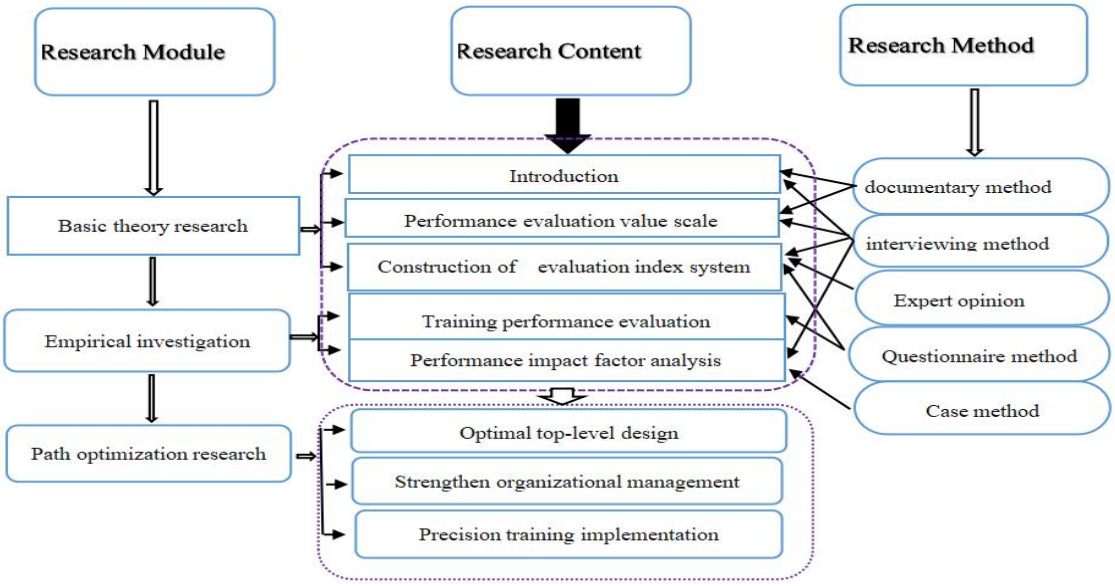


Figure 1.4: Training Performance Evaluation and Path Optimization Strategy Diagram

1.9 Organisation of the Thesis

Based on the above research ideas, the organization of this study is divided into the following three main parts:

The first part is the basic theoretical research. First, through combining of research background and literature review, research questions are proposed, research values are clarified, and research boundaries are clarified. Second, through the analysis of policy texts and literature on HQF' training and the investigation of the current situation of training performance assessment, the gap between the contingent pursuit and the actual realization of the value of HQF' training is found, and the development of a benefit-oriented multi-indicator assessment index system for HQF' training performance is proposed. Third, we construct the framework and indicators of the performance assessment index system of HQF' training through various qualitative and quantitative research methods such as literature, interview, expert method and questionnaire method, and assign weights to each indicator.

The second part is the empirical survey research. First is to investigate and measure the training performance of highly quality farmers through a self-administered questionnaire; next is to analyze the factors affecting the training performance of highly qualified farmers through interviews and case analysis.

The third part is the path optimization study. Based on the results of the empirical study, targeted suggestions for optimizing the training performance of highly qualified farmers are proposed.

1.10 Define Several Key Concepts

1.10.1 High-quality farmer

In March 2017, when Xi Jinping attending the deliberation session of the Sichuan delegation at the National Two Sessions, He said, "We should cultivate more new-type professional farmers who love agriculture, are tech - savvy, and skilled in business operations." "Love for agriculture" is about connecting with China's land and respecting and being close to it, which is a prerequisite for high - quality farmers. "Understanding technology" means mastering advanced agricultural science and enhancing practical skills for rural development, an inherent requirement. "Good management" refers to having market - related business operation capabilities in agricultural industrialization, a key link for high - quality farmers.

1.10.2 Expert

The experts referred to here are scientists engaged in agricultural research, agricultural experts, experts in agricultural policy studies, experienced organizers of agricultural training, industry leaders in the agricultural field, and government administrators who have long been responsible for training high-quality farmers.

1.10.3 AHP Method

i. Definition

The Analytic Hierarchy Process (AHP) is a systematic approach used for multi-objective decision-making. It breaks down complex decision-making problems into multiple levels, including goals, criteria, and alternatives. Then, through qualitative and quantitative analysis, it determines the weights and priorities of each level.

ii. Basic Principle

The basic idea of the Analytic Hierarchy Process (AHP) is to break down the decision-making problem into different constituent factors, and form a multi-level structural model based on the interrelationships among these factors. By constructing a judgment matrix and conducting pairwise comparisons of each factor, the relative importance of these factors can be determined.

iii. Calculation Steps

a. Establish a hierarchical structure model: Divide the decision objectives, criteria and alternatives into different levels, and draw a hierarchical structure diagram.

b. Construct the judgment matrix: Compare each factor pairwise and determine their relative importance using the 1-9 scale method.

c. Hierarchical single sorting and consistency check: Calculate the eigenvectors of the judgment matrix, conduct consistency tests, and ensure the logical consistency of the judgment matrix.

d. Hierarchical overall ranking and consistency check: Calculate the relative importance of each level of factors to the overall goal, and conduct a consistency check.

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

This chapter discusses comprehensively and systematically review of the existing literature from different perspectives to understand different views of the research, the progress and shortcomings or gaps of the research subject particularly on the concept of high-quality farmers' training and performance evaluation. Several related theories or models which subsequently lay the foundation for the construction of the theoretical framework of this study are presented in this section.

2.2 Human Capital Theory

Human capital theory was developed in the 1960s by the American economist Schur cofounded by Gary Becker (Becker, 1993). The theory points out that material capital is the sum of capital in the production process of material products. Human capital is the sum of the individual's investment in all kinds of education and training and there is opportunity cost of receiving education or training. Human capital is the capital embodied in individuals and closely related to personal freedom, such as personal knowledge, production skills, and physical conditions (Svetozar, 1999).

According to the theory of human capital, the income brought by human investment is much greater than that of material investment. Education investment is the core of human capital investment. Schultz (1961) once used the method of calculating the return on investment in material production to prove that education had contributed to 33% increase of national income in the United States from 1929 to 1957. American economist George Marshall (2020) emphasized the importance of human capital in his Human Capital

Investment, pointing out that human capital investment has a positive correlation with the development of national economy. He further elaborated that increasing investment in human capital is conducive to the rapid growth of national economy. The future of mankind depends largely on the quality of population and investment in human capital.George Marshall also believes that human capital is the most critical factor in economic development, and education is an investment that can affect the quality of human capital. After studying the backward traditional agriculture and modern agriculture, Schulz (1973) pointed out that the reason for backwardness of traditional agriculture as compared with modern agriculture is not the lack of natural resources, but the overall low quality of the people engaged in agricultural production. Therefore, to solve this problem, the most effective measure is to invest in human capital among farmers.

At present, HQFT implemented in China is to improve the production and management level of farmers through various forms of training projects, and enhance the advantage of rural human capital to meet the needs of modern agricultural development (Zhou, 2024).

2.2.1 Adult Education Theory

Malcolm Knowles' adult pedagogical theory actively assimilates humanism's view of attaching individual’s self-directed learning, experience-based instruction and intrinsic motivation of adult learners to personal growth and development, affirming the negative impact of aging on adult learners' learning, besides emphasizing the positive impact of factors such as increased experience and enhanced adaptability on improving learning ability (Darkenwald & Merriam, 1986).

The central point of view of Knowles' adult pedagogy theory can be summarized as follows:

i. Adult Learning Takes Self-Directed Learning as the Main Form of Learning

In view of the traditional tendency of "child-oriented adult education", more and more scholars put forward the view of "treating adults as adults". Knowles argues that as individuals mature and as their self-concept develops, they shift from a dependent personality to a self-directed, independent person who "learns independently or with the help of others" and the focus shifts from education to learning (Knowles, 1980). According to Knowles (1980), adult education is the process of guiding adult learners to transform into self-directed learners, from "passive learning" to "active learning" to "able learning". Adult education researchers regard adults themselves as the starting point and landing point of learning, emphasizing the uniqueness of adult learning, and putting forward "self-directed learning theory" (Merian & Kefrera, 1986). Although the self-directed model was not originally proposed by Knowles, Knowles built on the work of Tuff and Hall to emphasize that "the formation of learning needs to be judged by oneself". "The process of seeking learning resources, selecting learning strategies and evaluating learning outcomes is the definition and basic assumption of self-directed learning" (Blumberg, 2000).

Knowles (1980)'s self-directed learning process consists of six main steps: creating atmosphere, diagnosing needs, setting goals, identifying human and material resources, selecting strategies, and evaluating effects. Knowles believes that the effective way to help adults build learning is to sign a "learning contract" to coordinate the external needs of society, occupation and job development with the internal needs of adults' own professional ability and quality improvement. Adult learners and providers participate in the process of needs diagnosis, goal formation, resource selection, plan implementation

and performance evaluation. This is to achieve "a highly personalized, structured learning program for adults".

ii. Adult Learning Is Learning That Begins with Adult Experience

Knowles et al. (2014) believes that adults have accumulated rich experience in their daily life and work, and these experiences are very important learning resources for adults. Adult experience includes existing learning foundation (academic qualifications), work experience and rich personal experience. The "self-concept" of adults makes adult learning no longer limited to passive acceptance of knowledge, but on the basis of being clear what they need, they hope to be able to support new knowledge on the basis of existing knowledge and experience, and actively construct a new knowledge framework by creating a new environment conducive for knowledge conversion (Loeng, 2020). However, because of the existing knowledge and experience, it is easy to affect the adult to form a thinking set, resulting in learning disabilities. It can be seen that although adult learners learn more independently than adolescents, adult learners still need the help and guidance of teachers, tutors, knowledgeable people, peers or administrator. (Boateng et al. 2022) Just as Groho believes that the formation of self-directed learning ability of adult learners is gradually advanced from low level to high level, in the low self-directed learning stage, an research figure is needed to tell them what to do. Therefore, adult education providers can help adult learners develop their self-learning ability by creating a learning atmosphere and environment conducive to adult learners' communication and discussion (Slavin et al., 2023).

iii. Adult Learning Is "Utilitarian" Learning Based on Clear Needs

According to Knowles (2013), the adult's learning needs and learning content are closely linked to the development tasks of his own social role. Adult learners have different "development tasks" in different stages of development, and adult learners will have different learning needs when facing different development tasks. When the learning needs reach the peak, there will be a "teachable movement". It can be seen that adult learning has a certain degree of realism and development. Adult learning readiness, for example, adults' perception of the effectiveness of learning, affects their enthusiasm to participate in learning, and thus affects the learning effect. In addition, adult learning has a purpose, which is the application of learning and the combination of learning and application. From the hypothesis of Knowles (1978), the purpose of adult learning is no longer to prepare for future employment life, but to solve the practical problems encountered in life and work, that is, to acquire knowledge for future application to adapt to the social and personal career development. Besides upgrading academic qualifications to obtain academic certificates, it is crucial for adult learner to acquire skills to adapt to the workplace, update knowledge and improve skills, for smooth career transition and career advancement. This "utilitarian" learning purpose indicates that adult learners have clear learning needs and self-standards, and adult education providers need "problem-centered" learning methods to replace the traditional teaching methods of imparted systematic subject knowledge (Cerbin-Koczorowska et al., 2022).

2.2.2 Training Performance Evaluation Model

i. Don Kirkpatrick's Four-Level Model

Don Kirkpatrick (1959) proposed a four-level model consisting of a reflection layer, a learning layer, a behavior layer, and a result layer. Among them, the reflection level is the most basic level of assessment, which is used to study the trainees' attention, hobbies, enthusiasm and other explicit characteristics, so as to learn the trainees' basic attitude towards training. The learning layer is based on the reflection layer to evaluate the training content received by the trainees in the training process. The behavioral level is to evaluate the training results, which is specifically manifested as whether the trainees have applied the training content. The evaluation source is the evaluation of the trainees' performance improvement degree by their superiors, subordinates, peers and other stakeholders. The result level refers to the evaluation of the performance improvement of trainees after training, which is manifested in sales, output improvement and error rate reduction.

ii. CIRO model by Wall, Byrd and Wrekham

In 1970, Wall, Byrd, and Rekhan proposed a new CIRO Level 4 evaluation model (Abao, 2022). The four-level evaluation model includes four parts. Situational assessment, input assessment, reflection assessment and outcome assessment. Among them, situational assessment is the basic assessment, aiming at the trainees' current status, current situation and needs; Input assessment is based on the basic information of situational assessment, and the resources needed for assessment are sorted out, collected and further applied to training. On the basis of input evaluation, the response evaluation is to summarize the information that is not consistent with the input evaluation and correct it. Outcome

evaluation is the final inspection based on the training results. Although the CIRO assessment model is an improvement on Don Kirkpatrick's four-level model, it still has some shortcomings, such as not integrating assessment and training.

iii. Stufflebeam's CIPP Model

Stufflebeam (2000) improved Taylor's behavioral goal model and proposed an improved assessment model, namely the CIPP assessment model.(C: Context evaluation，I: Input evaluation, P: Process evaluation, P: Product evaluation).The CIPP evaluation model consists of four dimensions: background evaluation, input evaluation, process evaluation and outcome evaluation，see (Table 2.1).

Among them, background assessment is the pre-training assessment, using background to understand the training environment, problems, needs and objectives and other basic information; The input evaluation is based on the basic information of background evaluation, and the resources needed for evaluation are sorted out, collected and further applied to training. On the basis of input evaluation, process evaluation is to summarize and correct the information that is not consistent with input evaluation. Results evaluation is the final verification of the training results. CIPP model combines training and evaluation, runs through the whole process of evaluation, and has the demographic characteristics of whole process and feedback.

Table 2.1: The Main Content of CIPP Evaluation Model Step

	Purpose	Content	Method	type
C	Evaluate the reasonableness of program objectives	Understand the relevant environment; Defining the intended beneficiaries and assessing their needs; Diagnose the difficulties and obstacles that must be overcome to meet the needs; Understand available hardware and software resources and opportunities; Assess the clarity and relevance of programme, teaching and service objectives.	Literature method, text analysis, interview method, expert method, etc	Diagnostic evaluation
I	Evaluate the feasibility and effectiveness of the scheme	Collect personal, financial and material information involved in the training; Evaluation of training resources; Determine the training program.	Literature method, investigation method, etc	Diagnostic evaluation
P	Supervise and inspect the implementation process of the plan, and feedback information	Understand the progress of programme implementation and achievement of objectives; Analyze the reasons for deviation from the target; Insight into potential downsides; Timely adjustment of decisions; Keep detailed records of implementation.	Interview method, observation method, etc	Process evaluation
P	Measuring and explaining the degree of achievement of training objectives	Measure, judge and interpret training results to determine the level of satisfaction required.	Interview method, question paper method, etc	Summative evaluation

iv. Kaufman's Five-Level Assessment Model

The five-level evaluation model is proposed by Kaufman based on the four-level evaluation model, including five parts: reaction and possibility, mastery, application, organizational benefit and social benefit, and the evaluation scope of each part is expanded

from the inside out. Among them, the response and possibility layer are based on the effective application of training methods, models and procedures, including the evaluation of the effectiveness of training human, material and financial resources; Mastery level refers to the evaluation of the trainees' personal ability and absorption. The application layer is the assessment of how the knowledge acquired by the trainer is applied to the actual work. Organizational and social benefits are further extended on the basis of the four-level model and are considered to be closely related to the organizational environment.

v. Phillips' Five-Level Roi Model

In 1996, Phillips proposed a five-level return on investment evaluation model, which includes five parts: reflection and established activity layer, learning layer, application layer in work, business result layer and return on investment. Among them, the reflection and the established activity layer represent the clarity of the implementation plan of the training project and the true reflection of the training project; The learning layer is used to investigate the changes in the knowledge, skills and concepts of the trainees after training; The application layer at work represents the change of the trainees' behavior at work after training and the evaluation of the application of training resources. The Business results layer is used to assess the degree to which training courses have impacted the daily business activities of the training Institute. The return on investment is an evaluation of the effectiveness of training based on financial indicators.

2.2.3 Application of Related Theories

Through the comparative analysis of the existing main training performance evaluation models around the world, it can be seen that the training effect evaluation model started from the Kirkpatrick four-level evaluation model, and the subsequent evaluation

theory research did not completely surpass Donald L. Kirkpatrick in theory, but only made some improvements in the evaluation scope and evaluation methods.

Various evaluation models in different countries have their own characteristics, advantages, disadvantages and scope of application. It can be said that these evaluation models provide ideas and lay a foundation for the follow-up research on education and training evaluation from different angles and levels. According to our own research purposes, we can consider the advantages of comprehensive use of various evaluation models to conduct effective evaluation for education and training. Considering that all three types of training are included in this study, the existing training is mostly short-term training or phased training. The Kirchhoff four-level model and CIPP model are adopted to evaluate the quantity and quality of HQF trained by training institutions for the government, so as to avoid the subjectivity and arbitrariness of the evaluation by training institutions. We should not allow training institutions to act as both "athletes" and "referees".

On the basis of summarizing the above theoretical model and previous theoretical research results training performance evaluation, and combined with the researcher's field investigation, this study adopts the method of combining the four-level evaluation model and CIPP model, and constructs four first-level indicators: training intention, training satisfaction, professional quality, training efficiency, and training efficiency. The index second system consists of 12 secondary indicators: training intention, training institutions, training facilities and services, training content and form, training teachers, tracking services, renewal of professional concepts, improvement of professional ability, changes in professional behavior, personal benefits, economic benefits, and social benefits.

2.3 High-Quality Farmer (HQF)

This subchapter focus on the concept of HQF and new professional farmer, To understand the difference and connection between HQF and new professional farmers, and further clarify the defining characteristics of HQF.

2.3.1 Evolution of the Concept of High-Quality Farmer

Through the literature review and analysis of China's policy documents on the theme of "agriculture, rural areas and farmer " since 2000, it is found that the expression of farmers has experienced four stages, from "professional farmers" with "junior high school (or equivalent to junior high school) and above education" proposed by the Ministry of Agriculture and Rural Affairs (former Ministry of Agriculture) in 2005. Opinions on the implementation of the "One million secondary school students Plan" for training practical talents in rural areas FAO(2005).

The communique of the Ministry of Agriculture of the People's Republic of China, the No. 1 document of the Central Committee of the People's Republic of China proposed a "new type of farmers" with "culture, technical knowledge and management skills" in 2006 (CPC, 2006).

Several Opinions of the Central Committee of the Communist Party of China， is related The State Council on Promoting the Construction of a new Socialist Countryside .The Communique of The State Council of the People's Republic of China and the accompanying "Guiding Opinions on the Pilot Work of Cultivating New Professional Farmers" clearly point out that "taking agriculture as the occupation" is a "new professional farmer". Notice of the General Office of the Ministry of Agriculture on the

issuance of the "Pilot Work Program for Cultivating New Professional Farmers"(CCCPC, 2012).

Communique of the Ministry of Agriculture of the People's Republic of China, "HQF" who are "literate, technical, good at management"（CMAPRCC，2019）. It can be seen that farmers are a dynamic development concept, reflecting the requirements of The Times in different periods and the differences in farmers' professional quality, status and social class. The concept of HQF was formally put forward after 2019 on the basis of new professional farmers, and was put forward in line with the development needs of "agriculture, rural areas and farmers"(see Table 2.2).

Table 2.2: The Evolution of the Concept of HQF

Year (Year)	First Proposed Policy Document	Conceptual Statement	Specific Connotation
2005	《Opinions on the Implementation of the "One Million Secondary School Students Plan" for Training Practical Talents in RuralAreas 》	Professiona l farmer	Farmers with junior high school (or equivalent to junior high school) and above education degree engaged in agricultural production, management, service and rural economic and social development
2006	《Several Opinions on Promoting the Construction of a New Socialist Countryside》	New farmer	Have culture,understand technology, management
2016	《Several Opinions on Accelerating Agricultural Scientific and Technological Innovation and Continuously Enhancing the Ability of Ensuring the Supply of Agricultural Products》	New Professiona l farmers,	Modern agricultural practitioners who take agriculture as their occupation, have certain professional skills, and their income mainly comes from agriculture
2019	《Regulations of the Communist Party of China on Rural Work》	High quality farmer	have culture,understand technology, good management,can manage

2.3.2 New Professional Farmers

There are few articles on the related research of the concept of new professional farmers, which are generally interspersed in the research of other topics. The research mainly focuses on the two keywords of "new type" and "career". It is generally believed that the new type of professional farmers is different from the hereditary farmers in the sense of traditional identity and social status, and it is a combination of a new type of farmers who have knowledge, good management and understand management and a professional farmer who fully enters the market and obtains the maximum reward. For example, Zeng (2012) believes that the new type of professional farmers is the organic combination of new farmers and professional farmers. Guo et al (2012). and others believe that the new type of professional farmers.

2.3.3 Definition of HQF

Li et al. (2020) believe that HQF should be rural high-quality with good etiquette awareness and moral cultivation. Wang (2021) believes that HQF are groups with culture, science and technology, ideology, morality and production and management ability. Internal motivation is stability, social responsibility, and full access to the competitive market. In 2019, the Regulations on Rural Work of the Communist Party of China proposed for the first time to cultivate a team of HQF who are literate, skilled in technology, good at operation and management, so as to cultivate more local talents. The National HQF Index Report （2019） has clearly defines the connotation of HQF, and how to further operate and quantify. Li (2021) proposed for the first time to accelerate the construction of "HQF education and training system" in the Central People's Government

of the People's Republic of China document No. 1 in 2020, which means that the concept of "HQF" lasting for many years will gradually change to cultivating "HQF".

Yuan (2021) and others believe that HQF also refer to professional farmer leaders who have a higher degree of education, are younger and have a certain scale of agricultural production and operation (or master advanced agricultural professional skills). Li (2021) believes that compared with the new professional farmers, HQF are "more educated, more knowledgeable and better at management", "have high human capital, are more likely to meet the requirements of standardization, specialization and large-scale production of modern agriculture, can bear more social responsibilities, and have more significant economic externalities". Lv (2022) believes that HQF are the new type of young and middle-aged people in rural areas who have a certain scale of operation, capital accumulation, better resources and professional quality.

The HQF is an upgraded version of the new professional farmer. Peng (2021) believes that HQF mainly refer to "new agricultural operation service main operators, precision poverty alleviation and rural revitalization leaders, rural practical talent leaders, returning to the countryside innovation entrepreneurs, professional cultivation and processing experts, agricultural professional managers and professional operators" such groups.

According to various research results, the researcher believes that HQF are those who take agriculture as the main business in rural areas and can make agriculture "pattern" in line with people's value orientation. They have good health, love to study, have feelings, and are modern agricultural practitioners who have culture, understand technology, good management, and can manage. The common characteristics are rooted in rural areas, open ideas, local influence and appeal, strong market perception, and the ability to produce

agricultural and sideline products and related products that meet market needs and commercialize; Not only can they get rich, but also can drive farmers around to get rich (Li, 2022).

2.3.4 The Connection Between New Professional Farmers and HQF

Through reading some existing literature, it is concluded that the difference between the new type of professional farmers and HQF is that the new type of professional farmers pay more attention to the level of agricultural technical skills of farmers, while HQF pay more attention to not only technical skills, but also cultural literacy, management ability, ideological ethics and political literacy, which contains comprehensive content and high ability. Li (2021) believes that HQF are the typical demonstration subject of rural two-tier management system, with novel occupational characteristics. Compared with "new professional farmers", HQF can bear more social responsibilities and have more significant experience economic externalities . The connection between the two lies in the fact that HQF are the upgraded version of new professional farmers and the goal of agricultural talents proposed to meet the needs of agricultural development in the new era.

2.4 High-Quality Farmer Training (HQFT)

Through the search of various materials, it was found that although the researches on the training of HQF are not very comprehensive, they are relatively numerous, mainly involving the theoretical basis, training intention, training mode, training guarantee and other aspects of the training of HQF. There are very few performance evaluations on the training of HQF, and the researches on training intention are not deep enough.

2.4.1 The Basic Theory of HQFT

Countries with higher degree of agricultural modernization attach great importance to vocational farmer education and training, and have obtained rich theoretical results and practical experience in the research of vocational farmer training. Scholars mainly study the problem of farmer training based on the theory of human capital in economics, and believe that the key to the development of rural economy and agricultural modernization is to improve the human capital of rural labor force. For example, the British economist Adam Smith, the famous German economist Friedrich Liszt , the German agronomist von Tueneng and so on (Smith 1972). One of the most representative is American economist Theodore Shultz, who emphasized in his book Transforming Traditional Agriculture that the quality of farmers is of great value to the transformation of traditional agriculture. To improve the modern scientific knowledge of farmers through education and training and make them able to use new production factors is an important way for agricultural countries to transform traditional agriculture. John von Duynen (1985) attributed the core of social problems to the issue of education, and believed that the education and training of farmers was the key to improving agricultural labor efficiency and increasing production.

2.4.2 Necessity of HQFT

Scholars generally believe that HQFT is the key to realize and solve the problems of rural hollowing, "farmer shortage", agricultural successors, sustainable supply of agricultural products and food security, and other national strategies such as the construction of a new socialist countryside, the development of modern agriculture, the simultaneous development of the four modernizations and rural revitalization. The improvement of farmers' knowledge and skills is the internal source of farmers' income

increase. Educated farmers are more willing to accept new technologies and adapt to market changes than uneducated farmers. Farmers' education level is positively correlated with their agricultural production and management level. For example, Putler and Zilberman's (2003) study of American farms found a positive correlation between the level of education of farmers and the frequency of new technology use. Fielke and Bardsley's(1996) survey of Australia found that farmers Training has improved farmers' social competitiveness and income level. Marlaine and Lawrence (1980) passed on 37 surveys of farms in low-income countries have found that farmer education and training play a greater role in modern agriculture than in traditional agriculture. Hayami and Ruttan's (1985) survey of Israel found that the vocational training of farmers was one of the important factors affecting the development of its characteristic agriculture. A study of India by Foster and Rosenzweig found that better-educated farmers were more willing to accept new varieties of crops.

2.4.3 HQFT Model

The relevant research mainly includes the foreign model. Scholars have summarized three typical models of foreign farmers' education and training through research (see Table 2.3). According to the deployment requirements of the central government and local governments, active exploration and bold practice have formed a number of typical HQF cultivation models. For example, the "2+1+X" training model in Shanghai Pudong New Area, the "seven in one" model in Huzhou, Zhejiang, the school-place linkage model in Taicang, Jiangsu, the training model for young farmers in Anhui, and so on. The third is the theoretical model. By comparing the characteristics of each practice model, scholars build an ideal training theoretical model with the help of a certain theory. For example, Tian and Wang (2020) proposed a theoretical model based on multi-

center governance through a comparative analysis of four typical farmer training practice models: "campus + farm", "education + skills", "secondary vocational + higher vocational" and "customization + collaboration".

Table 2.3: Typical Modes of Farmer Education and Training

Typical pattern	Main feature	Represent the countr	Specific approach
East Asian model	More people, less land,government-led, diversified subjects, legislative protection, complete system; Multi-level,multi-objective,multi-direction training mode;Attach importance to cultivating "agricultural successors".	Japan Korea	Govenment:legal guarantee of financial support Training subjects: agricultural universities, secondary agricultural schools, agricultural universities,agricultural departments of comprehensive universitie Training subjects:Agricultural Cooperatives,Rural Development Administration,Agricultural University.
West Eurpean Model	"Dual system" farmer traininmode; Developed mechanical level and agricultural vocation education,school-enterprise participation,Internet communication;Focus on training quality (assessment, qualification certificate); "Take up the post with the certificate".	Germany Britain	Dual system Training subject:Agricultural training network
North American Model	Fewer people and more land, large-scale mechanization;Trinity,information; A training model integrating agricultural education,scientific research and extension	America	comeplete farmer traning legal system and perfect information system

2.4.4 The Objects of HQFT

Zhu (2013) believes that the main source of professional farmers is farmers engaged in farming, and an important source is returning entrepreneurs. Urban residents who are interested in agriculture and committed to agricultural development, veterans and college and secondary school graduates are also cultivation objectives, and the sources of HQF are diversified. Tu (2013) took large farming households, members of farmers' high-quality cooperative organizations, management personnel of family farms, agricultural product processing households, leisure and tourism agriculture, agricultural product brokers, backbone of agricultural service organizations, college and secondary school graduates, and students of secondary and higher vocational schools as the main cultivation objects of HQF. Du et al. (2019) believed that the new type of HQF include college graduates interested in agriculture, expert farmers, outstanding members of rural cooperatives, demobilized and demobilized soldiers, etc. Lin (2021) believes that the target group for cultivating HQF has diversified characteristics, including rural working-age workers, migrant workers returning to their hometowns to start businesses, leaders in getting rich in rural areas, urban residents aspiring to join in rural construction, and college students .

2.4.5 Content and Way of HQFT

Scholars have studied the training practices of HQF at home and abroad, and found that developed countries attach great importance to different training methods and different contents for different training objects (see Table 2.4). Van den Ban and Hawkins (2023) believe that the most important content of farmer training is communication skills. Rogers believes that the focus of vocational training for farmers should be on self-decision-making

skills. Jurksaitiene believes that formal training, informal learning and vocational qualification education are helpful to increase farmers' knowledge and ability of environmental protection. Kim and Young (2019) found that the success of the "New Village Movement" in South Korea was due to the emphasis on "diligence, cooperation, and self-help" training of farmers. Germany's professional farmer training is practice-oriented, requiring farmers to conduct 1-2 days of theoretical knowledge education and 3-4 days of enterprise practical training every week.

Table 2.4: The Counter and Measures of Training HQF

National	Training object	Training method	Training content
America	Existing farmer night school training technology training Future farmers	Existing farmer night school training technology training SOE(Supplementary occupation experience) FFA(Future farmers in American) SAE(Supplementary agriculture experience) Classroom instruction	Agricultuiral production management and investment and financing knowledge and skills Entrepreneurial ability, leadership ability,teamwork ability agricultural production and management skillsLocal agricultural development
Japan	The successor to agriculture Farmers participating in the agricultural Association Agricultural high school students Agricultural college student	Non-academic education Agricultural continuing education Academic education Academic education	Agricultural production skills, production efficiency, agricultural management Management knowledge and skills Agricultural technology guidance , popularization of agricultural scientific knowledge Agricultural machinery, horticulture, animal production and other majors Agricultural high-tech personnel and farmers training and teaching personnel The knowledge and skills
Korean	Rura1 youth "4H" education young and middle-aged farmers Professional big household	"4H" education farmers and fishermen to educate their successors	professional knowledge and business philosophy professional farmer education

2.4.6 The Problems of HQFT

Lv & Ma (2015) studied the dilemma of cultivating HQF and analyzed it from the three aspects of the government, cultivation institutions and farmers themselves. They found that the government's legal and policy guarantees were insufficient, the cultivation funds were insufficient, the cultivation institutions lacked effective evaluation mechanism, the cultivation teachers were weak and the cultivation content was divorced from the reality. Farmers' participation in the cultivation of HQF is not high . When studying the cultivation of HQF, Yu (2022) pointed out that there is a large age gap, uneven cultural quality, unscientific cultivation content and poor cultivation effect for HQF.

2.5 Factors influencing the Training Performance of HQF

Zhai et al. (2016) took the data of Guanzhong in Shanxi province as the first-hand data and used the binary logistic regression model to carry out research. The results showed that education level, land management scale, total family size, farmers' confidence in raising income, and the degree of concern for policies had an important impact on farmers' participation in the training of HQF. Ma et al. (2018) took the survey data of Yinbei region of Ningxia as an example and found that farmers' age, educational level, cultivated land management, training experience and awareness of policies had important effects on their willingness to participate in the training of HQF. Zhao et al. (2021), based on the questionnaire survey and interview of new-type HQF in Shandong Province, used two times of multiple classification logistic regression with different reference levels to explore the influencing factors in the cultivation of new-type HQF. The results show that

the main influencing factors of HQFT present periodic differences at different stages of their development.

Lei et al. (2014) took the cooperation between Jiangsu Vocational and Technical College of Agriculture and Forestry and Taicang City as an example to explore the establishment of a new cooperation model, which is directly funded by Taicang City government to implement "orn-based" talent training, targeted talent enrollment and school-enterprise combination. Xiao et al. (2018) believe that the cultivation of HQF requires the government to strengthen the top-level system design of agricultural and rural modernization, hit a "combination of fists" to form the combined force of policy superposition, and pay attention to the optimal allocation of modern production factors through the market to provide a powerful policy support system for the growth of HQF. Wang et al. (2021) proposed to improve the effectiveness of vocational education in cultivating HQF from the aspects of selection and certification of training objectives, teaching management and service, and curriculum construction and implementation. It is the realistic demand of modern agricultural development to improve the academic education of HQF.

2.6 Performance Evaluation

Performance theory originated from the American program teaching movement in the early 1960s, and its evolution benefited from the theoretical nutrition and reference methods of organizational development and reform, cognitive engineering, information technology and other fields from systems theory, learning psychology, cognitive science and economics.

Performance theory is a systematic theory of improving organizational and individual performance. Its operation process generally includes: clear organizational goals,

and as a standard to examine the performance of the status quo, reveal the gap between the two and analyze the causes of the gap; On the basis of analyzing the gap, design and develop the appropriate performance improvement plan; Finally, the program is implemented and evaluated. Performance can be specific to an organization, a team, or an individual. The evaluation of performance usually includes three aspects: effectiveness, efficiency and benefit. Effect refers to the results achieved after the completion of the work, efficiency generally refers to the proportion of input and output, and benefit refers to whether the results achieved by the work can bring certain benefits to the society or individuals, both economic benefits and social benefits.

Kirkpatrick's (1959) four-level model (reaction, learning, behavior, results) established foundational training assessment but lacked quantitative methods. Subsequent scholars enhanced it: Hamblin (1974) added cost-benefit analysis and strategic alignment (five levels). Phillips (1995) incorporated ROI calculation (financial evaluation layer), while Kaufman (1994) extended to societal impacts (five levels: resources, mastery, application, organizational/social benefits). These adaptations address original limitations in cost quantification and broader stakeholder effects.

Based on the above theory of training performance evaluation, this study sets the indicators for the selection of HQF' training performance evaluation from three stages: before, during and after training. Before the training, farmers' willingness to participate in the training was evaluated; during the training, farmers' satisfaction with the implementation of the training body was evaluated; after the training, farmers' knowledge and skill level was improved, the number of new technologies adopted, the increase of unit output, the increase of income, the improvement of ecological environment, and seven secondary performance evaluation indicators.

2.7 Performance Evaluation of HQFT

There are three research perspectives and three research methods on the performance evaluation of HQF' training. From the perspective of research, scholars have developed different evaluation indicators based on different evaluation subjects. First of all, the "input-output" evaluation index was designed based on the perspective of the government's main investment body, and the continued implementation of the project was judged by calculating the input and output. Relevant studies mainly focused on the training of rural migrant labor force (Lv & Shi, 2023). Secondly, from the perspective of farmers participating in the training, the difference of agricultural income before and after the training is compared to measure the training effect. Finally, based on the perspective of training institutions, the training quality was improved by understanding the farmers' satisfaction with the training.

Studies employ three approaches: 1) Empirical analysis (Huang, 2013); 2) Questionnaire-based statistical modeling (Xu, 2014); and 3) Performance evaluation frameworks (Zhao, 2015). He (2017) developed a comprehensive model incorporating training scenarios, inputs, processes, and outcomes. Xiao (2020) later established a three-dimensional index system (resource input, training process, output) reflecting China's agricultural modernization needs. (see Table 2.5)

Table 2.5: Representative research on performance evaluation index of HQFT

Author	Research area	Dimension Sources	Influencing factors
Gan et al. (2016)	Pizhou	Questionnaire Survey	Training content, training methods, training environment, and training wishes and needs
Wang and Wang (2018)	Anhui	Questionnaire survey	For farmers' ability to adopt new technologies (not significant), increased crop yields (significant), farmers' household income (significant), ecological benefits (not significant), For the degree of organization of farmers (significant).
Fu and Zhuang (2021)	Chengdu	Fuzzy comprehensive evaluation method	An influencing factor index system was constructed, including three first-level indicators such as personal factors, training factors and policy factors, and 16 second-level indicators.
Xu et al. (2019)	Jiangsu	Structural equation model	Training supply factors: training time (+), training hardware facilities and software service level (+), training methods (+), satisfaction with training instructors (+), suitability of training content (+)
Gao et al. (2015)	Guangxi	Field investigation	Talent benefits, economic benefits, social benefits
Huang (2018)	Guangxi	Experience Summary	Organizational reviews, farmer reviews, and expert conclusions.
Li (2019)	City A	Kirkpatrick model	Response assessment, learning and behavior assessment, outcome assessment
Zhao and Zhang (2019)	Jiangsu	Classification theory of educational goals	Attitudes, knowledge, vocational skills, and self-development
Wen (2022)	Jiangsu	Literature research + survey data + Analytic hierarchy process	Income changes, employment improvement, training satisfaction
Yao (2023)	Jiangsu	Holton model	Training transfer effects
Lu et al. (2024)	Guangxi	Satisfaction theory + structural equation model	Perceived performance, perceived cost, trust, training satisfaction, training loyalty.

2.8 Summary

Through the literature review, it is found that the research on "HQF" presents the characteristics of multiple aspects and multiple themes. Scholars have conducted in-depth discussions on such issues as "What are HQF", "who should be HQF", "how to cultivate and expand the training team of HQF" and "how to improve the quality of education and training of HQF". Through discussion, relevant research has achieved rich results, scholars have reached some consensus on the connotation, characteristics, sources, training significance, social support and other issues of HQF.

2.9 Research Gap

First of all, in terms of research perspective, most existing studies focus on national strategic demands such as agricultural modernization, poverty alleviation and rural revitalization, and government macro perspectives such as policy support for farmer training, while relatively few studies have been conducted on the individual characteristics of HQF and the specific operational aspects of training work.

Secondly, in terms of research content, the existing research content has many points and a wide range, but most of them are not deep and systematic. Mainly manifested in the following aspects: first, the same. The existing studies are more similar and less informative. The second is wide generalization. The research is not focused enough, especially for the cause, mechanism and theoretical basis of the problem, lack of relevant research on the implementation of "precision training" for HQF. The third is shallow. Lack of profound and comprehensive theoretical research on a certain issue, the study of the scientific reason is insufficient.

Third, in terms of research objects, training performance evaluation studies mainly focus on enterprise employees and teachers, and no attention has been paid to the training

performance evaluation of high quality farmers. The few existing studies are mostly summaries of local practical experience.

Fourth, in terms of research methods, the existing research mainly focuses on qualitative analysis, and lacks empirical research, especially qualitative research through in-depth interviews and in-depth case descriptions. Existing studies on the training performance evaluation of HQF are mostly "self-talk" experience summary. There are very few empirical studies objectively evaluating the training effectiveness by constructing a highly recognized training effectiveness evaluation index system, and only some of them are single-index studies based on the "input-output" perspective of economics or the "satisfaction" perspective of government performance.

2.10 Filling The Gap

In view of the above shortcomings, this study expects to make new breakthroughs in the following aspects: First, from the perspective of research, strengthen the research on HQF' training from the meso and micro perspectives, and effectively improve the quality of HQF' training practice. Second, in terms of research content, deepen the theoretical research on the training experience and mechanism behind the problems of HQF, and promote vocational education and training to help HQF "precise training". Thirdly, in terms of research methods, we should pay attention to the empirical research of HQFT, emphasize the comprehensive application of quantitative and qualitative methods, and promote the development of HQF education and training theories.

CHAPTER 3

METHODOLOGY

3.1 Introduction

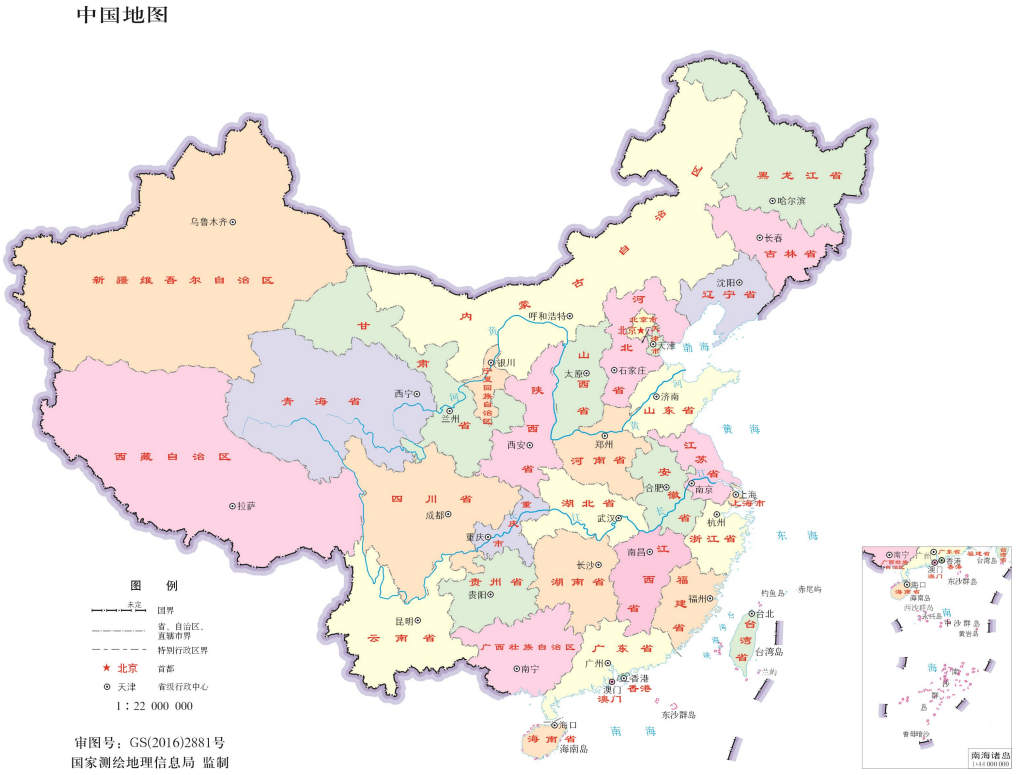
This chapter introduces the research methods for evaluating the performance of high-quality farmers' training. Due to the mixed research method adopted in this study, which combines qualitative and quantitative approaches, the aim is to: construct a performance evaluation tool for high-quality farmers' training. The empirical research method that combines qualitative and quantitative approaches, face-to-face interviews, observation, expert consultation, text analysis, questionnaire survey, analytic hierarchy process, project analysis and factor analysis, as well as reliability and validity tests, were employed to achieve this goal. To measure the current performance level of high-quality farmers' training in Jiangxi Province, quantitative analysis methods, descriptive statistical analysis methods and one-way analysis of variance were used. To achieve the third goal: on the basis of the realization of the first two goals, the main influencing factors of high-quality farmers' training were verified through triangulation analysis using the interview and questionnaire test results (see table 3.1).

Table 3.1: The research method corresponding to the research objective of this study

No	Research Questions	Research Objectives	Methods		Research Instruments	Target Respondents	Mode of Conduct	Means of Analysis
1	How to establish the current HQFT performance evaluation tool?	To establish a HQFT performance evaluation tool(divided into four stages).	Establishment of the indicator system	Interview and Expert Consultation	Semi-structured interview outline(farmer and experts)	18 Trainee Farmers and 10 Experts	Snowball Sampling and Observation	The three-level coding of grounded theory
			Improve the indicator system	Questionnaire Survey	Initial Questionnaire	8 Experts	Observation	Expert validity assessment
			Test the Questionnaire	Expert Deep Interview	Initial Questionnaire	139 Trainee Farmers	Online Questionnaire Survey	Project Analysis, Exploratory Factor Analysis, Reliability Analysis
			Correction Questionnaire	Empirical Approach	Three-level indicator system	8 Experts	One to One Face Interview and Judgment Matrix	Analytic Hierarchy Process
2	How to evaluate the current level of HQFT performance?	To evaluate the current training performance of HQF	Questionnaire Survey		Formal Questionnaire	520 Trainee Farmers	Random Sampling	Descriptive Statistical Analysis and one-way ANOVA
3	Which are the main influencing factors and how to improve the current HQFT performance?	To analyze the main factors affecting the current training performance of HQF	Interview and Questionnaire Survey		Interview Outline and Formal Questionnaire	18 Trainee Farmers, 26 Experts, 540 Trainee Farmers.	Triangular verification	Triangular verification

3.2 Study Area

Due to the vast territory of China, it is difficult to conduct in-depth research across the country due to limited time and other resource (see Figure 3.1).



Figur 3.1: Map of China



Figure 3.2: The distribution of highly qualified farmers who participated in this training across all regions of Jiangxi Province

"In view of this, Jiangxi Province has been selected as the study area following three key considerations namely (Figure 3.2):

First, Jiangxi is in the middle region of China, covering a wide area of 166,900 square kilometers with a total population of 45 million. It is the large grain production province in China, which can play the model role of agriculture-related research particularly in Jiangxi, China.

Secondly, the Jiangxi Provincial government attaches great importance to the training of high-quality farmers. Jiangxi Academy of Agricultural Sciences is the unit with the largest number of agricultural experts in Jiangxi Province, and Jiangxi Vocational College of Biotechnology is the first unit to train farmers in Jiangxi Province with rich training experience. These can effectively support the training of HQF and contribute to the formation of the "Jiangxi Model". "Jiangxi Model" can then be used for reference and replicable in other places.

Thirdly, the students of high-uality farmers in Jiangxi Academy of Agricultural Sciences and Jiangxi Biotechnology Vocational College come from many regions and agricultural industries in Jiangxi Province. Therefore, the origin and class types of HQF are highly representative, and the research results should have more extensive application value.

3.3 Research Process

This study adopts evaluative approach which involves the four steps process to evaluate the performance of HQFT, any evaluation activity consists of four steps.

The first step is to determine the evaluation purpose and the evaluation objective. The second step is to select the evaluation index, determine the evaluation standard and

evaluation method. The third step is to collect information. The final step is to form a value judgment.

Secondly, it is necessary to clarify the performance inspection, which covers the three levels of behavior and result, while the objective of performance analysis is the entire construction process of the project and the final result. Evaluation indicators need to be developed to examine the behavior of high-quality farmers before and in the midst of training; and the results after the training. The evaluation index is the specific provision after the evaluation target is decomposed step by step. After the refined index is assigned weight, the overall index system is formed. According to different standards, indicators can also be divided into many types, such as conditional indicators, process indicators, and achievement indicators. Therefore, how to design the index system is very important, and the premise of designing the index system is to obtain information, and the types and contents of information are also various. Under the premise that information is useful, in normal circumstances, the more sufficient information, the more beneficial will be to the policy makers and relevant stakeholders. Therefore, the design of questionnaires is particularly important, and the data obtained through questionnaires is useful information.

Finally, it is necessary to analyze the acquired data, form an indicator evaluation system, calculate the results using scientific methods, obtain the performance results, and judge the performance level of the project.

3.4 Methods And Processes of Data Collection

Selecting appropriate research methods is very important to dig deeply into research questions and research objectives. In the field of sociological research, the two most widely used research methods are qualitative research and quantitative research. Qualitative and quantitative research methods are complementary, and their exclusivity is

mainly due to the philosophical foundation behind them. Quantitative research methods follow the line of "scientism" and are a "cultural position" approach based on positivism. The premise of quantitative research is that things have internal fixed and repeatable laws, and the research objective does not depend on the independent existence of the researcher. Quantitative research attaches great importance to the normativity and scientificity of operational tools and the representativeness and accuracy of data collection, without considering the influence of researchers themselves. Qualitative research, on the other hand, reflects the spirit of humanism, which is a kind of "cultural theme" based on post-positivism, constructivism and critical theory. Qualitative research is good at rich and detailed details and situational descriptions, and emphasizes the interactive process between researchers and research objects. Therefore, the context of research activities, the relationship between researchers and subjects, and the Angle and way of researchers' view of problems will affect the process and results of research. (Chen, 2021) Social science research does not want to completely oppose qualitative research and quantitative research, but hopes that the two can exert their respective advantages as a continuum and grasp the overall development trend through detailed, comprehensive and personalized description of the research object. The selection of different research methods will determine different research angles and theoretical bases.

The data collection methods selected for this study according to the requirements of the research objectives include literature review, interview, and questionnaire survey.

3.4.1 Desktop Research

In order to initially determine the performance evaluation index system for high-quality farmers' training, the literature method was used to collect the research results on

this issue from previous studies, and these were then applied to this research. I searched Chinese and English databases such as China Knowledge Network, Scopus and Web of Science, and extensively reviewed training performance assessment theories and research results of HQFT to provide research ideas for this study and clarify the elements of HQFT performance assessment.

By reviewing the existing books and documents related to the training policies for high-quality farmers, and searching for the performance evaluation documents for high-quality farmer training adopted by the government and training institutions, we have drawn on these materials for this research.

By comparing the summarized online research results with the existing government training institution documents, this study aims to fill the gaps in the existing research.

3.4.2 Interview Method

The interview method is the important one for collecting the data in this study, to establish the evaluation tool, there are several times interview for the experts. The interview method related interview instrument, interviewee, interview process.

3.4.2.1 Interview instrument

According to the control degree of the conversation structure, the interview can be divided into unstructured interview, structured interview and semi-structured interview. Unstructured interview refers to self-talk with interviewees on a certain topic without designing questionnaires and interview procedures in advance, forming questions while talking, and asking questions at any time when researchers are interested. Structured interview is conducted in order according to the interview outline designed in advance.

Semi-structured interviews fall somewhere in between. In this study, selected the Semi-structured interview outline.

3.4.2.2 Interviewee

This research is divided into two stages: the establishment of a performance evaluation tool for high-quality farmer training and the analysis of the main influencing factors of training performance. Firstly, interviews were conducted with farmers who participated in the provincial high-quality farmer training. These interviewed farmers must have participated in at least one or more high-quality farmer training programs. Based on observations of their performance during the training (good, medium, or poor), three participants were selected from each class, totaling 6 training classes and 18 farmers were interviewed.

The experts in the agricultural field were interviewed during the questionnaire establishment process. 26 experts from different fields were interviewed for different purposes. During the initial establishment of the indicator system, 10 experts (former training instructors, agricultural government staff, training institution staff, and agricultural scientists) were interviewed. During the revision of the indicator system, 8 experts (3 experts in the "agriculture, rural areas and farmers" field, 2 high-level high-quality farmers, and 3 training institution leaders, see Figure 3.2) were interviewed. During the determination of indicator weights, 8 experts (from the research level, implementation level, and training level) were invited.

Table 3.2: Questionnaire evaluation expert

Experts	Gender	Job T itle	Academic Qualification s	Age	Primary J ob
1	male	Professor	Master's	50	Rural Development Research
2	female	Professor	PhD	52	Research on Agricultural Economic Issues
3	male	Professor	PhD	48	Research on Agricultural Development Issues
4	male	Associate professor	PhD	45	Research on Highly Qualified Farmers
5	male	Professor	PhD	50	Manager of the High-Quality Farmers Training Center
6	male	Associate professor	Master's	41	Deputy Director of the High-Quality Farmers Training Center
7	male	/	Junior college	40	Village Secretary
8	male	/	Junior college	41	Agricultural enterprise manager

3.4.2.3 Interview format

According to the number of interviewees, there are one-to-one interviews and group focus interviews. Both individual interview and group interview are methods of collecting empirical data through language communication, and each has its own advantages. Individual interview can reduce respondents' concerns about confidentiality, thus collecting more sincere opinions, and more details can be collected with relatively sufficient time: The discussion among the interviewees in group interviews helps to collect more abundant and even unexpected information at one time.

In this stage, the research mainly adopts the form of combining individual interviews and group interviews, and conducts unstructured interviews on the site of the interviewees to understand the overall status, training organization, implementation and effect evaluation of HQF in Jiangxi Province, and at the same time provides a practical

basis for the design of follow-up interview outline and the construction of the evaluation index system of HQF' training effect.

Two training institutions, Jiangxi Academy of Agricultural Sciences and Jiangxi Vocational College of Biotechnology, have conducted seminars, interviews and follow the class, and the research information is shown in Table 3.3, F: participating farmers, T: training teachers, S : organizational management staff， G: government workers. This research mainly adopts the form of unstructured interview, the discussion is limited to about 1 hour, and each individual interview is about 30 minutes. In order to facilitate the subsequent text analysis, the interviewees are recorded with their consent. This research has laid a certain foundation for the follow-up research.

Table 3.3: Survey basic information

Name	Sex	Post	Unit	Region
F1	Male	Family farmer	/	Nanchang
F2	Male	Family farmer	/	Yichun
F3	Male	co-operative	/	Ganzhou
F4	Male	Professional tycoon	/	Nanchang
F5	Male	co-operative	/	Nanchang
F6	Male	Head of agricultural	/	Nanchang
F7	Female	Technical backbone	/	Ji'an
F8	Male	co-operative	/	Shangrao
F9	Male	Family farmer	/	Nanchang
F10	Male	Family farmer	/	Nanchang
F11	Male	Family farmer	/	Ganzhou
F12	Male	co-operative	/	Ji'an
F13	Male	co-operative	/	Fuzhou
F14	Male	Technical backbone	/	Pingxiang
F15	Male	Family farmer	/	Ji'an
F16	Male	Family farmer	/	Yichun
F17	Female	Head of agricultural	/	Jingdezhen
F18	Male	Technical backbone	/	Jiujiang
T1	Male	Rector	Agricultural Radio School	Nanchang
T2	Male	Director	Deputy Director of Human	Nanchang
T2	Male	Director	Deputy Director of Human	Jiujiang
T3	Female	Director	Agricultural vocational College	ganzhou
T4	Male	Subdean	Agricultural university	Nanchang
T5	Male	Section chief	Academy of Agricultural	Nanchang
T6	Male	Station manager	Provincial HQF guidance	Nanchang
T7	Male	Station manager	Agricultural science and	Nanchang
T8	Male	Teacher	Agricultural vocational College	Nanchang
T9	Male	Teacher	Agricultural university	Nanchang
T10	Female	Researcher	Academy of Agricultural	Nanchang
G1	Male	Subdean	Department of Agriculture of	Nanchang
G2	Male	Section chief	Provincial Department of	Nanchan
S1	Male	Director	Agricultural vocational College	Nanchang
S2	Male	Section chief	Agricultural vocational College	Nanchang
S3	Male	Teacher	Agricultural vocational College	Nanchang
S4	Male	Director	Academy of Agricultural	Yichun
S5	Male	Deputy director	Academy of Agricultural	Yichun

3.4.2.4 Interview process

Based on the research objective needing, this data collection come from the high-quality training classes of Jiangxi Biotechnology Vocational College and Jiangxi Academy of Agricultural Sciences. In the whole research process, there are two stages of interview.

The first stage is unstructured interview, the purpose of which is to understand the current situation of performance evaluation of HQF' training in Jiangxi Province. The interviewees include relevant government personnel, training organization managers, training teachers and farmers participating in the training. The second stage is semi-structured interview, which aims to build the performance evaluation index system of HQF' training. Based on the first stage, in-depth interviews are conducted with the participating farmers and HQF' training experts. To explore the index factors of the training performance of HQF. In the second stage, the researcher participate to the high-quality training classes while farmers are studying and observe the learning state and learning ability level of these peasant students, then select the target interview students, one excellent student, one middle student, one low level student, total 3 students every class.

Secondly, online questionnaire survey, the researcher prepared an online questionnaire, go on questionnaire survey in every training class, the researcher have done questionnaire survey in field by myself.

Thirdly, analysis questionnaire survey date information, and judge the relation with dependent and independent variables, find out which factor is the most important factor.

Finally, develop the performance evaluation index system of the HQFT, then prepare the optimization path of HQFT is proposed.

3.4.3 Questionnaire Survey

This research's questionnaire survey consists of two aspects: the semi-structured interview-based questionnaire survey and the online questionnaire scale survey research.

3.4.3.1 Questionnaire Format

In this study, the semi-structured interview-based questionnaire survey was mainly conducted during the stage of constructing the evaluation tool for high-quality farmers' training. A total of 18 farmers and 26 experts were surveyed, with each respondent being interviewed for no more than 30 minutes. The survey results were analyzed using the three-level coding of grounded theory to determine the indicator system and form a formal questionnaire.

3.4.3.2 Online Questionnaire Survey

Based on the theoretical research, this study proposed to compile a questionnaire based on the principles of questionnaire preparation and conduct a field questionnaire survey on farmers who have participated in the production management of agriculture produce, practice skilled farmers and social service type of farmers, in Jiangxi Province to collect relevant data.

The study also discussed the initial questionnaire proposed by the researcher and actively and extensively absorbed the opinions of experts to ensure complete preparation of the questionnaire.

Considering the researcher's available resources and the feasibility of conducting the study, this study takes Jiangxi Province as a case study and conducts research in Jiangxi Academy of Agricultural Sciences and Jiangxi Biotechnology Vocational College to collect relevant data.

3.5 Method of Data Analysis

This study utilized SPSS26.0 for data analysis, mainly consisting of two parts. In the process of constructing the performance evaluation system for the training of HQF, the Analytic Hierarchy Process was mainly employed to determine the evaluation elements. There were four secondary dimensions, and each secondary dimension contained several tertiary dimensions. The indicators of each secondary and tertiary dimension were classified respectively. Finally, an evaluation index system for the training of HQF is formed. Another part is to analyze the results of the formal questionnaire assessment. Descriptive statistical analysis and logistics multivariate statistical analysis are conducted respectively on the four index dimensions of the performance evaluation of high-quality farmers' training from the perspectives of demographics, farmers' experience characteristics, and agricultural operation characteristics, to obtain the main influencing factors of high-quality farmers' training.

3.5.1 Text Analysis

This study clarifies the value of HQFT by conducting textual analysis of existing high quality farmer policy texts and HQFT notices at various levels, and provides a policy basis for the development of localized assessment standards. Secondly, in this study, the test results of the performance evaluation of training for high-quality farmers were analyzed. During the process of exploring the main influencing factors of the training performance of high-quality farmers, the policy text analysis method was adopted to analyze the impact of the training policies for high-quality farmers formulated by the relevant agricultural departments of the government on the training performance, laying the foundation for proposing suggestions to improve the training performance of high-

quality farmers in the latter part. Finally, regarding the strategies for improving the performance of high-quality farmers' training, from the perspectives of the government and the training entities, the policy text method is adopted to analyze the optimization paths of high-quality farmers' training policies over the years.

3.5.2 Hierarchical Analysis

This study also uses hierarchical analysis in determining the weights of the performance evaluation indicators of HQFT, which is a common evaluation method in operations research. It is a method that combines the subjective assignment of expert scoring and the objective assignment of statistical analysis.

In this study, the construction of the performance evaluation index system for the training of high-quality farmers adopts the Analytic Hierarchy Process and is divided into six steps:

First, this hierarchical structure model: Clearly solve the problem and decompose this decision-making problem into the goal layer (constructing a high-quality training performance evaluation index system), the criterion layer (four dimensions of secondary indicators: training willingness, training satisfaction, professional ability, and training benefit), and the plan layer (15 tertiary indicators);

Secondly, construct a judgment matrix: For the indicator elements of each layer, make pairwise comparisons. Based on expert opinions or subjective judgments of decision-makers, provide the ratio of relative importance to form a judgment matrix.

Third, hierarchical single sorting and its consistency test: Calculate the maximum eigenvalue of the judgment matrix and its corresponding eigenvector, normalize the eigenvector, and obtain the weight of each element relative to the previous layer.

Meanwhile, the consistency test was conducted, the consistency index CI and the random consistency index RI were calculated, and the consistency ratio CR was obtained. If CR<0.1, it is considered that the consistency of the judgment matrix is acceptable.

Fourth, hierarchical overall sorting: Starting from the top layer, calculate the combined weight of each layer's elements to the target layer in sequence and perform the overall sorting.

Fifth, consistency test of hierarchical total sorting: Similar to the consistency test of single sorting, calculate the consistency ratio CR of the total sorting. If CR<0.1, it is considered that the consistency of the overall hierarchical ranking is acceptable.

Sixth, based on the result of the overall hierarchical sorting, sort the scheme layers to obtain the optimal scheme.

3.5.3 Statistical Analysis

This study is based on a questionnaire survey, and with the help of the statistical analysis software SPSS 26.0 in sociology, frequency statistical analysis, item analysis, factor analysis and other operations are conducted on the questionnaire survey data to measure the training performance of highly qualified farmers.

The analysis of the performance evaluation results of HQFT in this study mainly adopts statistical analysis methods. Firstly, descriptive statistical analysis, reliability analysis and validity analysis were conducted on the data of the performance evaluation results of high-quality farmers' training in Jiangxi Province. Then, differences were compared among the population variables of the participating farmers, and chi-square tests, t-tests and analysis of variance were conducted. Thirdly, conduct correlation analysis on 514 One-way analysis of variance (AVONA) and make pairwise comparisons. Fourthly, a

multiple regression analysis was conducted on the variable results to explore the total dimension, the dimension of training willingness, the dimension of training satisfaction, the dimension of vocational skills, and the dimension of training benefits. One-on-one analyses were conducted on the individual basic characteristics, individual experience characteristics, and individual business characteristics of 514 HQF who participated in the training respectively, and the main influencing factors were discovered.

3.6 Ethical Consideration

From the perspective of project aim, this research is aimed at increasing farmers' income and improving agricultural efficiency. It enables farmers to integrate into the development of modern agriculture, enables them to acquire real production skills, helps HQF grow, and promotes the strategy of rural revitalization.

From the perspective of social responsibility, the researcher will investigate and study the training performance of HQF in the spirit of not cheating, honesty and trustworthiness, and truly reflect the existing problems in the current training of HQF, hoping to build a real and effective performance evaluation framework for HQFT.

From the perspective of research data collection and analysis, the researcher will conduct field surveys, truthfully record the opinions and suggestions of experts and farmers participating in training, and use SPSS data analysis software to truly evaluate the training performance of HQF.

3.7 Summary

3.7.1 Ensured the Reliability and Validity of the Research Results

To strengthen the credibility of this study, Chapter 4 and chapter 5 incorporates several methodological safeguards to ensure the reliability (consistency of results) and validity (accuracy of measurements) of its proposed evaluation framework:

i. Reliability

Structured Visual Model: The diagrammatic framework standardizes evaluation procedures, reducing subjectivity in implementation. By clearly defining indicators (e.g., skill application, economic impact) and their measurement scales, the model ensures consistent application Provincial level HQFT programs.

Pilot Testing: During the process of establishing the performance evaluation tool for high-quality farmers' training in Chapter 4, 139 questionnaires were distributed to farmers who had participated in the provincial-level high-quality farmers' training in Jiangxi Province in the previous year for a trial test. Based on the test results, project analysis (critical value ratio method) and factor analysis (principal component analysis method) were conducted using SPSS 26.0. Homogeneity tests were used to remove irrelevant questions. Through exploratory factor analysis, the four sub-questionnaires were rotated to delete factors with duplicate items, overlapping relationships, and unclear classification of item dimensions. Then, reliability analysis was carried out, and the A coefficient created by L.J. Ronbach was used for reliability testing. This ensured the reliability of the questionnaire.

Inter-Rater Reliability: The model likely includes guidelines for evaluators (e.g., trainers, policymakers) to minimize bias, such as standardized scoring rubrics for qualitative metrics (e.g farmer feedback).

ii. Validity

Farmer-Centric Indicators: To enhance construct validity, the framework prioritizes metrics directly tied to farmers' vocational growth (e.g., post-training productivity, innovation adoption), aligning with the study's humanistic objectives (Chapter 4).

Triangulation: The model integrates multiple data sources (e.g., surveys, field observations, economic records) to cross-verify findings, addressing internal validity by reducing reliance on self-reported satisfaction surveys.

Expert Validation: The visual framework's design likely involved consultations with agricultural educators and policymakers (implied by Chapter 4's interviewees), ensuring content validity—that it covers all critical aspects of HQFT performance.

Longitudinal Tracking: By incorporating delayed benefits (e.g., career progression), the model addresses external validity, demonstrating applicability beyond immediate training contexts.

3.7.2 Achieving the Objectives of This Research

This chapter introduces the research area, process and methods of the performance evaluation of high-quality farmers' training. According to the needs of the research objectives, the research process and methods have been respectively determined. The first objective is to establish a scientific and comprehensive performance evaluation tool. Four stages of qualitative and quantitative research methods have been introduced, including

face-to-face interviews, semi-structured questionnaire interviews, online questionnaire surveys, project analysis, factor analysis, and AHP method. The second objective is to assess the current performance level of high-quality farmers' training in Jiangxi Province. Quantitative research methods, descriptive statistical analysis methods and one-way analysis of variance methods have been adopted. The third objective is to analyze the main influencing factors. Based on the data from the methods of the first and second objectives, triangulation verification has been conducted to determine the main influencing factors of high-quality farmers' training performance, and on this basis, suggestions and measures for improving the performance of high-quality farmers' training have been proposed, providing reference opinions for training institutions to optimize training plans and for agricultural government departments to optimize policies for high-quality farmers' training.

Therefore, in order to achieve the three research objectives of this study:

Chapter Four will investigate the current status of performance evaluation for high-quality farmer training, and explore how to establish a scientific and comprehensive performance evaluation tool for high-quality farmer training. The establishment of the tools is the main research focus of this chapter. This chapter's research employed an empirical research method, which incorporated both qualitative and quantitative approaches, as well as a combination of subjective and objective perspectives.

Chapter 5 will use the assessment tools established in the previous chapter to evaluate the current performance level of high-quality farmer training in Jiangxi Province. Based on the assessment results and the feedback from previous interviews, it will analyze from the perspectives of the government, training institutions, and farmers, what are the main influencing factors that affect the performance level of high-quality farmer training? It will discuss the reasons for this result, whether it is different from previous studies, and

propose measures for improving the performance level of high-quality farmer training from the perspectives of the government and training institutions.

CHAPTER 4

THE FRAMEWORK OF THE PERFORMANCE EVALUATION SYSTEM FOR HIGH-QUALITY FARMERS TRAINING

4.1 Introduction

This chapter consists of two parts. The first part analyzes the existing problems in the current training of high-quality farmers, while the second part establishes a performance evaluation tool for high-quality farmer training. The first part serves as the foundation for the second part, and the establishment of the tool prepares for the subsequent assessment of the performance of high-quality farmer training.

4.2 The Overall Situation of Performance Evaluation of HQFT in Jiangxi Province

Jiangxi is a traditional agricultural province and attaches great importance to the education and training of HQF at the provincial level. According to interviews and relevant document investigations, in the past five years, major provincial training institutions in Jiangxi have completed the training tasks issued every year according to the standards. Through sorting and summarizing the training information of HQF' education and training in Jiangxi Province in the past five years, see Table 4.1 As can be seen from the following table, the number of trainees fluctuated greatly from 2019 to 2023, from the lowest of 1200 in 2019 to 4899 in 2023. There is a significant change in the number of provincial participants in 2022 (corresponding to a significant increase in provincial training institutions in 2022); In 2019, 2,700 yuan per person, and in the past four years, it has stabilized at 3,500 yuan per person. It is worth mentioning that Jiangxi tried to train agricultural managers at the provincial level with a high cost standard of 10,000 yuan per person. The training hours are stable at 120 hours, and the concept of online hours is

introduced, that is, in 120 hours, it can include the hours guiding students to participate in online learning less than 10%. The number of participants, training funds and training hours are all important considerations that affect training performance, has the significant annual investment by the government led to a corresponding improvement in training performance?

Table 4.1： Jiangxi Province in the past five years provincial-level high- quality farmers training information table

Year	Number of trainees	Training funds	Class hour	Remark
2019	1200	2700 yuan/person	Not less than 120	Including 100 agricultural managers, the fund is 10,000 yuan/person.
2020	1438	3500 yuan/person	Not less than 120, 10% online	Including 100 agricultural managers, the fund is 10,000 yuan/person.
2021	1680	3500 yuan/person	Not less than 120, 10% online	Including 100 agricultural managers, the fund is 10,000 yuan/person.
2022	4747	3500 yuan/person	Not less than 120, 10% online	Including 100 agricultural managers, the fund is 10,000 yuan/person.
2023	4899	3500 yuan/person	Not less than 120, 10% online.	The number of training institutions increased from 6 to 10.

Note：There are six traditional provincial training institutions, and 10 will be confirmed through selection in 2022; The training funds vary slightly due to different training classes, and are adjusted slightly according to statistical methods to make them uniform without affecting the overall data.

The training performance of HQF, as a form of value realization, reflects the realization degree of the training value of HQF to a certain extent (Han & Zhou, 2023). Through the investigation of the problems existing in the performance evaluation of the training of HQF, it lays a practical foundation for the construction of the performance evaluation standard of the training of HQF.

4.3 Problems Existing in Performance Evaluation of Training for HQF

In November 2022, I went to the HQFT Center of Gao ' Base of Jiangxi Academy of Agricultural Sciences and the HQFT Center of Jiangxi Vocational College of Biotechnology to conduct interviews, interviews and follow the class. The research information is shown in Table 4.2. This research mainly adopts the form of unstructured interview, the discussion is limited to about 1 hour, and the individual interview is about 30 minutes per person. In order to facilitate the subsequent text analysis, the interviewees are recorded with the consent of the premise. This survey laid a certain foundation for the follow-up research.

Table 4.2： Survey information is shown in the table

Name	Sex	Post	Unit	Region
F1	Male	Technical backbone	/	Ganzhou
F2	Male	Family farmer	/	Ji’an
F3	Male	Family farmer	/	Yichun
F4	female	Head of agricultural	/	Shangrao
T1	Male	Rector	Agricultural Radio School	Nanchang
T2	Male	Director	Deputy Director of Human Resources and Social Security Bureau	Nanchang
T3	Male	Director	Deputy Director of Human Resources and Social	Jiujiang
T4	female	Director	Agricultural vocational College	ganzhou
T5	Male	Subdean	Agricultural university	Nanchang
T6	Male	Section chief	Academy of Agricultural Sciences	Nanchang
T7	Male	Station manager	Provincial HQF guidance station	Nanchang
T8	Male	Station manager	Agricultural science and technology service station	Nanchang
T9	Male	Teacher	Agricultural vocational College	Nanchang
T10	Male	Director	Academy of Agricultural Sciences	Nanchang

F is for participating farmers; T is for training teachers.

4.3.1 Emphasis on "Training Organization" and Leglecting on "Training Effectiveness"

According to the investigation, the current training performance evaluation of HQF in Jiangxi Province mainly includes two parts: First, the governments at all levels evaluate the training implementation and task completion of the main body of the training through the examination of archival materials. Government departments generally require each training institution to submit assessment materials at the end of each year, including training notice, trainee sign-up form, training handouts and materials, training photos, training typical materials, trainee satisfaction, examination papers and results and training summary materials, etc., through the training materials provided by the training institution to understand the organization and implementation of training performance. Second, the main body of the training implementation evaluates the trainees' feeling of participating in the training through the satisfaction survey of the trainees. Generally, the training implementation subject will evaluate the trainees' satisfaction after each training, understand the trainees' views on the training organization and implementation, and promote the improvement and perfection of the training program while completing the "government task list". However, the existing performance evaluation of HQF' training pays more attention to "training organization" than "training effectiveness", which is mainly manifested in the following two aspects:

First, it is to attach importance to the evaluation of "trainers", ignoring the evaluation of "trainees". The research found that the current practice of HQFT performance evaluation is mainly the evaluation of the government on the training implementation of the main body, is the evaluation of the training of the organization and implementation of

the training work, the evaluation of the biggest beneficiaries of training farmers is still relatively lacking.

For example, Jiangxi's HQFT evaluation system comprises three primary indicators (implementation, performance, bonuses) and twelve secondary indicators, with only one (8.3%) assessing trainee satisfaction. Official documents mandate quantitative targets (100% completion, >90% qualification rates), while administrators admit evaluations primarily serve compliance needs: "We mainly address superior evaluation due to limited resources, using basic satisfaction forms for farmers" (Interviewee). This reveals systemic prioritization of administrative metrics over substantive outcome measurement.

Second, the evaluation system demonstrates a clear imbalance, prioritizing teacher assessment (lesson preparation, content delivery, and teaching performance) (Abbas, 2020) while neglecting substantive trainee outcome measurement. As Trainer T8 noted, "Our provincial satisfaction survey lacks specificity," with Farmer F3 confirming surveys invariably report 100% satisfaction. This over-reliance on superficial trainee feedback fails to capture actual behavioral changes or skill acquisition, significantly limiting the evaluation's effectiveness in assessing true training impacts.

This lack of communication with the training objects, mainly through the training institutions provided documents to understand the farmer training performance, not only can not truly understand the quality and performance of HQFT, but also easily lead to the training institutions "above or below" responsible phenomenon, resulting in training deviates from the purpose of meeting the maximum benefit of the trainees (Neamţu, 2023). As the direct participants and the biggest beneficiaries of the training, the trainees' participation in the performance evaluation of HQFT is not high, which is not conducive to

the government and training institutions to understand the real performance of HQF' training, and is not conducive to the realization of the humanistic value of HQF' training.

4.3.2 Emphasis on "Management Performance" and Leglecting on "Career Development"

The current performance evaluation of the training of HQF has not taken the humanistic value of the training of HQF as the main goal (Cui et al., 2022; Hien, 2023; Busindeli et al., 2024), and there is still a tendency to emphasize "performance management" over "career development", which is mainly manifested in the following two aspects:

First of all, current HQFT evaluations emphasize quantity over quality, focusing on completion rates rather than actual competency development (Liao et al., 2022; Yang, 2023; Pandey et al., 2024). The system prioritizes certification rates (nearly 100% pass rates) while neglecting practical application metrics, as institutions often issue completion certificates regardless of exam results to secure government funding. This administrative compliance approach, where "training institutions prioritize certification over actual learning" (Interviewee T9), undermines the program's goal of genuine farmer empowerment by valuing paperwork over practical skill application and farm improvement outcomes.

Field observations reveal HQFT exams as mere formalities, with farmers copying provided "standard answers" without assessing actual knowledge gain or skill application. As one trainer admitted: "Our exams just meet provincial requirements - we reuse old tests unrelated to course content due to limited staff." This focus on certification rates transforms exams into funding tools rather than competency measures. While certificates

benefit training institutions financially, they hold little practical value for farmers, failing to reflect actual employment outcomes or problem-solving abilities gained from training.

4.3.3 Emphasis on "Training Satisfaction" and Neglecting on "Vocational Ability Improvement"

Training quality is an important performance of training, quality in the field of sociology mainly refers to the value of the object or use requirements and the satisfaction of the subject's feelings. The training quality of HQF is the value judgment of the satisfaction degree of the training needs of HQF. Satisfaction evaluation is a public opinion projection tool, and a means for the Party and the government to obtain the true views of the broad masses of the people on their work. However, in practice, satisfaction evaluation is generally adopted to evaluate the performance of HQF' training. To a certain extent, the satisfaction evaluation can reflect whether the training of HQF meets the needs of the trained farmers, but it is questionable to measure the training performance of HQF only by relying on the satisfaction evaluation index. The main reasons are as follows:

First, the satisfaction index can not fully reflect the training performance of HQF. The training subjects' satisfaction survey on the training course arrangement, teachers' level, organization and management, accommodation and other aspects undoubtedly plays a certain role in the adjustment of training courses, the selection of teachers and the improvement of organization and management services, but it is difficult to answer whether farmers have effectively improved their professional ability and quality through training. And how much benefit the training brings to the development of individual career, farms, cooperatives, agricultural enterprises and regional agricultural economy and society.

Secondly, the training of HQF in China often takes the way of "being arranged". After determining the training theme, training time, training place, training content, training method and other elements, the trained farmers are directly notified. "Passive training" has become the normal training of HQF. The paradox of subjectively judging "training satisfaction degree" by the "arranged" training object leads to the deviation of the understanding of trained farmers, and the evaluation of training performance relies too much on the perceptual level of personal preference to make judgment, so as to obtain the evaluation results that are not scientific and objective enough. Thus misleading the training organizers, designers and implementors about the improvement direction of the training program (Li & Huang, 2019).

Third, overemphasis on satisfaction assessment may result in "effective training" only when "I like" and "make me happy" training, so that the training subject ignores the training objective and deviates from the "normal track" of the essential questions of training such as "whether the ability and quality are improved" and "which abilities and qualities have been improved". In order to win the ideal satisfaction evaluation results, some training institutions use "abnormal" means such as suggestion, guidance, persuasion, gift giving, etc. This deviation from the original intention of satisfaction evaluation and mixed with false "parallel market public opinion" will easily lead to the "track deviation" of HQFT. The "satisfied" evaluation results obtained by "embellishment" can not fully and objectively reflect the real situation of training performance (Lu, 2022).

Fourth, china's government-led HQFT program faces evaluation objectivity issues as training institutions serve dual roles as both implementers and assessors. To secure future projects, some institutions incentivize trainees to provide favorable satisfaction ratings during face-to-face evaluations, compromising result authenticity (Liao et al., 2022).

This conflict of interest creates unreliable "circle-and-hook" assessments that fail to identify program weaknesses or guide improvements, rendering satisfaction evaluations largely ceremonial rather than substantive (Yang, 2023). The current system's structural flaws - combining implementation and assessment functions while using non-blind evaluation methods - systematically distort performance feedback and undermine corrective potential.

Fifth, the scientific setting of satisfaction index content is also an important factor affecting the credibility of evaluation results (Kassem et al., 2021; Vuong et al., 2021). The specific content design of the index is an important link for the effective implementation of the satisfaction evaluation work. The scientific setting of the satisfaction evaluation index helps to enhance the pertinence and operability of the evaluation work, make up for the mistakes and loopholes of the training work, and promote the sustainable development and innovation of the training work. However, in practice, the satisfaction index of HQFT mainly consists of qualitative index, supplemented by quantitative index. The subjective arbitrariness of qualitative index is strong, and the scientific and representative of the evaluation results are not high. Due to the lack of scientific statistical analysis methods such as correlation analysis, factor analysis and analytic hierarchy process, in the data collection stage, the evaluation options are simply satisfied, average, dissatisfied, etc., and in the statistical analysis, the weight ratio is not allocated according to the importance of each element of HQFT and the intensity of the needs of trained farmers, resulting in the lack of scientific and objective data support. Therefore, the credibility of the evaluation results is affected.

4.3.4 Emphasis on "Immediate Performance" and Neglecting on "Delayed Benefit"

The important role of training in the development of rural human resources has been widely recognized (Swanson, 2022; Babagana, 2024), and training is an effective way to rapidly improve the knowledge and skills of farmers under training, update their concepts and improve their quality. The cultivation of farmers' professional quality is not a matter of one day, and the improvement of farmers' comprehensive quality is not an immediate effect of one training, which is determined by the lagging characteristics of education and training performance (Donkoh et al., 2023; Ding et al., 2024).

Some training subjects in the survey said: "Farmer training is not a training on the line, is a long-term accumulation process. For example, before there was a student, began to ask her to participate in training she was not willing to say that there is no good training ah, I planted tea well on the line, later she through two or three years of training, changed the concept, broaden her horizon, now engage in the integration of the three industries more and more do better, became my training class teacher, give lectures to students, Now there is training her enthusiasm is not too high ah." Another cooperative president also said: "At first, I think I as a village cadre to play a leading role, every training I do not arrive late or leave early, listen carefully, in fact, calm down to listen, you will find that every teacher has something to listen to. The teacher may have a word to touch me, such as talking about the adjustment of planting structure, I came back to think about this problem, made a rice field under the grape frame. From each training bit by bit accumulation, accumulation is very important, learn a little each time, then a few years down the years can learn a lot." However, the delayed benefits are difficult to measure in practice, and the better career development achieved by trained farmers is also the result of multiple factors. For this

reason, many training institutions still regard HQFT only as "running the class", attaching importance to the design of training programs, the selection and employment of teachers and other training courses, such as the organization, implementation and service of the preliminary work, and have not paid attention to the post-training follow-up. Almost no training institutions have taken the career development of trained farmers as the evaluation index of training performance.

4.3.5 Emphasis on "Economic Benefits", Neglecting on "Development Benefits"

Farmer training, as a kind of public goods, is different from the general enterprise training. It always adheres to the concept of fairness, justice and non-profit, and has the value of fair distribution of educational resources, serving the public and sharing the results of educational development. Public welfare farmer training reduces the cost of farmers, helps farmers as social vulnerable groups to make up for part of the gap in education, is an important way for farmers to acquire knowledge and improve their ability, and a reliable way for farmers to break the economic barrier and can not equally enjoy the maximum benefit of knowledge. Public welfare training, as the most important investor of the government, has a similar educational purpose to school education. In the long run, its ultimate root is to improve people's cultural literacy and comprehensive quality, so as to serve the development of social productive forces and the construction of material civilization and spiritual civilization.

Public welfare training serves as a crucial supplement to formal education, yet faces evaluation challenges due to farmers' unrealistic expectations (Yang, 2023). Many participants view training as a "get-rich-quick" solution, equating effectiveness solely with immediate economic gains while overlooking long-term human capital development. As

one trainer noted: "HQFT aims to cultivate well-rounded modern farmers through comprehensive quality education, not just technical skills." However, farmers predominantly judge success by short-term profitability, creating a disconnect between the program's holistic objectives and participants' narrow performance metrics (Liao et al., 2022). This mismatch between developmental goals and economic expectations undermines proper assessment of training's true value.

4.4 Analysis of the Causes of Problems in Performance Evaluation of HQF' Training

The way to evaluate the training performance of HQF through the number of trainings completed, certificates obtained, inspection of documents and evaluation of farmers' satisfaction with training cannot objectively reflect the role of training in the overall sustainable development of farmers. The reason is that the evaluation of the training performance of HQF does not highlight the main position of farmers in the whole value evaluation, and the "ruler" to measure the training performance of HQF is not scientific.

4.4.1 Ignoring the Subjectivity of Trained Farmers

As a public welfare project led by the government, the training of HQF is an important measure for the government to realize rural revitalization by improving the quality of farmers. Therefore, when evaluating the training performance of HQF, the trainee farmers should be regarded as an important evaluation subject, focusing on the aspects of "whether the quality of farmers has been improved", "how much improvement is made" and "contribution to rural development".

Effective HQFT evaluation must assess both knowledge acquisition and practical application in agricultural production (Liao et al., 2022). As farmer F4 noted: "Training effectiveness depends on relevance to farmers' needs and practical applicability - mere attendance proves nothing." Current overemphasis on quantitative metrics (participation rates, satisfaction scores) creates a distorted understanding of training value. This study argues for a balanced approach that prioritizes measuring: 1) actual learning outcomes, 2) skill application in fieldwork, and 3) implementation depth - moving beyond superficial compliance indicators to evaluate genuine capacity building (Yang, 2023). The farmer-centered perspective remains essential for meaningful performance assessment.

4.4.2 Lack of Scientific Evaluation Tools

While scientific performance evaluation can enhance training quality and human capital development (Yi, 2022; Kalli et al., 2023), developing universal standards remains challenging due to regional, cultural and individual differences. Current overreliance on easily-obtainable satisfaction surveys and completion rates fails to adequately measure training effectiveness. As these metrics alone cannot assess actual learning outcomes or skill application, this study argues for a comprehensive multi-index evaluation system that combines: 1) organizational satisfaction, 2) practical benefits, and 3) post-training implementation - moving beyond superficial indicators to properly assess HQFT's true impact.

This study argues that the main reason for the neglect of humanistic values in the evaluation of the performance of HQFT is the lack of a set of scientific evaluation tools with the trainee farmers as the main subject of evaluation. In view of this, this study proposes the necessity of constructing a system of indicators for evaluating the

performance of HQFT that promotes the common development of individual farmers' occupations and the rural society and economy, with trainees as the main subjects, and that includes immediate performance and delayed benefits, and balances efficiency and effectiveness.

4.5 Establish A Performance Evaluation Tool

This part presents a visual and analytical framework that builds upon the critical issues identified in previous part regarding the performance evaluation of High-Quality Farmer Training (HQFT) in Jiangxi Province. Using a structured diagram or model (as depicted in the embedded image), this chapter aims to propose a more systematic and scientifically grounded approach to evaluating HQFT programs. The visual representation likely outlines key components such as evaluation criteria, stakeholder roles, and the interplay between immediate and long-term training outcomes. By doing so, this part transitions from problem identification to solution formulation, offering a conceptual foundation for improving the assessment of HQFT effectiveness.

4.6 Thought Process and Method of Index System Construction

Based on the introduction of the research area, research process and research methods of the performance evaluation of HQFT in the previous chapter, the performance evaluation system of HQFT is constructed in view of the problems found above in HQFT.

The basic idea of constructing the performance evaluation index system of HQFT in this study is as follows: First, through the research of relevant theories and existing literature, operationally define the evaluated object and determine the evaluation dimension; Then design a semi-structured interview outline according to the evaluation dimension, select the interviewees for in-depth interviews, analyze the interview data and construct measurement indicators based on the results of literature research, invite experts

to test the integrity and logic of the constructed index system, and form a preliminary training performance evaluation index system.

4.6.1 Ideas for Constructing the Index System

The basic idea of constructing the performance evaluation index system of HQFT in this study is as follows: Firstly, through the research of relevant theories and existing literature, operationally define the evaluated object and determine the evaluation dimension; Then, the semi-structured interview outline is designed according to the evaluation dimension, the interviewees are selected for in-depth interviews, the interview data are analyzed and the measurement indicators are constructed based on the results of literature research, and experts are invited to evaluate the integrity of the constructed index system, To form a preliminary training performance evaluation index system by the logical testing.

4.6.2 Principles of Index System Construction

To establish a set of scientific performance evaluation index system for training HQF and comprehensively investigate the practical performance of training HQF, on the one hand, it is helpful to understand the actual performance of training programs for HQF and provide policy suggestions for the optimal allocation of government resources (Tamsah, 2022; Qu et al., 2023; Gong et al., 2023). On the other hand, it is helpful to discover the problems existing in the training in time, so as to facilitate the adjustment and improvement of the training design and implementation. In order to build a practical and feasible performance evaluation index system for HQF' training, the following four principles are followed in the construction process.

i. Scientific Comprehensiveness Principle

The training of HQF is a complex systematic project (Osinga et al., 2022; Shariff et al., 2022). The training of HQF involves not only the demand survey, goal formulation, program design, resource preparation, etc., but also the explanation of training content, the application of training methods and the choice of training mode, etc., as well as the tracking service, technical guidance and the transformation of results after the training (De Witte et al., 2023; Zhang & Fan, 2024; Meng et al., 2024). Therefore, the performance evaluation index of HQF' training established by this research should accurately and objectively reflect the whole process of HQF' training, the harvest of HQF' participation in the training, the changes in behaviors, attitudes and values brought by the training to HQF, and the real situation of economic and social benefits brought by the transformation of training results. This requires the evaluation indicators to be divided according to certain principles, so that the structure is reasonable and the hierarchy is clear. A scientific and systematic evaluation index system is an effective tool to measure the training performance of HQF (Mignouna et al., 2023; Mizik, 2023).

ii. Principle of Dynamic Precision

The performance evaluation of China's HQF' training is still in the initial stage, which is related to the research of China's performance evaluation theory (Cai et al., 2023)

It is also related to the lag and indirectness of education and training performance. Sometimes the effectiveness of HQFT is not immediately reflected, but a dynamic accumulation and change process (Bakker et al., 2023). It is precisely because of the lag and indirectness of training performance that it is difficult for us to make real and effective performance evaluation in a short period of time. In addition, HQF experience different

career development stages from "novice" to "expert", and different development stages have different needs. Therefore, when formulating the performance evaluation index system for the training of HQF, it is necessary to set not only the process index of the training practice of HQF, but also the immediate performance index that can be felt immediately after the training of HQF, and the delayed performance index that can reflect the transfer of training, the application of training and the transformation of results. The process index, immediate performance index and delayed performance index can comprehensively represent the HQFT to promote the career development and social development of the trained farmers (Cui, 2023).

iii. Specific Operational Principles

The purpose of the performance evaluation of the training of HQF is to grasp the effective information and training status, find the problems in time, analyze the reasons (Ijatuyi, 2020; Wu, 2023), improve the training of HQF, and effectively improve the training efficiency of HQF. This requires that the performance evaluation index of HQFT be specific and operable and can truly reflect the training performance. Therefore, the selection of evaluation indicators should conform to the actual situation of the training of HQF, and the combination of qualitative and quantitative methods should be adopted as far as possible to ensure the availability and quantification of evaluation index data. At the same time, each index should be able to reflect relatively independent information, with irreplaceable.

iv. Effective and Practical Principles

On the one hand, effectiveness means that the performance evaluation index of HQFT constructed must be able to truly counter the performance evaluation index of

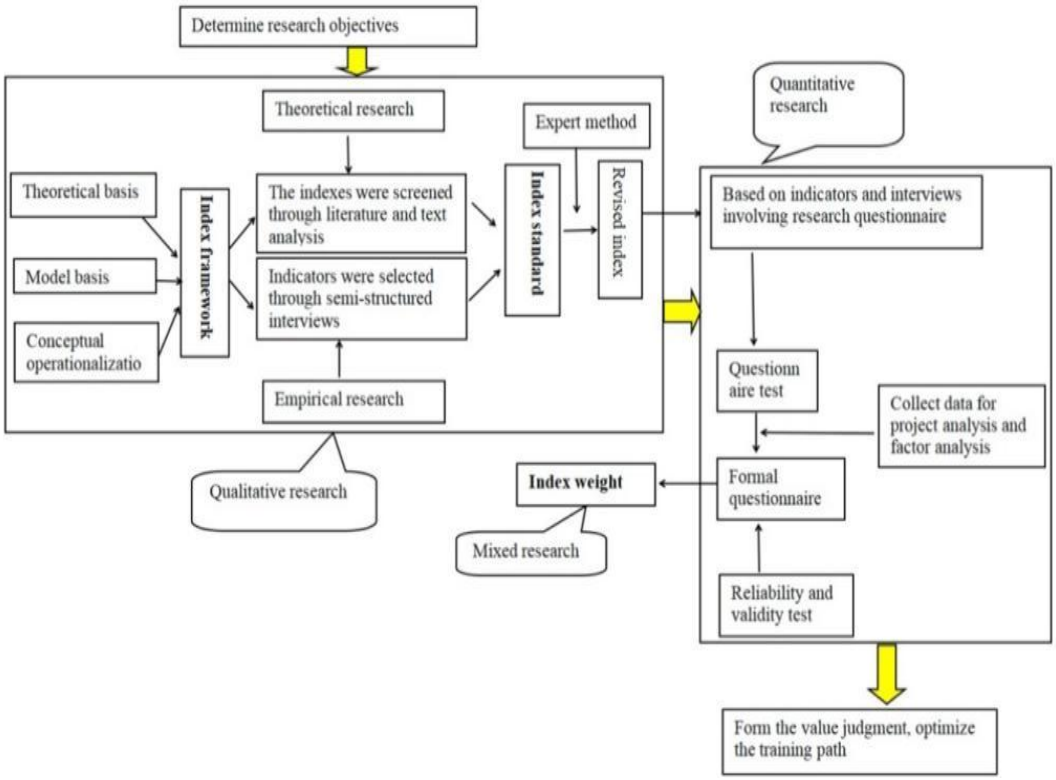
HQFT (Fu et al., 2021; Yu et al., 2023), must be able to truly reflect the actual effect of HQFT, and reflect the purpose of HQFT to promote social development and farmer career development (Beecher et al.,2023). That is, the performance evaluation index of HQFT constructed must reflect the performance that the training should achieve to the greatest extent and can measure as many things as possible that you want to measure.

On the other hand, practicability means that the evaluation process is simple and easy to operate. Therefore, we should try to avoid setting up a huge and complex index system, and use as few but precise indicators as possible to represent as much information as possible. At the same time, the practicability of indicators is also reflected in that the constructed indicators should be easy to collect data, and the data needed for evaluation can be obtained by means of ready-made statistical data, questionnaire survey or on-site interview. On the other hand, practicality means that the evaluation process is simple and easy to operate (Ravista et al., 2021; Russ-Eft et al., 2024). Therefore, we should try to avoid setting a huge and complex index system, and use as few and precise indicators as possible to represent as much information as possible. At the same time, the practicability of indicators is also reflected in that the constructed indicators should be easy to collect data (Gunnarsdóttir et al., 2021), and the data needed for evaluation can be obtained by means of ready-made statistical data, questionnaire survey or on-site interview.

4.7 Process of Index System Construction

The performance evaluation index system of HQFT includes three aspects: index framework elements, index standards and index weights. In order to build a scientific and reasonable evaluation index system to evaluate the training performance of HQF, researchers comprehensively use literature research, interview, expert consultation, questionnaire and other research methods to build the performance evaluation index

system of HQF' training. Specifically, it can be divided into two stages: first, the selection and determination of the performance evaluation index of HQF' training; The second is to determine the weight of the performance evaluation index of HQFT. See Figure 4.1 for the specific process.



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Figure 4. 1： Flowchart of The Construction of The Performance Evaluation Index System of HQFT

4.7.1 The Framework Construction of The Performance Evaluation Index System of HQFT.

Through the discussion of the theories of adult pedagogy, the evaluation model of training performance and the representation of training performance, it provides a theoretical basis for the construction of the performance index system of HQF' training. According to the research purpose of providing talents support for rural revitalization, modern agriculture and rural development, and farmers' self-sustainable development, as

well as the connotation of training performance, the characteristics of the research object "learning according to needs", "learning to gain", "learning to use" and "effective use", on the basis of defining the connotation of training effectiveness, Based on the hierarchical performance evaluation model and the theory of adult pedagogy, the first-level dimension of the performance evaluation index system of HQF' training is preliminarily conceived.

4.7.2 The Construction of the Index Standard of the Performance Evaluation Index System of HQFT

The standard construction process consists of two phases: initial development and finalization.

In the initial stage, researchers conducted a literature review on High-Quality Farmers (HQF), analyzing their characteristics, training needs, current status, and performance, along with policy documents on HQF identification and management. Preliminary indicators were selected based on Jiangxi Province's HQF training implementation plans. To enhance relevance and avoid omissions, a semi-structured interview framework was designed, and in-depth interviews were conducted with trained HQF farmers in Jiangxi. The findings, combined with literature research, helped refine the initial indicators.

To ensure comprehensiveness and logical consistency, experts (HQF researchers, education evaluators, organizers, trainers, and farmers) reviewed the pre-selected indicators, assessing their appropriateness, structure, and coverage. This process allowed cross-validation between literature-based and interview-based indicators while refining the preliminary HQF training performance evaluation framework.

After establishing the initial indicators, further refinements were made. A draft "HQFT Performance Questionnaire" was developed based on the indicator system and interview data. To improve clarity and validity, feedback was sought from HQF experts, training organizations, and participants, leading to revisions and a pilot version. The pilot questionnaire was tested on trained HQF farmers in Jiangxi, with SPSS used for factor and item analysis. Key performance indicators were identified, and the questionnaire was finalized for reliability.

Finally, factors were categorized and named based on common traits, resulting in the revised HQFT performance evaluation index system.

4.7.3 The Determination of The Weight of The Performance Evaluation Index System of HQFT.

Since each index can reflect the training performance of HQF to different degrees, it is necessary to empower indicators at all levels. Firstly, a pairwise comparison judgment matrix is constructed for the primary and secondary indexes of this study, and then experts are invited to score the evaluation index system by pairwise comparison. Then analytic hierarchy process is applied to calculate the importance ranking and test the consistency of the scoring results of experts, so as to obtain the weight coefficient of each dimension of the evaluation index of the training performance of HQF.

4.8 The Initial Establishment of the Performance Evaluation Index System of HQFT

After the conceptual dimension is listed and the evaluation framework is determined, the establishment of measurement indicators should be carried out, that is, the first level indicators are detailed step by step. There are two ways to establish the

measurement indicators. One is to find and use the existing indicators; The other is to collect data through field observation and interview. (Feng, 2022) The idea of index selection in this study is as follows: based on the dimensions of the performance evaluation index system of HQF' training mentioned above, multiple qualitative research methods such as literature method, interview method and expert method are adopted to preliminarily select evaluation indicators.

4.8.1 Select Indicators Based on Literature Data

Collecting and reading literature is the starting point of scientific research, and the collection, reading, sorting and analysis of literature can help to "stand on the shoulders of giants" to grasp the overall research topic. The process of selecting indicators from the literature is also the process of researchers' familiarity with the existing relevant studies and thinking, which is helpful for researchers to build a scientific and HQFT performance evaluation index system.

i. The Selection of Training Intention Dimension Index

The training willingness dimension corresponds to the response layer of the hierarchical evaluation model and the background layer of the CIPP model, which mainly evaluates whether the trained farmers participate in the training voluntarily. As a public product, whether farmers participate in the training program for HQF is affected by many factors, such as farmers' demographic characteristics, farmers' perception of government policies, whether farmers' families support it, etc. However, the purpose of this study is to evaluate the training performance of HQF, and training willingness is an aspect of training performance evaluation. According to field interviews with farmers and experts, whether farmers voluntarily participate in training is the most important and direct factor

influencing the training performance of HQF (Wang, 2021). Whether farmers voluntarily participate in training will greatly affect the training performance. Therefore, this study takes whether farmers voluntarily participate in training as the only secondary index of training willingness dimension in the training performance evaluation of HQF.

ii. The Selection of Training Satisfaction Dimension Index

The training satisfaction dimension aligns with both the learning level in hierarchical models and input level in CIPP models, assessing farmers' overall program satisfaction. This study establishes evaluation indicators through: 1) Conceptual analysis of farmers' needs fulfillment and organizational satisfaction, which fundamentally reflects training quality; and 2) Assessment of critical success factors including content relevance, methodological diversity, and instructor competency - all determining participation engagement and ultimate training effectiveness. The framework prioritizes demand-driven design while maintaining rigorous quality standards across all program components.

Effective farmer training requires both advanced theory and practical local expertise, supported by adequate facilities and management (Xu & Jiang, 2022). Building on existing research - including Yang's (2023) analysis of training components and Xu et al.'s (2024) demand studies - this study identifies eight key satisfaction indicators: 1) demand assessment, 2) content relevance, 3) delivery methods, 4) instructor quality, 5) scheduling, 6) venue suitability, 7) equipment adequacy, and 8) program management. These metrics collectively address both pedagogical and logistical dimensions of training effectiveness. See Table 4.3 for the selection of indicators of overall training satisfaction.

Table 4.3： Selection of Overall Training Satisfaction Indicators

Subjects	Indicator sources	Key indicators	Select indicators
Concept Deduction	Xu Jinhai, 2022	Training needs, training contents, training methods, training teachers, Training environment, training facilities and equipment, training management services， Training teachers, content, methods, time, facilities and equipment, etc	Demand research, training content, training form, training time
Available Literature	Yang Lulu, 2023	Needs research, on environment and management, content and form, teachers and satisfaction with teaching materials, etc	Training sites, training teachers, training facilities and equipment.
	Xu Baochen, 2024	Training needs, training content, training teachers, training methods, Training location, etc	Training management

iii. The Selection of Professional Quality Dimension Index

The dimension of professional literacy cultivation corresponds to the behavior level of the hierarchical evaluation model and the process evaluation of the CIPP model, which mainly evaluates the degree of mastering, absorbing and applying the knowledge and skills of trained farmers. HQFT is helpful to improve farmers' skills and professionalization degree, and the training content mainly focuses on vocational post ability and professional quality.

Due to China's long-standing urban-rural dual structure system, farmers have not been considered as a real profession, but a symbol of status. The training object of HQF is not the certified group that meets the entry conditions and has professional qualifications, but the professionalization training process for existing farmers with HQF as the target. The transformation process of farmers from identity to occupation is like a "black box".

To understand the contents of the black box, a result-oriented method can be used to clarify the growth mechanism of farmers' professionalism by analyzing the occupational characteristics, occupational requirements and professional qualities of HQF, and establish the connection between "input and output". Lv (2020) Therefore, by analyzing the quality structure of HQF, we can evaluate how well trained farmers understand, master and apply the training contents such as knowledge, skills and attitudes required by the new occupation of professional farmers. The specific methods are as follows: On the one hand, we can extract the necessary qualities of HQF as a profession from scholars' relevant literature on the concept of HQF; On the other hand, we can summarize the qualities needed to be competent for this occupation from the job responsibilities of HQF.

There are abundant literatures on the connotation and characteristics of HQF. Researchers mainly define the connotation of HQF from the aspects of professional knowledge and skills, operation ability, management ability, professional identity, professional concept, decision-making ability, environmental protection knowledge, market ability, driving ability, etc. (see Table 4.4). It can be seen that scholars' definition of HQF mainly focuses on six aspects: "love agriculture, have culture, understand technology, be good at operation, be able to manage and be able to drive", involving three aspects: professional identity, professional basic knowledge and ability and professional development ability.

Table 4.4： Representative Literatures on the Connotation and Characteristics of HQF

Sources	Connotation or characteristics	Composition of qualities
Duan (2020)	Love agriculture, understand technology, good management	Professional identity, professional knowledge and skills.
Li (2022)	Full-time farming, high quality, high income, social respect.	Professional quality
Zhu & Wen (2022)	Market players, stability, social responsibility	Market ability, sense of social responsibility
Guo et al. (2022)	High scientific and cultural quality, strong professional production skills, Good professional ethics, strong self-development ability, strong sense of market competition, and stable income.	Professional ethics, professional development ability, Market consciousness。
Chen & Han (2023)	Lifelong farming, agricultural quality, knowledge, skills and experience, marketization, scale and industrialization of professional farmers.	Professional knowledge and skills, management ability
Yan & Cai, (2023)	Professional occupation, cultural quality, business management knowledge and technical ability	Management knowledge and skills
Mi et al. (2024)	Good profitability, capital investment ability, scale management ability, organization ability, social service ability.	Economic income, business ability, social service ability
Zhang , (2024)	New capabilities, new roles and high quality.	Driving ability
Cheng , (2024)	Professional, advanced, skilled and leading	Professional thinking (concept)

China's agricultural training framework categorizes content into: 1) general knowledge (modern farming systems, product marketing, rural ecology); 2) industry-specific skills (production planning, operational management, post-harvest processing) (Ministry of Agriculture). Research confirms expanding competency requirements, with Yu et al. (2023) identifying 15 essential skills through Heilongjiang case studies, while Zhao (2020) established evaluation metrics covering agricultural knowledge, production

techniques, and business management. Empirical studies demonstrate training's effectiveness in enhancing policy understanding, operational skills, and financial management (Wang & Wang, 2023), highlighting its critical role in developing comprehensive farm management capabilities. (Table 4.2）

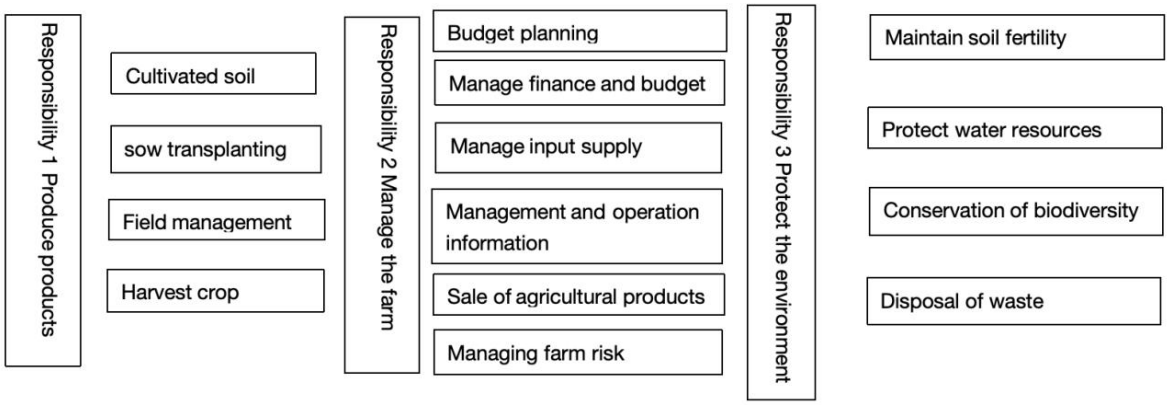


Figure 4. 2: Job Responsibility Framework Structure of HQF in Production and Operation

Based on the above analysis, it can be seen from the relevant literature on the connotation, characteristics and job responsibilities of HQF that the knowledge and skills mastered by HQF through training mainly include two categories: one is the professional knowledge and skills related to agricultural production, processing, management and sales; The other is other professional knowledge and skills related to agricultural policies and regulations, financial knowledge, environmental protection and so on. Based on the literature research on the connotation, characteristics and job responsibilities of HQF, the researcher believes that production knowledge and skills, management knowledge and skills, environmental knowledge and skills are all included in vocational knowledge and skills and vocational development ability. Therefore, the dimension index of professional literacy cultivation in this study selects three measurement indicators: occupational identity, vocational knowledge and skills, and vocational development ability, (See Table 4.5)

Table 4.5： Selection of Dimension Indicators of Professional Literacy

Indicator sources	Key indicators	Select indicators
Connotationand haracteristic of HQF	Professional identity, professional basic knowledge and skills, professional development ability	Professional identity, professional knowledge and skills, professional development ability
Literature on the job duties of HQF	Production knowledge and skills, management knowledge and skills, environmental knowledge and skills.	

iv. The Selection of Training Benefit Dimension Index

The dimension of training benefit corresponds to the level evaluation model and the result layer of CIPP model, which mainly evaluates the personal benefit, economic benefit and social benefit brought by the training of trained farmers. The "Training Standards for HQF" introduced by the General Office of the Ministry of Agriculture of China clearly puts forward the training goals of HQF in various industries as "training to meet the development requirements of modern agriculture, have the comprehensive quality of modern farmers, and have the high yield, high quality, high efficiency and safe production and operation skills of modern agriculture."

To train HQF who can engage in specialized, standardized, large-scale and intensive production and operation of modern agricultural industry." The "Training Standards for HQF" is an important basis for each training subject to implement HQFT programs. From the perspective of training objectives, the training of HQF is based on the improvement of the comprehensive quality of individual farmers' professional ability and income, and is also based on the talent support of rural social development.

From the analysis of the value of training for HQF in the first chapter of this study, it can also be found that farmers can promote the social and economic development of rural areas on the basis of obtaining personal benefits through participation in training, and the value of training for HQF can be guided from two aspects: individual and society. There are few studies on the benefits of farmer training in the existing literature, and the relevant studies mainly involve the benefits of talents, organizational benefits, economic benefits and social benefits. For example, Chen (2019) and Gao (2020), through qualitative analysis and research on Guangxi, believe that the effect of HQFT should be measured from three aspects: talent benefit, economic benefit and social benefit. He (2022), based on the structure of foreign training effect evaluation models and the characteristics and requirements of farmer training, constructed a hierarchical evaluation model that included four elements: skill transformation, individual benefit, organizational benefit and social benefit.

However, the existing research has unclear classification, fuzzy boundary and cross-content. For example, the talent benefit of the construction of HQF talent team is also an aspect of social benefit. Social benefit includes the training of social talents, the development of social economy and the improvement of social ecological environment, etc. Talent benefit should not be juxtated with social benefit. As a public welfare project led by the government, the organizational benefits of HQF can also be understood as social benefits in the context of the establishment of new agricultural management organizations such as family farms and farmers cooperatives. The economic benefit can be divided into individual economic benefit and social economic benefit. Based on the above considerations, the dimensions of HQFT benefit in this study include three measurement

indicators: individual benefit, economic benefit and social benefit. The selection of training benefit dimension indicators is shown in (Table 4.6)

Table 4.6: Training Benefit Dimension index Selection

Source of indicators	Key indicators	Select indicators
Chen Xiaoguang, 2019	Talent benefit, economic benefit and social benefit	Personal benefit
Koh Cui-ling, 2020	Talent benefits, economic benefits and social benefits	Economic benefits
He Xuejun, 2022	Skills transformation, personal benefits, organizational benefits and social benefits	Social benefit

4.8.2 Index Construction Based on Interview

Considering that the existing indicators may not be suitable for this study, after searching for the existing indicators through literature and modifying and supplementing them, in order to avoid the omission of some important indicators, this study designs the interview outline and conducts in-depth interviews with key figures of the interviewees through previous theoretical research. To view the training performance from the perspective of the subjects and understand their thoughts and ways of thinking, so as to supplement, improve and revise the indicators selected in the literature. (Feng, 2022)

i. Collection of Research Data

Interview, as a common basic mode in interpersonal interaction, is an important research method and technology in social research, and also an entry point in the specific operation of qualitative research. Steiner Koeffer and Sven Brinkmann (2013) Researchers ask and listen to learn about the subjects' experiences, feelings, attitudes and the world in

which they live. When using the interview method, in order to collect more comprehensive and authentic data, it is necessary to pay attention to the selection of interviewees and sampling methods.

a. Interviewee

The selection of interviewees involves both quantity and quality. The required number varies by research purpose—while some studies (e.g., biographical interviews) need only one subject (Steiner Koeffer & Sven Brinkmann, 2013), others require more for inter-group comparisons. However, excessive interviews risk insufficient analysis depth. The optimal number balances time, resources, and diminishing returns, stopping when no new information emerges (theoretical saturation). Interviews also help design questionnaires by testing question clarity and reflecting the target population's diversity, ensuring research validity. Accordingly, this study selects Jiangxi farmers trained in HQF, considering gender, age, education, region, industry, and training frequency.

The interviewees in this study are farmers who participated in provincial training in Jiangxi Province, and the time is concentrated from October 2023 to November 2023. The average interview time for each interviewee was about 30 minutes. The researcher recorded the interview at the same time. Considering the convenience of later analysis of interview data, the interview content was recorded with a recording pen/mobile phone based on the consent of the interviewees. The interviewees were selected based on the following three reasons: First, how was the training performance? Trainees, as training consumers, have the most say. They can objectively answer the questions that researchers want to know according to their real experience and feelings. Second, the interviewed farmers are different in age, education, industry and scale. Some have participated in training courses at ministerial, provincial and municipal levels, most of them have

participated more than 1-2 times, and the others have been more than 3 times. And some have been hired by various training institutions as "local experts", both trainees and training teachers. Some cooperatives (or family farms) are listed as field schools by training institutions, and also undertake certain training tasks. Some of them have rich practical experience, they understand the organization and implementation of training very well, and their views are representative to a certain extent. Thirdly, considering the feasibility and convenience of the interview implementation, there are two interview locations in this stage: one is the base hotel of Jiangxi Academy of Agricultural Sciences in Gao 'an City, namely, the HQFT center of Jiangxi Academy of Agricultural Sciences; The other is Nanchang Heng Hotel in Nanchang City, Jiangxi Province, namely: HQFT center of Jiangxi Biotechnology Vocational College

b. Sampling Method

As i was a lecture of Jiangxi Biotechnology Vocational College, and the training staff were all my colleagues, they were all willing to help; In addition, in June 2023, I presided over the application for a humanities and social science research project fund of Jiangxi Province on the training of HQF. The participants of this project are all the main staff of the HQFT Center of Jiangxi Biotechnology Vocational College. Therefore, the staff of the training center are very willing to help researchers collect data and other basic work. Another training unit is the Gao 'an Base of Jiangxi Academy of Agricultural Sciences. The person in charge of the base is a good friend of the researcher himself. He is recommended by this good friend to the training center of the base, and the staff of the training center recommend the trainees to conduct interviews.

Sampling method and observation method were adopted in the interview. On the one hand, the researcher followed the class to listen to the class, observed and understood

the peasant students' class performance, and visually measured the students' interest in the knowledge content, so as to select the target students for interview; Each HQFT class has about 100 people, the training time is 7 days, and the training for each class is carried out according to a certain time arrangement. After the training of one class, the next class starts. Therefore, the class teacher has a clear understanding of the situation of the class students, and the students are relatively familiar with the class teacher. The class teacher is a person familiar with and trusted by the students, it is very appropriate for the class teacher to recommend the students who meet the requirements of the survey, and then the student recommends other qualified students, and recommends one good, medium and poor farmer students in each class to the researcher for in-depth face-to-face interview. By adopting such a snowball sampling method and continuously accumulating samples, a total of 18 peasant trainees were interviewed（see Table 4.7）.

Table 4.7： Basic Information of the Interviewees

Name	Gender	Age	Village cadres	Academic qualifications	Area	Agricultural duration (years)	Main post	Size (mu)
F1	male	Post-70s	Y	High school	Shangrao	10	Co-op leader	500
F2	male	Post-70s	N	Technical secondary school	Nam Cheong	8	Family farmer	400
F3	male	Post-80s	N	Junior college	Nam Cheong	6	Co-op leader	600
F4	male	Post-90s	N	Junior college	Jiujiang	7	Co-op leader	750
F5	male	Post-80s	N	Junior college	Ji 'an	8	Family farmer	100

Table 4.7 continued

F6	female	The post-80s generation	N	Undergrad	Nanchang	6	Family farmer	200
F7	male	Post-60s	Y	Junior high	Ganzhou	12	Family farmer	200
F8	male	Post-70s	N	Junior college	Ganzhou	11	Co-op leader	800
F9	male	Post-70s	N	Technical secondary school	Shangrao	7	Professional tycoon	50
F10	male	Post-70s	Y	Undergrade	Ji 'an	9	Co-op leader	500
F11	male	Post-70s	N	Technical secondary school	Nanchang	8	Co-op leader	1500
F12	male	Post-60s	Y	Junior high	Yichun	8	Professional big-hitters	30
F13	female	Post-70s	N	Technical secondary school	Yichun	5	Professional bigwigs	20
F14	male	Post-80s	N	High school	Ganzhou	7	Family farmer	600
F15	male	Post-60s	Y	High school	Nam Cheong	38	Family farmer	2000
F16	male	Post-80s	N	Undergrad	Nanchang	8	Family farmer	1200
F17	male	Post-60s	Y	High school	Jiujiang	15	Family farmer	1500
F18	male	Post-70s	N	Technical secondary school	Ji 'an	15	Professional bigwigs	30

c. Data Collection

The interviews in this stage mainly focus on the theme of "training performance of HQF". According to the previous research basis, a relatively broad and open interview topic is designed to form the first draft of the open interview outline. Then, through interviewing HQF, we can understand their different feelings and gains in the training, and

constantly modify the interview outline. In this stage, a total of 485 minutes of audio recordings were formed, and about 119,000 words of interview texts were transcribed through Xunfei hear software to obtain the preliminary theoretical structure of the research topic, which became the theoretical basis of this study.

ii. Collation and Analysis of Research Data

In this study, based on the previous interview data collection, interview data were mainly conducted alternately with coding. Trainees were interviewed at the same time during the training period, transcribed into text data when there was no interview task, and the text content was encoded using the three-level coding method of grounded theory, and the interview data was read repeatedly during coding. In addition, by comparing the interview content with the pre-coding data, the interview data were coded, classified and summarized step by step, until no new concepts and relationships emerged, that is, theoretical saturation, the coding was stopped, and finally an indicator system was formed.

a. Open Coding

Open coding is also called first-level coding. The main task of this stage is to define the concept, discover the category and form the categorization. First of all, the transcribed interview data are compared and read repeatedly, the data that most strongly answers the research question is extracted according to the research purpose, and these data are broken up to find the structure of the discourse and the connections between various parts from the aspects of context, grammar, theme, content, etc., to assign concepts and meanings, and then recombine them in a new way (Chen, 2023). Through this series of processes of disassembling, reassembling, conceptualizing and conferring meaning, units of thought are discovered, codes are made, and "native concepts" are sought. Limited by space, this study

chooses one of the interview segments as an example to illustrate the coding process of localization concepts (see Table 4.8). Based on the initial localization concepts extracted from the original data statements, similar concepts are summarized into a categorization process according to the relationship and logic of each initial localization concept. In order to minimize the personal bias and influence of the researchers, the original words of HQF in the interviews are used as labels in this study. However, due to the limitation of space, the coding process of all interview data is not presented in this study, only some sentences representing open coding are presented. In the end, a total of 36 independent categories are summarized in this study (see Appendix 3 for details).

Table 4.8： Collation and Analysis of Research Data

Interview snippets	Localization concepts
One is the interpretation of this new policy by experts every year, which is also a very necessary factor to understand when conducting new types of agricultural operations, including family farms, not only cooperatives like ours, but also agricultural companies, which are agricultural operations (A1). For our country's agriculture policy environment, it is still necessary to understand something, it is the state to give some support or is given some rewards, including the national level, to the local level, he will talk about. Because you go to study, you will find a lot of you, for example, meet the requirements, can enjoy this incentive policy. If you don't go, you will not be able to enjoy the incentive policy because you don't know about it, which I think is rather unfair. (A2) Right? The second is an expert, including a training teacher. (A3) Interpretation and tracking services of new varieties of new technologies. The introducers are of high significance for us to really engage in this kind, especially planting or breeding. (A4) Because experts and scholars, such as the Academy of Agricultural Sciences, we are closely connected with the Academy of Agricultural Sciences, and their channels of information communication must be more diversified, right? (A5) As the person in charge of the cooperative, while I am planting this acre of land by myself, I am very interested in introducing any new things. I still want to spread it to our farmers. No matter what kind of industry, no matter what kind of industry, your entire local industry cannot achieve a balanced development, only for example, a dominant company or something, of course, for individuals, he may make money (A6), but for our agricultural industry, your local people's technology can not keep up, the price cannot be raised. If there are only a few companies fighting alone forever, the people will not have any motivation if they do not earn money, and you do not know that he does not know, you will not be able to form an industrialized thing (A7). For example... The third benefit is to get to know more of our younger students around us, so that we can get together like brainstorming and there will be something new. (A8) At least there is no generation gap between us, and communication will be more barrier-free. For example, we in Ganzhou this year did a pilot, I was a pilot, our city has two peach classes, a glucose, I was dedicated to bear the 8 relatively young farmers of the class, (A9) carried out the classroom training is theoretical training and out to observe. (A10) Training is definitely my voluntary participation, mainly I also want to learn some new technology, provincial training should be more rich training content. (A11)	A1 Pertinence of training content A2 Taining can learn agricultural policy knowledge. A3 Training teachers have agricultural technology experts. A4 Participating in the training can learn new skills, enjoy tracking services. A5 Participation can meet experts and understand information. A6 Apply what you learn in training to improve earnings. A7 Will promote the training and drive the local people to form an industrial scale and common cause rich. A8 Know a lot of peers through training. A9 Training experts have "local experts". A10 Training forms include theory and observation. A11 Training is voluntary

b. Axial Coding and Selective Coding

Then axial coding and selective coding, this stage is mainly to establish the relationship between concepts and categories by analyzing the time sequence, semantics, similarity, difference, causality and other relationships between categorization concepts, and summarize the relationship between categorization concepts into more advanced categories. Through repeated comparison of 36 categorical concepts, 16 categories are identified in this study, and the categorization concepts are further classified and core/selective coding is carried out. Through repeated comparison and classification, that is, three-level coding, they are finally classified into the four dimensions mentioned above. (see Table 4.9)

Table 4.9： Sample Open Coding Table

Category (Level 1 coding)	**Category (Level 2 coding)**	**Core class (Level 3 coding)**
Volunteer for training	Willingness to train	Willingness to train
Family support		
Government policy encouragement		
Training organizations	Training organization Management	Training satisfaction
Training management		
Training Services		
Training content	Training content	
Form of training	Form of training	
Training time	Training space and time	
Training location		
Training teachers	Train teachers	
Continuity services	Tracking service	
Participation	Training performance	
Participation motivation		
Agricultural expertise and skills	Professional knowledge and skills	Professional quality
Other vocational knowledge and skills		
Innovative ideas		
Ecological idea	Renewal of career concept	
A new understanding of farming	The enhancement of professional identity	
Increased willingness from agriculture		
Hope children from farming		
Marketability	The formation of career development ability	
Information gathering ability		
Decision-making ability		
Use new technologies/new varieties/new models	A change in professional behavior	
Develop new systems/extend the industrial chain		
Individual Honors		
Farm (co-op) honors		
Broaden your mind		
The expansion of social capital	Personal benefits	Training benefits
Cost reduction		
Increased efficiency		
The income of farmers has increased	Economic benefits	
The status of farmers improved		
Demonstration drive	Social benefit	
Ecological benefits		
Increased awareness of social responsibility		

4.8.3 Formation of Initial Indicators Based on Integration and Complementarity

Generally speaking, the construction of scientific theories needs to rely on reason, logic and experience, which mainly includes two methods: deduction and induction. In the development of the performance evaluation index system of HQFT, this study comprehensively uses two logics: deduction and induction. Qualitative research is a process of constant change and accumulation. As an open research structure, the analysis of qualitative data cannot be carried out at one time according to fixed procedures in actual operation, but it is necessary to constantly revise it according to various original data collected, so as to test and enrich the constructed index concept and framework (Chen 2022). Therefore, the formation of the performance evaluation index system of HQF' training is not achieved overnight, but a cycle of reading, comparison and analysis of multiple data. The relationship between the data and the constructed category needs to be constantly analyzed, and the process of constant comparison and induction is also carried out.

i. The Integration and Complementarity of Literature and Interview Indicators

On the one hand, the paper deduces and determines the indicators of the performance evaluation index system of HQFT by "literature analysis"; On the other hand, through the "field in-depth interview" to reduce the index step by step. Elements of the framework of the performance evaluation index system of HQFT constructed by the two methods overlap and complement each other. Therefore, based on the analysis of existing literature, a "secondary adjustment" is carried out by integrating various evaluation forms and interview results used by various training subjects in the process of field investigation, and the two rounds of materials are integrated and complementary. In order to obtain

more perfect and detailed indicators and an indicator framework with clearer logical relationship, this study obtained a draft of the HQFT performance evaluation index system shown in the following table through the integration and complementarity of the two methods (see Table 4.10).

Table 4.10： HQFT Performance Evaluation Index System and Sources (Draft)

Dimensions	**Indicators**	**Indicator sources**
Willingness to train	Volunteer for training	Interviews
Training satisfaction	Training organization and management	Interviews/Literature
	Training content	Interviews/literature
	Form of training	Interviews/literature
	Training time and space	Interviews/literature
	Training Teachers	Interviews/literature
	Tracking services	Interviews
	Participation performance	Interviews
	The renewal of career concept	Interviews
	Improvement of professional knowledge and skills	Interviews/Literature
Professionalism	The formation of professional development capacity	interview
	An increased sense of professional identity	Interviews/Literature
	Shifts in professional behavior	Interviews
	Personal Benefits	Interviews/Literature
Training benefits	Economic benefits	Interviews/literature
	Social benefits	Interviews/literature

ii. Use Expert Consultation Method to Revise and Improve Indicators

The index system can not be established at one time, but needs to be constantly adjusted, revised and optimized according to the actual situation. The index system constructed based on literature and interviews may have repeated contents and unclear

logic, which requires constant comparison, screening, screening, classification and combination of the established evaluation indicators. In order to further verify, optimize and ensure the accuracy and completeness of indicators, This study will initially establish a HQFT performance evaluation index system (a draft) to listen to experts' opinions.

a. Selection of Experts

Expert consultation is a method to listen to the opinions of experts on a certain issue and verify them with the help of their knowledge, experience and judgment. The researcher extensively listens to the experts' opinions on the performance evaluation index system of HQF' training, and improves and modifies the evaluation index system according to the experts' opinions. The key of expert consultation method lies in the selection of experts, the selected experts should be familiar with the content of this study and have certain researcherity. After careful consideration, the researcher selected 10 experts from the research field of "agriculture, rural areas", the field of empirical research methods, the training subject, the training teacher and the trainees (see Table 4.11). Before asking for expert advice on the listed HQFT performance evaluation indicators one-on-one or one-to-many face-to-face, the researchers first explained the research purpose, research perspective, research object and indicator source of this study with the experts. Some of the experts consulted for many times, and revised the indicator system according to the expert opinions.

Table 4.11： Basic Information of Experts

Name	Title/title	Educational background	Organization	Research expertise/job responsibilities
Z1	Professor (Level 2)	Undergraduate	Regular colleges and universities	Experts in the study of agriculture, rural issues
Z2	Professor	Ph.D.	Regular colleges and universities	Rural vocational education research
Z3	Associate Professor	PhD	Ordinary university	Educational research/quantitative research
Z4	Professor (Level 3)	Ph.D.	Agricultural colleges and universities	Highly qualified farmer research/training subjects/training instructors
Z5	Associate Professor/Section Chief	Master's	Department of Agriculture	Body of research/training for highly qualified farmers
Z6	Associate Researcher/Director	Master's	Academy of Agricultural Sciences	Rural finance and finance research/training subjects
Z7	Associate Professor/Dean	Master's	Higher vocational education in agriculture	High quality farmer research/training subjects/training instructors
Z8	Associate Professor/Director	Master's	Higher vocational education in agriculture	Research/training subjects of high quality farmers
Z9	Farmer	Undergrad	Family farm	Highly qualified farmers
Z10	Co-op leader	Junior college	Co-op	Highly qualified farmers/training instructors

b. Major Questions to Consult

This expert consultation mainly focuses on the confusion encountered by researchers in the process of building a HQFT index system to listen to expert opinions. The main confusion is that various indicators at the level of training benefits have overlapping and unclear boundaries. For example, economic benefits can be represented by both the improvement of individual farmers' income and the improvement of farmers' group income. Can be classified as personal benefits and social benefits at the same time. Therefore, researchers mainly focus on: (1) Understanding of the training value and training performance of HQF? (2) Can training satisfaction be a dimension to evaluate the training performance of HQF? (3) Can the indicators listed by the researcher represent the training performance of HQF? (4) Is the classification of the indicators listed by the researcher reasonable? (5) Are there any important indicators missing? Five main questions to get expert advice.

c. Collation of Expert Opinions

First of all, experts generally believe that HQFT is an important measure of rural revitalization, is a systematic project, its value should reflect both individual and social levels, and the realization of social value is based on the realization of personal value. Therefore, the performance of HQFT is not only reflected in the farmers' mastery, understanding, absorption and application of training knowledge and skills, but also should emphasize the role of individual and social development. Secondly, on the question of whether training satisfaction can be a dimension to evaluate the training performance of HQF, experts believe that farmers' satisfaction with training is the premise and basis for farmers to participate in training and achieve results, and can be used as a dimension to evaluate training performance.

Thirdly, the selection of interviewees involves both quantity and quality. The required number varies by research purpose—while some studies (e.g., biographical interviews) need only one subject (Steiner Koeffer & Sven Brinkmann, 2013), others require more for inter-group comparisons. However, excessive interviews risk insufficient analysis depth. The optimal number balances time, resources, and diminishing returns, stopping when no new information emerges (theoretical saturation). Interviews also help design questionnaires by testing question clarity and reflecting the target population's diversity, ensuring research validity. Accordingly, this study selects Jiangxi farmers trained in HQF, considering gender, age, education, region, industry, and training frequency.According to the opinions of experts, combined with the results of literature and interview data analysis, the researchers revised and improved the performance evaluation index system of HQF' training, forming the second draft of the performance evaluation index system of HQF' training (see Table 4.12).

Table 4.12： The Second Draft of The Performance Evaluation Index System of HQFT

First-level index	Secondary indicators
Willingness to train	Volunteer for training
	Training organization and management
Training satisfaction	Training content
	Form of training
	Training time and space
	Training Teachers
	Tracking services
	Participation performance
	The renewal of career concept
	Improvement of professional knowledge and skills
Professional literacy	Formation of entrepreneurial ability
	An increased sense of professional identity
	Shifts in professional behavior
	Personal Benefits
Training Benefits	Economic benefit
	The promotion of farmers' status
	Increased awareness of social responsibility

4.9 Improvement of The Index System

On the basis of preliminarily determining the performance evaluation index system of training for HQF, in order to compile a "Questionnaire on training performance of HQF" which conforms to the reality of training for HQF and is easy for participating farmers to understand, this study mainly compiled questionnaire items based on interview data. When examining the status quo of the training performance of HQF, try to consider the characteristics of farmers of different ages, different degrees, different levels, different industries and scales, and try to describe the problem from the perspective of farmers' standpoint and understanding habits. It should be pointed out in particular that in order to ensure that the training performance of HQF is really caused by training, special emphasis will be placed on various forms of farmer training in the preparation of questions. As far as the training of HQF in our country is concerned, it mainly includes four different training forms: "fixed class", "mobile class", "air class" and "field class". Therefore, the training in this study includes classroom training, outdoor observation, on-site teaching, tracking guidance, online learning and other forms.

4.9.1 Purpose and Objectives of Questionnaire Survey

Questionnaire refers to a series of questions designed by researchers to collect people's attitudes, values, views or beliefs about a specific issue, and is a research tool (Chen 2022) . As an important tool of questionnaire method, the quality of questionnaire has a direct impact on the results of investigation. The self-designed questionnaire used in this study strictly follows the process of questionnaire preparation: building theoretical framework, compiling questions, issuing and retrieving prediction questionnaires, conducting item analysis and factor analysis of prediction questionnaires, issuing and

retrieving formal questionnaires, reliability and validity testing, and confirming questionnaires.

Questionnaire method is a method of social investigation using questionnaire as a research tool. Compared with other research methods, questionnaire method has the advantages of saving time, money and manpower, high efficiency, relatively objective survey results, large sample survey, and easy quantitative processing and analysis of survey results, so it is widely used. In this study, questionnaire method is mainly used for two purposes: First, through forecasting, project analysis and factor analysis of the questionnaire, and according to the analysis results, modify and improve the performance evaluation index system and questionnaire of HQF' training. The second is to understand the training performance of HQF in Jiangxi Province through the issuance of formal questionnaires and data collection and analysis.

The selection of the questionnaire objects is directly related to the validity of the research data. As mentioned above, the current practice of the evaluation of the training performance of HQF mainly focuses on the government's evaluation of the training institutions, and the evaluation of the training performance of the trained farmers, as the direct beneficiaries of the training, has not been paid much attention to. This study mainly investigates the training performance of HQF from the perspective of the trained farmers. Therefore, the farmers who have received the training of HQF are the investigation objects of this study. Because the object of this research is to participate in the training of farmers in Jiangxi province, the training content is relatively rich, so it includes production and management types (such as: Family farmers, co-operative leaders, agricultural enterprise leaders), technical skills (agricultural skilled, technical backbone, technical attendants),

social service (rural village committee cadres, financial and accounting personnel, policy publicity personnel, e-commerce service personnel).

4.9.2 Questionnaire Item Design

The questionnaire in this stage consists of four parts: guidance, basic information, pre-training intention, satisfaction during training and performance after training. The function of the guide is to inform the respondents of the purpose of the study, explanation of the answer, explanation of the concept and scope, etc. The basic information includes gender, age, region, education level, farming time, agricultural experience, industry scale, annual income, specific post, training frequency and so on.

Due to the lack of ready-made questionnaire reference, this study adopts the form of researcher-designed questionnaire. The prediction questionnaire(preliminary version of the questionnaire) was designed mainly according to the performance evaluation index system of HQF' training established above. In order to make the questionnaire closer to the actual situation of the respondents and easier for the respondents to understand the question statements, the original words of the interviewed farmers in the previous interview were used as far as possible in the preparation of the questionnaire items. The initial items of the questionnaire are shown in Table 4.13.

Table 4.13： Initial Questions of The Questionnaire on The Training Performance of HQF

Dimensions	Item statement
Training intention	1. I am very willing to participate in this HQFT.
	2. The main reason for participating in the training of HQF is encouraged by the government policy.
	3. Family members are very supportive of participating in HQFT.
	4. Can participate in the activities organized by the cultivation of HQF on time, and never be late or absent from class.
Training content	5. The training content is what I need.
	6. The training content is easy to understand.
	7. The training content is practical.
	8. The training content is novel.
	9. The training content is systematic.
Training form	10. I like the way the teacher tells me what to listen to in class.
	11. I like the teacher's case analysis.
	12. I like teachers to organize us to communicate and discuss.
	14. Like organizing us to go out to watch and study.
	15. I like online teaching.
Train teachers	16.Train teachers to be highly interactive with students in the classroom.
	17.The trainers can go to the scene for diagnosis teaching.
	18.The trainee teachers have rich practical experience.
Training Services	19.The training service is attentive and meticulous.
	20. The training equipment is advanced and complete.
	21.Elegant training environment
	22.Training transportation and accommodation are well arranged.
Tracking service	23.Can this training solve my confusion at work?
	24.After the training, technical experts will follow up and guide me throughout the whole process.
	25.There are technical consulting services after the training, and I can solve any problems at any time.
	26.After the training, there will be experts to provide business guidance.
Training	27.Leaving early without signing in.

Table 4.13 continued

performance	28Attend classes on time according to the schedule and never miss classes.
	29.Almost never came to class late or left early.
	30.Pay attention to the class, whether online or online.
	31.Important content will be missed several times.
	32.Discuss any problems with your professional peers.
The career concept is renewed.	33.The training has changed my concept of production and management, and I understand the importance of using science and technology to develop agriculture.
	34.The training enhanced my concept of using the Internet to help agricultural production/management/sales.
	35.After the training, I considered the idea of producing green and organic agricultural products.
	36. After the training, I pay more attention to the protection of agricultural production environment than before.
	37. I pay more attention to the quality and safety of agricultural products after the training.
	38.The training enhanced my awareness of brand building.
	39.After the training, I pay more attention to energy saving and weight loss in production.
Improve professional knowledge and skills	40. I have learned the knowledge and skills of agricultural production through training.
	41. I learned farm (field) management knowledge and skills through training.
	42. I have acquired knowledge and skills in marketing of agricultural products through the training.
	43. I learned about agricultural and rural policies and regulations through the training.
	44. I learned the knowledge of protecting the environment through the training.
	45. I learned about finance through the training.
	46. I learned about applying for and implementing agricultural projects through the training.
	47. I learned about brand building through the training.
	48. I learned about the safety of agricultural products through the training.
The formation of	49. The training improved my ability to plan the development of the farm.

Table 4.13 continued

professional ability	50. The training improved my ability to develop markets for agricultural products.
	51. The training improved my ability to communicate with experts/clients/peers.
	52.The training improved my ability to find business opportunities.
	53.The training improved my ability to avoid risks.
	54. The training improved my decision-making ability.
Professional behavior change	55. I use a new variety, technology or model through training.
	56. I was trained to adjust the size of my farm and produce.
	57. I changed my sales model after the training. For example, I added online sales.
	58. After the training, I learned to ensure the quality of agricultural products by establishing standards or using monitoring and tracking information. After the training, I extended my industrial chain.
Personal benefits	59. I got to know agricultural experts through training.
	60. Through the training, I got to know my peers who are doing well in my field.
	61. I joined the agricultural industry organization or association through the training.
	62. The training broadened my horizon and mind.
	63. Training has broadened my customer base.
Economic effect	64.The application of training can reduce the cost of agricultural production.
	65.The use of training can reduce labor costs.
	66.Applying the training can reduce the cost of time.
	67.Applying what you learn increases productivity.
	68.The application of training knowledge improved the quality.
	69.The application of training knowledge broadened the channels for increasing income.
	70.The application of training knowledge increased income.
Social benefits	71.Through training and learning, I can provide relevant agricultural technical guidance to the surrounding small farmers.
	72. After the training, I will promote and apply the new products and technologies I have learned to the surrounding small farmers.
	73. By attending the training, I can bring cutting-edge agricultural information to the small farmers around me.
	74.After the training, I led more and more small farmers to increase

Table 4.13 continued

	their income.
	76. The environment of my farm is getting better and better after the training.
	76.The problem of pesticide residues in agricultural products has been significantly improved after the training.

The first draft of the quality farmer training performance questionnaire can not be directly used for formal investigation (Feng, 2019). In order to ensure the completeness, logic and effectiveness of the questionnaire structure and facilitate respondents' answers, experts, scholars, peers in the research field, researchers from the actual research department and typical respondents can be invited to comment on all aspects of the questionnaire and the entire questionnaire design by using the expert validity evaluation method. This study invited 8 experts (Review Table 3.2) to evaluate the questionnaire. After feedback, all the experts agreed on the dimensions based on which the questionnaire was developed, and the initial questions were revised and adjusted accordingly.

4.9.3 Test The Questionnaire

The "Training Performance Questionnaire of HQF" initially developed in this study is mainly composed of four sub-questionnaires. This study adopts Likert's 10-level scoring method (1 represents very inconsistent to 10 represents very consistent) for data collection. The higher the score, the better the training performance of HQF. In order to test the quality of the questionnaire, this study conducted a "small sample" test on the questionnaire by collecting relevant data, conducted project analysis and factor analysis on the four-component questionnaire according to the test data, and further modified the structure and questionnaire of the performance evaluation index of HQF' training based on the analysis results.

4.9.3.1 Basic Information of the Participants

By means of random sampling, this study took the students who participated in the HQFT course held by Jiangxi Academy of Agricultural Sciences last year as the survey objects. The questionnaire was conducted online. The head teacher of the training course was asked to send the two-dimensional code of the questionnaire to the wechat group of the class, and the questionnaire was sent to the wechat group of the training course that had completed the training in the previous year in January 2023. After the prediction questionnaires were collected, the researchers strictly reviewed and screened all the questionnaires. The main criteria of screening were to eliminate the questionnaires with regular answers, missed answers, inconsistent answers, short answer time and other characteristics, and finally determined 139 valid. The basic information of the selected samples is shown in Table 4.14.

Table 4.14： Basic Information About a Sample (N=139)

Variables	Categories	Number of people (N)	Percentage (%)
Region	Ganzhou	35	25.18
	Ji 'an	9	6.47
	Nam Cheong	47	34.81
	Yichun	15	10.79
	Jiujiang	10	7.19
	Shangrao	23	
Gender	male	119	85.61
	female	20	14.39
Age	Age 29 and under	11	7.9
	30 to 39 years old	25	17.99
	40 to 49 years old	68	48.9
	50 to 59 years old	32	24.02
	Age 60 and above	3	27.87
Educational attainment	Primary and below	4	2.88
	Middle school	42	30.22
	High School	33	24.74
	Technical secondary school	13	9.35
	Junior College	39	28.06
	Undergraduate	8	5.7
Years from farming	3 years and under	29	20.86
	4-6 years	23	16.55
	7-9 years	19	14.67
	10-12 years	27	19.42
	13 to 15	13	9.53
	16 + years	28	20.14

Table 4.14 continued

From pre-farm occupation	Ordinary farmers	29	20.86
	Agricultural workers, agricultural employees and other agricultural professionals with professional skills	10	7.19
	Agricultural machine operators and other agricultural professional skills personnel	7	5.04
		26	18.71
	Village cadres (including village officials)	14	10.07
	Peasant workers	8	5.76
	Middle and senior managers in enterprises	2	1.44
	Soldiers, teachers, doctors, engineers and lawyers, etc	32	24.02
	Self-employed investors (self-employed businesses)	2	1.44
	College students	9	6.47
Post	Big farmer	15	10.79
	Ranchers (family farmers, farm owners)	38	27.34
	Co-op president (leader)	25	17.9
	Head of agricultural enterprise	22	15.83
	Other new types of agricultural business entities	39	28.06
Size of operation	Under 50 acres	50	35.97
	50-100 acres	31	22.3
	100-300 acres	22	15.83
	301 -- 500 acres	14	10.07
	501 -- 1000 acres	10	7.19
	1000 acres and above	12	8.63
Annual personal income	100,000 and below	65	46.76
	110-200,000	43	30.94
	210,000 to 300,000	9	6.47
	310,000 -- 400,000	6	4.32
	410,000 -- 500,000	6	4.32
	510,000 and above	10	7.19

Table 4.14 continued

The number of training in the past three years	0 times	6	4.43
	1-2 times	101	72.66
	4.5 times	28	20.14
	5 more times	4	2.88

4.9.3.2 Project Analysis

Item analysis and reliability and validity test of the predicted data are the basis for compiling the formal questionnaire. Item analysis is to explore the difference or homogeneity test between the high and low groups in each item, and the purpose is to test the appropriateness of the items in the questionnaire on the training performance of HQF compiled by researchers. The results of item analysis can be used as the basis for deleting questions. This study mainly uses the critical ratio method and homogeneity test for item analysis.

Critical value ratio method is also called extreme value method. The process of project analysis by the critical value method is as follows: calculate the total score of the questionnaire -- sort the total score by high or low -- determine the critical score (27% above or below the high or low score) -- divide into two groups -- independent sample t test. The idea is similar to the degree of discrimination, which mainly determines whether the item has the function of distinguishing whether the subject evaluates the training performance. The significance and significance (two-tailed) values of this study were used as the basis for item deletion. The results showed that the T-value of all items in the 95% confidence interval of the prediction questionnaire was less than 0.05, indicating that the discrimination of all items was good and it was not necessary to delete the items (see Table 4.15).

Table 4.15： Summary Table of Critical Value Ratio Method for Questionnaire Analysis of Training Performance of HQF (N=139)

Independent sample test		Levin's test for variance equality		Mean equality T-test						
		F	Salience	t	Degrees of Freedom	Significance (two-tailed)	Difference in mean	Standard error difference	Difference 95% confidence interval	
									Lower bound	Upper limit
26, PXYY1	Assumed equal variance	80.317	0.000	7.405	76	0.000	1.415	191	1.795	1.034
	Equal variance is not assumed			7.799	40.000	0.000	1.415	181	1.781	1.048
26, PXYY2	Assumed equal variance	58.278	0.000	5.209	76	0.000	1.022	196	1.412	-0.631
	Equal variance is not assumed			5.476	41.711	0.000	1.022	187	1.398	-0.645
26, PXYY3	Assumed equal variance	81.115	0.000	8.121	76	0.000	1.317	162	1.640	- 0.994
	Equal variance is not assumed			8.554	40.000	0.000	1.317	154	1.628	1.006
26, PXYY4	Assumed equal variance	61.376	0.000	7.279	76	0.000	1.098	151	1.398	- 0.797
	Equal variance is not assumed			7.667	40.000	0.000	1.098	143	1.387	- 0.808
26, PXYY5	Assumed equal variance	39.911	0.000	6.925	76	0.000	1.049	151	1.350	- 0.747
	Equal variance is not assumed			7.294	40.000	0.000	1.049	144	1.339	-0. 758
27, PXHJ1	Assumed equal variance	52.873	0.000	7.071	76	0.000	1.098	155	1.407	- 0.788
	Equal variance is not assumed			7.448	40.000	0.000	1.098	147	1.395	- 0.800

Table 4.15 continued

27, PXHJ2	Assumed equal variance	74.239	0.000	9.249	76	0.000	1.488	161	1.808	1.167
	Equal variance is not assumed			9.743	40.000	0.000	1.488	153	1.796	1.179
27, PXHJ3	Assumed equal variance	41.256	0.000	6.961	76	0.000	1.171	168	1.506	- 0.836
	Equal variance is not assumed			7.333	40.000	0.000	1.171	160	1.493	- 0.848
27, PXHJ4	Assumed equal variance	42.602	0.000	6.705	76	0.000	1.098	164	1.424	- 0.772
	Equal variance is not assumed			7.062	40.000	0.000	1.098	155	1.412	- 0.783
28, PXNL1	Assumed equal variance	64.750	0.000	9.334	76	0.000	1.415	152	1.716	1.113
	Equal variance is not assumed			9.832	40.000	0.000	1.415	144	1.705	1.124
28, PXNL2	Assumed equal variance	69.743	0.000	12.548	76	0.000	1.366	109	1.583	1.149
	Equal variance is not assumed			14.218	40.000	0.000	1.366	103	1.575	1.157
28, PXNL3	Assumed equal variance	64.051	0.000	11.322	76	0.000	1.366	121	1.606	1.126
	Equal variance is not assumed			11.926	40.000	0.000	1.366	115	1.597	1.134
28, PXNL4	Assumed equal variance	79.172	0.000	10.461	76	0.000	1.585	152	1.887	1.284
	Equal variance is not assumed			11.019	40.000	0.000	1.585	144	1.876	1.295
28, PXNL5	Assumed equal variance	91.216	0.000	12.713	76	0.000	1.488	117	1.721	1.255
	Equivariance is not assumed			14.391	40.000	0.000	1.488	111	1.712	1.263
29, PHSZ1	Assumed equal variance	48.923	0.000	8.255	76	0.000	1.244	151	1.544	- 0.944

Table 4.15 continued

	Equal variance is not assumed			8.695	40.000	0.000	1.244	143	1.533	-0. 955
29, PHSZ2	Assumed equal variance	44.206	0.000	10.079	76	0.000	1.146	114	1.373	-0. 920
	Equal variance is not assumed			10.616	40.000	0.000	1.146	108	1.365	- 0.928
29, PHSZ3	Assumed equal variance	70.801	0.000	8.255	76	0.000	1.244	151	1.544	- 0.944
	Equal variance is not assumed			8.695	40.000	0.000	1.244	143	1.533	- 0.955
29, PHSZ4	Assumed equal variance	39.310	0.000	6.925	76	0.000	1.049	151	1.350	- 0.747
	Equal variance is not assumed			7.294	40.000	0.000	1.049	144	1.339	- 0.758
29, PHSZ5	Assumed equal variance	65.281	0.000	8.939	76	0.000	1.390	156	1.700	1.080
	Equal variance is not assumed			9.415	40.000	0.000	1.390	148	1.689	1.092
29, PHSZ6	Assumed equal variance	70.188	0.000	11.346	76	0.000	1.610	142	1.892	1.327
	Equal variance is not assumed			11.951	40.000	0.000	1.610	135	1.882	1.338
29, PHSZ7	Assumed equal variance	59.424	0.000	9.935	76	0.000	1.512	152	1.815	1.209
	Equal variance is not assumed			10.465	40.000	0.000	1.512	145	1.804	1.220
30, GZFW1	Assumed equal variance	55.757	0.000	10.839	76	0.000	1.951	180	2.310	1.593
	Equal variance is not assumed			11.417	40.000	0.000	1.951	171	2.297	1.606
30, GZFW2	Assumed equal variance	58.404	0.000	11.926	76	0.000	1.902	160	2.220	1.585
	Equal variance is not assumed			12.563	40.000	0.000	1.902	151	2.209	1.596

Table 4.15 continued

30, GZFW3	Assumed equal variance	64.722	0.000	11.082	76	0.000	1.976	178	2.331	1.621
	Equal variance is not assumed			11.673	40.000	0.000	1.976	169	2.318	1.634
31, PXBX1	Assumed equal variance	85.602	0.000	7.682	76	0.000	1.829	238	2.304	1.355
	Equal variance is not assumed			8.092	40.000	0.000	1.829	226	2.286	1.372
31, PXBX2	Assumed equal variance	51.331	0.000	6.153	76	0.000	1.024	166	1.356	- 0.693
	Equal variance is not assumed			6.481	40.000	0.000	1.024	158	1.344	-0. 705
31, PXBX3	Assumed equal variance	42.876	0.000	6.308	76	0.000	1.024	162	1.348	- 0.701
	Equal variance is not assumed			6.645	40.000	0.000	1.024	154	1.336	- 0.713
31, PXBX4	Assumed equal variance	46.335	0.000	6.593	76	0.000	1.000	152	1.302	-0. 698
	Equivariance is not assumed			6.945	40.000	0.000	1.000	144	1.291	- 0.709
31, PXBX5	Assumed equal variance	44.407	0.000	7.579	76	0.000	1.122	148	1.417	- 0.827
	Equal variance is not assumed			7.983	40.000	0.000	1.122	141	1.406	- 0.838
31, PXBX6	Assumed equal variance	69.533	0.000	7.603	76	0.000	1.244	164	1.570	- 0.918
	Equal variance is not assumed			8.009	40.000	0.000	1.244	155	1.558	- 0.930
32, SXBH1	Assumed equal variance	100.062	0.000	11.654	76	0.000	1.317	113	1.542	1.092
	Equal variance is not assumed			12.276	40.000	0.000	1.317	107	1.534	1.100
32, SXBH2	Assumed equal variance	66.150	0.000	11.166	76	0.000	1.488	133	1.753	1.222

Table 4.15 continued

	Equal variance is not assumed			11.761	40.000	0.000	1.488	127	1.743	1.232
32, SXBH3	Assumed equal variance	128.707	0.000	12.713	76	0.000	1.488	117	1.721	1.255
	Equal variance is not assumed			14.391	40.000	0.000	1.488	111	1.712	1.263
32, SXBH4	Assumed equal variance	46.083	0.000	8.067	76	0.000	1.195	148	1.490	-0. 900
	Equal variance is not assumed			8.498	40.000	0.000	1.195	141	1.479	- 0.911
32, SXBH5	Assumed equal variance	42.157	0.000	9.077	76	0.000	1.098	121	1.338	- 0.857
	Equal variance is not assumed			9.561	40.000	0.000	1.098	115	1.330	- 0.866
32, SXBH6	Assumed equal variance	111.269	0.000	11.270	76	0.000	1.439	128	1.693	1.185
	Equal variance is not assumed			11.871	40.000	0.000	1.439	121	1.684	1.194
32, SXBH7	Assumed equal variance	79.555	0.000	10.396	76	0.000	1.366	131	1.628	1.104
	Equal variance is not assumed			10.951	40.000	0.000	1.366	125	1.618	1.114
33, ZSJN1	Assumed equal variance	55.480	0.000	9.208	76	0.000	1.439	156	1.750	1.128
	Equal variance is not assumed			9.700	40.000	0.000	1.439	148	1.739	1.139
33, ZSJN2	Assumed equal variance	105.931	0.000	10.437	76	0.000	1.439	138	1.714	1.164
	Equal variance is not assumed			10.994	40.000	0.000	1.439	131	1.704	1.174
33, ZSJN3	Assumed equal variance	105.270	0.000	14.386	76	0.000	1.585	110	1.805	1.366
	Equal variance is not assumed			15.153	40.000	0.000	1.585	105	1.797	1.374

Table 4.15 continued

33, ZSJN4	Assumed equal variance	55.739	0.000	12.860	76	0.000	1.756	137	2.028	1.484
	Equal variance is not assumed			14.546	40.000	0.000	1.756	130	2.018	1.494
33, ZSJN5	Assumed equal variance	70.010	0.000	14.929	76	0.000	1.780	119	2.018	1.543
	Equal variance is not assumed			15.725	40.000	0.000	1.780	113	2.009	1.552
33, ZSJN6	Assumed equal variance	60.913	0.000	12.571	76	0.000	1.732	138	2.006	1.457
	Equal variance is not assumed			14.242	40.000	0.000	1.732	131	1.996	1.467
33, ZSJN7	Assumed equal variance	40.302	0.000	14.160	76	0.000	2.024	154	2.331	1.718
	Equivariance is not assumed			14.862	40.000	0.000	2.024	146	2.320	1.729
33, ZSJN8	Assumed equal variance	84.951	0.000	11.438	76	0.000	1.463	128	1.718	1.209
	Equal variance is not assumed			12.048	40.000	0.000	1.463	121	1.709	1.218
33, ZSJN9	Assumed equal variance	54.498	0.000	12.775	76	0.000	1.854	145	2.143	1.565
	Equal variance is not assumed			14.456	40.000	0.000	1.854	138	2.132	1.575
33, ZSJN10	Assumed equal variance	62.841	0.000	11.113	76	0.000	1.854	167	2.186	1.521
	Equal variance is not assumed			11.706	40.000	0.000	1.854	158	2.174	1.534
33, ZSJN11	Assumed equal variance	51.355	0.000	12.096	76	0.000	1.829	151	2.130	1.528
	Equal variance is not assumed			12.741	40.000	0.000	1.829	144	2.119	1.539
33, ZSJN	Assumed equal variance	49.521	0.000	10.912	76	0.000	1.805	165	2.134	1.475

Table 4.15 continued

	Equal variance is not assumed			11.494	40.000	0.000	1.805	157	2.122	1.488
34, SJNL1	Assumed equal variance	52.062	0.000	12.290	76	0.000	1.780	145	2.069	1.492
	Equal variance is not assumed			12.945	40.000	0.000	1.780	138	2.058	1.503
34, SJNL2	Assumed equal variance	50.391	0.000	14.168	76	0.000	1.780	135	2.050	1.511
	Equal variance is not assumed			14.870	40.000	0.000	1.780	128	2.040	1.521
34, SJNL3	Assumed equal variance	79.460	0.000	12.222	76	0.000	1.659	136	1.929	1.388
	Equal variance is not assumed			12.874	40.000	0.000	1.659	129	1.919	1.398
34, SJNL4	Assumed equal variance	74.946	0.000	11.529	76	0.000	1.585	138	1.859	1.311
	Equal variance is not assumed			12.144	40.000	0.000	1.585	131	1.849	1.322
34, SJNL5	Assumed equal variance	56.302	0.000	12.470	76	0.000	1.829	147	2.121	1.537
	Equal variance is not assumed			14.136	40.000	0.000	1.829	139	2.111	1.548
34, SJNL6	Assumed equal variance	60.784	0.000	14.576	76	0.000	1.732	128	1.986	1.478
	Equal variance is not assumed			14.300	40.000	0.000	1.732	121	1.976	1.487
34, SJNL7	Assumed equal variance	44.906	0.000	14.219	76	0.000	1.854	130	2.113	1.594
	Equal variance is not assumed			14.977	40.000	0.000	1.854	124	2.104	1.604
35, NYRS1	Assumed equal variance	85.521	0.000	11.166	76	0.000	1.488	133	1.753	1.222
	Equal variance is not assumed			11.761	40.000	0.000	1.488	127	1.743	1.232

Table 4.15 continued

35, NYRS2	Assumed equal variance	84.089	0.000	11.748	76	0.000	1.561	133	1.826	1.296
	Equal variance is not assumed			12.374	40.000	0.000	1.561	126	1.816	1.306
35, NYRS3	Assumed equal variance	60.054	0.000	14.233	76	0.000	1.659	125	1.908	1.409
	Equal variance is not assumed			14.939	40.000	0.000	1.659	119	1.899	1.418
35, NYRS4	Assumed equal variance	46.081	0.000	11.824	76	0.000	1.805	153	2.109	1.501
	Equivariance is not assumed			12.455	40.000	0.000	1.805	145	2.098	1.512
36, QYFZ1	Assumed equal variance	88.382	0.000	14.269	76	0.000	1.610	121	1.851	1.368
	Equal variance is not assumed			14.976	40.000	0.000	1.610	115	1.843	1.377
36, QYFZ2	Assumed equal variance	72.359	0.000	12.957	76	0.000	1.634	126	1.885	1.383
	Equal variance is not assumed			14.648	40.000	0.000	1.634	120	1.876	1.392
36, QYFZ3	Assumed equal variance	67.680	0.000	11.126	76	0.000	1.537	138	1.812	1.262
	Equal variance is not assumed			11.719	40.000	0.000	1.537	131	1.802	1.272
36, QYFZ4	Assumed equal variance	54.400	0.000	11.912	76	0.000	1.780	149	2.078	1.483
	Equal variance is not assumed			12.547	40.000	0.000	1.780	142	2.067	1.494
37, QYFZ5	Assumed equal variance	67.286	0.000	12.439	76	0.000	1.634	131	1.896	1.372
	Equal variance is not assumed			14.102	40.000	0.000	1.634	125	1.886	1.382
37, QYFZ6	Assumed equal variance	55.910	0.000	14.684	76	0.000	1.780	130	2.040	1.521

Table 4.15 continued

38, DDFS4	Assumed equal variance	64.515	0.000	16.619	76	0.000	1.732	104	1.939	1.524
	Equal variance is not assumed			17.506	40.000	0.000	1.732	099	1.932	1.532
38, DDFS5	Assumed equal variance	47.225	0.000	11.567	76	0.000	1.780	154	2.087	1.474
	Equal variance is not assumed			12.184	40.000	0.000	1.780	146	2.076	1.485
39, HJYX1	Assumed equal variance	117.570	0.000	11.942	76	0.000	1.463	123	1.707	1.219
	Equal variance is not assumed			12.579	40.000	0.000	1.463	116	1.699	1.228
39, HJYX2	Assumed equal variance	52.421	0.000	10.043	76	0.000	1.293	129	1.549	1.036
	Equal variance is not assumed			10.579	40.000	0.000	1.293	122	1.540	1.046
39, HJYX3	Assumed equal variance	84.508	0.000	11.166	76	0.000	1.488	133	1.753	1.222
	Equivariance is not assumed			11.761	40.000	0.000	1.488	127	1.743	1.232
39, HJYX4	Assumed equal variance	66.664	0.000	10.763	76	0.000	1.488	138	1.763	1.212
	Equal variance is not assumed			11.337	40.000	0.000	1.488	131	1.753	1.223
39, HJYX5	Assumed equal variance	168.514	0.000	14.958	76	0.000	1.561	104	1.769	1.353
	Equal variance is not assumed			15.756	40.000	0.000	1.561	099	1.761	1.361
40, SHBZ1	Assumed equal variance	80.046	0.000	9.230	76	0.000	1.341	145	1.631	1.052
	Equal variance is not assumed			9.723	40.000	0.000	1.341	138	1.620	1.063
40, SHBZ2	Assumed equal variance	56.728	0.000	11.728	76	0.000	2.122	181	2.482	1.762

Table 4.15： continued

	Equal variance is not assumed			12.353	40.000	0.000	2.122	172	2.469	1.775
40, SHBZ3	Assumed equal variance	102.170	0.000	12.742	76	0.000	2.317	182	2.679	1.955
	Equal variance is not assumed			14.422	40.000	0.000	2.317	173	2.666	1.968
40, SHBZ4	Assumed equal variance	134.434	0.000	12.434	76	0.000	2.366	190	2.745	1.987
	Equal variance is not assumed			14.097	40.000	0.000	2.366	181	2.731	2.001
40, SHBZ5	Assumed equal variance	76.034	0.000	14.716	76	0.000	2.244	164	2.570	1.918
	Equal variance is not assumed			14.447	40.000	0.000	2.244	155	2.558	1.930
Total score variable	Assumed equal variance	46.376	0.000	19.920	76	0.000	134.38761	6.69621	146.72426	120.05095
	Equal variance is not assumed			20.982	40.001	0.000	134.38761	6.35711	146.23580	120.53942

In the project analysis, we can also use the method of homogeneity test to delete questions. The deletion criterion of homogeneity test is that the revised correlation coefficient is greater than the total a value of 0.992 after deleting items. As can be seen from the following table, the revised correlation value of all items in the items is less than 0.992, indicating that all items have good correlation and do not need to be deleted (see Table 4.16).

Table 4.16: Summary Table of Homogeneity Test Method for Item Analysis of Questionnaire on Training Performance of HQF (N=139)

Statistics of total items	Scale average after deleting items	The scale variance after deleting the item	The corrected item correlates with the total	Klonbach Alpha after deleting the item
26, PXYY1	138.57	3511.841	0.562	0.992
26, PXYY2	138.78	3521.334	0.555	0.992
26, PXYY3	138.63	3510.756	0.630	0.992
26, PXYY4	138.78	3517.464	0.669	0.992
26, PXYY5	138.76	3521.501	0.598	0.992
27, PXHJ1	138.76	3522.432	0.581	0.992
27, PXHJ2	138.63	3501.468	70.08	0.992
27, PXHJ3	138.74	3514.541	0.646	0.992
27, PXHJ4	138.73	3522.588	0.546	0.992
28, PXNL1	138.62	3501.658	0.749	0.992
28, PXNL2	138.63	3509.712	0.749	0.992
28, PXNL3	138.67	3504.890	0.801	0.992
28, PXNL4	138.60	3496.329	0.767	0.992
28, PXNL5	138.60	3504.415	0.773	0.992
29, PHSZ1	138.78	3505.754	0.773	0.992
29, PHSZ2	138.78	3516.460	0.756	0.992
29, PHSZ3	138.78	3507.233	0.766	0.992
29, PHSZ4	138.82	3515.554	0.716.	0.992
29, PHSZ5	138.74	3497.860	0.809	0.992
29, PHSZ6	138.65	3489.184	0.847	0.992
29, PHSZ7	138.68	3490.450	0.833	0.992
30, GZFW1	138.45	3479.249	0.757	0.992
30, GZFW2	138.45	3476.380	0.805	0.992
30, GZFW3	138.40	3472.777	0.789	0.992
31, PXBX1	138.09	3504.282	0.375	0.992
31, PXBX2	138.82	3519.424	0.626	0.992

Table 4.16 continued

31, PXBX3	138.77	3518.541	0.577	0.992
31, PXBX4	138.83	3519.414	0.663	0.992
31, PXBX5	138.75	3515.740	0.669	0.992
31, PXBX6	138.68	3510.624	0.669	0.992
32, SXBH1	138.73	3506.400	0.827	0.992
32, SXBH2	138.65	3495.880	0.814	0.992
32, SXBH3	138.68	3495.119	0.877	0.992
32, SXBH4	138.76	3507.186	70.85	0.992
32, SXBH5	138.78	3516.682	0.765	0.992
32, SXBH6	138.68	3499.525	0.829	0.992
32, SXBH7	138.71	3499.859	0.845	0.992
33, ZSJN1	138.68	3499.435	0.776	0.992
33, ZSJN2	138.62	3504.962	0.739	0.992
33, ZSJN3	138.58	3494.565	0.856	0.992
33, ZSJN4	138.40	3487.139	70.60	0.992
33, ZSJN5	138.50	3484.788	0.873	0.992
33, ZSJN6	138.56	3482.610	0.881	0.992
33, ZSJN7	138.37	3472.176	848	0.992
33, ZSJN8	138.64	3496.160	0.858.	0.992
33, ZSJN9	138.42	3479.143	0.843	0.992
33, ZSJN10	138.47	3477.092	0.823	0.992
33, ZSJN11	138.49	3478.860	0.855	0.992
33, ZSJN	138.47	3480.149	0.822	0.992
34, SJNL1	138.53	3479.178	0.887	0.992
34, SJNL2	138.50	3479.382	0.893	0.992
34, SJNL3	138.56	3484.031	0.892	0.992
34, SJNL4	138.55	3488.379	0.867	0.992
34, SJNL5	138.47	3478.338	0.870	0.992
34, SJNL6	138.51	3482.585	0.883	0.992
34, SJNL7	138.47	3481.280	0.852	0.992

Table 4.16 continued

35, NYRS1	138.64	3494.174	0.861	0.992
35, NYRS2	138.58	3491.114	0.835	0.992
35, NYRS3	138.58	3485.071	0.896	0.992
35, NYRS4	138.47	3480.295	0.820	0.992
36, QYFZ1	138.53	3488.642	0.871	0.992
36, QYFZ2	138.53	3485.570	0.900	0.992
36, QYFZ3	138.57	3492.783	0.829	0.992
36, QYFZ4	138.50	3477.774	0.877	0.992
36, QYFZ5	138.53	3485.570	0.893	0.992
36, QYFZ6	138.49	3477.411	0.913	0.992
37, JTYX1	138.57	3488.943	0.877	0.992
37, JTYX2	138.59	3487.867	0.875	0.992
37, JTYX3	138.66	3498.008	0.837	0.992
37, JTYX4	138.57	3484.247	0.880	0.992
37, JTYX5	138.53	3479.425	0.870	0.992
38, DDFS	138.50	3484.353	0.869	0.992
38, DDFS2	138.55	3486.989	0.857	0.992
38, DDFS3	138.54	3485.395	0.874	0.992
38, DDFS4	138.53	3484.671	0.901	0.992
38, DDFS5	138.47	3478.063	0.865	0.992
39, HJYX1	138.63	3494.598	0.877	0.992
39, HJYX2	138.69	3504.418	0.838	0.992
39, HJYX3	138.63	3495.511	0.829	0.992
39, HJYX4	138.62	3497.368	0.810	0.992
39, HJYX5	138.58	3494.636	0.863	0.992
40, SHBZ1	138.62	3504.658	0.681	0.992
40, SHBZ2	138.14	3477.472	0.636	0.992
40, SHBZ3	138.04	3475.172	0.609	0.992
40, SHBZ4	138.01	3474.391	0.613	0.992
40, SHBZ5	138.09	3476.477	0.621	0.992

4.9.3.3 Factor Analysis

After the item analysis, factor analysis is needed to show to what extent the items in the questionnaire can validate the theoretical idea. Exploratory factor analysis is the most commonly used method to test the validity of measurement tools using empirical methods of statistical tests. Exploratory factor analysis is to find out the potential structure of the questionnaire by extracting the common factors among the variables, and to represent the original complex data structure with fewer variables. Wu (2022) often uses Bartlett sphericity test to determine whether sample data is suitable for exploratory factor analysis, based on the size of KMO value. Generally speaking, the KMO value is between [0,1]. The larger the value, the more common factors between variables, and the more suitable for factor analysis. According to scholar Kaiser, the KMO value is at least above 0.6, which is suitable for factor analysis. In addition, since the reliability of factor analysis is also closely related to the number of samples, it is generally believed that the number of samples should be at least 5 times of the number of questionnaire questions (not the total number of questionnaire questions), which is suitable for exploratory factor analysis (Wu Minglong, 2022). The sample size of the four subcomponent questionnaires in this study was all more than 5 times the number of questions, and the predicted results were shown in Table 4.17. KMO values were 0.902, 0.915, 0.936, 0.931 respectively, P values were 0.000, and the four subcomponent questionnaires were all greater than 0.9, indicating that the items of the questionnaire in this study were very suitable for exploratory factor analysis.

Table 4.17： KMO and Bartlett Tests on the Training Performance Questionnaires of HQF

Index	Training intention	Training satisfaction	Professionalism skill	Training benefits
KMO coefficient	0.902	0.915	0.936	0.931
Bartlett approximate Chi-square distribution	1115.049	3305.402	6534.739	5987.121
Spherical inspection DOF	55	171	435	325
Significance	<0.01	< 0.01	< 0.01	< 0.01

In this study, principal component analysis (PEA) was used to extract common factors in all 4 molecular questionnaires, and the component matrix after rotation was obtained by using the maximum variance method. Through exploratory factor analysis, 2, 2, 2 and 2 factors with eigenvalues greater than 1 were selected by rotation of the four molecular questionnaires, and the cumulative interpretation rates were 69.982%, 74.057%, 78.897% and 81.842, respectively. Then, it is necessary to delete the inappropriate items, and the deletion principles mainly include the existence of duplication among items, inclusion relations, and obvious improper classification of item dimensions. Through many explorations and explorations, PXHJ2, PXJS1, PXJS2, PXJS5, DDFS1, SHBZ3, SXBH1, SXBH2, ZSJN6, ZSJN7, ZSJN8, ZSJN10, SJNL5 and SJNL6 were respectively deleted in the four-element questionnaire, NYRS1, NYRS2, NYRS3 and NYRS4, the common factors extracted from the questionnaire were consistent with the theoretical framework before the questionnaire was compiled by the researchers. Through exploratory factor analysis, the two indexes of "training form" and "training teacher" were combined into one index in the training satisfaction questionnaire; The two indexes of "training thought" and "knowledge and skill" are combined into one index; And split "training management" into "training organization" and "training facilities". In the questionnaire of professional

literacy, "improvement of professional knowledge and skills" and "formation of entrepreneurial ability" are combined into one index; In the training efficiency questionnaire, some items of "enhancement of social responsibility consciousness", "economic benefit" and "improvement of farmer's status" were combined into one index. (See Table 4.18，Table 4.19, Table 4.20, Table 4.21,)

Table 4.18： Training Intention Rotation Component Matrix (N=139)

Question item	**Factors**	
	1	2
PXYY1		0.574
PXYY2		0.435
PXYY3		0.501
PXYY4		0.457
PXYY5		0.430
PXBX1	0.452	
PXBX2	0.812	
PXBX3	0.768	
PXBX4	0.815	
PXBX5	0.829	
PXBX6	0.809	

Table 4.19： Rotational Component Matrix of Training Satisfaction (N=139)

Question item	**Factors**	
	1	2
SXBH3		0.772
SXBH4		0.818
SXBH5		0.811
SXBH6		0.809
SXBH7		0.850
ZSJN1	0.674	
ZSJN2	0.664	
ZSJN3	0.744	
ZSJN4	0.733	
ZSJN5	0.731	
ZSJN9	0.836	
ZSJN11	0.809	
ZSJN12	0.865	
SJNL1		0.556
SJNL2		0.535
SJNL3		0.503
SJNL4		0.525
SJNL7		0.840
NYRS1		0.630

Table 4.20： Occupational Literacy Rotation Component Matrix (N=139)

Question item	Factors	
	1	2
PXHJ1		0.622
PXHJ3		0.513
PXHJ4		0.591
PXNL1	0.855	
PXNL2	0.796	
PXNL3	0.831	
PXNL4	0.845	
PXNL5	0.858	
PHSZ1	0.850	
PHSZ2	0.853	
PHSZ3	0.836	
PHSZ4	0.767	
PHSZ5	0.855	
PHSZ6	0.896	
PHSZ7	0.896	
GZFW1	0.805	
GZFW2	0.829	
GZFW3	0.809	

Table 4.21： Training Benefit Rotation Component Matrix (N=139)

Question item	**Factors**	
	1	2
QYFZ1	0.903	
QYFZ2	90.05	
QYFZ3	0.863	
QYFZ4	0.880	
QYFZ5	0.924	
QYFZ6	0.914	
JTYX1	0.908	
JTYX2	0.911	
JTYX3	0.872	
JTYX4	0.900	
JTYX5	8860.	
DDFS2		0.884
DDFS3		0.899
DDFS4		0.928
DDFS5		0.891
HJYX1	0.898	
HJYX2	0.877	
HJYX3	0.869	
HJYX4	0.836	
HJYX5	0.894	
SHBZ1		0.738
SHBZ2		0.624
SHBZ4		0.651
SHBZ5		0.666

4.9.3.4 Reliability Analysis

Reliability refers to the stability and consistency of the results measured by questionnaire tools. After the end of factor analysis, the reliability of each level of the questionnaire and the total questionnaire should continue to be tested. The α coefficient created by L.J. ronbach is often selected for reliability test, which generally requires the internal consistency reliability coefficient of the questionnaire to be above 0.7 and preferably higher than 0.9. However, the internal consistency reliability coefficient of the subquestionnaire and the overall questionnaire in this study is higher than 0.9 (see Table 4.22), indicating that the questionnaire has good reliability.

Table 4.22： Reliability of the Questionnaire on the Training Performance of HQF (N=139)

Indicators	**Training willingness**	**Training satisfaction**	**Professional quality**	**Training benefits**	**General Questionnaire**
Number of items	9	15	14	18	56
Internal consistency a coefficient value	0.911	0.966	0.981	0.968	0.992

4.10 Correcting the Questionnaire

The performance evaluation index system of HQFT is gradually improved in the process of constant adjustment and revision. According to the results of exploratory factor analysis, the researcher revises the performance evaluation index system of HQFT once again.

Through exploratory factor analysis, the two dimensions of "training form" and "training content" are combined into one dimension; The two dimensions of "training

teachers" and "tracking service" are combined into one dimension; "Training management" is divided into two dimensions: "training organization" and "training facilities". Then, combining the previous theoretical research, expert suggestions and exploratory factor analysis results, the training satisfaction questionnaire was adjusted from the original 7 secondary indexes and renamed into 5 secondary indexes: "training organization", "training facilities and services", "training content and form", "training teachers and tracking" and "training participant performance". The professional literacy questionnaire was adjusted from the original 5 secondary indexes and renamed into 3 secondary indexes: "Renewal of career concept", "improvement of professional ability" and "change of professional behavior"; The training effectiveness questionnaire was adjusted from the original 4 secondary indicators and renamed into 3 secondary indicators of "personal benefit", "economic benefit" and "social benefit" (see Table 4.23).

Table 4.23： Performance Evaluation Index System of HQFT

First-level index	**Secondary indicators**
Training Willingness	Volunteer for training
Training satisfaction	Training organization Training facilities and services Training content and form Training teachers and tracking Training performance
Professional quality	Renewal of career philosophy The improvement of professional ability Changes in professional behavior
Training benefit	Economic benefits Social benefits Personal Benefits

4.10.1 Empowerment of the Index System

The key to carry out the performance evaluation of HQFT is to build a set of scientific and reasonable evaluation index system. According to the steps of "frame construction -- screening index -- empowerment", the paper constructs the performance evaluation index system of HQF' training. In this section, based on the comparative analysis of the advantages and disadvantages of various empowerment methods, the analytic hierarchy process is used to determine the relative weight of each evaluation index, and a complete set of HQFT performance evaluation index system is formed.

4.10.1.1 Method of Determining Weight and Its Application

Since each index has different importance in evaluating the training performance of HQF, in order to accurately reflect the difference in the importance of each index, it is necessary to assign weight coefficient to the evaluation indicators at all levels. (Du et al., 2021) The method of determining the weight of the index is very important, and the credibility of the evaluation results largely depends on the scientific determination of the weight of the evaluation index. As far as the weighting methods of evaluation indicators are concerned, there are mainly different methods in practice, such as qualitative, quantitative and the combination of qualitative and quantitative methods. The commonly used methods to determine the weight of indicators mainly include expert method, economic analysis method for the measurement of return on investment, analytic hierarchy process, principal component analysis, fuzzy evaluation method, etc. (See Table 4.24). In view of the advantages and disadvantages of each method, choosing different methods may lead to different results. Therefore, when conducting multi-indicator comprehensive evaluation, different evaluation methods should be selected according to the emphasis of

specific problems, giving full play to the advantages of information technology, and making the evaluation results objective and easy to understand as far as possible. According to the above analysis, considering the particularity of the research purpose and object, this study adopts the subjective and objective analytic hierarchy process to determine the index weight on the basis of following the availability of evaluation data, the simplicity of evaluation procedures and the objectivity of evaluation results. The Analytic hierarchy process (AHP) is one of the most commonly used methods of index weighting, which combines qualitative and quantitative methods. (Lu et al., 2021) In this study, SPSS 26.0 data analysis software was used to determine the weight coefficient of each evaluation index of HQF' training performance.

Table 4.24： Common Methods for Determining Indicator Weights

Evaluation Methods	**Key features**	**Strengths**	**Cons**
Economic Analysis Method (Xu, 2021)	Rely on expert experience to judge.	Ambiguity, flexibility	Lack of standards and strong subjectivity
Expert Method/DelPhi Method	Economic analysis of cost and benefit	Specific and intuitive	Ignoring other influencing factor
Analytic Hierarchy Process (AHP) (Lu et al. 2021)	The factors of complex problems are divided into several ordered hierarchical levels according to their membership relations, and the judgment matrix is established.	Systematic and hierarchical; et	Susceptible to the subjective influence of evaluation experts; Randomness of evaluation process; The judgment matrix is prone to inconsistency
Fuzzy Comprehensive evaluation (PCE) Yu & Fu (2019).	Based on the utility value of the information weights of indicators	A combination of sex and quantitative Combination of qualitative and quantitative;Can effectively solve the uncertainty problem; informative rich.	The difficulty of function determination, the duplication of information between indicators, and the subjectivity of index weights.
Principal component analysis (PCA). Wu, (2020).	Dimensionality reduction, converting multiple indicators into a few indicators.	The idea of dimensionality reduction solves the overlapping problem between indexes. The weight of each index is determined according to the contribution rate of the factor.	The process is cumbersome; The sample size should be large; Applicable to the linear relationship between indicators.

i. The Basic Idea of Analytic Hierarchy Process (AHP)

Analytic Hierarchy Process (AHP) is an American operations research scientist, University of Pittsburgh professor T.L. Suaty put forward a more mature, scientific and

effective weighting method, is also the most commonly used method to determine the index system weight coefficient. Analytic Hierarchy Process (AHP) is a decision method that divides complex problems into clear multi-level qualitative and quantitative decisions. The operation process of analytic hierarchy process is: Firstly, the evaluation problems with complex structure and numerous variables are divided into multi-level structural models of target layer, domain layer and index layer. Secondly, experts are invited to score according to the importance of indicators by constructing a pair comparison judgment matrix, and then the eigenvector of the judgment matrix is calculated to find out the relative importance of evaluation indicators relative to evaluation objectives (Guo,2022). In order to reduce the individual subjective bias of experts and the problems of multiple experts being "difficult to call", the analytic hierarchy process generally only needs to collect less data. By testing the consistency of the constructed judgment matrix, the analytic hierarchy process improves the scientificity and accuracy of the index weight. At the same time, the computer uses the root method, power method and product method to process the data when calculating the judgment matrix, which has strong operability, which improves the reliability and validity of determining the weight to a certain extent.

ii. The Implementation Steps of Analytic Hierarchy Process (AHP)

a. Establish The Hierarchical Structure Model

Before calculating the weight of each index, the evaluation target should be divided into several different levels, and a hierarchical structure model should be established. Generally speaking, there are three levels, including the top layer (target layer), the middle layer (domain layer) and the bottom layer (index layer), and the elements of the upper level have a dominant role in the adjacent part or all of the elements of the next level. This

research mainly builds a three-level index system structure model of HQF' training performance evaluation, as shown in (Figure 4.3)

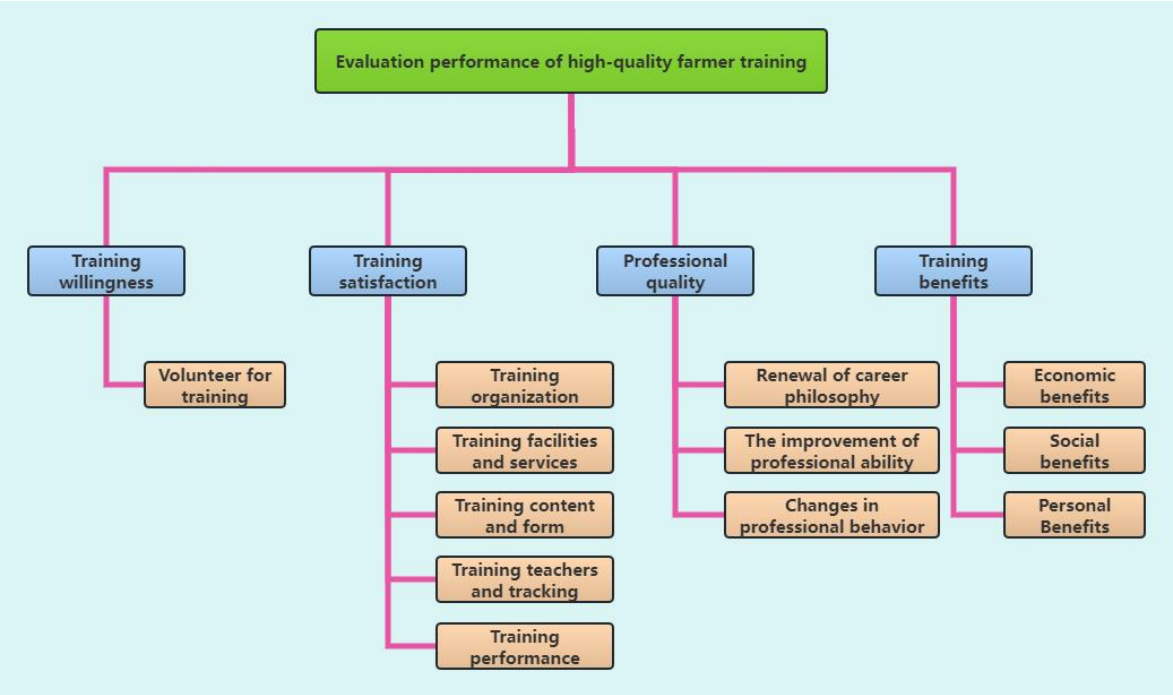


Figure 4.3： Hierarchical Model of Performance Evaluation of HQF

b. Constructing Judgment Matrix

According to the hierarchical structure model of the performance evaluation index system of HQF' training, the judgment matrix of this study includes 1 first-order matrix and 3 second-order matrix.（see Table 4.25，Table 4.26，Table 4.27，Table 4.28)

Table 4.25： Comparison of the first-order dimensions of training performance

	Training willingness	**Training satisfaction**	**Professionalism**	**Training benefits**
Training willingness	1			
Training satisfaction		1		
Professionalism			1	
Training benefits				1

Table 4.26： Comparison of second-order dimensions of training satisfaction

	Training Organization	**Training facilities With services**	**Training content With form**	**Training Teachers With tracking**	**Participation performance**
Training organization	1				
Training facilities and services		1			
Training content and form			1		
Training teachers and tracking				1	
Participation performance					1

Table 4.27： Comparison of second-order dimensions of professional literacy cultivation

	The renewal of career concept	**The improvement of professional ability**	**Changes in professional behavior**
A renewal of professional philosophy	1		
The improvement of professional ability		1	
A shift in professional behavior			1

Table 4.28： Comparison of second-order dimensions of training benefits

	Personal Benefits	**Financial benefits**	**Social benefit**
Personal benefits	1		
Economic benefits		1	
Social benefits			1

c. Calculate Importance Ranking and Consistency Checking

This study takes as an example the calculation results of one of the expert's (Expert 1) judgment matrix surveys. The results of expert 1's first-order judgment matrix on the training performance of HQF are as follows: weight of training intention is 0.2185, weight of training satisfaction is 0.0908, weight of professional quality is 0.4543, weight of training benefit is 0.4543; The consistency test result is λmax=3; CR=0; CI=0, passing the consistency test. In this study, training intention is only one item in the first-order index, so the weight of the judgment matrix is not calculated when the second-order judgment matrix is made. Expert 1 calculated the results of the second-order judgment matrix of training satisfaction as the weight of training organization 0.0602, the weight of training facilities and services 0.0602, the weight of training content and form 0.0713, the weight of training teachers and tracking 0.2848, and the performance of training participants 0.5236; The consistency test result is λmax=5.1575; CR=0.0353; CI=0.0395, passing the consistency test. The calculation results of expert 1 in the second-order judgment matrix of professional literacy are as follows: the updating weight of professional idea is 0.1326, the improving weight of professional ability is 0.1326 and the changing weight of professional behavior is 0.1507; The consistency test result is λmax=4.0326; CR=0.0122; CI=0.0108, passing the

consistency test. Expert 1 calculated the results of the second-order judgment matrix of training benefit as personal benefit weight 0.3215, economic benefit weight 0.2281, social benefit weight 0.4502; The consistency test result is λmax=4.1025; CR=0.0886; CI=0.0514, passing the consistency test. Expert 1's total sort has a conformance test result of 0.0425, CR<0.1, passing the conformance test.

4.10.1.2 Weight of Performance Evaluation Index of HQFT

In order to ensure the scientific determination of the weight of the performance evaluation index system of HQF' training, on the one hand, this study carefully selected 8 experts from the research level, implementation level and training level of HQF (see Table 4.29); On the other hand, in order to avoid the deviation of the experts' understanding of the connotation of the indicators and the lack of careful study of the scoring rules, which may affect the survey results, the researchers chose to communicate with the experts one-on-one and face to face. Before the experts scored, the researchers introduced the connotation and scoring methods of each indicator to the experts in detail. Then, with the help of Spss 26.0 data analysis software, the analytic hierarchy process can be used to obtain the index weights of the scoring results of 8 experts through the above calculation methods, and the weight coefficient of the performance evaluation index system of HQFT can be obtained through normalization processin.

Table 4.29： Basic Conditions of Experts

Experts	Gender	Job title	Academic qualifications	age	Primary job
1	male	Professor	Ph.D.	55	Rural vocational education research
2	female	Associate professor	PhD	41	Rural vocational education research
3	female	Associate professor	PhD	38	Vocational Education Research
4	female	Lecturer	PhD	31	Research on Highly Qualified Farmers
5	male	Associate professor	Master's	40	Highly Qualified Farmer Training
6	male	Associate professor	Master's	41	Highly Qualified Farmer Training
7	male	/	Undergrad	37	Family Farmer
8	female	/	Junior college	35	Family farmer

According to the weight coefficient of the finally determined training index of HQF, the weight coefficient of the first-level index training intention is 0.2104, the weight coefficient of training satisfaction is 0.0905, the weight coefficient of professional literacy is 0.3202, and the weight coefficient of training benefit is 0.5893. The weight coefficient of the secondary index is 0.0061 for training organization, 0.0045 for training facilities and services, 0.0178 for training content and form, 0.0287 for training teachers and tracking, and 0.0330 for training performance. The weight coefficient of updating career idea is 0.0975, the weight coefficient of improving career ability is 0.0525, the weight coefficient of changing professional behavior is 0.0752, the weight coefficient of personal benefit is 0.2561, and the weight coefficient of economic benefit is 0.1392. The weight coefficient of social benefit is 0.1935 (see Table 4.30).

Table 4.30: Weight Coefficient of Quality Farmer Training Performance Evaluation Index System

First-level index	Weights	Secondary indicators	Peer weights	Global weights
Training Willingnes	0.2104	Volunteer for training	0.20179	0.1538
Training satisfaction	0.0905	Training organization	0.0685	0.0061
		Training facilities and services	0.0506	0.0045
		Training content and form	0.1972	0.0178
		Training teachers and tracking	0.3177	0.0287
		Training performance	0.3656	0.0330
Professionalism	0.3202	The renewal of career concept	0.3030	0.0975
		The improvement of professional ability	0.1635	0.0525
		Changes in professional behavior	0.2342	0.0752
Training benefits	0.5893	Personal Benefits	0.4353	0.2561
		Financial benefits	0.3371	0.1392
		Social benefits	0.2274	0.1935

4.11 Summary

4.11.1 Investigated the Current Training Situation Of HQF

This first part provides a comprehensive analysis of the performance evaluation system for High-Quality Farmer Training (HQFT) in Jiangxi Province, highlighting its strengths, weaknesses, and the gaps between policy objectives and practical outcomes. The research objective of identifying and addressing the shortcomings in the current evaluation system is achieved through a detailed examination of empirical data, interviews, and document reviews.

i. Key Findings and Analysis

Imbalance in Evaluation Focus: The current system prioritizes administrative metrics such as training completion rates, certification, and superficial satisfaction surveys over substantive outcomes like skill acquisition and career development. This imbalance undermines the program's goal of genuine farmer empowerment.

Neglect of Trainee Perspectives: The evaluation heavily emphasizes the role of trainers and institutional compliance while marginalizing the voices of farmers, who are the primary beneficiaries. This oversight results in a lack of meaningful feedback on the actual impact of training on farmers' professional abilities and livelihoods.

Short-Term vs. Long-Term Metrics: The system focuses on immediate outputs (e.g., number of trainees, satisfaction scores) but fails to measure delayed benefits such as long-term career growth or contributions to regional agricultural development. This short-sighted approach limits the program's potential for sustainable impact.

Structural Flaws in Evaluation Methods: The reliance on non-blind, institution-conducted satisfaction surveys creates conflicts of interest, leading to biased and ceremonial assessments. The absence of scientific tools (e.g., factor analysis, multi-index systems) further compromises the credibility of evaluation results.

ii. Achievement of Research Objective 1

The chapter successfully identifies the systemic issues plaguing the HQFT performance evaluation system, such as its overemphasis on administrative compliance, neglect of trainee outcomes, and lack of scientific rigor. By analyzing these gaps, the research lays the groundwork for proposing a more balanced and farmer-centered evaluation framework in subsequent chapters. The findings underscore the need for a shift

from quantitative, compliance-driven metrics to qualitative, outcome-based indicators that align with the program's humanistic and developmental goals.

iii. Conclusion

The analysis reveals a critical disconnect between the HQFT program's objectives and its evaluation practices. To address this, the study advocates for a reformed evaluation system that prioritizes farmer-centric metrics, incorporates long-term developmental benefits, and employs scientifically robust tools. This approach would ensure that the program not only meets administrative targets but also achieves its overarching mission of fostering sustainable rural development through empowered, skilled farmers.

4.11.2 Constructed A Performance Evaluation Tool

This second part achieves its objective by introducing a structured framework that addresses the gaps in the current HQFT performance evaluation system, The visual model (depicted in the embedded image) serves as a blueprint for a more balanced and scientifically rigorous evaluation approach.

i. Key Contributions

Visualization of a Comprehensive Evaluation System: The diagram likely integrates both quantitative and qualitative metrics, bridging the divide between administrative compliance (e.g., completion rates) and substantive outcomes (e.g., skill application, career development).

Alignment with Research Objectives: By proposing a multi-dimensional evaluation tool, this chapter directly responds to the earlier critique of the existing system’s

overreliance on superficial metrics (e.g., satisfaction surveys) and its neglect of long-term farmer development.

ii. How the Findings Achieve the Chapter's Objective:

The visual model synthesizes theoretical and empirical insights from previous chapters, translating them into a practical tool for policymakers and training institutions. It moves beyond critique by offering a tangible solution structured evaluation system that balances efficiency (e.g., certification rates) with effectiveness (e.g., skill retention, economic impact). This advancement directly supports the overarching research goal of enhancing HQFT's impact through evidence-based, farmer-centered evaluation practices.

The most significant finding of this part is the establishment of a scientific assessment tool. Compared with the previous methods, which were merely simple satisfaction surveys conducted immediately after training, the new tool includes pre-training willingness surveys, knowledge and skills improvement during training, and post-training follow-up services throughout the entire training process. Moreover, the establishment process has undergone a rigorous and comprehensive scientific assessment system.

In summary, the Chapter four successfully transitions from problem analysis to solution design, It provided a scientific tool for the performance evaluation of the high-quality farmer training in Chapter Five.

CHAPTER 5

PERFORMANCE EVALUATION OF HIGH-QUALITY FARMERS TRAINING

5.1 Introduction

Chapter 5 builds upon the conceptual framework introduced in Chapter 4 by presenting a refined and actionable model for evaluating High-Quality Farmer Training (HQFT) programs. Through a detailed visual representation (embedded in the document), this chapter aims to operationalize the theoretical principles discussed earlier into a practical, implementable system. The diagram likely illustrates key components such as evaluation indicators, feedback mechanisms, and the integration of short-term and long-term performance metrics. By doing so, this chapter transitions from theoretical design to actionable strategies, ensuring that the proposed evaluation framework can be effectively applied in real-world settings to enhance HQFT outcomes.

5.2 Analysis of the Performance Results of High-Quality Farmers' Training

In order to comprehensively understand the training performance of provincial-level HQF in Jiangxi Province, this study revised the research tool "HQFT Performance Questionnaire" developed earlier, and collected relevant data, aiming to make an objective evaluation of the training performance of provincial-level HQF in Jiangxi Province.

5.2.1 Design and Implementation of Training Performance of HQF

5.2.1.1 Evaluation Program Design

i. Evaluate the Purpose of Scheme Design

Government-funded investment in rural labor training is a typical active labor market policy. It is a common measure of all countries to upgrade the human capital level

of vulnerable groups to keep pace with technological progress and economic development. To investigate the training performance of HQF, especially through the investigation of the trainee farmers, we can effectively understand the satisfaction of the trainee farmers on the design, organization and implementation of the training, and accurately grasp the grasp, absorption and application of the training, so as to provide strong evidence for improving the design, organization, implementation and quality of the training and issuing targeted support policies.

ii. Evaluative Tools

The survey tools used in this research are formal questionnaires obtained after strictly following the procedures of theory construction, item compilation, test, item analysis, factor analysis, reliability and validity testing, etc. The questionnaire on the training performance of HQF mainly includes two parts: one is the basic information of the survey object; The second is the statement of the attitude or view of the trained farmers on the training performance of HQF designed according to the Richter scale. All the items of the scale were scored with 10 levels, and the respondents were asked to evaluate the performance of the HQFT they participated in at 1 to 10 levels, with the numbers 1 to 10 indicating "very inconsistent" to "very consistent" respectively. The reliability test of the Questionnaire on the Training Performance of HQF was conducted by SPSS 26.0. The internal consistency coefficient of the questionnaire was 0.987, indicating that the reliability index of the questionnaire was very satisfactory.

iii. Evaluation Data Sampling

The target population of this study is farmers who have participated in the training of HQF in Jiangxi Province, including large professional households, family farmers,

backbone cooperatives, heads of agricultural enterprises, and cadres of village committees. The subjects of this survey were four high-quality farmer training courses organized by Jiangxi Biotechnology Vocational College in 2023 and two farmer training courses of Jiangxi Academy of Agricultural Sciences. Each course had 100 participants. The training content for each course was based on different themes according to government policy requirements. The farmers were from 11 regions of Jiangxi Province and they filled out the questionnaires online.In order to ensure the representativeness of the selected samples, combined with the needs of the research problems, the sampling method of random sampling and snowball sampling was adopted in this survey, and the questionnaire was filled out online. In order to effectively avoid repeated answers on site and online or repeated online answers of the same research object, the researcher on the one hand informed the head teacher who sent the questionnaire and asked him to inform the farmers in the class wechat group. On the other hand, the researcher made an online questionnaire on the "Questionnaire Star" and set up a function that the IP address could submit the answer paper only once.

5.2.1.2 Collection of Survey Data

Shi et al. (2022) Considering that training performance has a lag, sometimes it takes several months or even longer for training performance to appear, that is, the transfer of training behavior has a "sleep effect". American scholar Donald L. Kirkpatrick's four-level evaluation model requires that instant performance evaluation should be carried out at the end of training. And delayed performance evaluation should be carried out 6 months after the end of training. This study comprehensively considered both immediate performance and delayed performance when evaluating the training performance of HQF, but the questionnaire was issued at one time, mainly based on the following considerations: First,

since Jiangxi Province was designated by the Ministry of Agriculture as a province to promote the cultivation of HQF in the whole province in 2015, there are all provincial-level, prefecture-level and county (district) level HQFT, and HQF have at least one training opportunity. Through the training farmers' satisfaction with the training implementation process and reflection on "what I have learned from the training", it is helpful to grasp the immediate effect of the training. After several years of pilot work in the province, the trained farmers "review" all the training they have participated in before, reflecting on "what knowledge and skills I have used in actual work" and "what has been brought to me by the application of training", which is helpful to grasp the delay performance. Second, before the trainee farmers fill in the questionnaire, the researcher has stressed that the survey is not aimed at a HQFT activity, but also includes the training that the trainees participated in before. Third, farmers are scattered in each village, and it is difficult to ensure that the same group of farmers are the same before and after the separate evaluation, which is difficult to operate. The formal questionnaires were issued from November 5, 2023 to November 25, 2023. A total of 520 questionnaires were issued in Jiangxi Province, and 514 valid questionnaires were recovered, with an effective rate of 98.88%. The researchers conducted a strict review of the questionnaires, and regarded those with incomplete filling, short answering time and obvious regularity as invalid. The basic information of the survey objects is as follows (Table 5.1).

Table 5.1: List of Basic Information of Valid Formal Questionnaires (N=514)

Variable	**Categories**	**Number of people (N)**	**Percentage (%)**
Gender	4male	84	74. 7
	female	30	25.3

Table 5.1 contunued

Age	Age 29 and under	71	14.2
	30 to 39 years old	120	24.2
	40 to 49 years old	191	37.16
	50 to 59 years old	120	24.2
	Age 60 and above	12	2.33
Literacy	Elementary school and below	0	0
	Middle school	85	16.54
	High School	110	21.4
	Technical secondary school	43	8.37
	Junior College	222	44.2
	Bachelor degree or above	53	9.5
	years or less	165	32.1
	4-6 years	104	20.23
Years from farming	7-9 years	62	12.06
	10-12 years	50	9.73
	13-15 years	19	3.7
	16 + years	114	22.18
	Ordinary farmers	63	12.26
From farming to pre-occupation	Agricultural workers, agricultural employees and other agricultural professional skills	22	4.3
		35	6.81
	Agricultural machine operators and other agricultural socialized service personnel	206	40.08
		19	3.7
		28	5.45
	Village cadres (including village officials)	14	2.72.
		58	11.28
	Migrant workers	14	2.72
	Middle and senior managers in enterprises	55	9.7
	Soldiers, teachers, doctors,engineers and lawyers, Self-employed investors		

Table 5.1 contunued

Posts	Large breeding and breeding households	54	69.51
	Farmer (family farmer, farmer)	69	13.4
	Co-op president (leader)	113	21.98
	Head of agricultural enterprise	38	7.39
	Part-time farmer	66	12.84
	Agricultural employees	9	1.75
	Agricultural technicians	26	5.06
	Other	139	26.04
Scale of operation	50 acres and under	231	45.5
	51-100 acres	77	15
	101 -- 300 acres	69	13.4
	301 -- 500 acres	51	9.92
	501 -- 1000 acres	31	6.03
	1001 acres and above	55	9.7
Annual personal income	100,000 and below	210	40.86
	110,000-200,000	210	40.86
	210,000 -- 300,000	37	7.2
	310,000-400,000	11	2.14
	410,000-500,000	1121	5.8
	510,000 and above	39	2.4
Number of training sessions	0 times	76	14.7
	1-2 times	322	62.65
	3-5 times	90	17.51
	5 and up	26	5.06

5.3 Analysis of the Investigation Results of the Training Performance of HQF

In order to grasp the overall situation of the training of HQF and the specific situation in each index, this section makes a descriptive statistical analysis of the survey results of the overall performance and training intention, training satisfaction, professional quality and training efficiency of HQFT. Since there is only one secondary indicator under the primary indicator of training willingness, which is "voluntary participation in training", it is impossible to conduct a differential test and analysis separately with the nine basic factors,Below is the relationship diagram for conducting pairwise difference tests to analyze the differences. (Figure 5.1)

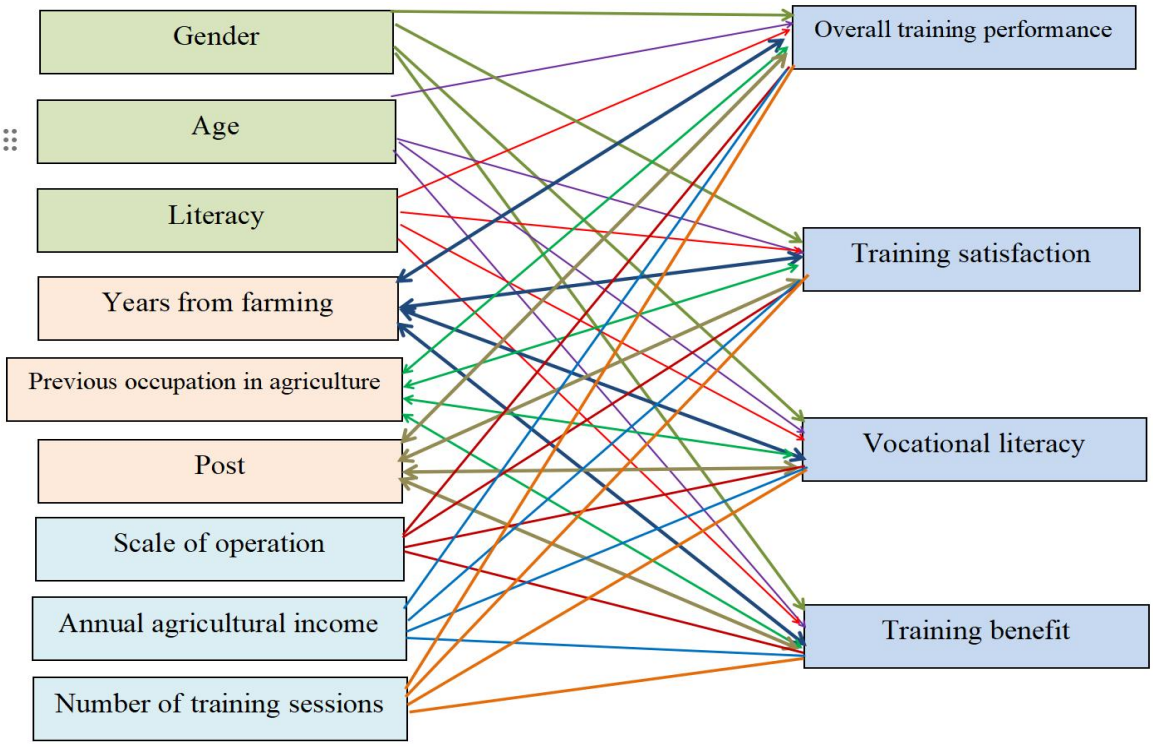


Figure 5.1: Framework diagram for the analysis of performance evaluation results of high-quality farmers' training

5.3.1 Results of the Overall Training Performance

In order to compare the training performance at different levels and make the subsequent analysis more specific and accurate, this study conducted descriptive statistical analysis of the training intention, training satisfaction, professional quality and training benefit from four dimensions on the basis of descriptive statistical analysis of the overall training performance of HQF. The questionnaire on the training performance of HQF adopts the 10-level scoring method. The SPSS 26.0 software is used to make weighted statistics on the feedback data of HQF who have participated in the training at the provincial level in Jiangxi Province, and the results are shown in Table 5.2

Table 5.2: Descriptive Statistical Results of the Overall Level of Training Performance of HQF (N=514)

Evaluation item	**M**	**SD**
Training performance	9.116	1.572
Willingness to train	9.253	1.579
Training satisfaction	9.619	1.661
Professionalism	9.658	1.656
Training benefits	7.744	1.534

Note: M stands for mean, SD stands for standard deviation SD

As can be seen from Table 4-2, the overall score of provincial HQF' training performance in Jiangxi Province is 9.116, and the standard deviation is 1.572. The 10-level scale is used here, and the value range is 1-10. The average score of training performance is greater than 9, indicating that provincial HQF' training performance in Jiangxi Province

is generally good. In terms of the four dimensions, the mean value and standard deviation of training intention dimension are 9.253 and 1.579, and the mean value and standard deviation of training satisfaction dimension are 9.619 and 1.661. The mean value and standard deviation of the dimension of professional accomplishment are 9.658 and 1.656; And the mean value of training benefit dimension is 7.744 with standard deviation of 1.534.

This indicates that the trainee farmers not only have high satisfaction with the training organization, implementation process and guarantee, but also through the training in recent years, the trainee farmers have learned something and developed a higher professional quality. At the same time, the trainee farmers can also integrate what they have learned, seen and heard into their own work, and basically apply what they have learned. The application of the training has brought certain benefits to the personal career development and the promotion of the status of professional farmers.

From the comparison of training intention, training satisfaction, professional quality and training benefit, professional quality has the best assessment performance, followed by training satisfaction, and training benefit is relatively the worst. It shows that through the rounds of HQFT, the trainee farmers not only learn some knowledge and skills required for agricultural production, operation and management, improve their professional ability, but also update the career concept, deepen the understanding of the occupation of farmers, and change some of their own behavior in the work. At the same time, the data also shows that the trainees are generally satisfied with the government-led HQFT program, but the training efficiency still needs to be improved, and the trainees think that the benefits brought to them by the training are slightly insufficient, which indicates that the actual results of the HQFT are still a certain distance from the original intention of the government to develop the training program. From the answers of the trained farmers,

whether it is the overall performance of the training of HQF in Jiangxi Province, or the four dimensions of training intention, training satisfaction, professional quality and training benefit, there is a large gap between the maximum value and the minimum value (the maximum value is 10 points, the minimum value is 1 points), which indicates that different farmers have great differences in their views on the training performance. To a certain extent, it shows that the selection of training content and training methods for HQF in Jiangxi Province does not take into account the individual differences of farmers participating in the training, and the targeted training for farmers with different needs is not enough, and the accuracy of training needs to be improved.

5.3.2 Results of the Evaluation on Training Intention

After descriptive statistics are made on the overall level of training performance of HQF, this study also makes a more detailed descriptive statistical analysis on four first-level indicators, namely, training intention, training satisfaction, professional quality and training benefit. The mean value and standard deviation of training intention is 9.253 and 1.579, indicating a high score, indicating that most of the farmers trained by HQF in Jiangxi Province participate in the training voluntarily. (See Table 5.3).

Table 5.3: Descriptive Statistical Results of the Training Intention Dimension (N=514)

Assessment items	**M**	**SD**
Volunteer for training	9.147	1.462
Willingness to train	9.253	1.579

5.3.3 Results of the Evaluation on Training Satisfaction

Training satisfaction includes five secondary indexes: training organization, training facilities and services, training content and form, training teachers and tracking, and training participant performance. In this study, the above five secondary indexes were used to characterize the satisfaction degree of the trainee farmers with the training, specifically the satisfaction degree of the trainee farmers with the organization and arrangement before the training; Content, form and teachers' satisfaction in the course of training implementation; The satisfaction degree of supporting conditions such as training facilities and management services; After the training, the degree of satisfaction the service and the degree of satisfaction of the trainees to their actual training performance were tracked. According to the feedback provided by the trained farmers, we can see that the scores of the five secondary indexes of training satisfaction are high, with the average value exceeding 9.500 (see Table 5.4), which indicates that the training work of HQF in Jiangxi Province is well organized, the training management is standardized, the teachers are strong, the farmers' participation is high, and the training performance is good. From the average point of view, the training facilities and services score the highest, and the teachers and tracking score the lowest, indicating that the trainee farmers have the highest satisfaction with the training hardware conditions and services, and the lowest satisfaction with the training software environment, teachers and post-training tracking services. This also shows that, to a certain extent, farmers in training pay more attention to "soft power" such as teachers and tracking services than the hardware arrangement.

Table 5.4: Descriptive Statistical Results of Training Satisfaction Dimension (N=514)

Evaluation item	M	SD
Training organization	9.664	1.706
Facilities & Services	9.690	1.661
Content and Form	9.667	1.657
Faculty and Tracking	9.560	1.765
Participation performance	9.626	1.688
Overall satisfaction with training	9.619	1.660

5.3.4 Professional Accomplishment Evaluation Results

The mean value and standard deviation of the actual level measured in the dimension of professional literacy are 9.658 and 1.656, indicating that HQF in Jiangxi Province have developed good professional literacy after training. Professional literacy includes three secondary indexes, namely, the renewal of professional idea, the improvement of professional ability and the change of professional behavior. To investigate the transformation and improvement of the trained farmers in the aspects of agricultural concept, agricultural knowledge and skills, and agricultural bank of China. As shown in **Table 5.5**, the scores of the three indicators are all high, indicating that through the training, the trained farmers have changed from the agricultural concept to a certain extent, and have a certain concept of ecology, green, organic, innovative, brand and environmental protection. They have learned new knowledge and skills from agriculture, broadened their scope of knowledge, improved their knowledge structure, improved the necessary skills needed in some aspects of agricultural production, operation, processing

and sales or the whole industrial chain, and enhanced their market ability, risk resistance ability, decision-making ability and other necessary professional abilities as rational economic personnel. I have a deeper understanding of HQF as a profession. Moreover, more and more trained farmers are willing to try to use the new knowledge, new technology and new model learned in the training in their daily work to change the traditional agricultural production, management, processing and marketing methods. From the mean point of view, the renewal score of vocational concept is the highest, followed by vocational ability, and the change score of professional behavior is the lowest, indicating that training plays the biggest role in updating farmers' vocational concept, followed by changing the trained farmers' vocational ability and the least role in changing farmers' professional behavior, which also indicates that not all the trained farmers can apply what they have learned. （Table 5.5）

Table 5.5: Descriptive Statistical Results of The Dimensions of Vocational Literacy Cultivation (N=514)

Assessment items	**M**	**SD**
Career ideas	9.711	1.643
Vocational ability	9.651	1.689
Professional conduct	9.597	1.748
Degree of professional literacy	9.658	1.657

5.3.5 Training Benefit Evaluation Results

According to the feedback data of trained farmers, the actual mean value and standard deviation of training benefit measured in this dimension is 7.744, and the standard

deviation is 1.533. Compared with the scores of the above three dimensions, the score of this dimension is relatively low. The training benefit includes three secondary indexes, namely, individual benefit, economic benefit and social benefit. The mean value and standard deviation of the performance evaluation of training on farmers' individual benefit are 9.677 and 1.661 respectively. The mean value and standard deviation of economic benefit evaluation of training were 9.672 and 1.675. The mean value of training on social benefit is 2.833, and the standard deviation is 1.322, indicating that the provincial HQFT program led by the Jiangxi provincial government has played a certain role in improving personal benefit and economic benefit, but its role in social benefit is still very limited. As to the reasons, the researchers believe that family management is still the most important management mode of HQF in Jiangxi Province (accounting for the highest proportion, up to 38.1%). (See Table 5.6)

Table 5.6: Descriptive Statistical Results of Training Benefits (N=51)

Assessment items	**M**	**SD**
Personal benefit	9.677	1.661
Economic benefit	9.672	1.675
Social benefits	2.833	1.322
Training benefits	7.744	1.533

5.4 Analysis of Training Performance of HQF Based on Individual Demographic Characteristics

The previous investigation found that the trainees are individuals with subjective initiative, and their own demographic characteristics affect the training performance. In order to understand whether the individual characteristics of the training objects of HQF

can affect the training performance and to what extent, this section mainly conducts a difference test on the overall training performance of HQF, the training intention, the training satisfaction, the professional quality and the training efficiency from the three characteristics of gender, age and education level.

5.4.1 The Overall Performance of Training for HQF Based on Individual Demographic Characteristics

The individual characteristics of farmers include three aspects: gender, age, and educational level. The following is an analysis of the results of the effects of these three aspects of individual characteristics on the four performance evaluation dimensions of high-quality farmers respectively.

5.4.1.1 Difference in the of Overall Training Performance of Trained Farmers of Different Genders

With the rapid development of urbanization and the application of mechanization and intelligent technology in the agricultural field, more and more women "passively" or "actively" participate in agricultural production and operation, and become an important part of HQF. Chen et al. (2017) conducted a questionnaire survey on 1200 farmers trained in Beijing, Jiangxi and Sichuan provinces and found that the overall performance of male farmers participating in training was higher than that of female farmers. In order to understand the difference in training performance between male and female farmers with high quality, this study divided HQF into male and female groups, and conducted independent sample T-test on their overall training performance, training intention, training satisfaction, professional quality and training effectiveness. The results are shown in Table 5.7, The total sample consisted of 384 males and 130 females. There were significant

differences in the views of male and female farmers with high quality on the level of training satisfaction. There were no significant differences in the statistical results of overall training performance, training intention, professional quality and training benefit, but the significance value of training satisfaction was 0.044<0.05, indicating that gender factors have a significant impact on training satisfaction. From the average point of view, The scores of women in the overall training performance, training intention, training satisfaction, professional quality and training benefit are higher than men, indicating that women's recognition of training performance is higher than that of men.

Table 5.7: Comparison of Differences in Training Performance of Farmers of Different Genders

	Gender	Number of cases	Average	Standard Deviation	T	Salience
Willingness to train	male	384	9.3984	1.30256	1.217	0.224
	female	130	9.5538	1.11952		
Training satisfaction	male	384	9.9880	0.85845	- 0.608	0.044
	female	130	9.0408	0.84612		
Professionalism	male	384	9.5913	0.88337	- 0.341	0.733
	female	130	9.6231	1.00812		
Training Benefits	male	384	9.4466	1.09157	- 0.315	0.539
	female	130	9.5154	1.13516		
Total performance of training	male	384	9.8561	0.90041	- 0.345	0.398
	female	130	9.9333	0.89822		

Note: t is a calculated sample statistic that is equal to the difference between the two sample means divided by their standard error

In order to explore the reasons, the researchers conducted cross-statistics between gender and educational level (see Table 5.8 and Table 5.9). Through the chi-square test of gender and educational level, it was found that the chi-square value was 96.757, the degree of freedom was 30, and the P-value was 0.000, less than 0.05, which reached a significant

difference. It indicates that there are significant differences between male and female farmers with high quality in education level. From the cross-statistics table of gender and culture, it can be found that the proportion of female farmers with college degree or above (including bachelor degree) is significantly higher than that of male farmers. Jiangxi is a large central region of China with a large education province. Since the implementation of China's rural revitalization strategy, there have been more and more diversified ways to receive education. In the modern society of "equality between men and women", women have more and more opportunities to receive re-education. The training performance of highly educated female HQF with a relatively high proportion is better than that of male HQF.

Table 5.8: Chi-Square Test of Gender * Education Level

	Value	**Degrees of Freedom**	**Progressive significance (bilateral)**
Pearson chi-square	7.759	4	0.001
Likelihood ratio	7.82	4	0.098
Linear correlation	2.015	1	0.156
Number of valid cases	514		

Table 5.9: Cross-Tabulation of Gender * Education Level

		Junior high	High School	Technical secondary school	Junior College	Undergraduate	Tatal
male	Counting	63	91	29	166	35	384
	Percentage of gender	16.4%	23.7%	7.6%	43.2%	9.1%	74.7%
female	Counting	22	19	14	56	19	130
	Percentage of gender:	16.9%	14.6%	10.7%	43.1%	14.6%	25.3%
Total	Counting	85	110	43	222	54	514
	Percentage of gender:	16.5%	21.4%	8.4%	43.2%	10.5%	100%

5.4.1.2 Difference in the Overall Training Performance of Trained Farmers in Different Ages

Generally speaking, young people have strong ability to accept new things and re-learn, and the training performance of young people is better than that of old people. Studies have shown that the training performance is negatively correlated with the age of the trainees, and the training willingness decreases by 6.7% for every 10 years that the trainees' age increases (Wang & Zhou, 2020). As for the study on the relationship between age and learning ability, many researchers have reached relevant conclusions. For example, Thorndike made a horizontal comparison of learning ability among adults of different ages.

In his book Adult Learning and found that 20-25 years old is the golden age for adult learning. Adult learning ability declines at a rate of about 1%; Thorndike (1912). In order to exclude the influence of time and individual differences, Goodylover found from longitudinal studies that adult learning ability peaked between the ages of 18 and 29. Goodylover (1980). In order to test whether there are significant differences in the evaluation of training performance of HQF at different ages, this study used one-way

variance test (ANOVA) to conduct statistical analysis on the overall level of training performance of HQF and each first-level indicator dimension.

The total sample consisted of 71 people aged 29 and below, 120 people aged 30-39, 191 people aged 40-49, 120 people aged 50-59, and 12 people aged 60 and above. The study found that there were no significant differences in the overall training performance and its first-level dimensions among HQF of all ages. From the average value, whether it is the overall training performance, training intention, training satisfaction, professional quality and training benefit, almost all show a downward trend with the increase of age, which indicates to a certain extent that adults have a certain learning ability and development potential no matter what age, but compared with older farmers, young farmers are more open-minded. The ability to learn and accept new things is relatively stronger, and the training learning performance is better (see Table 5.10)

Table 5.10: Testing the Difference of Overall Training Performance of Farmers in Different Age Groups

Age of Project		**N**	**Average**	**Standard Deviation**	**F**	**P**
Willingness to train	A Age 29 and under	71	9.8216	62190.	4.352	0.515
	B Ages 30-39	120	9.5472	1.00307		
	C Ages 40-49	191	9.1867	1.50264		
	D Ages 50-59	120	9.5389	1.24135		
	E Age 60 and above	12	9.0556	1.58804		
	Total	514	9.4377	1.25954		
Training satisfaction	A Age 29 and under	71	9.2549	0.50058	4.532	0.316
	B Ages 30-39	120	9.0383	0.85555		
	C Ages 40-49	191	9.8508	0.96801		
	D Ages 50-59	120	9.1008	0.70401		
	E Age 60 and older	12	9.5333	1.35953		

Table 5.10 continued

	In total	514	9.0014	0.85483		
Professionalism	A Age 29 and under	71	9.8521	0.53347	5.564	0.112
	B Ages 30-39	120	9.6738	0.91823		
	C Ages 40-49	191	9.3975	1.07081		
	D Ages 50-59	120	9.7429	0.66604		
	E Age 60 and older	12	9.1369	1.38654		
	In total	514	9.5994	0.91561		
Training benefits	A Age 29 and under	71	9.7197	0.54347	4.257	0.406
	B Ages 30-39	120	9.5396	1.08811		
	C Ages 40-49	191	9.2626	1.21059		
	D Ages 50-59	120	9.6121	0.97509		
	E Age 60 and older	12	8.9208	1.69148		
	Total	514	9.4640	1.10205		
Total training performance	A Age 29 and under	71	9.1621	0.53567	5.975	0.28
	B 30-39 years old	120	9.9497	0.82548		
	C Ages 40-49	191	9.6744	1.03116		
	D Ages 50-59	120	9.9987	0.77301		
	E Age 60 and older	12	9.4117	1.42200		
	total	514	9.8756	0.89961		

5.4.1.3 Difference in the Overall Training Performance of Trained Farmers with Different Cultural Degrees

Studies have shown that pre-service formal education (educational level) plays a very important role in on-the-job training. The more formal education people receive, the stronger their learning ability, and the better their enthusiasm and performance in participating in training Minsel (2001) In order to test the differences in the evaluation of training performance of HQF with different education levels, this study divided the education level of HQF into four categories: "junior high school and below", "senior high school", "junior college" and "undergraduate and above", and conducted one-way analysis of variance with training performance and its first-level dimension as variables.

In the total sample, the education level of HQF was 85 in junior high school or below, 110 in senior high school, 43 in secondary school, 222 in junior college, 53 in bachelor's degree or above, and 1 in master's degree. On the whole, there were significant differences in the overall training performance and its first-level dimension between HQF with different education levels. It shows that the higher the education level, the more the HQF think the training is effective. After the comparison by Scheffe method, it was found that there was no significant difference in the score of training satisfaction among all groups. Because Scheffe method is the strictest post-facto comparison method and its post-facto comparison is conservative, sometimes the F-value of the overall test is significant but the post-facto comparison is not significant.

In this case, the least significant difference method (LSD method) can be used to match the significance of the overall test F-value (Wu, 2020). The results are shown in the column of post-comparison in Table 5.11. In terms of overall training performance, the group of "senior high school" and "technical secondary school" was significantly higher than that of "junior high school and below" ($p=0.003<0.01$), and the group of "technical secondary school" was significantly higher than that of "junior high school and below" ($p=0.005<0.01$). The "junior college" group was significantly higher than the "junior high school and below" group ($p=0.002<0.01$), and the "undergraduate and above" group was significantly higher than the "junior high school and below" group ($p=0.017<0.05$); At the level of training intention, the group of "senior high school" and "technical secondary school" was significantly higher than that of "junior high school and below" ($p=0.004<0.01$), and the group of "technical secondary school" was significantly higher than that of "junior high school and below" ($p=0.003<0.01$). The "junior college" group was significantly higher than the "junior high school and below" group ($p=0.003<0.01$),

and the "undergraduate and above" group was significantly higher than the "junior high school and below" group ($p=0.017<0.05$); At the level of training satisfaction, the "senior high school" and "technical secondary school" groups were significantly higher than the "junior high school and below" groups ($p=0.014<0.05$), and the "technical secondary school" groups were significantly higher than the "junior high school and below" groups ($p=0.002<0.01$). The "junior college" group was significantly higher than the "junior high school and below" group ($p=0.013<0.05$), and the "undergraduate and above" group was significantly higher than the "junior high school and below" group ($p=0.012<0.05$); In terms of the level of professional literacy, the "senior high school" group was significantly higher than the "junior high school and below" group ($p=0.002<0.01$), and the "technical secondary school" group was significantly higher than the "junior high school and below" group ($p=0.011<0.01$). The "junior college" group was significantly higher than the "junior high school and below" group ($p=0.002<0.01$), and the "undergraduate and above" group was significantly higher than the "junior high school and below" group ($p=0.035<0.05$); At the level of training benefit, the group of "senior high school" and "technical secondary school" was significantly higher than that of "junior high school and below" ($p=0.002<0.01$), and the group of "technical secondary school" was significantly higher than that of "junior high school and below" ($p=0.003<0.01$). The "junior college" group was significantly higher than the "junior high school and below" group ($p=0.002<0.01$), and the "undergraduate and above" group was significantly higher than the "junior high school and below" group ($p=0.016<0.05$).

Table 5.11: Testing the Difference of Farmers' Training Performance in Different Education Levels

Project education level		N	average	Standard Deviation	F	P	Comparing after the fact
Willingness to train	A junior High	85	9.2000	1.66444	4.208**	0.009	B>A, C>A, D>A E>A
	B High School	110	9.3788	1.41312			
	C technical secondary school	43	9.4186	1.33946			
	D Junior College	222	9.5165	1.05241			
	E Bachelor	53	9.6164	0.81753			
	In total	514	9.4377	1.25954			
Training satisfaction	A Junior High	85	9.0706	0.95657	4.270*	0.026	B>A, C>A, D>A E>A
	B High School	110	9.1323	0.84954			
	C technical secondary school	43	9.1081	0.63947			
	D junior college	222	9.1333	0.82154			
	E Undergraduate	53	9.9226	0.98413			
	In total	514	9.0014	0.85483			
Professionalism	A Junior High	85	9.4134	0.96224	4.272**	0.003	B>A, C>A, D>A E>A F>A
	B High School	110	9.6494	0.87549			
	C technical secondary school	43	9.7309	0.76167			
	D junior college	222	9.6287	0.90602			
	E Bachelor	53	9.5660	1.06296			
	Total	514	9.5994	0.91561			
Training benefits	A Junior High	85	9.3100	1.13881	4.268**	0.007	B>A, C>A, D>A E>A
	B High School	110	9.5550	1.07748			
	C technical secondary school	43	9.6151	0.95572			
	D Junior College	222	9.4637	1.08825			
	E Undergraduate	53	9.4057	1.26577			
	In total	514	9.4640	1.10205			
Total training performance	A Junior High	85	9.6985	1.06105	4.284**	0.002	B>A, C>A,
	B High School	110	9.9039	0.93071			

Table 5.11 continued

	C technical secondary school	43	9.9682	0.69813			D>A E>A
	D Junior College	222	9.9106	0.83628			
	E Bencher	53	9.8777	0.95827			
	In total	514	9.8756	0.89961			

Note: n.s. p>0.05 * p<0.05 ** p<0.01

5.4.2 Training Satisfaction of HQF Based on Individual Demographic Characteristics

Since there is a secondary index of training intention, and the training intention has been analyzed in the previous analysis of the overall performance, it will not be repeated here. The following is an analysis of training satisfaction based on the demographic characteristics of individual HQF who participate in training.

5.4.2.1 Difference in of Training Satisfaction Dimensions of Trained Farmers of Different Genders

Liu et al. (2020) conducted a survey on 327 HQF in ethnic mountainous areas and found that as far as the training of HQF is concerned, men have a higher degree of recognition than women. Therefore, men are more willing to participate in the training than women and have higher satisfaction with the training. In order to verify the difference between male and female HQF in the level of training satisfaction, the researcher conducted independent sample t test and found that there were significant differences between male and female HQF in the dimension of training satisfaction ($p=0.044<0.05$). By further analyzing five secondary indexes of training satisfaction, It is found that there are significant differences in the statistical results of training teachers and tracking service ($p=0.012<0.05$) and participation performance ($p=0.035<0.05$) of male and female HQF, indicating that women are significantly more satisfied with teachers and tracking as well as

their own participation performance. There is no significant difference between men and women in the three aspects of training organization, training facilities and service, training content and training form. From the average point of view, women's satisfaction in these three aspects is also higher than that of men. Therefore, the conclusion of this study is that women's satisfaction in training HQF is higher than that of men.

The researcher believes that the reasons for the significant difference in training satisfaction between male and female farmers with high quality may be related to the personality characteristics of men and women. First, relevant studies show that compared with men, women are more willing to "modestly consult" and less "good face" than men. (Wang & Yang, 2021) Therefore, whether in theory learning or observation learning, women are more willing to consult "expert professors" and experienced "peer experts" to obtain advanced information and technology, while men tend to judge based on their past experience for "face" and "confidence". As a result, women's satisfaction with training teachers is higher than men's. Second, studies show that compared with men, women's social network relationships tend to be more similar (Smeltzer et al., 1989) and smaller in scale (Aldrich, 1989). The characteristics of female social network make them more efficient in obtaining key information resources, so they are more satisfied with their own training performance than men. Third, when making judgment, men pay more attention to the function of the left hemisphere of the brain, that is, logic and rationality, while women are good at combining the right hemisphere of the brain responsible for perceptual thinking with the left hemisphere responsible for rational thinking, and strive to consider the sensory and relational factors in the decision-making process comprehensively and thoughtfully, so as to be both sense and reasonable (Li, 2023) (Table 5.12).

Table 5.12: Statistical Results of Gender Difference in Training Satisfaction Dimension

Items	Gender	Number of cases	Average	Standard Deviation	t	p
Training organization	male	384	9.6777	82004.	1.330	0.171
	female	130	9.8038	67985.		
Training content and form	male	384	9.5734	1.05802	1.637	0.110
	female	130	9.6538	95602.		
Training teachers and tracking	male	384	9.2256	90505.	1.561	0.127
	female	130	9.2385	96921.		
Training Facilities Services	male	384	9.6777	82004.	2.312 *	0.012
	female	130	9.8038	67985.		
Participation performance	Male Female.	384 130	9.2734 9.5077	2.21924 1.76638	2.087 *	0.035

Note: * p<0.05

5.4.2.2 Difference in Training Satisfaction Dimension of Trained Farmers of Different Ages

While ANOVA reveals no significant age-based differences in HQFT satisfaction, notable trends emerge: older farmers report declining satisfaction with program organization (p=0.007-0.030), instructor quality (p=0.009-0.012), and outcomes (p=0.004-0.017) compared to younger counterparts - contradicting Chen et al.'s (2021) findings on age-related satisfaction increases. This paradox stems from two factors: (1) Older farmers' technological adaptation challenges ("Computer learning is impossible for me - I need step-by-step guidance"); and (2) Self-perceived learning limitations ("At my age, why learn farming anew?"). The results suggest training systems must address both actual

competency gaps (through enhanced technical support) and psychological barriers (via mindset interventions) to prevent age-related disengagement despite seniors' objectively greater programmatic expectations. (see Table 5.13).

Table 5.13: Test of Age Difference in Training Satisfaction Level

Age of Program		**N**	**Average**	**Standard Deviation**	**F**	**P**
Training organization	Age 29 and younger	71	9.8380	0.58110	1.109	0.352
	Ages 30-39	120	9.7438	0.80926		
	Ages 40-49	191	9.6283	0.79176		
	Ages 50-59	120	9.5375	0.83191		
	Age 60 and older	12	9.5250	1.08450		
	Total	514	9.7096	0.78822		
Training content and form	Age 29 and younger	71	9.8282	0.57400	3.239	0.012
	Ages 30-39	120	9.6267	1.10215		
	Ages 40-49	191	9.4419	1.15764		
	Ages 50-59	120	9.5167	0.82913		
	Age 60 and older	12	9.0667	1.64114		
	Total	514	9.5938	1.03285		
Training teachers and tracking	Age 29 and younger	71	9.4981	0.50120	4.857	0.201
	Ages 30-39	120	9.2644	0.93715		
	Ages 40-49	191	9.0652	1.03490		
	Ages 50-59	120	9.0508	0.75476		
	Age 60 and above	12	9.0147	1.52383		
	Total	514	9.2289	0.92075		
Training Facilities and Services	Age 29 and younger	71	9.8380	0.58110	1.109	0.352
	Ages 30-39	120	9.7438	0.80926		

	Ages 40-49	191	9.6283	0.79176		
	Ages 50-59	120	9.6375	80.3191		
	Age 60 and older	12	9.5250	1.08450		
	Total	514	9.7096	0.78822		
Participation performance	Age 29 and younger	71	9.8028	0.70952	1.338	0.255
	Ages 30-39	120	9.4333	2.16051		
	Ages 40-49	191	9.1571	2.18040		
	Ages 50-59	120	9.1417	2.50712		
	Age 60 and older	12	9.0500	1.60255		
	Total	514	9.3327	2.11470		

5.4.2.3 Difference in Training Satisfaction Dimensions of Trained Farmers With Different Education Levels

Generally speaking, farmers with different cultural levels have different requirements on training organization, training content, form and teachers. Studies have shown that the trainees' educational experience (educational level) has a significant impact on the satisfaction evaluation of training results. (Xu et al. 2020) In order to further understand whether there are significant differences in the specific indicators of training satisfaction among farmers with different education levels, this study divided education levels into five groups, and conducted one-way ANOVA and multiple comparison on the secondary indicators of training satisfaction respectively. The results showed that there were no significant differences in the education level of HQF except in the two aspects of training facilities and services, training content and form, and there were significant differences in the three aspects of training organization, training teachers and tracking services, and training participation performance. Through the LSD post-event comparison, it was found that in the dimension of training satisfaction, compared with the HQF of

"junior high school and below", the trainees of "senior high school", "technical secondary school", "junior college" and "bachelor's degree and above" had a significant impact on the satisfaction of training organization, and the P-values were 0.007, 0.004, respectively. 0.009 and 0.030, indicating that with the increase of education, the satisfaction of training organizations is higher; In terms of training teachers and tracking service, there were significant differences among farmers trained in high school, technical secondary school, junior college and junior middle school, with p values of 0.012, 0.011 and 0.009, respectively; In terms of training performance, there are significant differences between farmers trained in high school, technical secondary school, junior college, bachelor's degree or above and those in junior middle school or below, with P-values of 0.007, 0.004, 0.017 and 0.007, respectively. From the average point of view, farmers with different education levels have the lowest satisfaction with teachers and follow-up, which provides a certain reference for the training subjects to improve the training quality to a certain extent （Table 5.14）.

Table 5.14: Test of The Difference of Education Level in The Level of Training Satisfaction

Program L iteracy		N	Average	Standard Deviation	F	P	Comparing after the Fact
Training organization	A Junior high school and below	85	9.5412	1.03499	3.295 *	0.021	B>A,C>A,D>A,E>A
	B High School	110	9.7773	0.65608			
	C technical secondary school	43	9.9186	0.31206			
	D Junior College	222	9.7252	0.75166			
	E Undergraduate	53	9.6085	0.95513			
	In total	514	9.7096	0.78822			
Training content and form	A Junior high school and below	85	9.4471	1.21641	1.527	0.205	n.s.
	B High School	110	9.6145	1.00081			
	C technical secondary school	43	9.5953	1.26377			
	D Junior College	222	9.6703	0.87712			
	E Bencher	53	9.4679	1.18188			
	Total	514	9.5938	1.03285			
Training teachers and tracking	A Junior high School and below	85	8.1422	0.91776	2.915 *	0.032	B>A,C>A
	B High School	110	8.2678	0.92027			
	C technical secondary school	43	8.3827	0.64116			
	D Junior College	222	8.2297	0.93934			
	E Bencher	53	8.1527	1.05020			
	Total	514	2.2289	0.92075			
Training Facilities and Services	A Junior high School and below	85	9.5412	1.03499			
	B High School	110	9.7773	0.65608			
	C technical secondary school	43	9.9186	0.31206			

Table5.14 continued

	D Junior College	222	9.7252	0.75166	2.004	0.111	n.s.
	E Undergraduate	53	9.6085	0.95513			
	In total	514	9.7096	0.78822			
Participation performance	A Junior high school and below	85	9.0000	2.54951	3.406 *	0.016	B>A,C>A,D>A, E>A
	B High School	110	9.2727	2.05836			
	C technical secondary school	43	9.1860	2.51903			
	D Junior College	222	9.4865	1.96054			
	E Benke	53	9.4528	1.71606			
	In total	514	9.3327	2.11470			

Note: n.s. $p>0.05$ * $p<0.05$

5.4.3 Professional Literacy of HQF Based on Individual Demographic Characteristics

5.4.3.1 Difference Test of Vocational Literacy Dimensions of Trained Farmers of Different Genders

Generally speaking, the higher the satisfaction of the trained farmers with the training, the stronger the enthusiasm and initiative to participate in the training, the easier it is to master and absorb the training content, and the more conducive it is to the cultivation of professional literacy. Previous studies have shown that women's satisfaction with training is higher than men's. In order to test whether women's professional literacy is also higher than men's, this study further conducts T-test on the three secondary indexes of professional literacy and finds that there are no significant differences in the views of male and female HQF on the renewal of professional concepts and the improvement of professional abilities. However, there are significant differences in their views on the change of professional behavior ($p=0.025<0.05$), indicating that women are more willing

to apply what they have learned to work. From the mean point of view, women believe that training plays a higher role than men in updating career concept, improving career ability and changing career behavior. This may be related to the motivation of women to start their own businesses in the agricultural field. Cromie (1987) 's research showed that the main reason for women to start their own businesses was not for economic benefits, but their dissatisfaction with work. Elliott and Smith (2022) used the "push and pull theory" to analyze the entrepreneurial motivation of men and women. Foschi (2021) believed that the motivation of men to start businesses was mainly derived from the "pull" factor of "active desire", such as creating opportunities to change the status quo, obtaining higher income, and being unwilling to work for others. While female entrepreneurship stems from the "push" factor of having to change and "reacting passively". It is more difficult for women to be promoted in the workplace than men. Even if women have outstanding leadership ability, it is difficult for them to overcome the "glass ceiling" (Baxter & Wright, 2021), which pushes women to "entrepreneurship". Women are more active in entrepreneurship than men (Table 5.15).

Table 5.15: Statistical Results of Gender Differences in Occupational Literacy Dimension

Items	Gender	Number of cases	Average	Standard Deviation	t	P
An update of career ideas	male	384	9.6466	0.85452	1.062	0.287
	female	130	9.6519	1.19004		
Enhancement of professional competence	male	384	9.5505	962970.	1.804	0.070
	female	130	9.6183	0.96540		
Changes in professional behavior	male	384	9.4080	1.21335	2.230 *	0.025
	female	130	9.4936	1.28337		

Note: * $p<0.05$

5.4.3.2 Difference Test of Vocational Quality Dimension of Trained Farmers at Different Ages

While ANOVA results show no significant age-based differences in HQFT outcomes, notable trends emerge: (1) All age groups report strongest impacts on conceptual renewal versus behavioral change; (2) Competency development and implementation decline progressively with age, corroborating elder farmers' self-reported technological adaptation challenges. This paradox - where accumulated experience fails to compensate for declining tech adoption - highlights a critical gap in age-responsive training design. Younger farmers demonstrate superior knowledge application, suggesting programs require differentiated approaches: maintaining conceptual modules for all ages while intensifying hands-on technological components for older cohorts to bridge the digital implementation gap. (Table 5.16).

Table 5.16: Tests of Age Differences in Terms of Professional Literacy

		N	Average	Standard Deviation	F	P
An update of career ideas	Age 29 and younger	71	9.8592	0.54559	3.113	0.315
	Ages 30-39	120	9.6667	1.02521		
	Ages 40-49	191	9.4779	1.14826		
	Ages 50-59	120	9.2726	0.60140		
	Age 60 and older	12	9.2524	1.03883		
	Total	514	9.6429	0.94938		
The advancement of professional competence	Age 29 and younger	71	9.8486	0.53156	6.996	0.501
	Ages 30-39	120	9.7823	0.86328		
	Ages 40-49	191	9.3410	1.11331		
	Ages 50-59	120	9.2135	0.77808		
	Age 60 and older	12	8.9063	1.78466		
	In total	514	9.5676	0.96310		
Changes in professional behavior	Age 29 and younger	71	9.7113	0.88773	3.996	0.603
	Ages 30-39	120	9.4917	1.27221		
	Ages 40-49	191	9.2024	1.32620		
	50-59 years old	120	9.1167	1.07636		
	Age 60 and older	12	8.8889	1.74705		
	In total	514	9.4296	1.23073		

5.4.3.3 Test Difference of Vocational Quality of Trained Farmers With Different Education Levels

Educational attainment significantly influences HQFT outcomes across three dimensions: (1) Vocational concept renewal shows progressive improvement from junior high (reference group) to undergraduate levels ($p<0.05$ for all comparisons); (2) Competency development peaks at junior college level ($p<0.001$ vs. basic education), with bachelor's holders demonstrating slightly lower engagement - likely due to weaker agricultural career commitment; (3) Behavioral transformation follows similar patterns, with secondary technical and junior college cohorts showing strongest implementation

($p<0.001$). These findings highlight an optimal training threshold at vocational education levels (secondary technical/junior college), where participants combine sufficient cognitive skills with strong sectoral dedication to maximize training internalization and application (Table 5.17).

Table 5.17: Test of The Difference of Education Level in Occupational Quality

Project Literacy		N	Average	Standard Deviation	F	p	Comparing after th Fact
An update of career ideas	A Junior high school and below	85	9.4706	0.92209	2.871 *	0.035	B>A, C>A, D>A, E>A
	B High School	110	9.6909	0.90940			
	C technical secondary school	43	9.6641	0.75069			
	D Junior College	222	9.7628	1.00517			
	E Benke	53	9.8334	0.98358			
	Total	514	9.6429	0.94938			
The advancement of professional competence	A Junior high school and below	85	9.3765	1.00621	5.677 **	0.002	B>A, C>A, D>A, E>A
	B High School	110	9.6205	0.93095			
	C technical secondary school	43	9.7122	0.77226			
	D Junior College	222	9.7991	0.94886			
	E Bencher	53	9.7212	1.13979			
	In total	514	9.5676	0.96310			
Changes in professional behavior	A Junior high school and below	85	9.3529	1.12229	6.943 **	0.000	B>A, C>A, D>A, E>A
	B High School	110	9.5136	1.18673			
	C technical secondary school	43	9.6434	0.91474			
	D Junior College	222	9.6971	1.31637			
	E Benke	53	9.6491	1.35608			
	In total	514	9.4296	1.23073			

5.4.4 Benefit Analysis of HQFT Based on Individual Demographic Characteristics

5.4.4.1 Difference Analysis of Training Benefit Dimensions of Trained Farmers of Different Genders

Gender analysis reveals distinct HQFT impact patterns: While independent t-tests show no significant differences in personal/economic benefits between male and female farmers, women demonstrate significantly greater social impact ($p=0.024$), particularly in community leadership and knowledge-sharing. This aligns with management theories (Helgesen, 2020; Gardiner, 1999) highlighting women's relational strengths - including collaborative decision-making, emotional intelligence, and participatory leadership - which translate more effectively into collective agricultural development. The findings suggest HQFT programs could amplify rural revitalization by intentionally leveraging these gendered competencies, particularly in cooperative extension activities where women's inclusive approach creates multiplier effects beyond individual farm productivity. (Buttner, 2001).

Earn each other's trust and respect by helping others, empowering others, etc. Thus, Eagly A. H. (2007) believes that compared with male HQF, female trained farmers are more willing to share and exchange learning information and experience, more willing to cooperate with other farmers, and more welcomed by surrounding small farmers, so they can exert relatively better social benefits (Table 5.18).

Table 5.18: Statistical Results of Gender Difference in Training Effectiveness Dimension

Items	Gender	Number of cases	Average	Standard Deviation	t	P
Personal benefit	male	384	9.5399	1.06047	0.164	0.870
	female	130	9.5577	1.07867		
Economic benefits	male	384	9.4036	1.20912	1.131	0.259
	female	130	9.5385	1.06588		
Social benefit	male	384	9.4076	1.24467	2.287*	0.024
	female	130	9.4615	1.20940		

Note: * $p<0.05$

5.4.4.2 Difference Analysis of Training Benefit Dimension of Trained Farmers of Different Ages

Age significantly influences HQFT engagement and outcomes: While ANOVA reveals no statistically significant differences in perceived benefits (personal/economic/social) across age groups, younger farmers (<29 years) consistently report highest gains across all dimensions, with performance declining progressively among older cohorts. This aligns with interview findings where post-80s farmers emphasized collective advancement ("Individual success requires scaling through peer collaboration"). The pattern suggests youth's cognitive flexibility and knowledge-sharing propensity amplify training impacts, though all age groups recognize personal benefits over societal impacts - highlighting opportunities to strengthen community development components in curriculum design for broader rural revitalization effects. (Table 5.19).

Table 5.19: Test of Age Gap in Training Benefit Level

Training performance	Age	N	Mean value	Standard Deviation	F	P
Personal benefit	Age 29 and younger	71	9.8239	0.57865	3.382	
	Ages 30-39	120	9.5875	1.06291		
	Ages 40-49	191	9.3586	1.16231		
	Ages 50-59	120	9.2611	1.05563		
	Age 60 and older	12	9.2500	1.30171		
	Total	514	9.5444	1.06407		
Economic benefits	Age 29 and under	71	9.7254	0.84108	5.047	0.052
	Ages 30-39	120	9.5354	1.15468		
	Ages 40-49	191	9.2238	1.26438		
	Ages 50-59	120	9.1938	0.99793		
	Age 60 and older	12	8.6042	2.14915		
	In total	514	9.4377	1.17500		
Social benefit	Age 29 and younger	71	9.5704	1.12693	2.640	0.303
	Ages 30-39	120	9.5438	1.07378		
	Ages 40-49	191	9.2474	1.32486		
	Ages 50-59	120	9.1500	1.18091		
	Age 60 and older	12	8.7917	1.92718		
	In total	514	9.4212	1.23490		

Note: $^{*}p<0.05$

5.4.4.3 Difference Analysis of Training Benefit Dimensions of Trained Farmers with Different Education Levels

In order to explore the differences in training benefit dimensions of trained farmers with different education levels, this study finds that there are significant differences in personal, economic and social benefits of training for trained farmers with different

education levels through one-way analysis of variance and multiple comparison of LSD. Specifically, in terms of personal benefits, there are significant differences between "senior high school", "technical secondary school" group and "junior high school and below" ($p=0.006<0.01$), and "technical secondary school" group and "junior high school and below" ($p=0.009<0.01$). Group and "junior college" group and "junior high school and below" there is a very significant difference ($p=0.003<0.01$), "undergraduate and above" group and "junior high school and below" there is a significant difference ($p=0.035<0.05$); In terms of economic benefits, there was a very significant difference between "senior high school" group and "junior high school and below" ($p=0.005<0.01$). The "technical secondary school" group had a very significant relationship with "junior high school and below" ($p=0.002<0.01$), the "junior college" group had a very significant difference with "junior high school and below" ($p=0.002<0.01$), and the "undergraduate and above" group had a significant difference with "junior high school and below" ($p=0.019<0.05$); In terms of social benefits, there was a very significant difference between "senior high school" and "junior high school and below" ($p=0.000<0.001$), and there was a very significant difference between "technical secondary school" and "junior high school and below" ($p=0.028<0.01$). There is a very significant difference between the "junior college" group and the "junior high school and below" ($p=0.000<0.001$), and the "undergraduate and above" group and the "junior high school and below" ($p=0.005<0.01$). From the point of view of the mean total score, the social benefit is significantly lower than the other two aspects, indicating that the current HQFT in Jiangxi Province has brought certain benefits to the trained farmers, but the trained farmers have not played a good demonstration benefit in the whole province. From the average point of view, the higher the education level, the more beneficial to the development of individual career, and in terms of

economic and social benefits, "college" education is the most advantageous. Therefore, it is necessary to train more HQF with college education (Table 5.20).

Table 5.20: Test of The Difference of Education Level in The Level of Training Benefits

Project Literacy		**N**	**Average**	**Standard Deviation**	**F**	**P**	**Comparing after the F act**
Personal benefit	A Junior high and below	85	9.3314	1.31724	6.814 *	0.020	B>A,C>A ,D>A, E>A
	B High School	110	9.6258	0.98697			
	C technical secondary school	43	9.6318	1.02583			
	D Junior College	222	9.5743	0.96656			
	E Bencher	53	9.5189	1.18559			
	In total	514	9.5444	1.06407			
Economic benefits	A Junior high and below	85	9.2324	1.20316	5.293 **	0.006	B>A,C>A ,D>A, E>A
	B High School	110	9.4955	1.20539			
	C technical secondary school	43	9.6628	0.85719			
	D Junior College	222	9.4583	1.16253			
	E Undergraduate	53	9.3868	1.33154			
	Total	514	9.4377	1.17500			
Social benefit	A Junior high school and below	85	9.2912	1.11260	8.344 ***	0.000	B>A,C>A ,D>A, E>A
	B High School	110	9.5705	1.18095			
	C technical secondary school	43	9.5000	1.19896			
	D Junior College	222	9.4032	1.28081			
	E Undergraduate	53	9.3396	1.37727			
	In total	514	9.4212	1.23490			

Note: * $p<0.05$ ** $p<0.01$ *** $p<0.001$

5.5 Training Performance of HQF Based on Individual Experience Characteristics

Dewey summed up the connection between experience and learning in Experience and Education, arguing that "all true education happens through experience, and every experience is a moving force". "(Sharon B. Merian and Rosemary S. Kefrera, 2011). It can be seen that adult experiences can promote the enthusiasm of adult learners to participate in learning, and thus affect learning performance. As adult learners with high quality farmers, this study explores the difference between the experience characteristics of HQF and their training performance from three experience characteristics: pre-farming occupation, farming time and training times.

5.5.1 The Overall Training Performance of HQF Based on Individual Experience Characteristics

The characteristics of farmers' experience include three aspects: pre-agricultural occupation, training frequency, and training duration. The following is an analysis of the effect results of individual characteristics in these three aspects on the four performance evaluation dimensions of high-quality farmers respectively.

5.5.1.1 Difference Test of The Impact of Pre-Agricultural Occupation on the Overall Training Performance

Empirical analysis confirms migrant work experience enhances HQFT outcomes through accumulated human/social capital (Wei, 2021). While ANOVA shows no significant performance differences across pre-farming occupations overall, trend analysis reveals: (1) Returned migrants consistently outperform other groups (including village cadres) across all training dimensions; (2) Ordinary farmers demonstrate the lowest

competency gains. This suggests labor mobility's latent educational value - exposing workers to organizational practices and market concepts that subsequently improve training receptivity and application, creating a virtuous cycle where enhanced entrepreneurial capabilities further motivate upskilling participation. (Table 5.21).

Table 5.21: Differential Examination of The Impact of Occupational Experience on Training Performance

Project	Occupational Experience	N	Averagen	Standard Deviation	F	P
Overall training performance	Ordinary farmers	63	9.5668	0.93221	1.556	0.326
	Agricultural workers, agricultural employees and other agricultural professional skills	22	9.9838	0.55343		
	Agricultural machine operators and other agricultural socialization service personnel	35	9.1760	0.39041		
	Village cadres (including village officials)	206	9.3889	0.89542		
	Migrant worker	19	9.7853	0.62027		
	Middle and senior management in enterprises	28	9.6368	0.92421		
	Soldiers, teachers, doctors, engineers and lawyers, etc	14	9.6729	1.32556		
	Individual investors	58	9.6501	1.15438		
	College student	14	9.9813	0.97221		
	Other	55	9.9300	0.77639		
	In total	514	9.8418	0.89909		
Willingness to train	Ordinary farmer	63	9.3386	1.26787	0.916	0.511
	Agricultural workers, agricultural employees and other agricultural professional skills	22	9.3636	1.10750		
	Agricultural machine operators and other agricultural socialization service personnel	35	9.8571	0.62771		

Table5.21 continued

	Village cadres (including village officials)	206	9.4854	1.32622		
	Migrant worker	19	9.8333	99381.		
	Middle and senior management in enterprises	28	9.4762	1.07890		
	Military personnel, teachers, doctors, engineers and lawyers, etc	14	9.4762	99326.		
	Individual investors	58	9.1667	1.62492		
	College student	14	9.6905	91019.		
	Other	55	9.3636	1.20232		
	Total	514	9.4377	1.25954		
Professionalism	The average farmer	63	9.3280	1.14957	1.275	0.248
	Agricultural workers, agricultural employees and other agricultural professional skills	22	9.7406	0.51196		
	Agricultural machine operators and other agricultural socialization service personnel	35	9.7818	0.69116		
	Village cadres (including village officials)	206	9.8997	0.92163		
	Migrant worker	19	9.4575	0.80095		
	Middle and senior management in enterprises	28	9.3532	1.22048		
	Soldiers, teachers, doctors, engineers and lawyers, etc	14	9.3128	1.60999		
	Individual investors	58	9.3934	1.14977		
	College student	14	9.7037	0.81854		
	Other	55	9.6820	0.82913		
	In total	514	9.5467	0.98278		
Training satisfaction	Ordinary farmers	63	9.7858	0.94294		
	Agricultural workers, agricultural employees and other agricultural professionals	22	9.0833	0.56335	1.976	0.410
	Agricultural machine operators and other agricultural socialization service personnel	35	9.2231	0.18907		

Table5.21 continued

	Village cadres (including village officials)	206	9.9332	0.86812		
	Work abroad	19	9.0329	0.47071		
	Middle and senior management in enterprises	28	9.4895	0.98045		
	Soldiers, teachers, doctors, engineers and lawyers, etc	14	9.9027	1.07037		
	Individual investors	58	9.7849	1.02066		
	College student	14	9.7910	1.53878		
	Other	55	9.0783	0.57482		
	In total	514	9.9149	0.86451		
Training Benefits	Ordinary farmers	63	9.2147	1.23928	2.048	0.162
	Agricultural workers, agricultural employees and other agricultural professional skills	22	9.7475	0.55210		
	Agricultural machine operators and other agricultural socialization service personnel	35	9.8421	0.39730		
	Village cadres (including village officials)	206	9.5371	0.99065		
	Migrant worker	19	9.3173	0.90145		
	Middle and senior management in enterprises	28	9.2282	1.30511		
	Military personnel, teachers, doctors, engineers and lawyers, etc	14	9.0000	1.88467		
	Individual investors	58	9.2553	1.41305		
	College student	14	9.7401	0.64426		
	Other	55	9.5960	0.91889		
	Total	514	9.4678	1.08245		

5.5.1.2 Difference Test of The Impact of Farm Time on The Overall Training Performance

Different from traditional agriculture, modern agriculture requires practitioners to be compound talents with production, processing, operation and management capabilities. Generally speaking, the longer and more experienced the practitioners engaged in agriculture, the more likely they are to rely on the existing experience, and the worse the training performance may be. Some scholars have confirmed that the number of years of farming has a significant negative impact on training performance. (Liu et al. 2020). In order to test the difference of the influence of the length of farming time on the training performance of HQF, this study divided the training time of farmers into six groups: "3 years and below", "4-6 years", "7-9 years", "10-12 years", "13-15 years" and "more than 16 years". Through single factor analysis, it was shown that: There is no significant difference in the overall training performance, training intention, training satisfaction, professional quality and training efficiency among farmers with different farming time. From the average point of view, regardless of the overall performance or each level of performance, the scores of farmers with "4-6 years" are the highest, and all show a trend of rising first and then decreasing and then rising, indicating that the shorter the farming time, the better the training performance, the best training performance for farmers who have entered the agricultural field and started their own business within six years, and to a certain extent, farmers have accumulated rich experience. They are no longer satisfied with acquiring knowledge and skills through training, so their training performance is slightly lower than that of farmers who have been farming for less than 6 years (Table 5.22).

Table 5.22: Difference Test of the Impact of Training Time on Training Performance

The number of years since the project began farming		**N**	**Average**	**Standard Deviation**	**F**	**P**
Total	3 years or less	165	9.8233	0.96192	0.879	0.495

Table5.22 continued

training performance	4-6 years	104	9.9289	0.88833		
	Years 7-9	62	9.8590	0.88427		
	10-12 years	50	9.6234	1.12820		
	13-15 years	19	9.7758	0.85954		
	16 + years	114	9.8866	0.69602		
	In total	514	9.8418	0.89909		
Willingness to train	3 years or less	165	9.4667	1.29299	0.997	0.419
	4-6 years	104	9.5673	0.99609		
	Years 7-9	62	9.2527	1.64376		
	10-12 years	50	9.1733	1.61377		
	13-15 years	19	9.4211	1.08208		
	16 + years	114	9.4971	1.01343		
	Total	514	9.4377	1.25954		
Professionalism	3 years and under	165	9.5045	1.03559	0.961	0.441
	4-6 years	104	9.7039	1.07828		
	7-9 years	62	9.6494	0.81859		
	Years 10-12	50	9.3027	1.28005		
	13-15 years	19	9.5632	0.96269		
	More than 16 years	114	9.6040	0.71246		
	In total	514	9.5467	0.98278		
Training satisfaction	3 years and under	165	9.8865	0.97467	0.612	0.691
	4-6 years	104	9.0141	0.76494		
	Years 7-9	62	9.9348	0.88530		
	10-12 years	50	9.7950	0.90809		
	13-15 years	19	9.7756	1.01814		
	16 + years	114	9.9307	0.71748		
	In total	514	9.9149	0.86451		
Training Benefits	3 years or less	165	9.4354	1.11848	0.885	0.491
	4-6 years	104	9.6302	1.21692		
	Years 7-9	62	9.5990	0.83956		
	10-12 years	50	9.2228	1.30223		

Table5.22 continued

	13-15 years	19	9.3436	1.05504		
	16 + years	114	9.5146	0.90264		
	Total	514	9.4678	1.08245		

5.5.1.3 Test of Difference the Impact of Training Frequency on the Total Training Performance.

Wang (2022) investigated the training of HQF in Henan province and found that the training frequency of farmers affected the willingness to participate in training and was positively correlated with the training performance. In order to verify the impact of training frequency on training performance, this study divided the number of training participants into four groups: "0 times", "1-2 times", "3-5 times" and "5 times or more". Through one-way ANOVA, it was found that different training frequency had significant differences in the dimension of training satisfaction, but no significant differences in other dimensions. After the comparison, it was found that in the dimension of training satisfaction, the group that participated in "5 times and more" training scored significantly higher than the group that participated in "3-5 times" ($p=0.003<0.01$) (Table 5.23).

Table 5.23: Difference Test of the Impact of Training Times on the Total Training Performance

Number of project training		**N**	**Average**	**Standard Deviation**	**F**	**P**	**Comparing after the fact**
Overall training performance	A.0 sessions	76	9.8237	1.12402	2.28	0.084	n.s
	B.1-2 times	322	9.8772	0.79844			
	C.3-5 times	90	9.6547	1.08211			
	D. More than 5 times	26	9.1040	0.47826			
	In total	514	9.8418	0.89909			

Table5.23 continued

Willingness to train	A.0 times	76	9.2851	1.84488	1.293	0.276	n.s
	B. Once or twice	322	9.4700	1.10160			
	C.3-5 reps	90	9.3481	1.32291			
	D.5 or more times	26	9.7949	0.53397			
	In total	514	9.4377	1.25954			
Professional quality	A.0 times	76	9.5980	0.89761	1.975	0.117	n.s
	B.1-2 times	322	9.5699	0.94180			
	C.3-5 times	90	9.3464	1.24110			
	D. More than 5 times	26	9.8029	0.54979			
	In total	514	9.5467	0.98278			
Training satisfaction	A.0 times	76	9.9121	1.05117	2.844 *	0.037	C>B>C, A>C,
	B. Once or twice	322	9.9646	0.76215			
	C.3-5 times	90	9.6873	1.04438			
	D.5 or more times	26	9.0960	0.65398			
	In total	514	9.9149	0.86451			
Training benefit	A.B.0 times	76	9.4996	1.05836	1.997	0.113	
	1-2 times	322	9.5042	0.99957			
	C.3-5 times	90	9.2370	1.39268			
	D.5 or more times	26	9.7222	0.81846			
	In total	514	9.4678	1.08245			

Note: * $p<0.05$

5.5.2 Training Satisfaction of HQF Based on Individual Experience Characteristics

5.5.2.1 Difference Test of the Influence of Pre-Agricultural Occupation on the Dimension of Training Satisfaction.

While distinct occupational backgrounds create varied training needs - traditional farmers requiring management upskilling versus educated entrepreneurs needing technical agriculture knowledge - ANOVA results show no significant satisfaction differences across

experience groups. However, nuanced patterns emerge: college-educated farmers report highest satisfaction with program structure (content, facilities) but lowest with instructor quality and follow-up support, suggesting training systems effectively deliver foundational elements yet struggle with advanced, personalized components crucial for this cohort's development. This highlights the importance of maintaining core program quality while differentiating post-training support to address diverse competency gaps among participants with varying agricultural exposure. (**Table 5.24**).

Table 5.24: Shows the Difference Test of the Influence of Pre-Agricultural Occupations on Training Satisfaction

Project	**Occupational Experience**	**N**	**Average**	**Standard Deviation**	**F**	**P**
Training organization	Ordinary farmers	63	9.5754	0.84318	1.240	0.268
	Agricultural workers, agricultural employees and other agricultural professional skills	22	9.7273	0.68099		
	Agricultural machine operators and other agricultural socialization service personnel	35	9.9357	0.19500		
	Village cadres (including village officials)	206	9.7500	0.68876		
	Migrant worker	19	9.7632	0.54310		
	Middle and senior management in enterprises	28	9.5982	0.82591		
	Soldiers, teachers, doctors, engineers and lawyers, etc	14	9.5893	1.32870		
	Individual investors	58	9.5603	1.13778		
	College student	14	9.4821	1.37094		
	Other	55	9.8455	0.51928		
	In total	514	9.7096	70.8822		
Training content and form	Ordinary Farmers	63	9.5270	0.87643	1.077	0.378
	Agricultural workers, agricultural employees and other agricultural professional skills	22	9.6727	0.77961		
	Agricultural machine operators and other agricultural socialization service personnel	35	9.9714	110.000		

Table 5.24 continued

	Village cadres (including village officials)	206	9.5806	1.14832		
	Migrant worker	19	9.5474	0.67607		
	Middle and senior management of enterprises	28	9.2643	1.47979		
	Military personnel, teachers, doctors, engineers and lawyers, etc	14	9.6143	1.23155		
	Individual investor	58	9.4966	1.16814		
	College student	14	9.5429	1.10503		
	Other	55	9.7418	0.68169		
	Total	514	9.5938	1.03285		
Training teachers and tracking	Ordinary farmers	63	9.0765	0.95391	1.545	0.268
	Agricultural workers, agricultural employees and other agricultural professional skills	22	9.4256	0.51608		
	Agricultural machine operators and other agricultural socialization service personnel	35	9.5013	0.50441		
	Village cadres (including village officials)	206	9.2701	0.88950		
	Migrant worker	19	9.3014	0.55962		
	Middle and senior management of enterprises	28	9.9870	1.23134		
	Soldiers, teachers, doctors, engineers and lawyers, etc	14	9.8636	1.52068		
	Individual investors	58	9.0658	1.04638		
	College student	14	9.1623	1.32134		
	Other	55	9.3769	0.72820		
	In total	514	9.2289	0.92075		
Training Facilities and Services	Ordinary farmer	63	9.5754	0,84318	1.240	0.268
	Agricultural workers, agricultural employees and other agricultural professional skills	22	9.7273	0.68099		
	Agricultural machine operators and other agricultural socialization service personnel	35	9.9357	0.19500		
	Village cadres (including village officials)	206	9.7500	0.68876		
	Migrant worker	19	9.7632	0.54310		
	Middle and senior management in enterprises	28	9.5982	0.82591		
	Soldiers, teachers, doctors, engineers and lawyers, etc	14	9.5893	1.32870		

Table 5.24 continued

	Individual investors	58	9.5603	1.13778		
	College student	14	9.4821	1.37094		
	Other	55	9.8455	0.51928		
	In total	514	9.7096	0.78822		
Participation performance	Ordinary farmers	63	9.1746	2.39313	1.920	0.057
	Agricultural workers, agricultural employees and other agricultural professional skills	22	9.8636	0.46756		
	Agricultural machine operators and other agricultural socialization service personnel	35	9.7714	0.64561		
	Village cadres (including village officials)	206	9.3155	2.28088		
	Migrant workers	19	9.7895	0.53530		
	Middle and senior management in a business	28	9.0000	3.63114		
	Military personnel, teachers, doctors, engineers and lawyers, etc	14	9.8571	0.53452		
	Individual investors	58	9.2414	2.21090		
	College student	14	9.2857	2.67261		
	Other	55	9.5818	87540.		
	In total	514	9.3327	2.11470		

5.5.2.2 Difference Test of the Impact of Farming Time on the Overall Training Satisfaction Dimension

In the preliminary survey, some interviewed farmers said: "I have been farming all my life, why do I need to attend any training? I am much better at these things than they are. I could have been a teacher." From this, it can be seen that with the extension of farming years, farmers' satisfaction with training may become lower and lower. In order to verify this hypothesis, through one-way ANOVA, this study found that in terms of training satisfaction, there was no significant correlation between the satisfaction of HQF with different working years in five aspects: training organization, training facilities and services, training content and form, training teachers and follow-up, and training

participation performance. From the point of view of the mean total score, the trainee farmers have the highest satisfaction with the training performance. From the point of view of farming time, the trainee farmers of "4-6 years" have the highest scores on all aspects, indicating that the trainee farmers of "4-6 years" have the highest satisfaction with the training. The satisfaction of farmers with "7-9 years or more" was second only to those with "4-6 years" (Table 5.25).

Table 5.25: Difference Test of the Influence of Farming Time on Training Satisfaction Dimension

Project from farm time		**N**	**Average**	**Standard Deviation**	**F**	**P**
Training organization	3 years and under	165	9.6606	0.88559	296.	915.
	4-6 years	104	9.7676	0.92530		
	Years 7-9	62	9.7298	0.65333		
	10-12 years	50	9.6600	0.71920		
	13-15 years	19	9.7237	0.90866		
	16 + years	114	9.7544	0.55453		
	In total	514	9.7096	0.78822		
Training content and form	3 years or less	165	9.5855	0.96968	693.	629.
	4-6 years	104	9.6538	1.07079		
	Years 7-9	62	9.5677	1.25773		
	10-12 years	50	9.3640	1.39953		
	13-15 years	19	9.5789	0.99084		
	16 + years	114	9.4684	0.73537		
	In total	514	9.5938	1.03285		
Training teachers and tracking	3 years and under	165	9.1862	0.97916	438.	822.
	4-6 years	104	9.3156	0.89117		
	7-9 years	62	9.2434	0.89084		

Table5.25 continued

	10-12 years	50	9.1109	1.03624		
	13-15 years	19	9.2727	0.84794		
	16 + years	114	9.2480	0.84160		
	total	514	9.2289	0.92075		
Training Facilities and Services	3 years and under	165	9.6606	0.88559	296.	915.
	4-6 years	104	9.7476	0.92530		
	Years 7-9	62	9.7298	0.65333		
	10-12 years	50	9.6600	0.71920		
	13-15 years	19	9.7237	0.90866		
	16 + years	114	9.3544	0.55453		
	In total	514	9.7096	0.78822		
Participation performance	3 years or less	165	9.3394	2.08215	951.	447.
	4-6 years	104	9.6058	1.68614		
	Years 7-9	62	9.4032	1.87704		
	10-12 years	50	9.1800	2.23780		
	13-15 years	19	9.5789	3.15023		
	16 + years	114	9.2281	2.36132		
	Total	514	9.3327	2.11470		

5.5.2.3 Test of difference the Impact of Training Frequency on Training Satisfaction Dimension

Empirical analysis reveals a paradoxical relationship between training frequency and satisfaction: While farmers with 1-2 recent trainings showed significantly higher satisfaction across all metrics (organization $p<0.01$, facilities $p<0.05$, content $p<0.05$, instructors $p<0.01$, outcomes $p<0.01$) compared to those attending 3-5 sessions, the highest satisfaction emerged among participants with over 5 trainings (Li et al., 2020; Wonde et al., 2023). This U-shaped pattern suggests initial positive experiences boost engagement, while mid-frequency participants may face diminishing returns from repetitive content - until

advanced cumulative exposure yields mastery benefits. The findings underscore the need for differentiated programming that maintains relevance across competency levels to sustain farmer motivation throughout their professional development journey. (Table 5.26)

Table 5.26: Test Difference the Influence of Training Frequency on Training Satisfaction Dimension

Project training frequency		N	Average	Standard Deviation	F	p	Comparing after the Fact
Training organization	A.0 times	76	9.7303	0.77542	5.148 * *	0.003	B>C
	B.1-2 times	322	9.7492	0.66144			
	C.3-5 times	90	9.4917	1.17287			
	D.5 or more times	26	9.9135	0.44126			
	total	514	9.7096	0.78822			
Training content and form	0 sessions	76	9.5053	1.20597	4.274 *	0.011	B>C
	1-2 times	322	9.6528	0.90210			
	Three to five times	90	9.3867	1.35640			
	5 more times	26	9.8385	0.49322			
	Total	514	9.5938	1.03285			
Training teachers and tracking	A.0 times	76	9.2129	0.94307	4.357 *	0.015	B>C
	B.1-2 times	322	9.2741	0.83549			
	C.3-5 times	90	9.0444	1.14265			
	D.5 or more times	26	9.3531	0.97551			
	total	514	9.2289	920750.			
Training Facilities and Services	A.0 times	76	9.7303	0.77542	5.325 * *	0.006	B>C
	B.1-2 times	322	9.7492	0.66144			
	C.3-5 times	90	9.4917	1.17287			
	D.5 or more times	26	9.9135	0.44126			
	Total	514	9.7096	0.78822			
Participation performance	A.0 times	76	9.3816	1.93196	6.425 * *	0.001	B>C
	B.1-2 times	322	9.3975	1.93920			
	C.3-5 times	90	9.0222	2.66891			
	D.5 or more times	26	9.4615	2.54921			
	total	514	9.3327	2.11470			

Note: * $p<0.05$ ** $p<0.01$

5.5.3 The Training Professionalism of HQF Based on The Characteristics of Individual Operation

5.5.3.1 Test of Difference on the Influence of Pre-Agricultural Occupation on The Dimension of Professional Literacy.

While pre-farming occupational backgrounds show no statistically significant impact on HQFT outcomes (ANOVA results), notable performance variations emerge: agricultural technicians and service providers (e.g., machinery operators) demonstrate superior competency acquisition and behavioral application, whereas conventional farmers show limited professional literacy development. This suggests training effectiveness correlates more strongly with recipients' existing agricultural exposure than general work history, highlighting the importance of tailoring programs to baseline skill levels - with technical workers benefiting most from advanced applications, while conventional farmers require foundational upskilling to achieve comparable transformation. (Table 5.27).

Table 5.27: Difference Test of The Influence of Occupational Experience on The Dimensions of Professional Literacy

Item from pre-agricultural occupation		N	Average	Standard Deviation	F	P
An update of career ideas	Ordinary farmer	63	9.3855	1.38900	1.090	0.369
	Agricultural workers, agricultural employees and other agricultural professional skills	22	9.8052	0.44426		
	Agricultural machine operators and other agricultural socialization service personnel	35	9.7918	0.86366		
	Village cadres (including village officials)	206	9.6893	0.83058		
	Migrant worker	19	9.6466	0.54786		
	Middle and senior management in enterprises	28	9.4541	1.22277		

Table 5.27 continued

	Military personnel, teachers, doctors, engineers and lawyers, etc	14	9.3878	1.71834		
	Individual investors	58	9.6207	0.87841		
	College student	14	9.7449	0.91418		
	Other	55	9.7610	0.66670		
	Total	514	9.6429	0.94938		
The advancement of professional competence	Ordinary farmers	63	9.3948	1.01357	1.209	0.287
	Agricultural workers, agricultural employees and other agricultural professional skills	22	9.7500	0.53173		
	Agricultural machine operators and other agricultural socialization service personnel	35	9.8393	0.44202		
	Village cadres (including village officials)	206	9.6171	0.91324		
	Migrant worker	19	9.4803	0.81996		
	Middle and senior management of enterprises	28	9.4330	1.09897		
	Military personnel, teachers, doctors, engineers and lawyers, etc	14	9.4554	1.38987		
	Individual investors	58	9.3470	1.26657		
	College student	14	9.6518	0.89359		
	Other	55	9.6727	0.93185		
	Total	514	9.5676	0.96310		
Changes in professional behavior	The average farmer	63	9.2037	1.39682	1.318	0.225
	Agricultural workers, agricultural employees and other agricultural professional skills	22	9.6667	0.68041		
	Agricultural machine operators and other agricultural socialization service personnel	35	9.7143	0.91428		
	Village cadres (including village officials)	206	9.4927	1.20369		
	Work abroad	19	9.2456	1.21255		
	Middle and senior management in enterprises	28	9.1726	1.45614		
	Military personnel, teachers, doctors, engineers and lawyers, etc	14	9.0952	1.81249		
	Individual investors	58	9.2126	1.45558		

Table 5.27 continued

	College student	14	9.7143	0.73795		
	Other	55	9.6121	0.95045		
	In total	514	9.4296	1.23073		

5.5.3.2 Difference Test of the Influence of Farming Time on the Dimensions of Professional Literacy

Generally speaking, long-term repetitive labour is easy to form fixed thinking and burnout emotions. Therefore, the researcher believes that the longer the time spent in farming, the stronger the professional ability, but the more difficult it is to change the professional concept and professional behaviors. In order to verify this hypothesis, this study uses one-way analysis of variance to find that, in terms of professional literacy, there is no significant correlation between the views of HQF with different working years on the renewal of professional concepts, the improvement of professional abilities and the change of professional behaviors. From the mean point of view, the scores of "4-6 years" trained farmers on all aspects are the highest, followed by "7-9 years and above", the difference between the two is very small, indicating that "4-6 years" is the key period for the cultivation of HQF' professional literacy (Table 5.28).

Table 5.28: Shows the Difference Test of the Influence of Farming Time on the Dimensions of Professional Literacy

Project Training Time		N	Average	Standard Deviation	F	P
An update of career ideas	3 years and under	165	9.6017	0.97247	0.947	0.450
	4-6 years	104	9.6951	0.98955		
	7-9 years	62	9.6897	0.75812		
	10-12 years	50	9.4114	1.52656		
	13-15 years	19	9.7970	0.69712		
	16 + years	114	9.6942	0.62512		
	total	514	9.6429	0.94938		
The advancement of professional competence	3 years or less	165	9.5432	0.96782	0.991	0.423
	4-6 years	104	9.6022	1.07158		
	Years 7-9	62	9.5956	0.80680		
	10-12 years	50	9.3200	1.16692		
	13-15 years	19	9.5329	1.08481		
	16 + years	114	9.6162	0.79679		
	In total	514	9.5676	0.96310		
Changes in professional behavior	3 years and under	165	9.3687	1.37816	0.796	0.553
	4-6 years	104	9.5144	1.26378		
	Years 7-9	62	9.5030	1.00315		
	10-12 years	50	9.1767	1.45156		
	13-15 years	19	9.3596	1.29250		
	16 + years	114	9.5015	0.94216		
	Total	514	9.4296	1.23073		

5.5.3.3 Difference Test of the Influence of Training Times on the Dimension of Professional Literacy

Generally speaking, the more times of training, the more conducive to the formation of professional literacy. In order to verify the difference of different training times in the dimension of professional literacy, this study adopted one-way analysis of variance and found that the scores of the group who participated in five or more training sessions were significantly higher than those of other groups in the three secondary indexes of professional literacy. There was a significant difference in vocational ability. After the comparison, the group that participated in 5 times scored significantly higher than the group that participated in 1-2 times in terms of vocational ability improvement ($p=0.012<0.05$) (Table 5.29).

Table 5.29: Difference Test of the Influence of Training Times on the Dimensions of Professional Competence

Number of project training		N	Average	Standard Deviation	F	P	Comparing after the fact
An update of career ideas	A.0 times	76	9.2267	0.83409	1.031	0.378	n.s
	B.1-2 times	322	9.3619	0.93582			
	C.3-5 times	90	9.4984	1.14431			
	D. More than 5 times	26	9.8077	0.62459			
	total	514	9.6429	0.94938			
The advancement of professional competence	A.0 times	76	9.2414	0.79696	3.291 *	0.020	D>B,C>B
	B.1 or 2 times	322	9.2912	0.91626			
	C.3-5 times	90	9.3222	1.28367			
	D.5 or more times	26	9.9087	0.34741			
	In total	514	9.5676	0.96310			
Changes in professional behavior	A.0 times	76	9.1159	1.25010	1.367	0.252	n.s
	B.1-2 times	322	9.1565	1.18137			
	C.3-5 times	90	9.2185	1.45632			
	D.5 or more times	26	9.6923	0.82151			
	total	514	9.4296	1.23073			

Note: * $p<0.05$

5.5.4 Benefit Analysis of Training for HQF Based on the Characteristics of Individual Operation

5.5.4.1 Difference Test of the Influence of Pre-Agricultural Occupation on the Dimension of Training Benefit

In order to explore the differences in training benefits of farmers with long-term agricultural professional skills such as ordinary farmers, agricultural workers, agricultural employees, agricultural socialized service personnel such as agricultural machine operators, village cadres, senior management personnel of enterprises, soldiers, teachers, doctors, engineers, lawyers, individual investors, college students and other trained farmers with different professional experiences, In this study, one-way ANOVA was performed on the secondary index of training benefits, and it was found that there was no significant difference in the views of HQF with different professional experiences on the personal benefits, economic benefits and social benefits of training before starting a business in agriculture. From the point of view of the mean total score, farmers with different experience agreed that training had the greatest personal benefit, followed by economic benefit and the least effect on social benefit. From the mean value of different experiences, the trained farmers with agricultural social service personnel such as agricultural machine operator got the highest score, followed by agricultural workers, agricultural employees and other agricultural professional skills, soldiers, teachers, doctors, engineers and lawyers got the lowest score, and ordinary farmers got the lowest score. In a certain sense, it shows that the training of HQF in Jiangxi Province has a good effect on the change of farmers' personal ideas and the increase of their incomes, but the social effect of promoting the common development of surrounding farmers is not enough (Table 5.30).

Table 5.30: Difference Test of The Impact of Vocational Experience on the Training Efficiency Level

Project	Occupational Experience	N	Average	Standard Deviation	F	P
Personal benefit	Ordinary farmer	63	9.3466	1.05337	1.804	0.065
	Agricultural workers, agricultural employees and other agricultural professional skills	22	9.7879	0.51737		
	Agricultural machine operators and other agricultural socialization service personnel	35	9.9048	0.26595		
	Village cadres (including village officials)	206	9.5858	1.01516		
	Migrant worker	19	9.4649	0.88642		
	Middle and senior management in enterprises	28	9.3810	1.28689		
	Military personnel, teachers, doctors, engineers and lawyers, etc	14	9.1071	1.74141		
	Individual investors	58	9.2960	1.58700		
	College student	14	9.7738	0.56086		
	Other	55	9.7152	70.2908		
	In total	514	9.5444	1.06407		
Economic benefits	Ordinary farmers	63	9.1032	1.44638	2.259	0.058
	Agricultural workers, agricultural employees and other agricultural professional skills	22	9.7045	0.60571		
	Agricultural machine operators and other agricultural socialization service personnel	35	9.7143	0.93373		
	Village cadres (including village officials)	206	9.5728	0.95613		
	Migrant worker	19	9.0132	1.50802		
	Middle and senior management in enterprises	28	9.1339	1.38691		

Table 5.30 continued

	Military personnel, teachers, doctors, engineers and lawyers, etc	14	8.9821	2.13592		
	Individual investors	58	9.2672	1.35227		
	College student	14	9.6964	0.77941		
	Other	55	9.5636	1.07175		
	Total	514	9.4377	1.17500		
Social benefit	Ordinary farmers	63	9.1944	1.35558	1.793	0.067
	Agricultural workers, agricultural employees and other agricultural professional skills	22	9.7500	0.61721		
	Agricultural machine operators and other agricultural socialization service personnel	35	9.9071	0.29133		
	Village cadres (including village officials)	206	9.4527	1.26775		
	Migrant worker	19	9.4737	0.73548		
	Middle and senior management in enterprises	28	9.1696	1.39452		
	Military personnel, teachers, doctors, engineers and lawyers, etc	14	8.9107	1.89282		
	Individual investors	58	9.2026	1.49521		
	College student	14	9.7500	0.60447		
	Other	55	9.5091	1.07794		
	Total	514	9.4212	1.23490		

5.5.4.2 Difference Test of the Impact of Farming Time on the Dimension of Training Efficiency

Generally speaking, farmers who have long been rooted in rural areas and engaged in agricultural production have a strong sense of ownership and local feelings due to their "continuous presence", so they are more eager to obtain their own career development and status promotion through training, and are more willing to lead surrounding farmers to get

rich together. In order to verify this hypothesis, the single factor variance test of the training effectiveness dimension found that there was no significant correlation between the views of HQF with different working years on the personal benefit, economic benefit and social benefit of training. From the average point of view, farmers in the "7-9 years" have the highest scores in all aspects, followed by those in the "4-6" years, which indicates that farmers in the "4-6 years" to "7-9 years" are in a period of rapid career development. Farmers in these two stages are no longer confused and are determined to pursue agriculture as a lifelong career. They most hope to develop themselves and their careers through training and other learning methods, so they are best at applying training to their work, hoping to influence the surrounding farmers through their own changes (Table 5.31).

Table 5.31: Shows the Difference Test of the Impact of Farming Time on Training Efficiency

Project from farming time		N	Average	Standard Deviation	F	P
Personal benefit	3 years and under	165	9.5091	1.05188	0.459	0.806
	4-6 years	104	9.5401	1.38307		
	Years 7-9	62	9.6317	0.90240		
	10-12 years	50	9.3833	1.18439		
	13-15 years	19	9.5702	0.98651		
	16 + years	114	9.6184	0.75151		
	Total	514	9.5444	1.06407		
Economic benefits	3 years and under	165	9.4242	1.19272	1.492	1.191
	4-6 years	104	9.5385	1.21318		
	Years 7-9	62	9.5847	0.90868		
	10-12 years	50	9.0850	1.43979		
	13-15 years	19	9.1711	1.47914		
	16 + years	114	9.4846	1.03815		
	Total	514	9.4377	1.17500		
Social benefit	3 years and under	165	9.3727	1.30828	0.738	0.595
	4-6 years	104	9.5120	1.19433		
	Years 7-9	62	9.5806	0.87048		
	10-12 years	50	9.2000	1.45248		
	13-15 years	19	9.2895	1.05166		
	16 + years	114	9.4408	1.26049		
	Total	514	9.4212	1.23490		

5.5.4.3 Difference Test of the Impact of Training Frequency on Training Benefit Dimension

The previous research shows that the more times of training, the more satisfied the trainee farmers are with the training, and the more conducive to their professional quality development. Generally speaking, the higher the professional quality of the trained farmers, the more willing to try new things, the more conducive to their transfer of training, and thus the more conducive to the improvement of the trained farmers' personal and economic benefits, but also the more conducive to the improvement of social benefits, to become the "leader" of the industry. In order to verify this hypothesis, one-way analysis of variance was used in this study and it was found that in the dimension of training effectiveness, the scores of the group who participated in five or more training sessions were significantly higher than those of other groups in the three secondary indexes of training effectiveness. After the Schefer method, the group that participated in 5 or more trainings scored significantly higher than the group that participated in 3-5 trainings in terms of personal benefits ($p=0.004<0.01$). In terms of economic benefit, the group that participated in 5 or more training sessions scored significantly higher than the group that participated in 3-5 training sessions and 1-2 training sessions, with p values of 0.006 and 0.047 respectively; In terms of social benefits, the group that participated in 5 or more training sessions scored significantly higher than the group that participated in 3-5 training sessions ($p=0.004<0.01$). The results showed that the influence trend of the training frequency of provincial farmers on the dimension of training efficiency was a broken line shape behind the line, indicating that the effect of training more than 5 times was gradually increasing (Table 5.32).

Table 5.32: Test of Difference the Impact of Training Times on Training Benefit Dimension

Projec	Training F requency	N	Mean value	Standard Deviation	F	P	Comparing after the Fact
Personal benefit	A.0 times	76	9.5548	1.01192	3.349 *	0.019	A>C
	B.1-2 times	322	9.5927	0.92415			B> C
	C.3-5 times	90	9.2611	1.55548			D>C
	D.5 or more times	26	9.8974	0.36538			
	In total	514	9.5444	1.06407			
Economic benefits	A.0 times	76	9.5296	1.00827	1.836 *	0.014	A>C
	B.1-2 times	322	9.4503	1.14669			B> C
	C.3-5 times	90	9.2222	1.44974			D>C
	D.5 or more times	26	9.7596	0.78256			
	Total	514	9.4377	1.17500			
Social benefit	A.0 times	76	9.4145	1.24670	0.947 * *	0.008	A>C
	B.1-2 times	322	9.4697	1.13173			B> C
	C.3-5 times	90	9.2278	1.37578			D>C
	D.5 or more times	26	9.5096	1.80898			
	Total	514	9.4212	1.23490			

Note: * p<0.05,** p<0.01

5.6 Training Performance of HQF Based on Individual Management Characteristics

Provincial-level HQF are farmers who play various roles in agriculture, such as "producer", "operator" and "manager". They are not only agricultural producers, but also the leaders of the integrated development of agricultural production, processing, operation and management activities in the continuous extension of the industrial chain, they have

different management characteristics. In order to understand the difference of the impact of different operating characteristics on training performance, this study conducted a difference test on the impact of three operating characteristics: operating scale, operating subject and operating income.

5.6.1 the Total Training Performance of HQF Based on the Characteristics of Individual Operation

5.6.1.1 Test of Difference on the Impact of Business Scale on the Total Training Performance

Existing studies have shown that HQF with larger operation scale have stronger willingness to participate in training and better training performance (Zhai et al., 2016). In order to test the difference in the impact of HQF with different operation scales on training performance, this study divided "50 mu and below", "51-100 mu", "101-300 mu", "301-500 mu", "501-1000 mu" and "1001 mu and above" into six categories. Using training performance and its first-level dimension as variables, one-way ANOVA found that overall training performance, training intention, training satisfaction, professional quality and training benefit did not have significant differences in the four first-level dimensions of different operation scales (see Table 4-33). From the mean point of view, regardless of the overall training performance or the four first-level dimensions of training intention, training satisfaction, professional quality and training benefit, the score of the "above 1000" group is the highest, followed by the score of the "300-500" group, indicating that the trained farmers with the operation scale of "above 1000" think the training performance is the best. And then the "300-500" group (Table 5.33).

Table 5.33: Differential Test of the Impact of Different Business Scales on Training Performance

Project O peration S cale (mu/head)		N	Average	Standard Deviation	F	P
Overall training performance	Under 50	231	9.8077	1.00587	0.658	0.655
	50-100.	77	9.8047	0.84793		
	101-300.	69	9.8108	0.75697		
	301-500.	51	9.9365	0.76030		
	501-10.000	31	9.7904	1.00853		
	1000 +	55	9.0170	0.69778		
	In total	514	9.8418	0.89909		
Willingness to train	Below 50	231	9.4098	1.43706	0.620	0.685
	50-100.	77	9.4242	1.22192		
	101-300.	69	9.4203	1.03319		
	301-500.	51	9.5294	0.94558		
	501-10.000	31	9.1935	1.37376		
	1000 +	55	9.6485	0.92833		
	In total	514	9.4377	1.25954		
Training satisfaction	Under 50	231	9.8746	0.95314	0.327	0.897
	50-100.	77	9.9368	0.73985		
	101-300.	69	9.8887	0.75154		
	301-500.	51	9.9587	0.76466		
	501-10.000	31	9.9605	0.84041		
	1000 +	55	9.0201	0.89023		
	In total	514	9.9149	0.86451		
Professionalism	Under 50	231	9.5256	1.02110	0.596	0.703
	50-100.	77	9.4696	1.06278		
	101-300.	69	9.4996	0.89451		
	301-500.	51	9.6456	0.88856		

Table 5.33 continued

	501-10.000	31	9.5289	1.24726		
	1000 +	55	9.7207	0.69906		
	In total	514	9.5467	0.98278		
Training benefits	Under 50	231	9.4206	1.12855	0.782	0.563
	50-100.	77	9.3882	1.22309		
	101-300.	69	9.4348	97934.		
	301-500.	51	9.6122	96134.		
	501-10.000	31	9.4785	1.30411		
	1000 +	55	9.6788	71248.		
	In total	514	9.4678	1.08245		

5.6.1.2 Test of the Difference of the Impact of Business Entities on the Total Training Performance

At present, the three main types of new agricultural management in our country are large professional breeding households, family farms and farmers' professional cooperatives, and there are interdependent relations among them. The family farm is a large professional household that has been standardized and institutionalized, while the farmer's professional cooperative is an economic consortium formed by several family farms and farmers. The family farm is based on blood and kinship, while the cooperative is based on geography. Therefore, there is almost no profit friction and information communication barriers among members of the family farm. Agribusiness is a much larger organization, with a clear division of labor and distribution of benefits. In order to test the difference of the impact of different management forms on the training performance of HQF, this study divided the management forms of HQF into 8 groups: "professional large households", "family farmers", "co-operative leaders", "agricultural enterprise leaders", "part-time farmers", "agricultural employees", "agricultural technicians" and "others". Univariate analysis of variance found that there were no significant differences in overall

training performance, training intention, training satisfaction, professional quality and training benefit among HQF with different management forms. From the average point of view, no matter the overall training performance or the four first-level dimensions, the major farmers in breeding and breeding are the highest, followed by the head of the family farmer's cooperative, the chairman of the cooperative, and the agricultural employees are the lowest. It shows that the training performance of the major owners is the best, and the training performance of the agricultural employees is the worst (Table 5.34) .

Table 5.34: Difference Test of the Impact of Different Business Entities on Training Performance

Project M anagement E ntities		**N**	**Average**	**Standard Deviation**	**F**	**P**
Total training performance	Large breeding and breeding enterprises	54	9.0425	0.63762	1.104	0.359
	Farmer (family farmer, farm owner)	69	9.8745	0.70196		
	Co-op director (leader)	113	9.8797	0.82241		
	Head of Agri-business	38	9.8773	0.95487		
	Part-time farmer	66	9.7891	0.86435		
	Agricultural employees	9	9.6397	0.98039		
	Agricultural Technician	26	9.8516	0.94084		
	Other	139	9.7423	0.91915		
	In total	514	9.8418	0.99098		
Willingness to train	Big farmers	54	9.6818	0.86218	0.955	0.463
	Farmer (family farmer, farm owner)	69	9.7407	0.46481		
	Co-op Director (leader)	113	9.5128	1.04235		
	Agri-business person	38	9.4940	1.34975		
	Part-time farmers	66	9.2716	1.48800		
	Agricultural employees	9	9.2077	1.26685		
	Agricultural Technicians	26	9.4218	1.30401		

Table 5.34 continued

	Other	139	9.3860	1.24849		
	Total	514	9.4377	1.25954		
Training satisfaction	Big breeders	54	9.1007	0.57413	1.220	0.290
	Farmer (family farmer, farm owner)	69	9.9523	0.54939		
	Co-op Director (leader)	113	9.9951	0.78473		
	Head of Agri-business	38	9.8988	0.96736		
	Part-time farmer	66	9.9287	0.74844		
	Agricultural employees	9	9.7074	1.05454		
	Agricultural technician	26	9.9666	0.80817		
	Other	139	9.7908	0.90356		
	Total	514	9.9149	0.86451		
Professionalism	Big breeders	54	9.7424	0.60031	0.766	0.616
	Farmer (family farmer, farm owner)	69	9.4284	1.04571		
	Co-op Director (leader)	113	9.5442	0.91423		
	Head of Agri-business	38	9.5853	1.02058		
	Part-time farmer	66	9.5249	0.84792		
	Agricultural employees	9	9.3906	1.16310		
	Agricultural Technician	26	9.5439	1.07151		
	Other	139	9.4182	0.96976		
	total	514	9.5467	0.98278		
Training benefits	Breeding large	54	9.6452	0.79052	0.765	0.617
	Farmer (family farmer, farm owner)	69	9.3765	1.09080		
	Co-op director (leader)	113	9.4669	0.98736		
	Head of Agri-business	38	9.5310	1.05187		
	Part-time farmers	66	9.4311	0.98213		
	Agricultural employees	9	9.2532	1.43819		
	Agricultural Technicians	26	9.4739	1.12010		
	Other	139	9.3743	0.97672		
	In total	514	9.4678	1.08245		

5.6.1.3 Difference Test of the Impact of Business Income on the Total Training Performance

Some scholars have conducted a survey on HQF in Henan and found that farmers with higher income are more willing to participate in training and have better training performance (Wang, 2022). In the preliminary investigation, the researcher also found that many well-run farmers are very willing to receive training. Several interviewees said, "I will attend any training." "If I don't have time, I will find time to learn." In order to explore which income segment has the best farmer training performance, this study divides the operation income of HQF into six categories: "100,000 and below", "110-200,000", "210-300,000", "310-400,000", "41-500,000" and "510,000 and above". Using training performance and its four first-level dimensions as variables, one-way ANOVA found that there was no significant difference between the overall training performance and the four first-level dimensions of training intention, training satisfaction, professional quality and training benefit. From the mean point of view, the group with the best training performance is "510,000 and above", followed by the group with "110-200,000", the group with the worst performance is "310-400,000" in the total training performance, professional quality and training benefit, and "21-30" in the training willingness and training satisfaction (Table 5.35).

Table 5.35: Difference Test of the Impact of Different Business Income on Training Performance

Project Household Income		N	Mean value	Standard Deviation	F	P
Total training performance	100,000 and below	210	9.8155	0.98256	1.479	0.195
	110,000-200,000	210	9.8992	0.82801		
	210,000 -- 300,000	37	9.6212	0.95932		
	310.000 -- 400,000	11	9.4021	1.33375		
	410.000-500,000	11	9.8436	0.68021		
	510,000 and above	35	9.0256	0.48912		
	In total	514	9.8418	0.89909		
Willingness to train	100,000 and below	210	9.4397	1.35305	0.566	0.726
	110,000-200,000	210	9.4968	1.19952		
	210,000-- 300,000	37	9.1351	1.28731		
	310,000 -- 400,000	11	9.2727	1.12367		
	410,000 -- 500,000	11	9.3636	1.33712		
	510,000 and above	35	9.4667	1.02645		
	Total	514	9.4377	1.25954		
Training satisfaction	100,000 and below	210	9.8877	0.95616	1.405	0.221
	110,000-200,000	210	9.9869	0.77493		
	210,000 -- 300,000	37	9.6317	0.99854		
	310,000-- 400,000	11	9.6717	0.91939		
	410,000 -- 500,000	11	9.9312	0.77909		
	510,000 and above	35	9.0172	0.57325		
	Total	514	9.9149	0.86451		
Professionalism	100,000 and under	210	9.5127	1.05496	1.872	0.098
	110,000 -- 200,000	210	9.5896	0.88160		
	210,000 -- 300,000	37	9.4003	1.07991		
	310,000-400,000	11	8.9289	1.93771		
	410,000 -- 500,000	11	9.5063	0.82249		

Table5.35 continued

	510,000 and above	35	9.8551	0.39036		
	In total	514	9.5467	0.98278		
Training benefit	100,000 and below	210	9.4220	1.12824	1.898	0.093
	110,000 -- 200 thousand	210	9.5237	0.99625		
	210,000 -- 300,000	37	9.3176	1.21142		
	310,000-400,000	11	8.7348	2.20064		
	410,000 -- 500,000	11	9.5732	0.71409		
	510,000 and above	35	9.7635	0.54829		
	In total	514	9.4678	1.08245		

5.6.2 Training Satisfaction Analysis of HQF Based on the Characteristics of Individual Operation

5.6.2.1 Difference Test of the Impact of Business Scale on Training Satisfaction

Generally speaking, farmers with different scale of operation have different demands on training content, form and tracking service. In order to explore the impact of different operation scales on training satisfaction, this study adopts one-way analysis of variance and finds that in terms of training satisfaction, there is no significant difference in the satisfaction of HQF with different operation scales in five aspects: training organization, training facilities and services, training content and form, training teachers and tracking, and training participation performance. From the mean point of view, the group of "1001 mu and above" had the highest score in all five aspects, and the group of "50-100 mu" had the lowest score in all five aspects, indicating that the trainees of "1000 mu and above" had the highest satisfaction with training, and those of "50-100 mu and above" had the lowest satisfaction with training (Table 5.36).

Table 5.36: Differential Test of the Impact of Different Operation Scales on Training Satisfaction

ProjecOperation S cale (mu/head)		N	Average	Standard Deviation	F	P
Training organization	Under 50	231	9.6937	0.79234	0.387	0.858
	50-100.	77	9.6429	0.96776		
	101-300.	69	9.6920	0.65466.		
	301-500.	51	9.7598	0.78256		
	501-10.000	31	9.7823	0.70635		
	More than 1000	55	9.8045	0.70987		
	In total	514	9.7096	0.78822		
Training content and form	Below 50	231	9.5100	1.20515	0.839	0.522
	50-100.	77	9.6130	0.90282		
	101-300.	69	9.6522	0.68826		
	301-500.	51	9.7373	0.77510		
	501-10.000	31	9.5226	1.32532		
	1000 +	55	9.7527	0.76784		
	In total	514	9.5938	1.03285		
Training teachers and tracking	Under 50	231	9.2117	0.96245	0.428	0.849
	50-100.	77	9.2137	0.78408		
	101-300.	69	9.1607	0.92120		
	301-500.	51	9.3405	0.81896		
	501-10.000	31	9.1672	1.14946		
	1000 +	55	9.3388	0.88650		
	Total	514	9.2289	0.92075		
Training Facilities and Services	Under 50	231	9.6937	0.79234	0.387	0.858
	50-100.	77	9.6429	0.96776		
	101-300.	69	9.6920	0.65466		
	301-500.	51	9.7598	0.78256		
	501-10.000	31	9.7823	0.70635		

Table 5.36 continued

	1000 +	55	9.8045	0.70987		
	In total	514	9.7096	0.78822		
Participation performance	Under 50	231	9.2641	2.18582	0.384	0.860
	50-100.	77	9.0714	1.46385		
	101-300.	69	9.2464	2.45192		
	301-500.	51	9.1961	2.46592		
	501-10.000	31	9.5484	1.17866		
	1000 +	55	9.6000	2.23275		
	total	514	9.3327	2.11470		

5.6.2.2 Difference Test of the Impact of Business Entities on the Total Training Performance

Different business entities, such as large breeding professionals, family farmers, directors of cooperatives, and heads of agricultural enterprises, also have different demands on the content and form of training teachers. In order to explore the differences in training satisfaction among different business entities, this study found that in the dimension of training performance satisfaction, there was no significant difference in the satisfaction of HQF with different management forms in five aspects: training organization, training facilities and services, training content and form, training teachers and tracking, and training performance. From the average point of view, in all aspects, the scores of "big farmers in breeding" and "directors of cooperatives" are relatively high, while the scores of "part-time farmers" and "other new types of agricultural operators" are relatively low (Table 5.37).

Table 5.37: Differential Test of the Impact of Different Business Entities on Training Satisfaction

Project training Subjects		N	Average	Standard Deviation	F	P
Training organization	Large breeding and breeding enterprises	54	9.8920	0.65545	0.659	0.707
	Farmer (family farmer, farm owner)	69	9.6486	1.08068		
	Co-op director (leader)	113	9.7991	0.78644		
	Head of Agri-business	38	9.6382	0.77044		
	Part-time farmer	66	9.5202	0.37244		
	Agricultural employees	9	9.6111	0.83020		
	Agricultural Technician	26	9.7500	0.68191		
	Other	139	9.6996	0.83524		
	total	514	9.7096	0.78822		
Training content and form	Breeding and breeding big family	54	9.8222	0.79685	0.569	0.782
	Farmer (family farmer, farm owner)	69	9.7507	1.05240		
	Co-op director (leader)	113	9.7786	1.31737		
	Agri-business heads	38	9.4526	0.96946		
	Part-time farmer	66	9.3909	0.63675		
	Agricultural employees	9	9.7111	0.59255		
	Agricultural technician	26	9.6154	0.91201		
	Other	139	9.5986	1.05953		
	Total	514	9.5938	1.03285		
Training teachers and tracking	Large breeding companies	54	9.3599	0.82302	0.895	0.510
	Ranchers (family farmers, farm owners)	69	9.1094	1.02859		
	Co-op Director (leader)	113	9.2995	1.05220		
	Agri-business heads	38	9.1459	0.87950		
	Part-time farmer	66	9.4628	0.48884		

Table 5.37 continued

	Agricultural employees	9	9.2727	0.68935		
	Agricultural Technicians	26	9.2832	0.93855		
	Other	139	9.2374	0.96225		
	Total	514	9.2289	0.92075		
Training Facilities and Services	Large breeding and breeding enterprises	54	9.9620	0.65545	0.659	0.707
	Farmer (family farmer, farm owner)	69	9.6486	1.08068		
	Co-op director (leader)	113	9.8991	0.78644		
	Head of Agri-business	38	9.6382	0.77044		
	Part-time farmer	66	9.8902	0.37244		
	Agricultural employees	9	9.6111	0.83020		
	Agricultural Technician	26	9.7500	0.68191		
	Other	139	9.6996	0.83524		
	In total	514	9.7096	0.78822		
Participation performance	Breeding big family	54	9.8370	1.36966	2.091	0053.
	Farmer (family farmer, farm owner)	69	9.5797	3.30065		
	Chairman of the Cooperative (Leader)	113	9.7168	1.12177		
	Agri-business leaders	38	9.0789	2.70517		
	Part-time farmer	66	9.4697	1.86646		
	Agricultural Employees	9	9.5556	0.72648		
	Agricultural technician	26	9.5769	1.23849		
	Other	139	9.2590	2.26613		
	In total	514	9.3327	2.11470		

5.6.2.3 Difference Test of The Impact of Business Income on The Total Training Performance

Previous studies have shown that trainees with high income are more likely to get more interpersonal support during training and respect their peers, resulting in higher

satisfaction with their training (Nurulislam & Eshagriculture, 2021). In order to explore the impact of business income on training satisfaction, this study applied one-way analysis of variance and found that there was no significant difference in the satisfaction of HQF with different business income in five aspects of training organization, training facilities and services, training content and form, training teachers and tracking, and training participation performance. From the mean point of view, the group of "510,000 and above" had the highest scores in the five aspects, indicating that the trainees of "510,000 and above" had the highest satisfaction with training (Table 6.38)Previous studies have shown that trainees with high income are more likely to get more interpersonal support during training and respect their peers, resulting in higher satisfaction with their training (Nurulislam & Eshagriculture, 2021). In order to explore the impact of business income on training satisfaction, this study applied one-way analysis of variance and found that there was no significant difference in the satisfaction of HQF with different business income in five aspects of training organization, training facilities and services, training content and form, training teachers and tracking, and training participation performance. From the mean point of view, the group of "510,000 and above" had the highest scores in the five aspects, indicating that the trainees of "510,000 and above" had the highest satisfaction with training (Table 5.38)， Difference Test of the Impact of Different Business Income on Training Satisfaction

Table 5.38: Difference Test of the Impact of Different Business Income on Training Satisfaction

Project H ousehold I ncome		N	Average	Standard Deviation	F	P
Training organization	100,000 and under	210	9.6690	0.86360	0.540	0.746
	110,000-200,000	210	9.7357	0.77477		
	210,000 - 300,000	37	9.6081	0.88494		
	310,000- 400,000	11	9.8182	0.31802		
	410,000- 500,000	11	9.8182	0.40452		
	510,000 and above	35	9.8357	0.37838		
	In total	514	9.7096	0.78822		
Training content and form	100,000 and below	210	9.5590	1.08440	1.468	0.199
	110,000-200,000	210	9.6467	0.94899		
	210,000 - 300,000	37	9.3135	1.32123		
	310,000- 400,000	11	9.2182	1.71687		
	410,000- 500,000	11	9.8545	0.33575		
	510,000 and above	35	9.9171	0.59482		
	total	514	9.5938	1.03285		
Training teachers and tracking	100,000 and below	210	9.1983	0.97753	2.046	0.071
	110,000-200,000	210	9.2974	0.76618		
	210,000 - 300,000	37	9.0074	1.23099		
	310,000- 400,000	11	9.5950	1.88617		
	410,000- 500,000	11	9.4380	0.47031		
	510,000 and above	35	9.5688	0.58375		
	Total	514	9.2289	0.92075		
Training Facilities and Services	100,000 and below	210	9.6690	0.86360	0.540	0.746
	110,000-200,000	210	9.7357	0.77477		
	210,000 - 300,000	37	9.6081	0.88494		
	310,000 - 400,000	11	9.8182	0.31802		

Table5.38 continued

	410,000 - 500,000	11	9.8182	0.40452		
	510,000 and above	35	9.8357	0.37838		
	In total	514	9.7096	0.78822		
Participation performance	100,000 and below	210	9.3429	1.97268	1.4560	0.203
	110,000-200,000	210	9.5190	1.80433		
	210,000 - 300,000	37	9.6216	3.11226		
	310,000- 400,000	11	9.9091	2.70017		
	410,000- 500,000	11	9.7273	3.90105		
	510,000 and above	35	9.2286	2.38975		
	In total	514	9.6327	2.11470		

5.6.3 Analysis of the Training Professionalism of HQF Based on the Characteristics of Individual Operation

5.6.3.1 Test of the Difference in the Impact of Business Scale on Training Professionalism

Although there are differences in the scale of operation in different industries, generally speaking, the larger the scale of operation, the higher the requirements for farmers' professional literacy. In the preliminary interview, some farmers reflected: "We do not dare to expand the scale at will under the circumstances of uncertainty, and we should adjust the scale of operation according to our actual situation." In order to explore the influence of trained farmers with different management models on the cultivation of professional literacy, this study found that, in the dimension of professional literacy, there were no significant differences in the views of HQF with different operation scales on the renewal of professional concept, the improvement of professional ability and the change of professional behavior. From the average point of view, the group of "1001 mu and above" has the highest scores in the three aspects, and the scores in the three aspects are the lowest,

indicating that the farmers trained in "1001 mu and above" have the greatest training harvest, and the farmers trained in "51-100 mu" have the least training harvest (Table 5.39).

Table 5.39: Test of the Difference Impact of Different Operation Scales on Professional Literacy

Operation S cale of i tem		N	Average	Standard Deviation	F	P
An update of career ideas	Under 50	231	9.2246	0.91279	0.549	0.739
	51-100.	77	9.5770	1.20918		
	101-300.	69	9.5901	0.92319		
	301-500.	51	9.7423	0.92671		
	501-10.000	31	9.6175	1.12871		
	1001 and above	55	9.8000	0.57774		
	In total	514	9.6429	0.94938		
The advancement of professional competence	Under 50	231	9.4655	0.97557	0.400	0.849
	51-100.	77	9.4594	0.99968		
	101-300.	69	9.5634	0.87516		
	301-500.	51	9.6422	0.87715		
	501-10.000	31	9.5444	1.27089		
	More than 1001	55	9.6773	0.86190		
	Total	514	9.5676	0.96310		
Changes in professional behavior	Under 50	231	9.2867	1.32553	0.727	0.604
	51-100.	77	9.3723	1.29633		
	101-300.	69	9.3454	1.14451		
	301-500.	51	9.5523	1.05856		
	501-10.000	31	9.4247	1.46934		
	More than 1001	55	9.6848	0.74306		
	Total	514	9.4296	1.23073		

5.6.3.2 Test of the Difference Impact of Business Entities on Training Professionalism

Different business entities need different professional qualities. The research finds that in the dimension of professional literacy, there is no significant difference in the views of farmers of different management forms on the renewal of professional concept and the improvement of professional ability and the change of professional behavior. From the average point of view, the highest score is shown in all aspects, followed by the score of "director of cooperatives", and the score of "agricultural employees" is relatively the lowest. It shows that training has the greatest effect on the change of ideas, abilities and behaviors of "big farmers", followed by "directors of cooperatives", and the least effect on "agricultural employees" (Table 5.40).

Table 5.40: Test of the Difference Influence of Different Business Entities on Professional Literacy

Project management entities		**N**	**Average**	**Standard Deviation**	**F**	**P**
An update of career ideas	Breeding big family	54	9.8847	0.87944	0.753	0.627
	Farmer (family farmer, farm owner)	69	9.5714	1.01991		
	Director of co-op (leader)	113	9.6726	0.98452		
	Head of agricultural enterprise	38	9.4925	0.95439		
	Part-time farmer	66	9.5528	0.45657		
	Agricultural employees	9	9.5397	0.87417		
	Agricultural Technician	26	9.7143	0.64902		
	other	139	9.6115	1.12104		
	Total	514	9.6429	0.94938		
The advancement of professional	Large breeding and breeding families	54	9.7764	0.74266	0.759	0.622
	Farmer (family farmer, farm owner)	69	9.6239	1.17734		

Table5.40 continued

competence	Co-op director (leader)	113	9.5343	1.10879		
	Agri-business Heads	38	9.4638	0.95592		
	Part-time farmer	66	9.3481	0.59747		
	Agricultural employees	9	9.5417	0.85696		
	Agricultural Technician	26	9.4567	1.15431		
	Other	139	9.6277	0.90696		
	In total	514	9.5676	0.96310		
Changes in professional behavior	Big farmers	54	9.7136	1.12702	0.865	0.534
	Ranchers (family farmers, farm owners)	69	9.1763	1.49041		
	Co-op director (leader)	113	9.4248	1.31968		
	Head of Agri-business	38	9.2982	1.13447		
	Part-time farmer	66	9.2263	0.91243		
	Agricultural employees	9	9.2037	1.48084		
	Agricultural Technicians	26	9.4615	1.03956		
	Other	139	9.5168	1.22808		
	Total	514	9.4296	1.23073		

5.6.3.3 Test of the Difference on Impact of Business Income on Training Professionalism

Generally speaking, farmers with higher operating income pay more attention to the investment of their own human capital, and pay more attention to the cultivation of their own professional quality through training. In order to explore the impact of business income on the cultivation of professional literacy, this study finds that in the dimension of professional literacy, there is no significant difference between HQF with different business income in the renewal of professional concepts, but there is a significant difference in the improvement of professional ability and the change of professional behavior. In terms of occupational ability improvement, the score of the group "below 100,000" was significantly higher than that of the group "310-400,000" ($p=0.009<0.01$).

The score of the "110-200,000" group was significantly higher than that of the "310-400,000" group (p=0.008<0.01), the score of the "510,000 and above" group was significantly higher than that of the "21-300,000" group (p=0.033<0.05), and the score of the "510,000 and above" group was significantly higher than that of the "310-400,000" group (p<0.001). In terms of professional behavior change, the score of the "21-300,000" group was significantly higher than that of the "310-400,000" group (p=0.031<0.05), and the score of the "510,000 and above" group was significantly higher than that of the "310-400,000" group (p=0.009<0.01) (Table 5.41).

Table 5.41: Difference Test of the Impact of Different Business Income on Occupational Literacy

Project operating income		**N**	**Average**	**Standard Deviation**	**F**	**P**	**Comparing after the fact**
The renewal of career concept	A. 100,000 and below	210	9.5864	1.08274	1.205	0.306	n.s
	B.11-200,000	210	9.6952	0.82996			
	C.21 -- 300,000	37	9.4981	0.95275			
	D.31-400,000	11	9.3247	1.68679			
	E.41 -- 500,000	11	9.7273	0.47145			
	F. 510,000 and above	35	9.8939	0.36887			
	In total	514	9.6429	0.94938			
The improvement of professional ability	A. 100,000 and below	210	9.5732	0.93912	2.588 *	0.025	D,
	B.110,000-200,000	210	9.5845	0.90445			D,
	C.210,000 -- 300,000	37	9.4189	1.11928			D,
	D.310,000-400,000	11	8.7955	2.11193			F>C.
	E.410,000 -- 500,000	11	9.3523	1.22068			
	F. 510,000 and above	35	9.9000	0.34805			
	In total	514	9.5676	0.96310			
Changes in profession	A. 100,000 and below	210	9.3786	1.34601	1.670 *	0.014	D,
	B.110,000-200,000	210	9.4889	1.10139			F>D.

Table 5.41 continued

al behavior	C.210,000-300,000	37	9.2838	1.30931			
	D.310,000 -- 400,000	11	8.6667	2.24598			
	E.410,00-- 500,000	11	9.4394	0.85073			
	F. 510,000 and above	35	9.7714	0.61581			
	total	514	9.4296	1.23073			

Note: *p<0.05

5.6.4 Training Benefit of HQFT Based on the Characteristics of Individual Operation

5.6.4.1 Test of the Difference Impact of Business Scale on Training Efficiency

According to the preliminary interviews, farmers with different scale of operation have different expectations for their own career development and occupational status promotion and their drive to surrounding farmers. In order to explore the difference in the performance of farmers with different operation scales in the dimension of training benefits, this study uses one-way ANOVA to find that there is no significant difference in the views of HQF with different operation scales on the three aspects of personal benefits, economic benefits and social benefits of training. From the mean point of view, the group of "1001 mu and above" has the highest scores in the three aspects, followed by "301-500 mu", indicating that the score of "below 50 mu" is the lowest, indicating that farmer trainees of "1001 mu and above" have the highest expectation on the improvement of personal economic benefits, economic benefits and social benefits by training. The benefit of training is also the highest, "below 50 mu" farmers may ignore the benefit of training because of the small scale, think that training on their own personal benefits, economic benefits and social benefits of the three aspects of the least (Table 5.42).

Table 5.42: Difference Test of the Impact of Different Business Scales on Training Benefits

Project operation scale (mu/head)		N	Average	Standard Deviation	F	P
Personal benefit	Below 50	231	9.4784	1.14515	0.831	0.528
	50-100.	77	9.5022	1.26193		
	101-300.	69	9.5362	0.84977		
	301-500.	51	9.6601	0.89129		
	501-10.000	31	9.5645	1.28645		
	1000 +	55	9.7727	0.52740		
	In total	514	9.5444	1.06407		
Economic benefits	Under 50	231	9.4351	1.15514	0.585	0.711
	50-100.	77	9.3019	1.35137		
	101-300.	69	9.3949	1.10597		
	301-500.	51	9.5343	1.22374		
	501-10.000	31	9.3952	1.40056		
	1000 +	55	9.6273	0.87780		
	In total	514	9.4377	1.17500		
Social benefit	Under 50	231	9.3485	1.28359	0.890	0.487
	50-100.	77	9.3604	1.29237		
	101-300.	69	9.3732	1.38242		
	301-500.	51	9.6422	0.91002		
	501-10.000	31	9.4758	1.35147		
	1000 +	55	9.6364	0.89729		
	In total	514	9.4212	1.23490		

5.6.4.2 Difference Test of the Impact of Business Entities on Training Performance

Generally speaking, different business entities have different applications of training due to their different needs for training, which leads to differences in actual results. In order to explore the differences in training benefits among different business entities, this study found through one-way ANOVA that in the dimension table of training benefits, there were no significant differences in the views of HQF of different business forms on the personal and economic benefits of training, but there were significant differences in social benefits ($P=0.048<0.05$). From the average point of view, the scores of "big farmers" are the lowest in the three levels, the scores of "heads of agricultural enterprises" are the highest in the aspects of personal benefits and social benefits, and the scores of "directors of cooperatives" are the highest in the aspects of social benefits. It indicates that the chairman of the cooperative has done a good job in the aspect of social benefits. After the comparison by the Schaffer method, it was found that there was no significant difference, which was inconsistent with the results of one-way ANOVA. So the researchers used LSD to compare after the fact, and found that in terms of individual benefits, the three groups of "family farmers", "chairman of cooperatives" and "head of agricultural enterprises" were significantly higher than those of "large farmers". The P-values were 0.048, 0.035 and 0.034, respectively. In terms of economic benefits, the two groups of "chairman of cooperatives" and "person in charge of agricultural enterprises" were significantly higher than those of "large breeding households", with p values of 0.038 and 0.042 respectively; In terms of social benefits, the two groups of "Chairman of cooperatives" and "head of agricultural enterprises" were significantly higher than those of "large breeding households", with p values of 0.003 and 0.038 respectively. To some extent, this indicates that Jiangxi Province needs to strengthen the degree of farmers' organization and

encourage large farmers, family farmers and small farmers to cooperate to form professional cooperatives, which will be more conducive to the improvement of farmers' individual benefits and the realization of rural revitalization (Table 5.43)

Table 5.43: Differential Test of the Impact of Different Business Entities on Training Benefits

Project Management Subject		**N**	**Mean value**	**Standard Deviation**	**F**	**P**	**Comparing After the Fact**
Personal benefit	A. Large breeding families	54	9.2062	0.91800	0.668	0.700	n.s.
	B. farmer (family farmer, farm owner)	69	9.3430	1.53709			
	C. Chairman of the cooperative (leader)	113	9.5369	1.13907			
	D. Head of agribusiness	38	9.7912	0.87246			
	E. Part-time farmers	66	9.6894	0.80590			
	F. Agricultural employees	9	9.5741	0.72701			
	G. Agricultural technicians	26	9.7179	0.66628			
	H. Other	139	9.5767	1.00427			
	In total	514	9.5444	1.06407			
Economic benefits	A. Large breeding households	54	9.0657	1.11456	1.099	0.363	n.s.
	B. farmer (family farmer, farm owner)	69	9.2029	1.45854			
	C. Co-operative Chairman (leader)	113	9.4956	1.21191			
	D. Head of agribusiness	38	9.6355	1.02877			
	E. Part-time farmer	66	9.6023	0.90615			
	F. Agricultural employees	9	9.1389	1.69148			
	G. Agricultural technicians	26	9.2019	1.40893			
	H. Other	139	9.5486	1.06869			
	Total	514	9.4377	1.17500			
S	A. Large breeding families	54	9.1213	1.18144	0.685*	0.048	C>A,D>A
	B. Farmer (family farmer, farmer)	69	9.2138	1.49526			

Table 5.43 continued

ocial benefit	C. Chairman of the cooperative (leader)	113	9.7894	1.39712			
	D. Head of agribusiness	38	9.2961	1.14174			
	E. Part-time farmers	66	9.6439	0.78943			
	F. Agricultural employees	9	9.4167	0. 98425			
	G. Agricultural technicians	26	9.4808	1.14001			
	H. Other	139	9.4676	1.20793			
	In total	514	9.4212	1.23490			

Note: *p<0.05

5.6.4.3 Test of the Difference Impact of Business Income on Training Benefit

According to the preliminary interviews, farmers with higher income from agricultural operations pay more attention to updating their knowledge system in a timely manner, take agriculture as their lifelong career pursuit, and are more willing to introduce new technologies, new products and new models, pay more attention to their own career development and their prestige among farmers. In order to explore the relationship between agricultural operation income and farmers' personal benefits, economic benefits and social benefits, this study found through one-way analysis of variance that in terms of agricultural operation income, there was no significant difference in the views of HQF with different operation income on the three aspects of training benefits: personal benefits, economic benefits and social benefits. However, from the average point of view, the group of "more than 510,000" has the highest scores in the three aspects, and the group of "310-400,000" has the lowest scores in the three aspects, indicating that the farmers trained with "more than 510,000" have the highest delay benefit of training, they are most willing to apply what they have learned, and the farmers trained with "310-400,000" have the lowest delay benefit of training (Table 5.44).

Table 5.44: Difference Test of the Impact of Different Business Income on Training Efficiency

Project O perating I ncome		N	Average	Standard Deviation	F	P
Personal benefit	100,000 and below	210	9.5016	1.08295	1.262	0.279
	110,000-200,000	210	9.5913	1.05043		
	21-300,000	37	9.3919	1.17931		
	31 -- 400,000	11	9.0455	1.90335		
	41 -- 500,000	11	9.6061	0.71209		
	510,000 and above	35	9.8190	0.44165		
	Total	514	9.5444	1.06407		
Economic benefits	100,000 and below	210	9.4238	1.16294	1.870	0.098.
	11 -- 200 thousand	210	9.4619	1.13885		
	21 -- 300,000	37	9.3311	1.28433		
	31-400,000	11	8.5455	2.44136		
	41-500,000	11	9.5000	0.92195		
	510,000 and above	35	9.7500	0.64739		
	In total	514	9.4377	1.17500		
Social benefit	100,000 and below	210	9.3405	1.30243	2.043	0.071
	110,000-200,000	210	9.5179	1.02393		
	210,000 to 300,000	37	9.2297	1.79058		
	310,000-400,000	11	8.6136	2.40667		
	410,000 -- 500,000	11	9.6136	0.56307		
	510,000 and above	35	9.7214	0.70129		
	total	514	9.4212	1.23490		

5.7 Research Findings and Discussion

By using the self-compiled Questionnaire on the Training Performance of HQF, this study collected relevant data on the real feelings of the training of provincial-level HQF who had participated in the training in Jiangxi Province, evaluated the training performance of HQF, and analyzed the differences in the training performance of HQF in three aspects: demographic characteristics, experience characteristics and management characteristics. The main research findings will be further summarized and discussed in the following.

5.7.1 The Good overall performance of HQFT and the not-so-obvious social benefits

5.7.1.1 The Overall Performance of HQFT in Jiangxi Province Is Good

A self-designed questionnaire survey was conducted on 514 farmers in Jiangxi Province who had participated in the training of provincial HQF, and descriptive statistical analysis and difference test were conducted on the recovered data. It was found that the overall average level of the training performance of provincial HQF in Jiangxi Province (the average is 9.546) reached more than 90% of the total score (the total score is 10). It indicates that the training performance of provincial HQF in Jiangxi Province is generally good.

In terms of the four first-level dimensions, the average value of the training intention level is 9.4877, the average value of the training satisfaction level is 9.5149, the average value of the professional quality dimension is 9.8467, and the average value of the training efficiency dimension is 9.3678, all of which indicate that the overall performance of the training of provincial HQF in Jiangxi Province is good. In the dimension of training satisfaction, the average score of training organization is 9.7096, the average score of

training facilities and services is 9.7092, the average score of training content and form is 9.5938, and the average score of training teachers and tracking is 9.2289. The average score of the training performance was 9.3327. It can be seen that the trainee farmers have a high degree of satisfaction with the training of HQF. In contrast, trainee farmers have the lowest satisfaction with teachers and tracking, indicating that there is still room for improvement in the selection of training teachers and tracking services for each training subject.

In the dimension of professional literacy, the average score of training on the renewal of vocational concept was 9.6429, the average score on the improvement of vocational ability was 9.5676, and the average score on the change of professional behavior was 9.4296, indicating that farmers in training generally believed that training had the greatest effect on the renewal of vocational concept. The second is the improvement of vocational ability, and the effect on the change of behavior is the least. The change of occupational concept belongs to the change of ideological level, and the improvement of occupational ability and the change of professional behavior need to be manifested by external behavior, which indicates that there is a "gap" between the "understanding" and "application" of the training content.

In the dimension of training benefit, the average score of training for personal benefit is 9.5444, the average score of training for economic benefit is 9.4377, and the average score of training for social benefit is 9.4212. It shows that through the rounds of HQFT, the trainees are the biggest beneficiaries of the training, and the training effectively promotes their personal benefits, including their personal career development. With the continuous development of training, HQF are more and more accepted and recognized by the society as a profession. HQFT also improves the economic benefits of farmers engaged

in agriculture, including the improvement of yield quality, the increase of agricultural income, and the reduction of cost.

5.7.1.2 The Social Benefit (Radiation Effect) of HQFT in Jiangxi Province Needs to Be Improved

The government-led training program for HQF hopes to lead more farmers to common prosperity through the education and training of some farmers. However, according to the survey data, the driving effect of the training on HQF is different from the original intention of the government in setting up the training program for HQF, and the driving effect of HQF is still limited. The statistical analysis shows that there are differences in the scores of the four first-level dimensions. The score of the professional quality of trained farmers is the highest, and the score of the training benefit is the lowest. Especially, the average score of the second-level index of social benefit is only 9.4212. The reason may be that at present, China's HQFT programs are mainly aimed at improving the knowledge and ability of new agricultural management subjects, ignoring the cultivation of their social responsibility awareness. The survey found that starting from 2021, some districts and counties in Jiangxi Province have taken the situation of small farmers as an important indicator of the performance assessment of HQF' training. Therefore, training institutions are required to strengthen the design of the content of social responsibility awareness and driving ability of the trained farmers when designing the training content.

5.7.2 There Are Differences in the Training Performance of HQF with Different Demographic Characteristics

5.7.2.1 Women's Satisfaction with the Training of HQF Is Significantly Higher Than That of Men

The results of independent sample t test show that there are significant differences between male and female HQF in terms of training satisfaction, and female HQF are significantly more satisfied with training performance than male farmers. Compared with previous studies, the common point is that the overall satisfaction with the training is high. However, what distinguishes this finding from previous studies is that previous research found that men had higher satisfaction than women, while this study is exactly the opposite.

Although there is no significant difference between male and female HQF in terms of professional literacy and training benefits, the average scores of female farmers are higher than that of male farmers, and there are significant differences between male and female farmers in the two secondary indexes of professional behavior change and driving radiation. Through further analysis of the five secondary indexes of training satisfaction, it is found that there are significant differences between male and female HQF in teacher training, tracking service and training performance. Although there are no significant differences in the other three aspects, women's scores are still higher than men's. The researcher believes that the difference of training satisfaction of male and female HQF is mainly related to the personality characteristics and social relationship network characteristics of male and female. This also shows that, to a certain extent, with the application of mechanization and intelligent technology in the agricultural field, the physical requirements for agricultural practitioners are getting lower and lower, which can attract more and more women to participate in agricultural production and operation and become HQF. Modern agricultural production is no longer considered as a "male cause" in the traditional concept, and women can also become one of the important sources of HQF.

5.7.2.2 There Is a Significant Positive Correlation Between the Education Level of HQF and Their Training Performance

According to the results of one-way ANOVA, no matter in terms of overall training performance, training satisfaction, professional quality and training efficiency, the "senior high school", "secondary school", "junior college" and "undergraduate" groups are significantly higher than the "junior high school and below" groups. In terms of satisfaction with training organization and participation performance, the groups of "high school", "technical secondary school", "junior college" and "undergraduate" are significantly higher than the groups of "junior high school and below"; In terms of satisfaction with teachers and tracking, the "high school", "technical secondary school" and "junior college" groups were significantly higher than the "junior high school and below" groups; In terms of promoting the renewal of vocational concept, the improvement of vocational ability and the transformation of professional behavior, the groups of "high school", "secondary school", "college" and "bachelor's degree or above" were significantly higher than the groups of "junior high school and below"; Training plays a significant role in promoting personal benefits, economic benefits and social benefits, and the groups of "high school", "junior college", "undergraduate and above" are significantly higher than those of "junior high school and below".

From the perspective of the mean value, whether it is the overall training performance, training intention, training satisfaction and training efficiency, the values are increasing with the improvement of the education level, indicating that the higher the education level of the trained farmers, the higher the satisfaction of training, the better the training performance. However, as reflected in the mean value of the dimension of professional literacy, the scores of the "undergraduate and above" group are slightly lower

than those of the "junior college" group, that is, the "undergraduate and above" group has no obvious advantage compared with the "junior college" group in promoting the cultivation of trained farmers' professional literacy. In terms of the improvement of vocational ability and the change of professional behavior, the scores of the "undergraduate" group are lower than those of the "junior college" group, which means that the training has the best effect on the vocational performance of the HQF with "junior college" education. Studies have shown that education level has an impact on relearning willingness and learning ability (Minsel, 2021). Therefore, to improve the training performance of HQF, it is necessary to further improve the cultural level of HQF, and take "senior high school" as the cultural basis of HQF. Cultivate as many HQF with "junior college" or above education level as possible.

5.7.2.3 There Is a Significant Positive Correlation Between the Training Performance of HQF and the Training Times

According to the results of one-way ANOVA, the group that participated in more than 5 trainings scored significantly higher than the group that participated in 1-2 trainings in terms of overall training performance, satisfaction with training performance, professional quality and training benefits, especially in terms of professional behavior change and social benefits. The group that participated in 5 training sessions was significantly higher than the group that participated in 1-2 training sessions. Judging from the mean value, the group that participated in 5 training sessions had better performance in all aspects than the group that participated in 5 training sessions and 1 or 2 training sessions. It can be seen that compared with other training times, the training performance of the trained farmers who participated in 1-2 training times is relatively the worst, indicating that with the increase of training times, the cumulative benefits of training

gradually appear, and the trained farmers feel the training performance more and more. This is the same as the training from 2021 at the beginning, the provincial HQF will be trained once every three years to once a year to meet the policy requirements.

5.7.2.4 The Training Performance of HQF Weakens with the Increase of in Age

Although the results of one-way ANOVA show that there is no significant difference in the training performance of HQF in different age groups, from the mean point of view, no matter it is the overall training performance, training intention, training satisfaction, professional quality and training efficiency, almost all show a downward trend with the increase of age, which indicates to some extent that compared with older farmers, the training performance of HQF decreases in sequence. Young farmers are more open-minded and have stronger ability to learn and accept new things, so their training and learning performance is better. It can be seen that with the continuous penetration of mechanization and information technology in the field of agriculture, old farmers are difficult to qualify for the development of modern agriculture, which requires attracting more young people to engage in modern agriculture and strengthening the team of HQF. Therefore, training institutions should try their best to select some young farmers to participate in training when selecting training objects.

5.7.3 There Are Differences in Training Performance of HQF with Different Experience Characteristics

5.7.3.1 The Training Performance of HQF with Migrant Work Experience Is the Best

According to the results of one-way ANOVA, occupational experience has no significant difference in the overall training performance or the performance at each level. However, from the mean point of view, the training performance of farmers with other

professional experience is better than that of ordinary farmers who have been farming, especially the training performance of farmers with migrant work experience is the best.

Previous studies suggested that training for ordinary farmers who have been engaged in agriculture for a long time would yield the best results. However, this research finding is different from those of the past. This may be because HQF are different from traditional farmers. Modern agriculture they engage in is no longer limited to agricultural production, but involves multi-link industries such as agricultural production, processing, operation, management and sales, which requires practitioners to possess both urban and rural knowledge systems. However, farmers who have undergone the baptism of market economy have more active thinking, broader vision, easier and more willing to accept new knowledge, so their training performance is relatively better. It can be seen that we need to cultivate a large number of HQF to realize agricultural modernization and rural revitalization, rather than just relying on farmers who stay in rural areas for long-term farming. Governments at all levels should also introduce relevant policies to attract more migrant workers to return to their hometowns to start businesses and expand the ranks of HQF.

5.7.3.2 The Training Performance of HQF Who Have Been Farming for "4-6 Years" Is the Best.

According to the results of one-way analysis of variance, farming time is not only in the overall performance of training, but also in each dimension. There is no significant difference in the performance of degree, but from the mean point of view, the HQF with "4-6" years of training have the best performance, which may be because the HQF with "less than 3 years" from farming belong to the "novice farmers", their self-learning consciousness is not so strong, and the participation in training may be more forced by

external factors. Farmers with "7-9 years", "10-12 years", "13-15 years" and "more than 16 years" belong to "expert" and "master" farmers. Farmers in these three stages may be more willing to participate in some personalized and more targeted training. While the HQF from "4-6 years" have gone through the most difficult initial period of entrepreneurship, are "proficient" farmers, relatively stable career, they want to further develop into "expert" and "master" need external guidance, so most hope to learn some new ideas, new knowledge and new skills through training. Can further improve their comprehensive literacy. Therefore, when training institutions arrange the training content and form, they can design the content and form of the training according to the stage characteristics of the career development of HQF: "novice", "proficient", "expert" and "master".

5.7.4 There Are Differences in the Training Performance of HQF With Different Management Characteristics

In terms of professional behavior change and social benefit index, the training has the worst effect on professional large farmers. According to the results of one-way ANOVA and post-comparison, there are differences in the training performance of HQF in different management forms, and the training performance of agricultural enterprise leaders, cooperative directors, family farmers, and large breeding and breeding farmers shows a descending rule. Specifically, The training of "heads of agricultural enterprises" and "directors of cooperatives" had significantly better effects on professional behavior change and social benefits than that of the "large farmers" group. Although family farm has almost no problems such as profit distribution and information asymmetry in internal cooperation, it is the best choice for the new agricultural management body in our country at present. However, due to excessive dependence on family members, family support is

given priority when considering whether to apply the training and change professional behavior. Rather than the perspective of "business development". Similarly, too much dependence on family members and relatives leads to a relatively weak willingness to lead the surrounding farmers, which is not conducive to the enhancement of the trained farmers' sense of social responsibility. Therefore, after the development of family farms to a certain extent, family farms with the same or similar industry types can be guided to jointly establish farmers' professional cooperatives for collective development.

5.7.5 Brief Summary

This part achieves its objective by translating the conceptual framework from Chapter 4 into a practical, structured model for HQFT performance evaluation. The visual diagram serves as a road map for implementing a scientifically rigorous and farmer-centric assessment system.

In this study, the self-compiled "HQFT Performance Evaluation Questionnaire" was used to investigate the current situation of provincial-level HQFT in Jiangxi Province. The research found that the overall performance of provincial-level HQFT in Jiangxi Province was good, but the social benefits of HQF were not obvious. Specifically, in terms of training satisfaction, women's satisfaction on training, especially on teachers, tracking and training performance, is significantly higher than that of men; The higher the education level of HQF, the more satisfied they are with training; The higher the number of training, the higher the satisfaction; In the aspect of professional quality, the research finds that training has the best effect on the professional quality of HQF with "junior college" education; The more times the farmers participate in the training, the higher their professional quality; Women's views on the change of professional behavior were

significantly higher than men's, and the heads of farmers' specialized cooperatives and agricultural enterprises were significantly higher than those of major farmers in breeding and breeding. In terms of training benefits, the study found that the education level of HQF was positively correlated with the training benefits; The training times of HQF are positively correlated with the training benefits; The social benefits of the training for farmers' professional cooperatives and heads of agricultural enterprises are significantly higher than those of large breeding households.

i. Key Contributions:

a. Operationalization of the Evaluation Framework: The visual model likely breaks down the evaluation process into measurable steps, clarifying how each component (e.g., trainee feedback, skill application, economic impact) should be assessed and integrated.

b. Focus on Practical Application: By detailing actionable metrics and methodologies, the chapter addresses the earlier critique of the existing system's lack of scientific tools and overreliance on superficial indicators.

c. Stakeholder Engagement: The framework emphasizes continuous feedback loops involving farmers, trainers, and policymakers, ensuring that evaluations remain adaptive and aligned with on-the-ground needs.

ii. The Findings Achieve the Chapter's Objective:

The visual model synthesizes theoretical insights with practical considerations, providing a clear guide for implementing a robust HQFT evaluation system. It bridges the gap between research and practice by specifying how to measure both immediate outputs (e.g., training completion) and long-term outcomes (e.g., career advancement, agricultural productivity). This advancement directly supports the research goal of creating an

evaluation system that is not only scientifically sound but also feasible and impactful in real-world contexts.

In summary, Chapter 6 successfully moves from theory to practice, offering a tangible tool for policymakers and training institutions to assess and improve HQFT programs. By doing so, it ensures that the evaluation process genuinely reflects farmer development and contributes to sustainable rural progress.

5.8 The Introduction of the Main Influencing Factors for the Performance of HQFT

In order to explore the key factors affecting the training performance of HQF, this section is based on the quantitative research in the previous section. Through the analysis of the policy text of the training of HQF in Jiangxi Province, the on-site inspection of the training, the data collection, and the in-depth interview with multiple subjects of the training (including the management personnel of the relevant government organizations of the Agriculture and Rural Bureau, the teaching management personnel in charge of the project implementation of Jiangxi Academy of Agricultural Sciences and Jiangxi Vocational College of Biotechnology, the training teachers and the participating farmers). To sum up the typical experience of training HQF, find the existing problems, and analyze the important factors affecting the performance of training HQF, and suggestions for improving the performance of high-quality training are put forward from three perspectives: the government, the training subjects, and the participating farmers.

At present, the academic research on the training of HQF involves various aspects such as the significance of training (Liu & Liao, 2023), willingness to participate in training (Wu et al., 2024), training experience (Yin et al., 2023), training policy (Peng, 2021), etc. With the continuous development of the training of HQF, more detailed and in-

depth theoretical research is needed to guide the training practice. In order to improve the effectiveness and accuracy of the training work, the research on the factors affecting the training performance of HQF has also begun to enter the field of scholars' vision. However, the relevant research is still in its infancy, especially the empirical research is few. The existing empirical research conclusions on the factors affecting the training performance of HQF mainly focus on demographic variables such as gender, age and educational background of trained farmers; Training content, form, teachers and other training program design and implementation factors; Family and external policy environment support, etc.

Based on the above relevant theories and empirical research results, this study defines the analysis framework of factors affecting the training performance of HQF as three aspects: the allocation and implementation of government policies and systems, the training design and implementation of training institutions and the individual psychological characteristics of trained farmers (Figure 5.2).

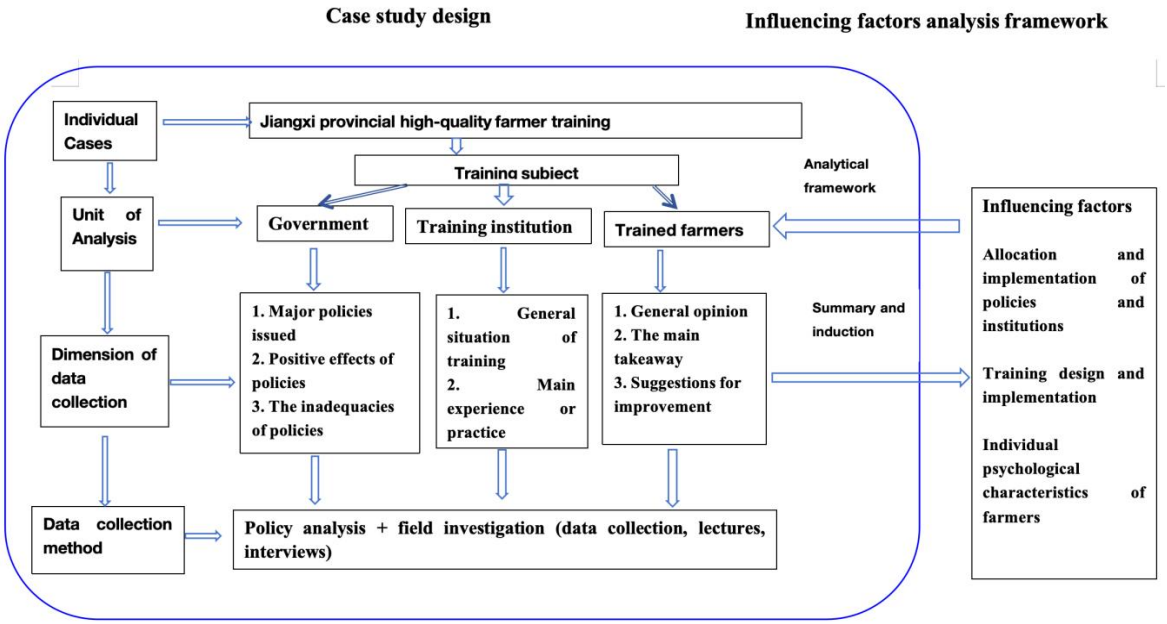


Figure 5.2: Framework of Influencing Factors of Training Performance of HQF

5.9 Government Level: Allocation and Implementation of Policies and Systems

As a public-welfare project led by the government, the allocation and implementation of policies and systems of governments at all levels will undoubtedly affect the training performance (Pahrudin & Darminto, 2021). Based on the above analysis framework, this section mainly reviews the relevant policy documents issued by Jiangxi Province and local governments at all levels to support the training of HQF, and conducts in-depth interviews with various training subjects and farmers to understand the main policy experiences and deficiencies in the training of HQF in Jiangxi Province, and summarizes the specific policy and institutional factors affecting the training performance of HQF.

5.9.1 Comprehensive and Systematic Policy Allocation Is the Guarantee for The Effective Implementation of HQFT

Policy frameworks fundamentally shape HQFT development by addressing agriculture's structural vulnerabilities and guiding professionalization (Demir, 2023). China's rural revitalization strategy recognizes policy intervention as critical for resolving core challenges like farmer succession and agricultural modernization. Jiangxi Province exemplifies effective implementation, where multilayered policies - from central "Document No.1" to local supporting measures - create an enabling ecosystem for HQF cultivation. This systematic approach, aligning with Tong's (2019) findings on policy-driven professionalization, demonstrates how coordinated governance can transform agricultural workforce development from ad-hoc training into institutionalized capacity

building, though continuous adaptation remains essential for addressing evolving rural needs (Echeverri-Gent, 2023). (See Figure 5.3).

Table 5.45: Documents Related to the Cultivation of HQF in Jiangxi Province

Year	File name	Related content
2015	"Implementation Opinions on Accelerating the Construction of a New Agricultural Management System"	We will carry out a project to cultivate a new type of professional farmers, focusing on large professional households, family farm operators, leaders in farmers' cooperatives and key agricultural enterprises
2016	Implementation Opinions on Promoting the Integrated Development of Primary, Secondary and Tertiary Industries in Rural Areas	We will strengthen training for a new type of professional farmers and practical rural personnel, and support a new type of professional farmers in participating in secondary and higher agricultural vocational education through the flexible educational system
2017	Implementation Opinions on Deepening Supply-Side Structural Reform in Agriculture and Accelerating the Cultivation of New Growth Drivers for Agricultural and Rural Development	We will carry out a program to cultivate a new type of professional farmers and accelerate the building of a new type of professional farmers
2018	Opinions on implementing the Rural Revitalization Strategy	We carried out a project to cultivate a new type of professional farmers, and supported them in participating in secondary and higher agricultural vocational education through the flexible educational system
2019	Implementation Opinions on Giving Priority to the Development of Agriculture and Rural Areas and Doing a Good Job in Agriculture, Rural Areas and Farmers	We will carry out a program to cultivate a new type of professional farmers, and strengthen education and training, technical services, and policy support for small farmers.
2020	Implementation Opinions on Deepening Agricultural and Rural Reform and Development and Comprehensively Promoting Rural Revitalization	We will implement the program for cultivating HQF, and strengthen education and training, technical services, and policy support for family farmers, heads of agricultural enterprises, and key scientific and technological personnel.

2021	Implementation Opinions on Comprehensively Promoting Rural Revitalization and Accelerating Agricultural and Rural Modernization	We will carry out the vocational skills improvement plan for rural migrant workers of the new generation, the training plan for modern farmers, and the One College Student per Village Project, and accelerate the development of practical rural personnel.
2022	The Implementation Opinions on Comprehensively Promoting the Key Work of Rural Revitalization in 2022	We will thoroughly implement the plan for cultivating HQF and the action plan for raising their education levels, and work hard to cultivate leaders of new types of farmers and major farmers.
2023	The Implementation Opinions on Comprehensively Promoting the Key Work of Rural Revitalization in 2023	We will implement the program of cultivating HQF, the "Training Foundation" campaign for young rural technicians for rural revitalization, and the "One college Student in One Village Project."
2024	The Implementation Opinions on Comprehensively Promoting the Key Work of Rural Revitalization by 2024	The training and introduction of agricultural industry leaders, enterprise management, rural brokers, agricultural products operation and marketing personnel will be intensified. More than 244,000 HQF will be trained, and more than 10,000 people will be trained in e-commerce and livestream delivery of goods.

Through combing relevant policy documents, it is found that governments at all levels mainly support the orderly and effective training of HQF in three aspects: first, support the training of HQF through subsidies, fund investment, curriculum teaching resources construction and the establishment of organizations; The second is to ensure the training of HQF by selecting institutions, building bases, constructing systems and hiring teachers; The third is to promote the training of HQF through the identification and management, the evaluation of professional titles, and the evaluation of excellence.

5.9.2 The Multi-Level Training System: Basis for Effective HQFT Development"

After several years of practice, the training of HQF in Jiangxi Province has become the routine work of governments at all levels (Qu et al; 2023; Pandey et al., 2024), and a

"one master and multiple" HQFT system and a HQFT system have been preliminarily established, which are mainly manifested as clear training subjects, clear training categories, clear training levels and clear training requirements.

5.9.2.1 Define the Training Subject

Jiangxi's HQFT system operates through a coordinated multi-institutional framework led by the Provincial Agricultural Commission, with key roles distributed among specialized entities: agricultural colleges (Jiangxi Agricultural University, vocational institutes) deliver advanced training for cooperative leaders and young farmers, while county-level guidance stations handle foundational programs. As A-G-1 noted, this "one-core, multi-stakeholder" model integrates complementary capacities - agricultural departments focus on technical training, while civil affairs, women's federations, and labor agencies address demographic-specific needs (veterans, women, entrepreneurs). The system's tiered structure (provincial-county-village) ensures coverage across competency levels while maintaining specialization, though challenges remain in fully harmonizing cross-departmental efforts (Rashid et al., 2021; Anwar et al., 2023). (see Figure 5.3).

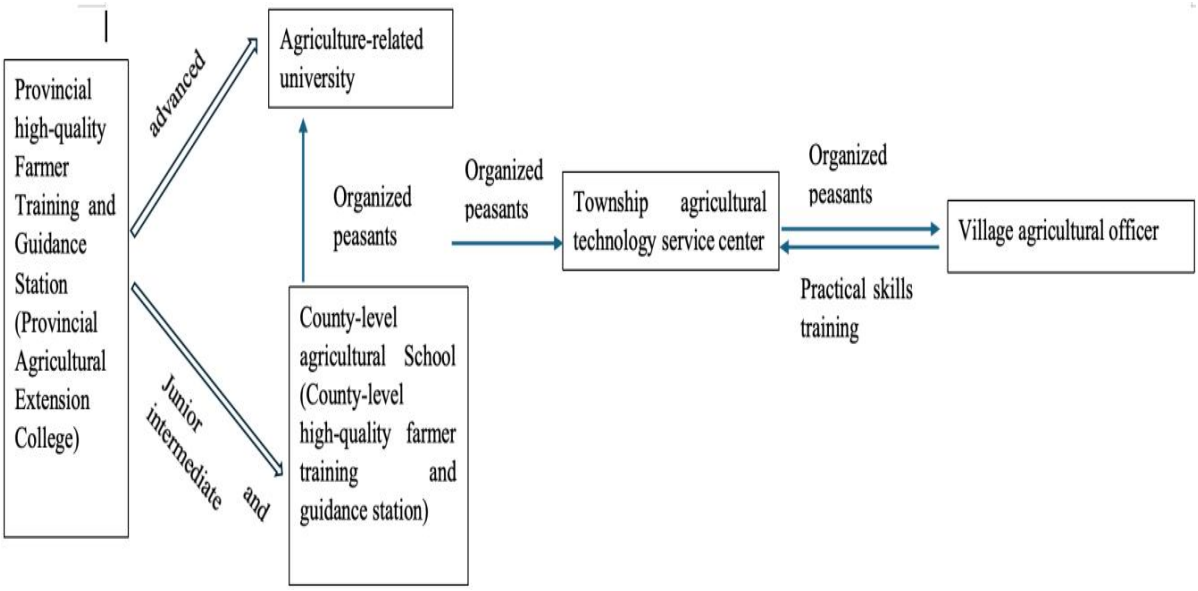


Figure 5.3: Relationship Between Levels and Responsibilities of HQF' Training Subjects in Jiangxi Province

5.9.2.2 Adhere to Classified Training

Jiangxi's provincial HQFT features specialized skills training targeting regional agricultural development (Adeyanju et al., 2021). These intensive, village-level programs (minimum 3-hour sessions) focus on specific production technologies through: (1) Multimedia dissemination (radio/TV/distance education); (2) Seasonal field demonstrations by provincial teams; and (3) Menu-based learning options (planting/breeding/service technologies) delivered by local agricultural experts. Combining classroom instruction with hands-on practice, the training addresses immediate production challenges while building foundational competencies for professional farming - exemplified by Geza et al.'s (2022) documented approach of aligning curriculum with regional specialty crops and livestock through ongoing needs assessments and technical follow-ups.

Comprehensive HQFT programs targeting entrepreneurial and managerial capacity development employ a multi-modal approach (Devkota et al., 2023): Jiangxi Province implements tiered training through agricultural colleges (primary/intermediate) and provincial research institutions (advanced), supplemented by field schools. Targeting farmers under 60 with operational scale and leadership potential, curricula combine policy literacy, industry trends, and business management - delivered via classroom instruction, enterprise internships, and digital learning. Innovative models like "enterprise+farmer" order training link skill development with market contracts, while diverse faculty (academics, practitioners, industry experts) ensure theoretical-practical balance. Demonstration bases and concurrent work-study arrangements further enhance applicability, creating an integrated ecosystem for agricultural professionalization (Raji et al., 2024).

5.9.2.3 Implement Hierarchical Training

With the deepening of the theoretical research on the training of HQF and the summary of excellent practical experience, the training of HQF in Jiangxi Province has been carried out by types, industries and levels on the basis of regional leading industries, characteristic industries and advantageous industries, with emphasis on the training of leaders of major professional households, family farmers, farmers' cooperatives and other new agricultural business leaders. The training of HQF has gradually changed from focusing on practical technology training to focusing on comprehensive quality improvement training. According to the different sources of the tasks, the training subjects will be divided into provincial projects, municipal projects, different levels of project training objectives, training objects, training content are also different (Pratomo & Shofwan, 2022; Blanchard & Thacker, 2023). In the interview, A-S-1 said: "For example,

for ordinary farmers who need practical skills, we will invite experts to the rural fields to train farmers; For the relatively small, professional large farmers who have a need for new agricultural technologies, we will gather them to the agricultural school, and invite agricultural experts to carry out the promotion and training of new technologies, new varieties and new models; For large professional families, family farmers and leaders of cooperatives with regional industrial characteristics who need to broaden their horizons and update their ideas (Chen & Barcus, 2024;), we will send them to agricultural colleges and universities for provincial training."

5.9.2.4 Differentiating Training Requirements

As long as farmers are willing to learn, they can participate in the training, and each farmer can have several opportunities to participate in different levels of training a year. The provincial tasks of Jiangxi HQFT project are uniformly distributed in the province, and the number of trainees and training duration are clearly defined when the training indicators are issued. Generally, the provincial tasks require the trainees to be under 60 years old (if the age exceeds the age, it cannot be recorded in the system), and the training time is 7 days. B-S-2 said in the interview: "Some of us engaged in agriculture are older, but he is doing well and has the spirit of learning, just like the last time we had a provincial training class, the president of a cooperative took the initiative to participate in the training, but the age is too old to enter the system, I can only let him sit in." The provincial task is generally 7 days, mainly one-time training, but sometimes according to the actual situation of separate training, such as the interview A-S-2 said: "our agricultural school undertake training is generally 7 days, 4 days of concentrated learning, 2 days of production practice."

Jiangxi farmers' continuing education also has education promotion training, which is divided into secondary vocational school and college class. The training subject of secondary vocational school is agricultural secondary vocational school, while the training subject of college class is agricultural higher vocational college. Focusing on the goals of professional and technical level improvement, operation and management ability improvement and entrepreneurial ability improvement, it is divided into three stages: centralized training, entrepreneurial incubation and tracking service. The curriculum is divided into five modules: professional accomplishment, entrepreneurial ability, policies and regulations, industrial development and case analysis. Intensive training includes observation and practice, divided into two years, twice a year, business incubation in the form of on-the-job exercise, not less than 14 days, on-site guidance not less than 2 times.

5.9.3 Demand-Aligned Project Design: Basis for Effective HQFT Development

Studies reveal a persistent disconnect between system design and capacity building in local HQFT projects. Rostow's take-off theory (Ouyang, 2021) identifies three critical conditions: high capital accumulation, leading sectors, and institutional frameworks. Given traditional farmers' limited skills and Chinese agriculture's structural vulnerabilities (Martindale, 2021; Zhang et al., 2023), government leadership remains essential. HQFT functions as a public good, delivered through top-down, project-based training investments (Shen & Shen, 2022; Carroll II, 2024). While government-led initiatives leverage macro-control advantages to ensure wide coverage, industrial growth, and income gains, challenges persist. Regional diversity often leads to standardized approaches, and resource-intensive implementation lacks oversight, necessitating stronger institutional frameworks for effective HQF development.

As a product of rural socioeconomic development and agricultural specialization (Zhang et al., 2021; Yu & Ma, 2023), High-Quality Farmers (HQF) represent a new generation driving China's agricultural transformation. These farmer elites play a pivotal role in modernizing agriculture, elevating social status, and cultivating talent reserves through their demonstrative influence. Current training initiatives (e.g., Young Farmer Program, agricultural leader programs) combine vocational skills, technology, and comprehensive quality education. While government programs aim for capacity building, implementation often prioritizes quantifiable metrics (scale, years of experience) over qualitative indicators (ability, training quality) due to assessment challenges (Harrer & Owen, 2022; Akbarinejad et al., 2023). As interviewees noted (A-S-3), current support policies reward operational scale rather than competence, undermining training motivation - suggesting professional capability and training participation should become fundamental evaluation criteria.

5.10 Training Institution Level: Training Design and Implementation

The design and implementation of training is an important factor affecting the training performance of HQF (Kassem et al., 2021; Chegere et al., 2022). This section mainly finds out through the attendance of some training institutions in Jiangxi Province, data collection and in-depth interviews with training supply and demand subjects. Reasonable training content and form, multiple training resources, standardized training management, novel training mode, precise training objects, etc., can effectively guarantee the training performance of HQF.

5.10.1 The Premise of Effective Training：Accurate Preparation Before Training

5.10.1.1 Accurately Lock the Training Object

Accurate selection of training objects is the prerequisite for training effectiveness (Adamsone-Fiskovica & Grivins, 2022; Li & Chao, 2022; Shaikh et al., 2022). The above empirical research shows that training performance shows a downward trend with the increase of age, and the education level has a significant impact on the training performance of HQF. In the interview, the training subjects also believe that the age, education level and operation scale of the trained farmers have an impact on training performance, for example, Some training subjects said, "What purpose the training course wants to play, the selection of personnel is very important. Because if you choose some older people who do not have much land to attend the class, it is impossible for them to make some attempts and changes. Even if you tell them some good techniques, they will just listen to them and will not implement them." (A-S-2) It can be seen that selecting young, well-educated and well-trained farmers with A certain scale of operation is the premise for HQFT to achieve good performance. However, in practice, almost all the training implementation subjects are helpless to say that due to "too heavy tasks", "too many people", "too late project funds and too tight time", in order to complete the quantitative indicators, the training objects cannot be accurately selected. In the interview, the training subjects generally believe that the training task is too heavy, there are not so many qualified farmers who are really in need of training, in order to complete the tasks assigned by the superiors, it is impossible to select the training objects, and the phenomenon of "raising heads", "pulling strong men" and "training on behalf" still exists. For example, in the interview, the training subjects said that "too many trainees make it difficult for us to recruit students on the one hand, and on the other hand, the training content is difficult to be accurate and the training methods are difficult to be diversified." (A-S-1) "What we want most is to train A smaller number of people each year and do a

more refined job. At present, although a considerable number of people really want to learn something, to be honest, there is still a situation of pulling strong men and gathering the number." (B-S-2) "If there are no assessment indicators, we can't find so many farmers to train, and some towns can't find anyone, so the village cadres have to raise their own heads." (A-S-1) "The biggest obstacle now is that the task is too heavy. We want to do it well, but we don't have enough energy to do it. We have to get the numbers down so we can use the money for farmers who really want to train." (B-S-1) In the course of listening to the class, the researcher also verified the claims of the training subjects, and indeed found the phenomenon of village cadres "collecting heads" or relatives "training on behalf of". When asked the reason, the village cadres said, "The town has an assessment on us, we can't find so many people, we have to make up the number by ourselves." Training relatives said: "They retired, more time, due to the centralized training time is longer, niece (farmer) need to play pesticides, weeding and so can not leave for so long."

5.10.1.2 Accurate Demand Analysis

The key to the effectiveness of training is for training institutions to provid training that meets the needs of farmers under training (ARIEF et al., 2021; Ashraf et al., 2022; Raji et al., 2024). The Pilot Work Plan for Cultivating New Professional Farmers issued by the General Office of the Ministry of Agriculture in 2012 proposed to explore the cultivation model by "combining the needs of new professional farmers". However, in practice, due to the heavy training tasks, the training subjects have racked their brains in order to complete the "task indicators", and are busy with "dealing with the handover" research and analysis. Some training implementation subjects carry out "formal" demand research in order to "pay the difference", coupled with the lack of demand analysis

technology, resulting in the mismatch of supply and demand, mainly manifested in the "absence" and "dislocation" of training demand analysis and "not in place" in three aspects.

First, the absence of demand analysis, replaced by subjective demand analysis. In the interviews, due to the heavy training tasks, the training subjects rarely went to the front line to investigate the needs of the trainees, nor did they conduct in-depth and objective needs analysis with the trainees as the main body. Instead, they designed training content and carried out training based on their own experience and ideas, or existing resources (most commonly based on teachers) instead of the needs of the trainees. Although the training subjects are well aware that their own perceived needs cannot represent the actual needs of the trained farmers, as A-S-3 said in the interview: "For farmers, what they need and what we think they need may be inconsistent. For example, when we set up a nursery stock training course in 2020, we specially invited farmers to have a discussion on the form of the course, so as to understand what is lacking in nursery stock growers now? We also need to do a market research and make changes according to the needs of the market." However, in the actual implementation, demand research and analysis are often ignored because of "convenience" or "insufficient manpower" and other reasons.

Second, effective HQFT demand analysis requires multi-stakeholder engagement (researchers, policymakers, implementers, and farmers) to align training with rural development goals. However, current practices often rely on limited consultations - exemplified by B-S-1's approach of surveying only township leaders to design provincial training. This narrow methodology fails to integrate broader agricultural modernization priorities with grassroots realities, resulting in programs that address superficial wants rather than systemic competency gaps needed for rural revitalization.

Third, current HQFT needs assessment suffers from superficial methodologies that conflate expressed wants with actual competency gaps (Allan, 2019). While questionnaires and interviews (e.g., A-S-1's WeChat surveys determining tea cultivation courses) offer operational convenience, they yield limited insights due to: (1) Inability to uncover latent needs beyond farmers' immediate awareness; (2) Static snapshots ignoring evolving skill requirements; (3) Overrepresentation of individual over cohort needs; and (4) Cognitive constraints preventing accurate self-diagnosis (Alowais et al., 2023). Effective demand analysis requires moving beyond reactive "menu selection" approaches to incorporate human resource development frameworks that identify both expressed and developmental needs through multi-method, longitudinal assessments aligned with agricultural modernization trajectories (Adamsone-Fiskovica & Grivins, 2022; Osinga et al., 2022).

5.10.1.3 Rich and Varied Supply of Training Content

Customizing training content based on the needs of farmers can improve satisfaction and performance (Al Sidawi et Al., 2021;) Yin et al., 2022. Empirical data from Jiangxi Province shows that the satisfaction score of trainees reached 9.619/10, indicating that the training program successfully combined theory with practice and was in line with the development trend of agriculture. The interviews confirmed the effectiveness of projects such as the "Million E-commerce Farmers" program and professional manager training, which combine new agricultural technologies with policy education and the cultivation of entrepreneurial thinking. The method in Jiangxi adopted a hybrid form of classroom teaching, online learning, field observation and follow-up guidance, demonstrating how demand-based design can enhance the relevance and effectiveness of training.

Training providers carefully select observation sites and practice bases to ensure practical content aligns with farmers' realities. As A-S-2 noted: 'Course design must be practical - observation sites shouldn't showcase overly advanced (expensive) models nor underperforming local examples.' Implementers are reforming field observation methods, drawing inspiration from Jiangsu's discussion-based approach, though organizing industry-specific, scale-matched groups presents logistical challenges (A-S-2 interview). This reflects the careful balancing act in designing realistic, impactful training experiences

5.10.1.4 Multiple Practical Training Resources Selection

The abundance and practicability of the training resources such as teachers, teaching materials and bases of the training implementing institutions can affect the trainees' satisfaction with the training, as well as their training and learning performance (Ningsih et al., 2023). After several years of practice, the training subjects in Jiangxi Province attach great importance to strengthening the construction of training resources, which is mainly reflected in the following aspects:

First， teacher resources. Jiangxi Province has established a dynamic teacher pool comprising university experts, agricultural technicians, and local farmer specialists ("local experts") to meet diverse training needs. Rigorous selection procedures include video evaluations and on-site teaching assessments (A-S-3 interview). Entrepreneur-instructors are prioritized for their practical expertise when academic knowledge proves less accessible (B-S-1 interview). Institutional measures like the "Training Instructor Management Measures" standardize qualification requirements, assessment protocols, and mentorship systems, ensuring both theoretical and practical instruction quality.

Second, teaching materials. The province has developed 119 training textbooks covering modern agricultural practices, including green production, agribusiness management, and digital agriculture. Notable publications like "Agricultural Product Quality and Safety" and "Eight Steps of Agricultural Entrepreneurship" have been recognized as national exemplary materials. Training institutions maintain comprehensive resources, including 90 specialized courses, 120 textbooks, and 320 digital coursewares (A-S-2 interview), all aligned with industry modernization trends.

Third, training bases. A integrated base network features 1 national demonstration site, 4 provincial bases, and 10 school-enterprise cooperation sites. Since 2019, these facilities have delivered over 60,000 training hours (combining field instruction and internships) to more than 7,000 trainees (A-S-2 interview). Collaborations with family farms and agribusinesses ensure practical skill development directly tied to production realities.

Fourth, auxiliary teaching resources. Since 2019, more than 200 excellent teaching resources in Jiangxi Province have been awarded provincial awards and subsidies and widely used in farmer training. In the National Education and teaching informatization selection and exchange activities of Agricultural Extension College in 2020, Jiangxi Province has 6 teaching aid courseware, 10 self-learning courseware, 4 micro-course works won the ranking in this evaluation, ranking the top in the country.

5.10.2 The Key to Achieve Effective Training: Scientific Training Process

5.10.2.1 Application of Flexible and Novel Training Mode

Through years of practice, Jiangxi's training institutions have developed diversified HQFT models addressing farmers' varied needs (Mei & Fan, 2023; Baiyegunhi, 2024). For

instance, one institution tackled issues like imprecise targeting and supply-demand mismatches by creating a "three-abilities-four-modules" framework (Yuan et al., 2021), focusing on technological inheritance, industrial development, and leadership cultivation. Another collaboratively built a "height-precision-depth" model across 12 districts, emphasizing policy guidance, entrepreneurial capacity, and market skills (WANG & DONG, 2023; Zhou, 2024). While approaches differ, all models dynamically adjust objectives and methods to align with industrial needs, combining policy incentives, market-oriented skills, and career development - collectively enriching HQFT implementation strategies.

5.10.2.2 Theoretical Teaching of Hierarchical Classification and Classification

Scholars identify three career stages for High-Quality Farmers (HQF) with distinct training needs (Ouyang & Yang, 2021): (1) Initial stage farmers require policy literacy and basic operational skills to establish fragmented agricultural knowledge; (2) Growth stage practitioners need advanced techniques (new models/varieties) to transform quantitative knowledge into qualitative application abilities; (3) Development stage "local experts" demand innovation capacity and social responsibility training to sustain career growth. Current HQFT programs often fail to stratify training by career phase, conducting mixed-level theoretical instruction that neglects developmental differences. Trainees criticize content as "impractical" or "repetitive" (farmer interviews), while implementers admit compressed training schedules force compromised quality (B-S-1 interview). This one-size-fits-all approach diminishes participant engagement by overlooking stage-specific competency requirements.

5.10.2.3 Normalize High Quality Practical Teaching

Practical teaching has become an essential component of High-Quality Farmer Training (HQFT), primarily conducted through on-site observation and follow-up services (Yang & Li, 2020; Huang et al., 2022). Since 2021, regulations have mandated that trainees spend significant time (1/3 to 2/3 of total hours) at agricultural demonstration sites, with at least two follow-up visits. This reflects increasing emphasis on hands-on learning to enhance practical skills and entrepreneurial capabilities. Field schools and training bases allow farmers to "learn by watching and doing," adopting advanced production methods and management strategies. However, investigations reveal these facilities often fail to fulfill their potential due to formalization issues.

First, problems in base selection.While Jiangxi's field schools are supposed to showcase industrial strengths with proper facilities (Zhou et al., 2023; Kan et al., 2024), policy subsidies have led some unqualified farms to become designated training sites. Selection criteria focus on "hard" infrastructure requirements while ignoring "soft" capabilities like teaching quality and instructor competence. As a result, many bases meet basic standards ("have") without being truly effective ("competent"), undermining practical training quality.

Second, superficial observation activities. On-site observation is meant to help farmers learn from successful models (Prost et al., 2023; Adisa et al., 2024), but in practice, visits often devolve into product promotions or "agricultural tourism." Farmers leading demonstrations frequently prioritize marketing over sharing genuine production experiences. Trainees report brief, superficial visits without meaningful technical exchange: "The farmer does excellent work but can't articulate it well" (A-S-2 interview). Large group sizes further prevent in-depth learning.

Third, ineffective follow-up services.Tracking services are crucial for addressing post-training challenges and adjusting programs, but implementation is often tokenistic. Teachers may simply take photos to document "guidance" rather than provide substantive support. As one trainer explained (A-S-2 interview), heavy workloads, lack of incentive systems, seasonal mismatches, and staffing shortages make proper follow-up impossible, reducing it to a box-ticking exercise.

Forth, systemic implementation gaps. These issues stem from structural weaknesses: incentive misalignment (subsidies rewarding presence over quality), inadequate teacher support (no evaluation linkage to training work), and operational constraints (time pressure, rigid quotas). Without addressing these root causes, practical training risks remaining a perfunctory program element rather than the intended transformative learning experience.

5.10.3 The Pillar of Effective Training: Standardized Process Management

Effective HQFT requires scientific and standardized process management (Eryanto et al., 2023; Beecher et al., 2023). Innovative approaches like the 'one person, one file' system demonstrate best practices: each trainee's comprehensive record includes (1) basic information and training history for personalized follow-up; (2) instructor evaluations assessing teaching quality, with results determining teacher pool adjustments; (3) satisfaction surveys covering course content, teaching methods, and logistics to guide program improvements; and (4) detailed industry profiles tracking participants' operational scale, income, and sector-specific needs for targeted curriculum adaptation. This data-driven management model ensures dynamic responsiveness to farmer requirements while maintaining quality control through continuous feedback mechanisms.

5.11 Farmer Level: Individual Psychological Characteristics

In this section, based on the results of the previous empirical survey, through further in-depth interviews with training participants, the trainees' general feelings on HQFT, main gains, obstacles in training learning, training application and achievement transformation, and other aspects are understood from the perspective of individual psychological characteristics (non-demographic variables) of the trainees. In order to grasp the micro-factors that affect the training performance of HQF.

5.11.1 The Starting Point for Farmers to Improve Farmers Professional Quality: Good Psychological Characteristics

Psychological characteristics are typical and personalized psychological characteristics manifested in people, including character, temperament and ability. The psychological characteristics of HQF can affect their enthusiasm and initiative to participate in training, and then affect the cultivation of their professional quality and the willingness to transform the training results.

5.11.1.1 Perceived Effectiveness

Farmers perceive training as valuable when it enhances their knowledge, skills, and networks, explaining the high satisfaction rates in empirical studies. Successful application of learned content improves productivity and income, reinforcing training's perceived usefulness and creating a virtuous cycle of participation. As evidenced in interviews, high-performing farmers demonstrate strong training engagement: "I attend every session despite being busy - the exchange of ideas with teachers and peers directly improved my farm's scale and product diversity" (A-F-1). Others noted: "Each training exposes me to new knowledge" (B-F-1) and "Adopting introduced techniques transformed my operations

and product quality." These testimonies confirm that perceived training effectiveness fundamentally drives HQFT participation and performance outcomes.

5.11.1.2Learning Ability

Empirical evidence reveals that farmers' age and education significantly influence HQFT outcomes, with education being particularly impactful (Niati et al., 2021; Rivaldo & Nabella, 2023). In Jiangxi Province, only 43.1% of HQF possess college-level education or above. As labor economist Minsel established, formal education enhances subsequent vocational training receptivity (Ming, 2001), aligning with Spence's (1973) finding that greater learning capacity increases knowledge acquisition willingness. Field interviews highlight this disparity: older, less-educated farmers acknowledge technological limitations ("Modern farming requires skills we can't master" - A-F-3), while college-educated entrepreneurs attribute success to adaptive learning ("I rapidly implement training concepts through independent research" - A-F-8). These findings demonstrate how educational background creates divergent capacities for knowledge absorption, ultimately determining training effectiveness.

5.11.1.3Willingness to Participate in Training

Training effectiveness requires both capability and willingness to learn (Ivan, 1979). For High-Quality Farmers (HQF), learning motivation stems from external incentives and personal cost-benefit calculations (Bulasheva et al., 2024; Tasnim, 2023). While China's free training policy eliminates tuition costs, farmers still weigh time investments against agricultural productivity losses. As one participant noted: "I'll pay for truly valuable training, but poor quality sessions are just disruptive" (A-F-4). Field observations reveal this calculus - attendance often peaks during registration and assessment days (100%) but drops to ~33% otherwise, as farmers prioritize fieldwork. This demonstrates how perceived

benefit-to-cost ratios fundamentally determine participation, even when financial barriers are removed.

5.11.1.4 Motivation to Participate in Training

Training effectiveness follows a self-reinforcing cycle: motivated trainees more readily apply learned skills, recognize training value, and become more likely to participate again (Goldstein & Rouiller, 1993). For adult learners like High-Quality Farmers (HQF), participation motives align with Boshier's consistency model, encompassing both "growth motivation" (self-actualization needs) and "deficiency motivation" (external pressures) (Wu, 2022). Six key drivers emerge: social connections, community welfare, external expectations, cognitive interest, career advancement, and stimulation avoidance. However, job-related motivations dominate (Xue & Luosimarry, 2011), with HQF typically seeking policy knowledge, skill upgrades, income growth, or credential improvement. Empirical ata confirms training relevance directly correlates with outcomes - the more contenta ddresses farmers' immediate needs (structural improvement, income boost, statuse levation), the better the performance results.

5.11.1.5 Training Voncepts

Farmers' training performance is fundamentally shaped by their participation mindset (Adeyanju et al., 2021; Wonde et al., 2022), yet field research reveals five prevalent misconceptions: (1) Equating training solely with technical farming skills ("I've farmed for decades - what more could I learn?"); (2) Attending as personal favors to village officials ("We're just here to maintain good relations"); (3) Viewing training as recreational welfare ("It's a rare chance to travel"); (4) Pursuing only certification for subsidies ("The completion certificate qualifies me for government support"); and (5) Demanding immediate applicability ("Teach exact steps I can copy tomorrow"). These

unrealistic expectations - especially the "quick-fix" mentality - often lead to disappointment when complex, lifelong learning processes don't yield instant solutions.

Effective agricultural development requires moving beyond narrow utilitarianism. As Flexner articulated (Gao et al., 2022), seemingly impractical theoretical knowledge often generates unforeseen practical value. While farmers rightly seek actionable skills, dismissing foundational concepts limits problem-solving capacity. The most transformative progress emerges when: (1) Theoretical frameworks guide adaptive (rather than imitative) practice; (2) Curiosity-driven learning complements vocational training; and (3) Participants recognize that today's "useless" knowledge may solve tomorrow's challenges. This paradigm shift - from demanding immediate recipes to valuing conceptual understanding - is essential for sustainable capacity building in modern agriculture.

5.12 Influencing Factors and Mechanism of Training Performance of HQF

5.12.1.1 Composition of Influencing Factors of Training Performance of HQF

As a long-term project led by the government, the support and guarantee of government policies are undoubtedly the prerequisite for the orderly and effective development of HQFT (Akande, 2021; Yuan, 2024)Through capital investment and policy support, the government can, on the one hand, provide teachers, teaching materials, training bases and other teaching resource elements needed for HQFT; on the other hand, it can reduce the cost of farmers' participation in training, improve their enthusiasm and initiative in training, and promote the professional and professional development of farmers. As the supplier of HQFT, training institutions are responsible for the specific training work, including the whole process of training organization, implementation and management. The training institution selects trainees, analyzes and designs training programs according to regional industry needs, post needs and individual needs of trainees,

selects and hires full-time and part-time teachers and training bases to implement training and tracking services according to the training content, and finally evaluates and evaluates the training, in order to provide training services that meet the needs of the trainees and make them satisfied. The organization, management and implementation of training institutions run through the whole process of HQFT, which is an important part of the HQFT system. Whether it is the planning and design before the training, the process management during the training, or the tracking service after the training, it all affects the performance of the training to varying degrees. As the main participants and beneficiaries of the training of HQF, the trainees are the internal factors that determine the training performance. Trainees can perceive the effectiveness of training and their learning ability, motivation, willingness and concept of training are all important factors that affect the training performance.

Based on three main participants of HQFT, namely the government, training institutions and trainees, this paper analyzes the configuration and implementation of policies, the construction of training system and the design of training projects from three dimensions, namely, the allocation and implementation of policies, the design and implementation of training, and the psychological characteristics of farmers. The preparation before training (including the selection of training objects, the analysis of training needs, the supply of training content, the preparation of training resources such as training teachers, teaching materials and bases), the implementation process of training (including the selection of training modes, the implementation of theoretical teaching, practical teaching and tracking services), and training management; Psychological characteristics of trained farmers (including perceived effectiveness of training, learning ability, willingness to participate in training, motivation to participate in training, concept

of training) and other seven aspects of influencing factors, combined with the above quantitative research of farmers' educational level, training frequency and other demographic variables of trained farmers have a significant impact on training performance. It can be concluded that the influencing factors of training performance of HQF are composed of 3 levels and 7 aspects (see Figure 5.4).

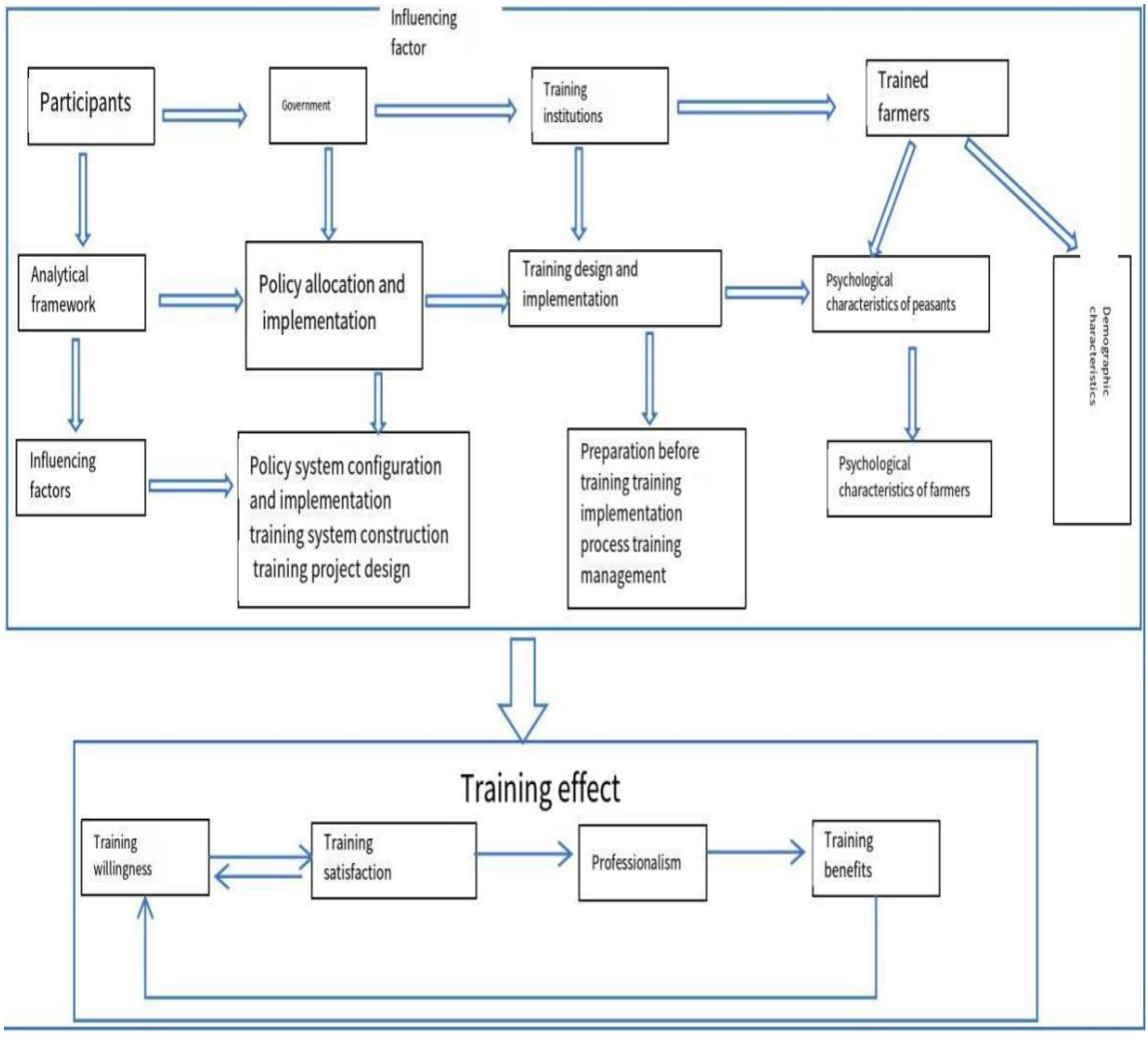


Figure 5.4: Composition of Factors Influencing the Training Performance of HQF

5.12.1 Interaction Analysis of Factors Influencing the Training Performance of HQF

The training performance in this study mainly includes two levels: immediate performance and delayed performance, and is specifically represented by four dimensions: "training intention", "training satisfaction", "professional quality" and "training benefit". According to the hierarchical model, the upper level can have an impact on the next level, that is, the training intention of trained farmers can affect the training satisfaction. Training satisfaction can affect their professional quality, which in turn affects the training efficiency. Meanwhile, the increase in income caused by the improvement of training quality will in turn affect the training willingness and training satisfaction. This section mainly discusses how the government, training institutions and farmers under training affect the direct performance of training learning and the delayed performance after the application of training through "policy factors", "training factors" and "personal factors", and tries to theoretically analyze the internal mechanism of the effects of these three influencing factors on the four performance levels (see Figure 5.5).

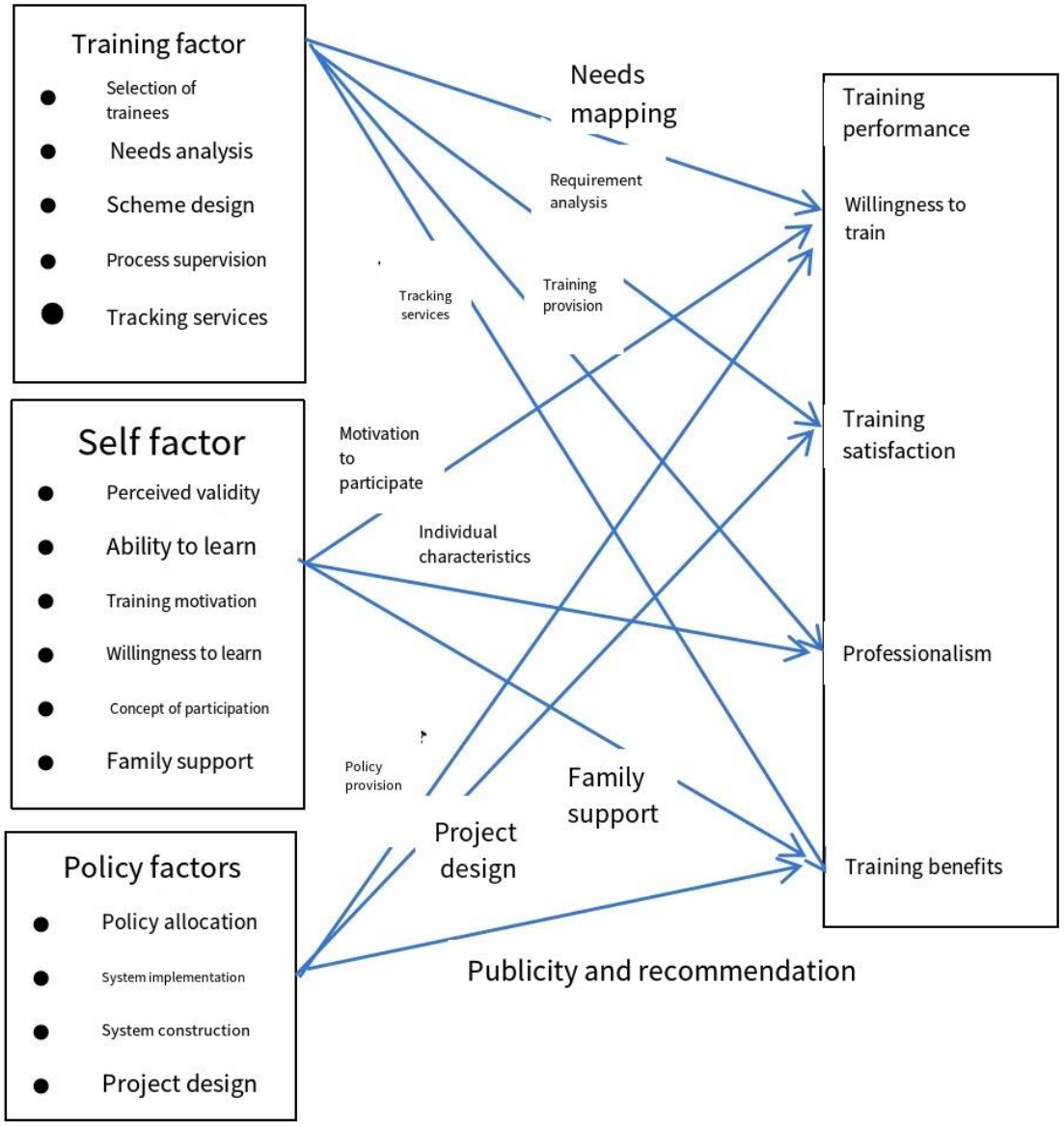


Figure 5.5: Interaction Mechanism of Factors Influencing the Training Performance of HQF

First of all, HQFT performance hinges on four interconnected dimensions: (1) Training intention - achieved through pre-program needs assessments and customized course design; (2) Satisfaction - influenced by logistical factors (environment, duration) and pedagogical relevance (work-aligned content using case-based methods); (3) Professional quality - enabling progressive skill development from novice to expert competency; and (4) Training efficiency - enhanced through post-program support

(technology updates, consulting services) that accelerates practical application. This integrated approach transforms training from discrete events into continuous professional development cycles, where perceived usefulness boosts satisfaction while competency gains drive tangible productivity improvements in farm operations and agricultural outputs.

Secondly, the influence of the trainees' own factors on the training performance of HQF is mainly reflected in the three levels of "training willingness", "professional quality" and "training efficiency". In the aspect of "training willingness", the trained farmers with strong relearning ability are more willing to participate in training, and the correct concept of participation helps to enhance the training motivation of the trained farmers. In terms of "professional quality", HQF' relearning ability, training motivation, learning willingness and training concept all affect the cultivation of their professional quality. In terms of "training benefit", due to the high risk of agriculture, HQF can not apply new technologies, new products and new models without the support of their families.

Thirdly, the influence of the configuration and implementation of policies and institutions on the training performance of HQF is mainly reflected in the three levels of "training intention", "training satisfaction" and "training benefit". At the level of "training satisfaction", governments at all levels can, on the one hand, directly improve farmers' training willingness by designing training programs that meet farmers' actual needs, and at the same time, improve their satisfaction with training. On the other hand, governments at all levels can support the construction of training resources for HQF through policies and funds, or create a good external environment through the publicity and promotion of typical practices, and indirectly improve the satisfaction of HQF with training. At the level of "training benefits", governments at all levels encourage trained farmers to apply what they have learned through policies, projects and financial support for typical HQF.

In addition, the training willingness of the trainees is the basis of training satisfaction, which can promote the cultivation of their professional quality and enhance their "training efficiency" through the improvement of their ability to transform and apply the results. In turn, farmers feel the benefits brought by training, so that they are more willing to participate in training and improve their "satisfaction with training".HQFT Suggestions Based on Performance Evaluation

On the basis of exploring the influencing factors of the training performance of HQF, this study considers that it is difficult to change the individual characteristics of trained farmers in the practice process, or the change of individual characteristics of trained farmers is also affected by external factors. Therefore, this study focuses on the principle of policy support, training design, organization and implementation subject operability, and puts forward the optimization strategy of HQF' training performance from three aspects: top-level training design, organization management, implementation plan design and implementation.

5.13 Systematically Carry Out the Top-Level Design of HQFT

5.13.1 Establish a Diversified and HQFT Market

Contemporary agricultural development necessitates continuous enhancement of High-Quality Farmer (HQF) training systems. However, field research reveals systemic constraints: agricultural extension colleges in Jiangxi Province operate inefficiently due to resource shortages (Yang, 2022), often functioning as administrative intermediaries with minimal staff (1-2 personnel) rather than independent training providers. While China's government-led HQFT program theoretically employs quality evaluation mechanisms, in practice it relies on quota-based task allocation rather than performance assessment (Park

et al., 2021; Scaton, 2024). This non-competitive environment, where agricultural universities receive guaranteed training assignments regardless of outcomes, significantly diminishes institutional incentives for quality improvement.

To enhance HQFT effectiveness, establishing a competitive training market is essential. The government should implement a tender-based system (Machirori et al., 2024) that evaluates public and private institutions based on training outcomes and benefits. Market competition would incentivize providers to: (1) conduct thorough needs assessments aligning with government priorities, local industry demands, and farmer requirements; (2) optimize program design and delivery; and (3) continuously improve quality to maintain competitiveness. While maintaining agricultural schools and colleges as core providers, the system should integrate diverse high-quality resources including vocational institutions, universities, research centers, and private enterprises through both physical and digital platforms, creating a comprehensive, performance-driven HQFT ecosystem.

To ensure market order and training quality, a standardized accreditation system for HQFT institutions must be established. Given the significant capability disparities among providers, governments should develop comprehensive "HQFT Institution Management Measures" specifying evaluation criteria across five dimensions: (1) infrastructure adequacy, (2) organizational systems, (3) faculty qualifications, (4) curriculum design, and (5) management protocols. The accreditation process involves three key steps: first, institutional self-assessment against published standards; second, on-site expert evaluations by designated authorities; and third, tiered certification determining both industry specialization (theoretical instruction, field observation capabilities) and competency levels

(primary/intermediate/advanced program delivery capacity). This multi-layered approach ensures only qualified providers participate while maintaining necessary market diversity.

Third, implement the dynamic management mechanism of HQFT institutions. The administrative department of training and accreditation of HQF may entrust social institutions with evaluation qualifications as a third party to regularly supervise and evaluate institutions with HQFT qualifications (Duffee et al., 2021; Jia et al 2022). From the aspects of infrastructure, teaching staff, organization and management, training quality and other aspects of monitoring and evaluation, mainly through self-assessment report, field visits, questionnaire survey of farmers trained, discussion and follow-up survey and other diversified, multi-angle evaluation methods, to fully understand the level of HQFT institutions. According to the training results, the training institutions should be dynamically managed, survival of the fittest should be eliminated, so that each training institution can improve the training quality under the pressure of competition.

5.13.1.1 Improve the Resource Guarantee Mechanism of HQFT

Teachers, teaching materials and bases are important resources for HQFT and an important guarantee for the effectiveness of the training work (Tamsah, & Yusriadi, 2022; Tarekegne et al., 2024;). At present, the elements of HQFT are scattered in education, human resources and social organizations, agriculture, women's federations and other departments, and the closed structure among various departments makes the farmer training system "resource dispersion" and "blood flow obstruction". Although agricultural vocational colleges, as an important subject of HQFT, have rich teaching resources, each agricultural college has its own advantages. They can not undertake the training of HQF in all types of industries, resulting in the lack of sustainable development of farmer training "vitality". Secondly, due to the difference in the level of economic development in

different places, the distribution of training resources is uneven. Some places have not started the construction of HQFT bases, teaching materials, online teaching platforms and teacher banks due to financial pressure. Thirdly, teachers are the key to the quality of HQFT and the main body of effective implementation of tracking service (Manning et al., 2022; Alemu, 2023). However, the preliminary empirical research shows that the satisfaction of trained farmers on training teachers and tracking is relatively low. This is mainly because at present, the institutions that undertake the training of HQF in China are mainly agricultural schools and continuing education colleges of agricultural colleges. These institutions are only an organization independent of the knowledge system, and are not professional institutions for farmers to train knowledge producers. Therefore, these institutions have almost no full-time training teachers. Mainly through the way of paying to temporarily hire other faculties and departments as training teachers to complete the pre-set relevant courses or lectures, the efficiency of this "temporary employment relationship" is obviously to be questioned. In the interview with the researcher, there are also many training implementers who say that teachers are their biggest problem. They can only compress or adjust the training plan because they can't find suitable teachers. Therefore, improving the training resource guarantee of HQF is an important measure to improve the training performance of HQF (Teng et al., 2022; Xue et al., 2022). Based on the above analysis, the researcher believes that the training resource guarantee can be improved from the following aspects:

First, build a mechanism for HQF' training resources sharing. Taking into account the fact that farmers prefer short-term training at the nearest location (Parmaksiz & Cinar, 2023; Snitker et al., 2024), the researcher believes that it is possible to integrate farmers' training resources within the province as a unit. Specifically, each district and county

agricultural school undertakes 4-5 quality industrial training projects according to the advantageous industries in the region. At the same time, according to the construction standards of training bases at all levels, on the basis of focusing on the ability of the person in charge of the training base, the provincial and municipal HQF' training and training bases are selected in each county and district for the observation and exchange of HQF' training and practice teaching in the province. According to the professional advantages and teachers of each training institution, it is recommended that provincial and municipal HQF train teachers, compile HQFT textbooks, and build provincial and municipal HQF train teachers and textbooks.

Second, the allocation of special career establishment and service-oriented teacher title evaluation system. Teachers are an important factor to ensure the training performance of HQF, in the context of performance pay, "do more and do less of the same, do and do not do the same", coupled with the agricultural colleges and universities have no special preparation and title evaluation methods for farmer training teachers, teachers will engage in HQFT as an "extra thing", can "cope with the difference" is good. The enthusiasm of teachers engaged in farmer training is not high, which affects the effectiveness of training. Therefore, the researcher thinks that it is necessary to set aside a special staff of teachers engaged in farmer training, and set up a service teacher title evaluation channel for teachers engaged in farmer training under the existing title evaluation system, and take the organization, implementation and performance evaluation of farmer training as an important index of title evaluation. Improve the enthusiasm and initiative of teachers to participate in HQFT.

Third, a comprehensive knowledge-updating system for HQFT instructors must be established to address rapid agricultural advancements (Benavot et al., 2022; Biesta, 2022).

This dual-track framework encompasses: (1) For theoretical instructors (university professors/researchers), mandatory field secondments to agricultural enterprises and cooperatives bridge their theory-practice gap; (2) For practitioner-instructors (extension workers/farm managers), structured pedagogical training enhances their teaching methodologies, complemented by annual university coursework and collaborative research projects with academics to strengthen theoretical foundations (Biggs et al., 2022; Trust et al., 2023). The system ensures all trainers maintain cutting-edge, balanced expertise through continuous professional development, addressing farmers' needs for both conceptual understanding and practical applicability.

5.13.1.2 Improve the Policy Support for HQFT

First, to address systemic gaps in China's High-Quality Farmer (HQF) training, a dual "education + skills" policy framework should be implemented. While short-term thematic programs effectively address immediate skill needs during farmers' initial 4-6 years of practice (Mei & Symaco, 2022), they prove inadequate for advanced professional development. With 55% of HQF possessing less than high school education (Wang, 2021), current programs fail to support the transition from proficiency to expertise. The proposed solution combines: (1) maintained thematic skill training for foundational competencies, with (2) new education-promotion policies including tuition waivers and academic incentives, enabling farmers to simultaneously enhance both vocational skills and formal educational attainment - a critical combination for sustainable agricultural professionalization (Li et al., 2023).

Second, China must accelerate implementation of a standardized vocational qualification system for High-Quality Farmers (HQF) with tiered policy incentives, as empirical evidence confirms certified farmers demonstrate superior training outcomes.

Current inconsistencies - including arbitrary certification processes and insufficient support measures - hinder HQF's professional recognition. The solution requires: (1) Nationwide competency-based certification aligned with agricultural specializations; (2) Differentiated training programs matching qualification levels (primary/advanced); and (3) Corresponding policy benefits (e.g., subsidies, technical support) that increase progressively with certification attainment, thereby motivating sustained participation in professional development while ensuring training relevance to modern agricultural demands.

Third, Effective HQFT outcomes require establishing family farm succession mechanisms, as training impacts extend beyond learning to practical application (Adamsone-Fiskovica & Grivins, 2022). Research reveals China's predominant reliance on familial inheritance - the most cost-efficient transition method - with only 4.53% of farms achieving father-son successions. Without structured succession systems, aging farmers often abandon farm development investments when lacking heirs, wasting substantial training resources. This underscores the urgent need for institutionalized succession protocols to preserve agricultural knowledge transfer and safeguard early-stage investments in farm modernization. (Chen et al., 2023).

Therefore, To safeguard investments in family farms and HQFT, China must establish a robust farm succession system addressing two dimensions (Liu et al., 2023): (1) Enhancing the profession's social status through improved benefits and recognition to attract "farmer successors"; and (2) Implementing standardized "Family Farm Succession Guidelines" that facilitate transitions between retiring farmers and qualified successors (returning entrepreneurs, agricultural graduates). These measures should detail competency requirements, transfer protocols, and post-succession support (funding, tax incentives,

training), creating a structured pathway that protects both parties' interests while ensuring agricultural knowledge and assets are effectively preserved across generations.

5.13.1.3 Optimize the Project Design of HQFT

While institutional reforms (land, accreditation, social security) remain crucial for HQF development, China's current overemphasis on structural changes neglects critical capacity building (Weng & Guo, 2022). Successful cases demonstrate that high-capacity farmers overcome systemic barriers, whereas premature institutional liberalization without competency development risks creating dependent populations. The prevailing evaluation metrics - prioritizing scale and income over skills and leadership - reflect this imbalance. Sustainable professionalization requires simultaneous advancement of both dimensions: (1) removing structural constraints while (2) implementing rigorous competency-based training and assessment. Only this dual approach can transform farming into both a socially respected vocation and an engine for rural revitalization, ensuring farmers possess both the opportunity and capability to thrive in modern agriculture.

The generation of HQFT programs should pay equal attention to both system construction and capacity construction, and governments at all levels should systematically design training programs based on the concept of vocational ability development. First of all, clearly define the training objectives and formulate the training standards. Training objectives are the starting point and landing point of training activities, which can be set for the whole training program, or set phased goals for each training. In practice, it is precisely because the training objectives of HQF are not clear, which leads to the lack of training standards, and the selection and assessment of training contents in various regions are lacking of basis, mainly based on the understanding of policy implemutors, which leads to great regional differences. Therefore, as a public policy, HQFT should be led by the

state, co-built by the provincial level, do a good job in top-level design, formulate training standards, so that HQFT has rules to follow and evidence to rely on. To be specific, taking the provincial level as an example, the national level needs to take the professional quality of the provincial HQF at the primary, middle and high levels as the training goal. At the provincial level, more specific training objectives, content modules and class hours should be formulated according to the training objectives at the national level and the characteristics of regional industries. Training institutions should design specific training programs and phased training goals according to the provincial level goals. Farmers can be identified as HQF at the corresponding level if they reach the corresponding level of HQF standards through training. (see Figure 5.6).

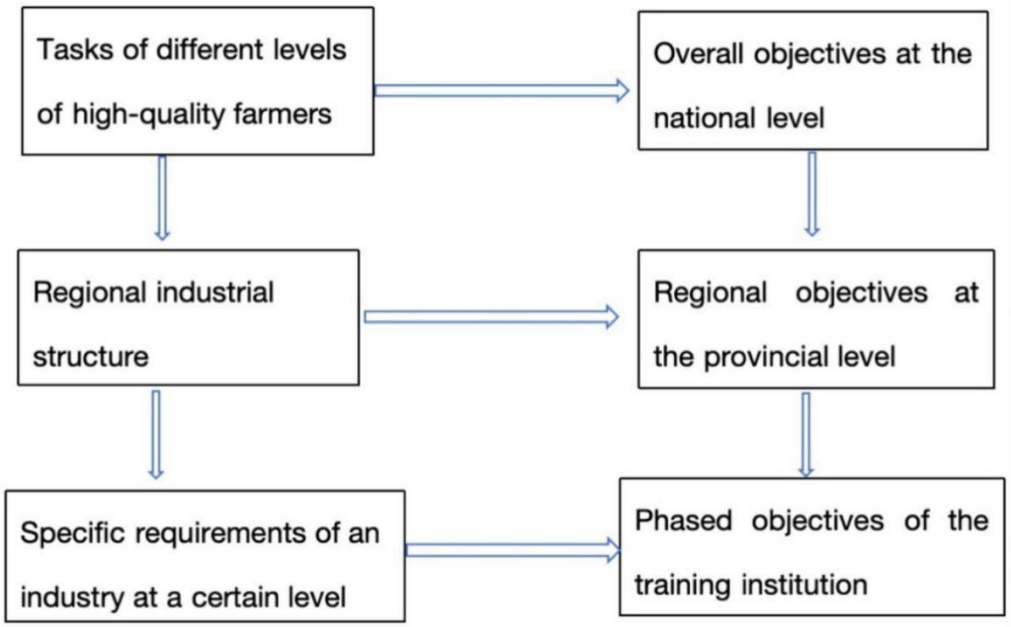


Figure 5.6: Hierarchy of Training Goals for HQF

Secondly, "order-type" training programs should be developed according to the needs of regional industry development. The development of modern agriculture needs what kind of people to train what kind of people, "order-type" training program is more suitable for the modern agricultural industry's demand for high-quality talents, is an

effective way to solve the problem of targeted training. Governments at all levels may, according to the demand for the quantity and quality of talents for the development of regional advantageous industries, characteristic industries and leading industries, select major professional households, family farmers, heads of cooperatives and other new agricultural business operators who are willing to be trained in the region, form a class of no more than 30 people, and select suitable training implementation subjects for coordination. Jointly develop and design training programs, and jointly conduct process management, assessment and evaluation to ensure the effectiveness of training.

5.13.2 Strengthen the Standardized Management of HQFT

5.13.2.1 Formulate an Accurate Selection Mechanism for Trainees

Despite policy emphasis on trainee selection, China's HQFT implementation remains constrained by top-down quota systems that foster indiscriminate enrollment practices ("strongman recruitment" and "headcount gathering"). Field research reveals two critical deficiencies: (1) arbitrary selection processes lacking proper publicity and vetting, and (2) absent eligibility criteria despite human capital theory demonstrating diminishing returns for older, less-educated smallholders (Becker, 1964). While basic skill training benefits all farmers, targeting limited resources toward younger, educated producers with viable operation scales proves more effective for cultivating the innovative capacity required for modern agricultural development.

Effective HQFT implementation requires precise farmer selection through a multi-tiered approach: (1) Enhanced grassroots outreach via township-level campaigns utilizing diverse media to publicize training opportunities and success stories; (2) Establishment of standardized eligibility criteria (age, education, operation scale, income) to prioritize

younger, educated farmers with viable agricultural enterprises for advanced training programs. This targeted human capital investment strategy facilitates the crucial transition from traditional farming as an "identity" to modern agriculture as a "profession," ultimately fostering sectoral specialization and development.

5.13.2.2 Improve the Information Management System of HQF

Field research identifies inefficient farmer targeting and data fragmentation as key constraints in China's High-Quality Farmer Training (HQFT) system, resulting in duplicated training and suboptimal resource allocation. To address this, establishing an integrated agricultural data platform is critical. This digital solution would: (1) consolidate comprehensive farmer profiles (demographics, operations, income); (2) enable real-time interdepartmental data sharing across government levels; and (3) track individual training histories to prevent redundancy. By providing accurate, updated information on regional agricultural characteristics and farmer competencies, the platform would facilitate development of tailored training programs while improving fund utilization efficiency through standardized data collection and analysis - ultimately enabling precise, needs-based HQFT implementation.

5.13.2.3 Improve the Traditional Vertical Organization Management Mode

China's HQFT system exhibits distinct bureaucratic characteristics through its dual-level hierarchical structure: (1) At the macro level, a rigid vertical management chain (national-provincial-municipal) ensures administrative efficiency but suffers from standardized approaches that lack flexibility and competitiveness; (2) At the micro level, traditional classroom-style management with temporary class units and teacher-monitored attendance persists, despite questionable suitability for adult learners' self-directed learning needs (Weber, 1998). This dual bureaucracy creates systemic tensions between

administrative convenience and pedagogical effectiveness, prioritizing top-down control over responsive, learner-centered training models that could better address regional agricultural variations and adult learning principles.

To address bureaucratic inefficiencies in HQFT management, three innovative approaches should be explored: (1) Leveraging rural grid systems to create integrated agricultural data platforms; (2) Adopting Western-style horizontal networks through farmer associations to reduce institutionalized adult education models (Wu, 2002); and (3) Developing hybrid "bureaucratic-acquaintance" systems that incorporate Fei Xiaotong's (2022) concept of rural social cohesion through cultural traditions. This third approach particularly recognizes how trusted local figures can effectively mobilize atomized farmers while maintaining administrative structure - creating "loosely-coupled" management systems that balance formal organization with grassroots relational dynamics.

5.13.2.4 Improve the Performance Evaluation System of HQF' Training

Performance evaluation has always been a difficult problem in human resource management. According to the connotation of effective teaching theory, the training performance of HQF should contain three meanings. First, the consistency between the training results and the expected training objectives; Second, the ratio of input and output; Third, the degree to which the benefits and values of the training activities are realized, specifically, whether the training objectives are consistent with the needs of individuals and society and the degree to which they are consistent. However, it can be seen from the above empirical research that the current performance evaluation of HQFT still focuses on the completion of "quantity". As an important participant in the training of HQF, the trained farmers do not occupy an absolute subject position in the performance evaluation.

5.13.3 Scientific Implementation of HQFT Activities

5.13.3.1 Before Training: Design Training Program Based on Demand Research and Analysis

i. Strengthen Demand Research and Analysis before Training

In order to break the "black box" of the internal mechanism of the transformation of training learning results (Cannon-Bowers et al., 1998), scholars studied the relationship between training and learning efficiency, and concluded that "demand-based" training design can greatly improve trainees' interest. And enhance their ability to absorb and transform what they have learned in training, so that they can benefit effectively in the same time with more learning resources (Noe, 2010). Since the 1960s, in the field of human resource management, objectivity training needs analysis has gradually replaced the previous training needs analysis that excessively relied on subjective desire analysis, and some influential operation modes have emerged. These need analysis modes are different in terms of focus, data collection and data analysis methods, and have their own advantages and limitations in practice (Moore,1978). Specifically, the two most representative training needs analysis models are the performance analysis model and the organization-task-person analysis model (OTP) (Taylor et al., 1998).

a. Performance Analysis Model

Performance analysis model is a model summarized in the practice of training demand analysis. It mainly focuses on the gap between expected performance and actual performance, and identifies training needs by analyzing the causes of the gap (Tom, 1998). The steps of training demand analysis in the performance analysis mode (Han & Wang, 2013) are shown in Figure 5.7. The performance gap analysis framework for HQFT

involves four critical phases: (1) Benchmarking ideal competencies through multi-stakeholder consultations (government, trainers, farmers) and occupational analyses; (2) Assessing actual farmer capabilities via participatory evaluations to identify performance discrepancies; (3) Diagnosing gap causes to isolate knowledge/skill deficits suitable for training interventions, while identifying cohort-specific needs (e.g., by sector/scale); (4) Modularizing prioritized needs into structured curricula - categorizing by urgency/importance, developing course units, and designing topic-specific training formats - ensuring targeted, scalable upskilling solutions.

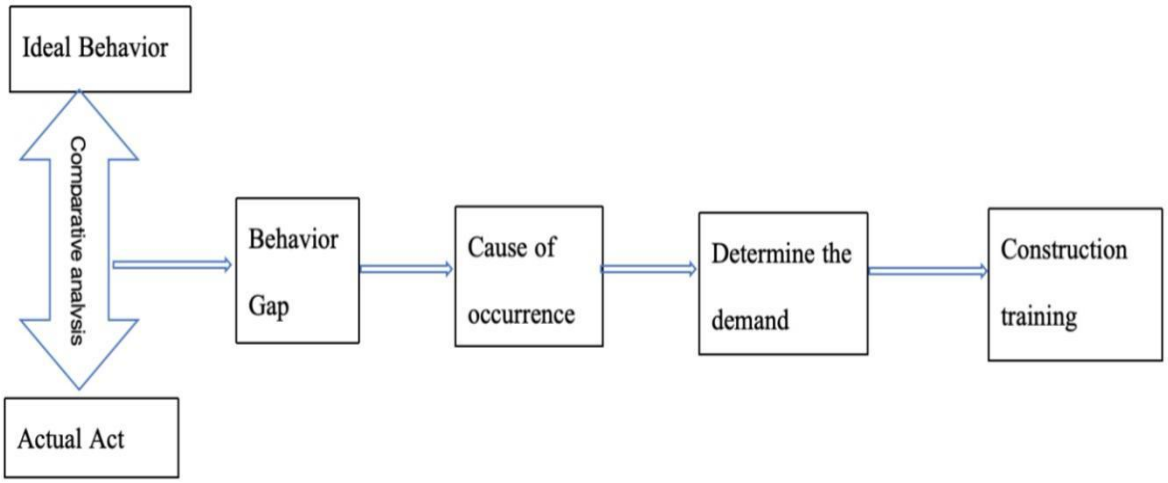


Figure 5.7: Steps of Training Demand Analysis in Performance Analysis Mode

Performance analysis model effectively avoids the subjectivity of self-report, and links training needs with performance. It is easy to operate and widely used. In order to ensure the accuracy and effectiveness of the training needs analysis, three necessary conditions should be ensured when the performance analysis model is used to analyze the training needs of HQF. First, the performance of HQF can be improved by changing a certain behavior (number 1in the Figure 5.8); Second, the work behavior of HQF can be changed by improving their knowledge and skills (number 3); Third, training is a reliable means to improve the knowledge and skills of HQF (number 5).

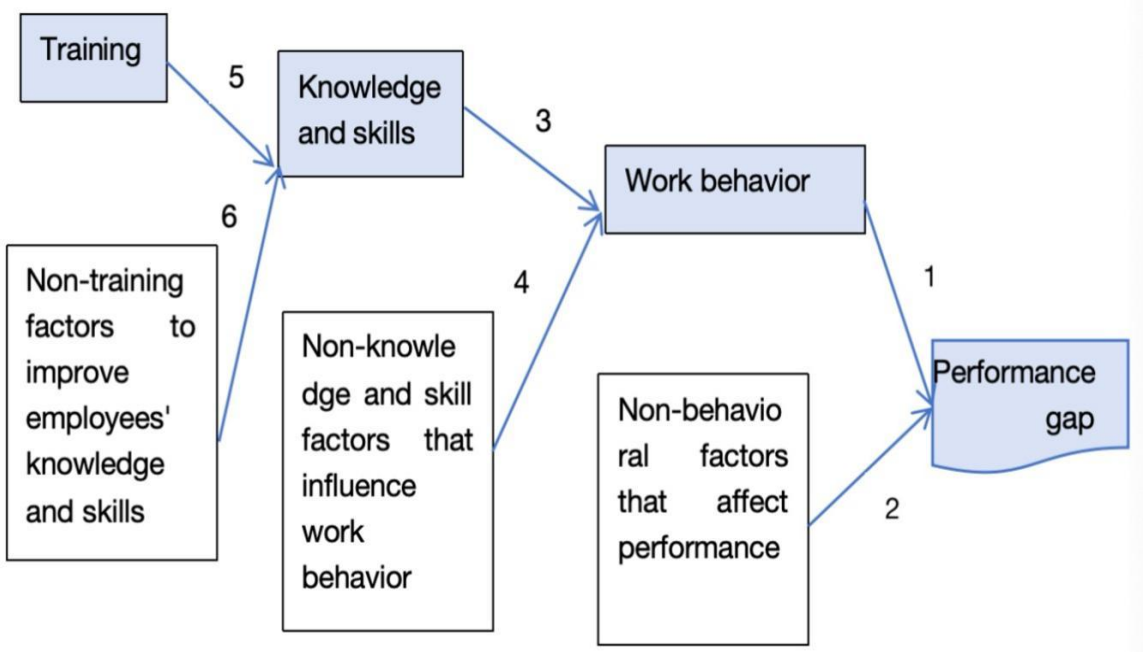


Figure 5.8: Conditions of Use of Performance Analysis Model (Zhao & Liang, 2010)

Three critical considerations emerge in applying performance gap analysis to HQFT needs assessment: (1) Performance gaps merely indicate potential training needs - thorough causal analysis is essential, as Gilbert (1967) emphasized, with gaps representing starting points rather than conclusions; (2) Many gaps stem from external factors (policy support, resource availability, family circumstances) rather than skill deficiencies, making them untrainable without complementary interventions; (3) Training may still be warranted even without observable gaps, particularly for proactive capacity building or emerging agricultural technologies. This nuanced understanding prevents misdirected training investments while ensuring comprehensive professional development.

ii. OTP Analysis Model

1961, William Mcgehee and Paul （ 1961)proposed the OTP Training Needs Analysis Model . This model emphasizes the systematicness of demand analysis and believes that to ensure the objectivity and accuracy of demand analysis, it is necessary to

conduct comprehensive analysis from the three levels of organization, task and personnel (see Figure 5.9) (Zhao & Liang, 2010).

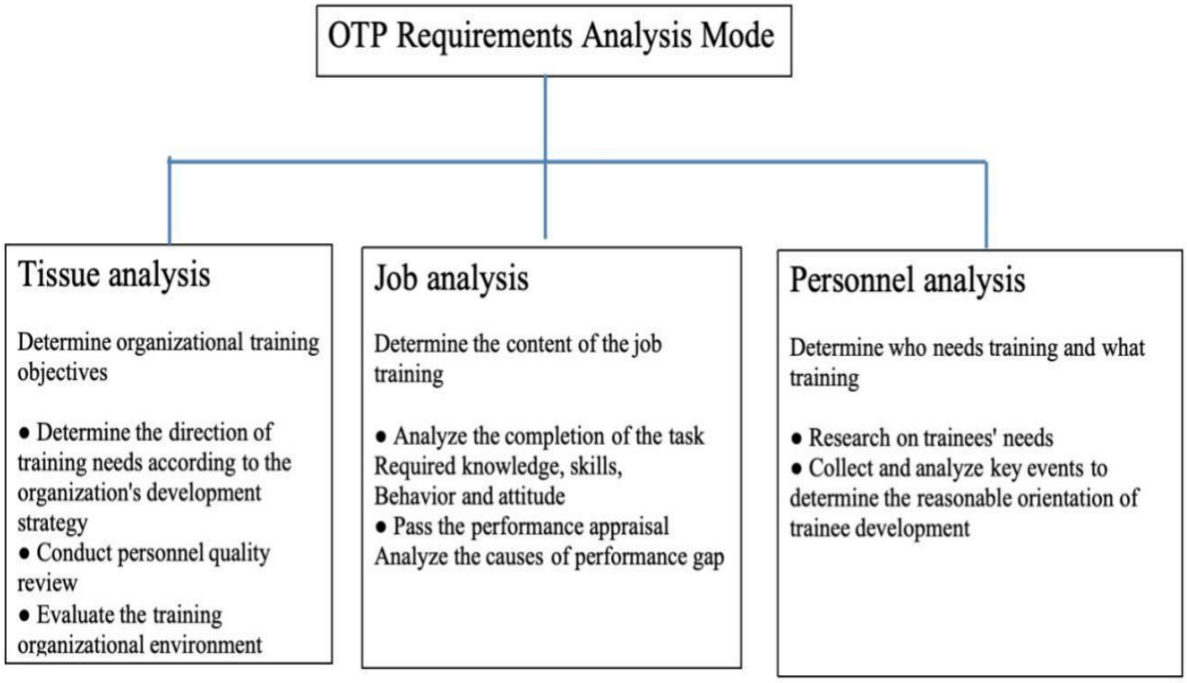


Figure 5.9: Main Contents of Opt Requirement Analysis Mode

The OTP and performance analysis models offer complementary approaches to HQFT needs assessment. While both share fundamental components - with OTP's task/personnel analysis paralleling performance modeling's expected/actual performance evaluation - their key distinction lies in OTP's organizational analysis dimension, which aligns individual upskilling with institutional development goals (e.g., government agricultural targets or cooperative growth). The performance model's universal applicability contrasts with OTP's organizational-specific focus, requiring clear stakeholder identification in HQFT contexts (government agencies, farms, agribusinesses). Training institutions should integrate both frameworks: using performance analysis to identify competency gaps while applying OTP's organizational lens to ensure training supports

broader agricultural modernization objectives, thereby creating synergies between individual capability building and sectoral transformation needs.

5.13.3.2 Scientific Design of Training Programs

First, effective HQFT course development requires coordinated efforts between training providers and government agencies. Training institutions (agricultural colleges, extension services, and certified market providers) should design programs based on their specialized expertise, faculty strengths, and regional conditions - specifying suitable industries, competency levels, and curriculum sequences through comprehensive needs assessments. Concurrently, local governments must identify priority training themes aligned with regional agricultural development strategies (specialty crops, leading industries). Provincial authorities should then integrate these inputs to establish cross-regional "farmer training communities" that transcend geographical boundaries, organizing classes by industry specialization, operation scale, and skill levels rather than administrative divisions. This dual-track approach ensures targeted, non-redundant training delivery while optimizing resource allocation across the agricultural education ecosystem.

Secondly, effective training program design requires a systematic approach: Training institutions must first conduct thorough needs assessments using scientific methods to identify gaps between regional industry requirements and farmer competencies. Based on these findings, programs should be structured with modular curricula - combining core vocational skills ("comprehensive courses"), industry-specific content ("specialized courses"), and level-appropriate modules ("advanced courses") - to address both collective and individual needs. Each program's parameters (class size, duration, location, delivery methods) should be tailored accordingly. Crucially, the design process must incorporate multi-stakeholder feedback (government officials, project managers,

training experts, and farmer representatives) through structured consultations and program demonstrations (Jing, 2023; Yang et al., 2022), ensuring the final curriculum balances operational feasibility with comprehensive skill development across all target groups. (see Figure 5.10).

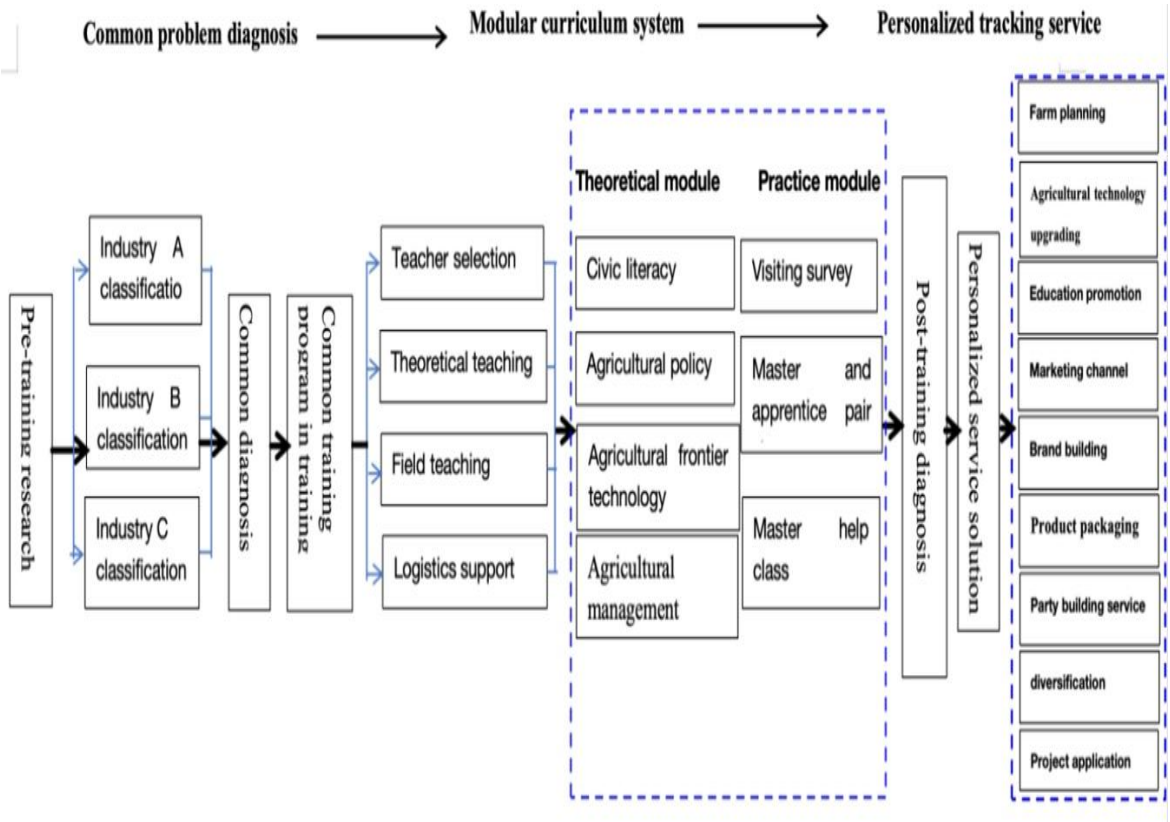


Figure5.10: Training Program Design Process of School

Thirdly, despite government mandates emphasizing practical training, HQFT programs face significant resource constraints: (1) Inadequate integration of hands-on learning into curricula, with most institutions failing to specify practical content, methods, or assessments; (2) Insufficient high-quality training bases, as evidenced by overcrowded field visits and nominal "listed" bases lacking proper management frameworks; (3) Critical shortages of skilled practical instructors, particularly in follow-up mentorship. Field research reveals these deficiencies result in superficial implementation of practical

components, undermining training effectiveness. To address this, institutions should establish regional resource-sharing networks - creating provincial "teaching communities" to pool demonstration farms, field schools, and practitioner-instructors. This collaborative approach would ensure all programs deliver structured, quality-assured practical modules comparable to theoretical instruction, while optimizing limited resources across the agricultural education system.

5.13.3.3 In Training: Implement Training Based on the Learning Characteristics of Adults

i. "Participatory Experiential" Training Mode

The learning pyramid model (see Figure 5.11) proposed by American scholar Edgar Dale indicates that different earning styles have different degrees of influence on learning performance. The retention rate of active participation and experiential dynamic training learning mode is significantly higher than that of static and passive acceptance learning mode. Kolb's experience-based learning model emphasizes the ability required to learn from experience. Adult learning starts from concrete experience, and goes through reflective observation, abstract generalization and action application (Sharon & Merian, Rosemary, 2011). Lindemann, Knowles and other adult educators believe that "the most valuable resource in adult education is the learner's experience", and advocate that experience is the foundation of adult learning.

Therefore, effective HQFT requires transitioning to learner-centered pedagogies that leverage adult learning principles (Smith & Gillespie, 2023). Training should adopt participatory methods by: (1) Using case-based problem-solving for theoretical instruction, where farmers analyze real agricultural challenges; (2) Facilitating structured group discussions to enable peer learning and experience sharing; and (3) Implementing hands-on

field demonstrations with "show-and-do" techniques for practical skills transfer (Clements, 2022; Pandey et al., 2024). This experiential approach - anchored in farmers' work contexts and prior knowledge - enhances engagement by making learning immediately applicable, while trainers serve as facilitators rather than lecturers, ultimately developing participants' problem-solving capacities through reflective practice.

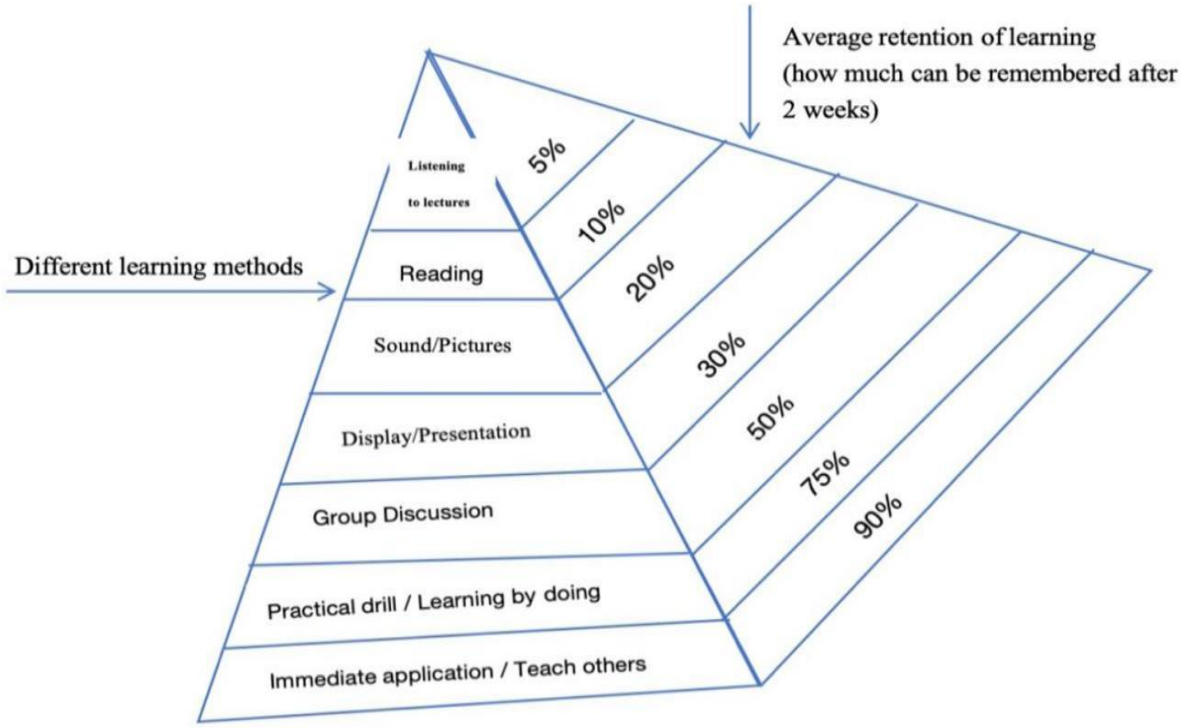


Figure 5.11: Learning Pyramid Model

ii. Training Implementation of "Classification, Stratification and Segmentation"

a. Classify Training According to Business Industry and Scale

Effective HQFT programs must adapt to farmers' diverse operational contexts by implementing tiered, industry-specific training approaches (Wu et al., 2022; Li & Pilz, 2023): (1) For smallholders, focus on basic "literacy training" through field-based skill demonstrations; (2) For mid-scale producers, deliver "optimization training" covering risk

management and operational efficiency via small-group workshops and technical mentoring; (3) For agricultural entrepreneurs and cooperative leaders, provide advanced "leadership development" combining strategic concepts, ethical frameworks, and innovation exposure. Crucially, all content must integrate emerging agricultural technologies (digital tools, smart machinery) while aligning with regional specialization patterns - ensuring training addresses both immediate production needs and evolving agribusiness competencies across different scales of operation.

b. The training is divided into different levels according to the identification level

Effective HQFT requires tiered programming aligned with farmers' career progression: (1) Primary training ("professional induction") establishes modern agricultural fundamentals for novices; (2) Intermediate programs ("core farmer development") build operational competencies in risk management and market analysis; (3) Advanced courses ("expert cultivation") develop innovation capabilities in digital agriculture and value-chain leadership. While theoretical frameworks suggest this hierarchy, most programs still deliver undifferentiated "mixed-level" training, despite farmers' varying learning capacities shaped by education, experience, and operation scale (Li & Pilz, 2023). Implementation should maintain curricular progression while allowing experienced farmers to bypass elementary levels through competency assessments - ensuring efficient skill development across all career stages without redundant training.

c. According to the Busy Season of Farming Stage Training

Effective HQFT delivery requires optimized scheduling that balances agricultural cycles with learning retention: Programs should be segmented into 2-3 intensive modules (3-5 days each) during farming off-seasons, combining in-person and digital formats (e.g.,

evening live-streams for weekly reinforcement). This blended approach addresses key constraints: (1) minimizing opportunity costs by avoiding peak farming periods; (2) maintaining content continuity through spaced repetition; and (3) accommodating diverse schedules via flexible online components. Each module should integrate theoretical and practical elements while ensuring thematic coherence - a significant improvement over current fragmented approaches that either compress training unrealistically or create disruptive gaps between sessions. Digital tools (Q&A platforms, on-demand content) can further enhance engagement without compromising agricultural productivity, creating a sustainable training rhythm aligned with rural realities.

5.13.3.4 After Training: Carry Out Tracking Service Based on Individual Diversified Needs

Training institutions should implement a five-pronged support system to enhance HQFT effectiveness: (1) Utilize digital platforms (WeChat/QQ) for real-time policy and market updates; (2) Establish dedicated channels for farmer queries with scheduled expert consultations via hotlines/livestreams; (3) Conduct on-site visits to assess technology adoption and gather feedback; (4) Facilitate project/competition participation through specialized mentoring; and (5) Organize expert-led field demonstrations with graduated skill-building exercises. This integrated approach bridges theory-practice gaps through continuous, multi-format support - from initial information dissemination to hands-on skill mastery - while maintaining crucial farmer-trainer interactions throughout the learning cycle.

5.13.4 Brief Summary

This chapter explores the key factors influencing the training performance of High-Quality Farmers (HQF) in Jiangxi Province, China, based on quantitative research, policy analysis, on-site inspections, and interviews with stakeholders, including government officials, training institutions, and farmers. The study identifies challenges and successes in HQF training and provides recommendations for improvement from governmental, institutional, and farmer perspectives.

5.13.4.1 Main Influencing Factors of Training Performance

i. Government Level:

(a) Policy and System Implementation: Government policies and multi-level training systems are crucial for HQF development. Jiangxi Province has established a structured framework with clear training subjects, categories, and requirements. However, regional disparities and rigid quota systems hinder effectiveness.

(b) Resource Allocation: Comprehensive policies support HQF training through subsidies, curriculum development, and organizational setup, but fragmented resources across departments reduce efficiency.

ii. Training Institution Level:

(a) Preparation: Accurate trainee selection and demand analysis are essential but often compromised due to heavy quotas and time constraints.

(b) Training Design: Programs combining theory and practice, such as the "Million E-commerce Farmers" initiative, show high satisfaction. However, mismatched content and superficial field observations limit impact.

(c) Management: Standardized processes, like the "one person, one file" system, improve tracking and evaluation, but inconsistent follow-up services persist.

iii. Farmer Level:

(a) Psychological Characteristics: Farmers' perceived effectiveness, learning ability, and motivation significantly influence training outcomes. Misconceptions, such as viewing training as recreational or expecting immediate results, reduce engagement.

(b) Demographic Factors: Younger, educated farmers with larger operations benefit more, highlighting the need for targeted programs.

iv. Interactions Among Factors

Training performance is shaped by the interplay of policy support, institutional design, and farmer characteristics. Effective training requires aligning government policies with institutional capabilities and farmer needs, creating a feedback loop where improved outcomes enhance participation and satisfaction.

This research difference from previous studies. Previous studies only focused on analyzing the influencing factors of training effectiveness from the perspective of training institutions. This research, however, analyzes from three angles: the government, training institutions, and farmers. Previous studies did not include the investigation of farmers' training intentions. This research proposes the OTP theoretical model to accurately select farmers for training. Previous studies did not cover how farmers track the application of their knowledge and skills after training. This research proposes the "one person, one file" tracking and observation method.

CHAPTER 6

CONCLUSION AND RECOMMENDATION

6.1 Introduction

Performance evaluation is an important part of HQFT. The evaluation of the training performance of HQF is helpful for the training subjects to understand the achievement of the training objectives and the existing problems, and then improve the training program and improve the training quality. In order to effectively evaluate the training performance of HQF, this study discusses the objective orientation, standard development, practical application, influencing factors and optimization strategies of the training performance evaluation of HQF through theoretical and empirical analysis. The following is a mind map of the main influencing factors of the training performance of high-quality farmers and strategies for improving performance. (See Figure 6.1)



Figure 6.1: A mind map of the main influencing factors of the training performance of high-quality farmers and strategies for improving performance

6.2 Concluding Remarks

This study originated from the follow-up on the performance of the training of HQF in recent ten years in China, and explored "Why buliding the performance evaluation index system of HQF' training?" "How to construct the performance evaluation index system of HQFT?" "What is the performance of training HQF?" "What factors affect the training performance of HQF?" "And" How can it be optimized? ". To solve these problems, this study takes the investigation of the problems existing in the training performance evaluation of HQF in Jiangxi Province as the research entry point, follows the logic of "finding problems -- analyzing problems -- solving problems", adopts the research method

of combining qualitative and quantitative, and draws the following conclusions through theoretical research, empirical research and countermeasure research.

6.2.1 The Benefit-Oriented Multi-Index System: The Ideal Standard for the Performance Evaluation of HQF' Training

Government-led HQFT can improve individual knowledge and skills and develop comprehensively by empowering "people", so as to promote social and economic development. However, in practice, there is still a problem of "competing for efficiency" or "looking at benefits". The training of HQF still has the practice orientation of "efficiency first", overemphasizing "training task completion rate" or "training satisfaction", but ignoring "actual benefit of training". The gap between the "ideal" and "reality" of the training performance evaluation of HQF is mainly due to the lack of subject status of the trainee farmers in the training performance evaluation work. Therefore, the ideal evaluation standard of the training performance of HQF should be based on the trainee farmers as the evaluation subject, including both immediate performance indicators and delayed benefit indicators of multi-level index system.

In order to construct an ideal evaluation standard for the training performance of HQF, based on comprehensive literature analysis and empirical investigation, this study developed four first-level indicators, including training intention, training satisfaction, professional quality and training benefit. Voluntary participation in training, training organization, training facilities and services, training content and form, training teachers and tracking, training performance, change of career concept, improvement of professional ability, change of professional behavior, personal benefit, economic benefit, social benefit, and 12 secondary indicators constitute the index system.

6.2.2 Good Whole Performance and Hierarchical and Individual Differences

The research finds that the training performance of HQF in Jiangxi Province is generally good, but there is a certain degree of hierarchy in all dimensions. The specific performance is as follows: in one dimension, the training has the best performance on professional quality, and the training has the worst performance on training efficiency. At the level of satisfaction of the second-level dimension, the trainee farmers have the lowest satisfaction with "training teachers and tracking" and the highest satisfaction with "training facilities and services", which indicates that compared with the hard environment of training, the trainee farmers pay more attention to the soft environment of training. At the level of professional accomplishment, the performance of "change of professional concept" is better than that of "improvement of professional ability and change of professional behavior". The learning performance of HQFT is better than the transfer performance, which indicates that the training content is "useful and ineffective", and the phenomenon of "learning can not be applied". In terms of training benefits, the performance of training in terms of "social benefits" of trained farmers is not ideal, indicating that HQF, as the "leading geese" in rural areas, need to strengthen the "social responsibility consciousness" of driving ordinary farmers to get rich together.

In addition, the study found that there are individual differences in the training performance of HQF. The specific performance is: the training performance of HQF with different individual characteristics is different. From the perspective of individual demographic characteristics, there is a significant positive correlation between the education level and the training performance of HQF; Women's satisfaction with training was significantly higher than that of men. The training performance of HQF showed a

weakening trend with the increase of age. From the perspective of individual experience, the training frequency is positively correlated with the training performance of HQF; The training performance of farmers with work experience and farmers from "4-6" years of farming is the best. From the perspective of the characteristics of individual operation, training has the worst effect on the change of professional behavior and the promotion of radiation. For details, (see Table 6.1).

Table 6.1: Comparative Summary of Differences in Training Performance of HQF

Characteristic Dimension	Demographic characteristics			Experience Characteristics			Business characteristics		
	Gender	age	Culture Degree	Career experience	Time from farming	Number of training sessions	Size	Form	Income
Overall training performance	-	-	**			**			-
Training satisfaction (Level 1)	*	-	*			**			-
Training organization	-	-	*			**			-
Training facilities and services	-	-	-	-	-	*	-	-	-
Training content and form	-	-	-	-	-	*	-	-	-
Training teachers and tracking	*	-	*			**			-
Participation performance	*	-	*			**			-
Professionalism (Level 1)	-	-	**	-	-	**	-	-	-
Renewal of career philosophy	-	-	*	-	-	**	-	-	-
Professional development	-	-	**	-	-	**	-	-	-
Changes in professional behavior	*	-	* * *			* * *		*	-
Training benefits (Level 1)	-		**			**			-
Personal benefits	-	-	*	-	-	**	-	-	-
Economic benefits	-	-	**	-	-	**	-	-	-
Social benefits	*	-	* * *	-	-	* * *	-	*	-

Note: - Not significant * Significant ** Very significant *** Extremely significant

6.2.3 Multiple Factors Affecting the Training Performance of HQF

Through the investigation of the government, training institutions and the three main participants in the training of HQF, it is found that the factors affecting the training performance of HQF mainly include three levels: policy factors, training factors and individual factors of farmers. Among them, the policy factors mainly include the configuration and implementation of policy system, the construction of training system and the design of training projects. The training factors mainly include the preparation before the training, the training implementation process and the training management. The individual factors of farmers mainly include nine aspects: the individual characteristics of the trained farmers, family conditions and some basic demographic characteristics. The influence of policy factors on the training performance of HQF is mainly reflected in three aspects: "training intention", "training satisfaction" and "training benefit". The influence of training factors on the training performance of HQF is mainly reflected in four levels: "training intention", "training satisfaction", "professional quality" and "training benefit". The influence of self-factors on the training performance of HQF is mainly reflected in the three levels of "training intention", "professional quality" and "training benefit".

6.2.4 Establish a Systematic Support System of "Top-Level Design -- Organization Management -- Program Innovation".

Considering that it is difficult to change the individual characteristics of trained farmers in the process of practice, or the change of individual characteristics of trained farmers is also affected by external factors, this study focuses on the promotion of external factors to put forward strategies for improving the training performance of HQF. To

improve the training performance of HQF, it is necessary to establish a systematic support system from the top design at the macro level to the organization and management at the middle level to the program innovation at the micro level. The top-level design level includes: establishing diversified training market, improving training resource guarantee mechanism, perfecting policy support and optimizing project design; The organizational management level includes: formulating detailed student selection mechanism, improving information management system, and building comprehensive and scientific performance evaluation standards; The design and implementation level of the implementation plan includes the training plan design based on demand research and analysis before the training, the training supply implementation based on adult learning characteristics during the training, and the post-training tracking service based on multiple needs of personalities after the training.

6.3 Recommendation for Improving Training Performance

i. Systematic Top-Level Design:

   (a) Establish a competitive HQF training market with performance-based funding.

   (b) Develop accreditation standards for training institutions to ensure quality.

ii. Resource Guarantee Mechanisms:

   (a) Integrate training resources across regions and departments.

   (b) Create dedicated teacher positions and continuous professional development programs.

iii. Policy Support:

(a) Implement dual "education + skills" policies to address both short-term and long-term needs.

(b) Introduce vocational qualification systems with tiered incentives.

iv. Standardized Management:

(a) Improve trainee selection through grassroots outreach and eligibility criteria.

(b) Develop an integrated information system to track farmer data and training histories.

v. Scientific Implementation:

(a) Use participatory, experiential training methods tailored to adult learners.

(b) Segment training by industry, scale, and career stage for relevance.

Strengthen post-training follow-up services to support application of skills.

In conclusion, the study underscores the need for a holistic approach to HQF training, balancing policy, institutional, and individual factors. By addressing gaps in resource allocation, demand analysis, and farmer engagement, Jiangxi Province can enhance training performance, contributing to agricultural modernization and rural revitalization. Future efforts should focus on dynamic management, competency-based evaluations, and fostering a culture of continuous learning among farmers.

6.4 Research Innovation and Reflection

I will elaborate on the innovative aspects from three aspects and the shortcoming s of tstudy as well as its future development aspects.

6.4.1 Innovation of Research Perspective

This study takes the problems existing in the performance evaluation of HQF' training as the starting point, and then through synthesis.

Multidisciplinary theoretical knowledge examines the value pursuit of HQFT as a whole and finds the "ideal" and "reality".

On the basis of the gap between the two levels, it puts forward the necessity of constructing the performance evaluation index system of HQF' training with the trainee farmers as the main body. The disciplinary basis of the research and the perspective of analyzing the problem have certain uniqueness and innovation. Based on the perspective of adult pedagogy theory, this study studies the training performance of HQF, and creatively constructs a provincial HQFT performance evaluation index system that includes immediate performance and delayed performance through proven methods, providing a new research perspective and practical reference for the theoretical research and practical evaluation of the training performance evaluation of HQF.

6.4.2 The Innovation of Research Content

This study develops a provincial HQFT performance evaluation system with trainee farmers as primary evaluators, guided by Knowles' adult-learning theory and evaluation models. Through literature review, policy analysis, interviews, and expert consultation, we established an initial framework, then refined it using survey data analyzed via SPSS 26.0 (including item analysis, factor analysis, and reliability/validity tests) and weighted through AHP. The final system comprises four primary indicators (training intention, satisfaction, professional competence, and benefits) and twelve secondary indicators

covering participation willingness, training quality, skill improvement, and multidimensional benefits (personal, economic, and social).

Secondly, the factors influencing the performance evaluation of HQFT are preliminarily defined. Based on the research on the training performance of HQF, this study preliminarily summarizes three aspects including the configuration and implementation of policies and institutions, the design and implementation of training and the factors of trainees themselves, including the configuration and implementation of policies and institutions, the construction of training system and the design of training projects. The preparation before training, the implementation process of training and training management; The influencing factors of the training performance of HQF in seven aspects: the characteristics of the trained farmers and the demographic characteristics of the farmers' demography.

The third is to put forward the countermeasures and suggestions to optimize the training performance of HQF. This study is based on high-quality farmer training performance evaluation and factors analysis, this study proposes actionable optimization strategies for government and training institutions. For governments: (1) Systematically design HQFT frameworks through market diversification, competitive mechanisms, and dynamic management;(2) Establish performance safeguards via resource sharing, teacher certification/upgrading, and farm succession programs; (3) Develop project mechanisms balancing system construction and capacity building, covering standards development, trainee selection, information systems, and performance metrics. For training institutions:(1) Design demand-driven programs through pre-training research; (2) Implement adult-learning-appropriate training delivery; (3) Provide post-training tracking

services addressing diverse needs. These multi-level recommendations aim to enhance HQFT effectiveness through coordinated institutional improvements.

6.4.3 The Innovation of Research Methods

This research uses qualitative and quantitative, subjective and objective methods. First of all, in the stage of constructing the performance evaluation index system of HQFT, a variety of research methods such as literature method, interview method and expert method are comprehensively used to combine theory with practice. In order to make the question expression of the questionnaire conform to the characteristics of HQF as much as possible, this research mainly adopts qualitative interview and develops the prediction questionnaire through the three-level coding of rooted theory. Secondly, in the process of questionnaire preparation, this study strictly followed the process and method of questionnaire preparation, and went through the formation of consultation paper, prediction paper and final questionnaire. The initial questionnaire developed according to the index system was formed into a prediction paper through expert consultation, and then the formal questionnaire was obtained through testing, project analysis, factor analysis, etc., which was carried out in strict accordance with the scientific method of empirical research. Thirdly, after investigating the "breadth" of the training performance of HQF in Jiangxi Province, this study also studied the "depth". Taking Jiangxi Province as a case, the paper analyzes and concludes the influencing factors of the training performance of HQF from three aspects: government, training institutions and trained farmers.

6.5 Limitations of the Study and Recommendation for Future Studies

Although I think I have tried my best and spent a lot of time and energy, there are still some shortcomings in this research due to the limitations of subjective and objective

factors such as practice and my own ability. First, the research scope of this study is limited to the trainees of two training institutions in Jiangxi Province, which makes the collected data and factual information affect the promotion of the research conclusions to a certain extent. The promotion of the research conclusions in different regions requires theoretical and practical tests. Second, due to the acquisition of data, the influencing factor model of training performance of HQF proposed in this study has not passed further empirical verification, and the construction of a scientific and effective influencing factor model of training performance of HQF needs to go through many demonstrations and repeated revisions.

The effect of the training of HQF on the professionalization and professional development of farmers has already appeared. Therefore, the research on the performance evaluation of the training of HQF is not over. In the future research, we need to further strengthen in the following two aspects: First, expand the scope of empirical research. Large-scale investigation can not only test and revise the performance evaluation index system of HQF' training, but also make it more universal; Moreover, it is easier to find the problems existing in the training of HQF, which is of great significance for putting forward targeted suggestions to improve the training effectiveness. The second is to further improve the model of factors affecting the training performance of HQF. As the factors affecting the training performance of HQF involve a lot of content, there may be overlap and omissions among indicators, it is necessary to further modify the performance influencing factor model through various methods, so as to continuously refine and improve it.

Although this research has come to an end for the time being, the research on the performance evaluation of the training of HQF is only the tip of the iceberg on the topic of the cultivation of HQF. Just as the end of one study is also the beginning of another study,

there is still a long way to go in the research on the cultivation of HQF. I sincerely hope that the research I insist on can contribute to the cultivation of HQF.

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APPENDICES

Appendix A: Journal Publications

1. Cheng, S. D., Wong, S. K., & Khalid, Z. (2025). Performanc evaluation of HQFT-survey data of farmers'traning in Jiangxi province, China. *Asian Journal of Agriculture and Rural Development.*
2. Cheng, S. D., Wong, S. K., & Khalid, Z. (2024). Influencing factors and countermeasures of training willingness of HQF in Jiangxi, China. *Edelwerss Applied and Technology*. 8, 4.

Appendix B: Questionnaire survey forms

1. Jiangxi Province HQFT Performance Evaluation Questionnaire.

2. Outline of interviews with high-quality farmers Guidance

3. Outline of Interviews with Managers of HQFT Organizations Instruction

4. Quality Farmer Training Effect Evaluation Index System Weigh Questionnaire

Appendix B1:

Jiangxi Province HQFT Performance orestry/grazing/fishing farm? [Fill in the blank] *

_____

2. Your gender: [single choice] *

○ MaleEvaluation Questionnaire

Dear HQF,

Hello! In order to deeply understand the current situation and performance of the cultivation of HQF, explore the influencing factors of the cultivation performance of HQF, and enhance the pertinence and effectiveness of the training of HQF, this questionnaire is specially compiled. This questionnaire is an anonymous survey, the survey results are only used for research, your personal information is strictly confidential, please feel free to answer. There is no right or wrong answer to this questionnaire. Please read each question carefully and make a choice according to your actual situation. Thank you for your participation!

Note: 1. The survey objects of this study are HQF who have participated in training, including large professional households, family farmers, backbone cooperatives, and heads of agricultural enterprises. 2. The training in this study includes classroom training, outdoor observation, on-site teaching, tracking guidance, online learning and other forms.

The First Part Is The Basic Situation Investigation

Please tick √ before the option that best suits your situation (except fill in the blank in question 1)

1. Which city/county in Jiangxi Province is your farming/f

○ Female

3. Your age: [single choice] *

○ Age 29 and below

○ Age 30-39 years old

○ Age 40-49

○ Age 50-59

○ Age 60 and above

4. Your education level: [single choice] *

○ Primary school and below

○ Middle School

○ High School

○ Technical Secondary School

○ Junior College

○ Undergraduate

○ Master's Degree

○ Doctor

5. Your main work experience before entering agriculture is (multiple choice) : [Single choice] *

○ Ordinary farmers

○ Agricultural workers, agricultural employees and other agricultural professional skills

○ Agricultural machine operators and other social agricultural service personnel

○ Village Cadres (including village officials)

○ Migrant Workers

○ Middle and senior managers

○ Soldiers, teachers, doctors, engineers and lawyers

○ Individual investors

○ College students -

○ Others

6. The time you have been engaged in agriculture so far is: [single choice] *

○3 years and below

○4-6 years

○7-9 years

○10 to 12 years

○13-15 years

○16 years or more

7. Your specific position: [Multiple choice] *

○ Big farmers

○ Farmers (family farmers, farm owners)

○ Chairman (leader) of cooperatives

○ Heads of agricultural companies

○ Part-time farmers

○ Agricultural Employees

○ Agricultural technicians

○ Others

8. The scale of your current business (unit: mu or head) : [single choice] *

○under 50

○50-100

○101-300

○301-500

○501-1000

○above 1000

9. Your annual income in agriculture last year is: [single choice] *

○ 10,000 and below

○ 110-200,000

○ 210,000 to 300,000

○ 310,000-400,000

○ 410,000-500,000

○ 500,000 and above

10. The number of times you have participated in relevant vocational training in the past three years: [single choice] *

○0 times

○1-2 times

○3-5 times

○ More than 5 times

The Second Part Is Before Training

Investigation on Training Willingness of HQF

Please choose based on how you actually feel, from unlikely to very likely, on a scale of 1 to 10.

11. Are you very willing to participate in this HQFT? [Multiple choice]

It's not impossible ○1 ○2 ○3 ○4 ○5 ○6 ○7 ○8 ○9 ○10 It's very impossible

12. Is the main reason for your participation in HQFT encouraged by government policies? [Multiple choice] *

It's not impossible ○1 ○2 ○3 ○4 ○5 ○6 ○7 ○8 ○9 ○10 It's very impossible

13. Family members are very supportive of participating in HQFT? [Multiple choice] *

It's not impossible ○1 ○2 ○3 ○4 ○5 ○6 ○7 ○8 ○9 ○10 It's very impossible

14. Can you participate in activities organized by HQF on time and never be late or absent from class? [Multiple choice]

It's not impossible ○1 ○2 ○3 ○4 ○5 ○6 ○7 ○8 ○9 ○10 It's very impossible

The Third Part Is The Satisfaction Survey In The Training Process

Please choose according to your actual feelings, from Very inconsistent to Very consistent, on a scale of 1 to 10.

15. What is your comment on this content? [Matrix scale question] *

Very inconsistent ○1 ○2 ○3 ○4 ○5 ○6 ○7 ○8 ○9 ○10 Very inconsistent

The training content is the○1 ○2 ○3 ○4 ○5 ○6 ○7 ○8 ○9 ○10

The training content is easy to understand. ○1 ○2 ○3 ○4 ○5 ○6 ○7 ○8 ○9 ○10

Training content is more practical. o1 ○2 ○3 ○4 ○5 ○6 ○7 ○8 ○9 ○10

The training content is relatively new. ○1 ○2 ○3 ○4 ○5 ○6 ○7 ○8 ○9 ○10

The training content has a certain systematic. ○1 ○2 ○3 ○4 ○5 ○6 ○7 ○8 ○9 ○10

16. What is your comment on the training teachers? [Matrix scale question] *

I like the classroom teaching style that the teacher tells me to listen to. ○1 ○2 ○3 ○4 ○5 ○6 ○7 ○8 ○9 ○10

Like the teacher talk about the case analysis. ○1 ○2 ○3 ○4 ○5 ○6 ○7 ○8 ○9 ○10

Like the teacher organized us to exchange and discuss. o1 ○2 ○3 ○4 ○5 ○6 ○7 ○8 ○9 ○10

Like to organize us to go out to watch and learn. ○1 ○2 ○3 ○4 ○5 ○6 ○7 ○8 ○9 ○10

Training teachers have strong interaction with students in the classroom. ○1 ○2 ○3 ○4 ○5 ○6 ○7 ○8 ○9 ○10

Training teachers can go to the site to teach diagnosis. ○1 ○2 ○3 ○4 ○5 ○6 ○7 ○8 ○9 ○10

The practical experience of training teachers is very rich. ○1 ○2 ○3 ○4 ○5 ○6 ○7 ○8 ○9 ○10

17. How do you evaluate the training service and environment? [Matrix scale question] *

Very bad match. 1,2, 3, 4, 5, 6, 7, 8, 9 ,10 Very good match

Training service attentive and meticulous. ○1 ○2 ○3 ○4 ○5 ○6 ○7 ○8 ○9 ○10

The training facilities and equipment are advanced and complete. ○1 ○2 ○3 ○4 ○5 ○6 ○7 ○8 ○9 ○10

Training environment elegant. ○1 ○2 ○3 ○4 ○5 ○6 ○7 ○8 ○9 ○10

Training transportation and accommodation arrangements are very good. ○1 ○2 ○3 ○4 ○5 ○6 ○7 ○8 ○9 ○10

18. What is your evaluation of the post-training tracking service? [Matrix scale question]

Very bad match. 1, 2, 3, 4, 5, 6, 7, 8, 9,10 Very good match

This training can solve the confusion in my work. ○1 ○2 ○3 ○4 ○5 ○6 ○7 ○8 ○9 ○10

After the training, a technical expert followed me through the whole process. ○1 ○2 ○3 ○4 ○5 ○6 ○7 ○8 ○9 ○10

After the training, there are technical consulting services all year round, and I can solve any problems at any time. ○1 ○2 ○3 ○4 ○5 ○6 ○7 ○8 ○9 ○10

At the end of the training, experts will provide guidance on production and management. ○1 ○2 ○3 ○4 ○5 ○6 ○7 ○8 ○9 ○10

The Fourth Part Is The Performance Survey After Training

Please choose according to your actual situation, from Very inconsistent to Very consistent , on a scale of 1 to 10.

19. How does training change my ideology? [Matrix scale question] *

Very inconsistent ○1 ○2 ○3 ○4 ○5 ○6 ○7 ○8 ○9 ○10 Very inconsistent

The training changed my concept of production and management, and I understood the importance of using science and technology to develop agriculture. ○1 ○2 ○3 ○4 ○5 ○6 ○7 ○8 ○9 ○10

The training strengthened my concept of using the Internet to help agricultural production/management/sales. ○1 ○2 ○3 ○4 ○5 ○6 ○7 ○8 ○9 ○10

The training enhanced my awareness of brand building. ○1 ○2 ○3 ○4 ○5 ○6 ○7 ○8 ○9 ○10

After the training, I pay more attention to the green and organic concept. ○1 ○2 ○3 ○4 ○5 ○6 ○7 ○8 ○9 ○10

After the training, I paid more attention to the quality and safety of agricultural products. ○1 ○2 ○3 ○4 ○5 ○6 ○7 ○8 ○9 ○10

After the training, I pay more attention to energy saving and weight loss in production . ○1 ○2 ○3 ○4 ○5 ○6 ○7 ○8 ○9 ○10

After the training, more attention was paid to the protection of agricultural production environment. ○1 ○2 ○3 ○4 ○5 ○6 ○7 ○8 ○9 ○10

20. Has the training improved my knowledge and ability? [Matrix scale question] *

Very bad match.1, 2, 3, 4, 5, 6, 7, 8, 9,10 Very good match

Improved knowledge and skills in farm/forest/pastoral/fishery management. ○1 ○2 ○3 ○4 ○5 ○6 ○7 ○8 ○9 ○10

Improved knowledge and skills in agricultural project application and implementation. ○1 ○2 ○3 ○4 ○5 ○6 ○7 ○8 ○9 ○10

Enhanced the ability of farm planning and development. ○1 ○2 ○3 ○4 ○5 ○6 ○7 ○8 ○9 ○10

Enhance the development of agricultural products market sales ability. ○1 ○2 ○3 ○4 ○5 ○6 ○7 ○8 ○9 ○10

Improved my ability to communicate with experts/clients/peers. ○1 ○2 ○3 ○4 ○5 ○6 ○7 ○8 ○9 ○10

Improved my ability to find business opportunities. ○1 ○2 ○3 ○4 ○5 ○6 ○7 ○8 ○9 ○10

Improved my risk aversion. ○1 ○2 ○3 ○4 ○5 ○6 ○7 ○8 ○9 ○10

Improved my decision-making ability. ○1 ○2 ○3 ○4 ○5 ○6 ○7 ○8 ○9 ○10

21. Does training improve economic efficiency? [Matrix scale question] *

Very bad match. 1, 2, 3, 4, 5, 6, 7, 8, 9 ,10 Very good match

Increased production of agricultural/forestry/pastoral/fishery products. ○1 ○2 ○3 ○4 ○5 ○6 ○7 ○8 ○9 ○10

The quality of agricultural/forestry/livestock/fishery products has been improved. ○1 ○2 ○3 ○4 ○5 ○6 ○7 ○8 ○9 ○10

Increased household farm income. ○1 ○2 ○3 ○4 ○5 ○6 ○7 ○8 ○9 ○10

Reduced production cost. ○1 ○2 ○3 ○4 ○5 ○6 ○7 ○8 ○9 ○10

A new variety/new technology/new model is used. ○1 ○2 ○3 ○4 ○5 ○6 ○7 ○8 ○9 ○10

The size of the farm has been adjusted according to the actual situation. ○1 ○2 ○3 ○4 ○5 ○6 ○7 ○8 ○9 ○10

According to the actual situation, the seed/nutrition product. ○1 ○2 ○3 ○4 ○5 ○6 ○7 ○8 ○9 ○10

Changed the sales model, for example, the addition of online sales. ○1 ○2 ○3 ○4 ○5 ○6 ○7 ○8 ○9 ○10

They learned to ensure the quality of agricultural products by establishing standards or using monitoring and tracking information. ○1 ○2 ○3 ○4 ○5 ○6 ○7 ○8 ○9 ○10

Extended my chain of. ○1 ○2 ○3 ○4 ○5 ○6 ○7 ○8 ○9 ○10

22. Post-training spillover benefits? [Matrix scale question] *

Very bad match.1, 2, 3, 4, 5, 6, 7, 8, 9, 10 Very good match

The training has broadened my horizons and ideas. ○1 ○2 ○3 ○4 ○5 ○6 ○7 ○8 ○9 ○10

The training allowed me to meet experts and professors from all walks of life. ○1 ○2 ○3 ○4 ○5 ○6 ○7 ○8 ○9 ○10

The training introduced me to peers who are doing well. ○1 ○2 ○3 ○4 ○5 ○6 ○7 ○8 ○9 ○10

The training broadened my customer base. ○1 ○2 ○3 ○4 ○5 ○6 ○7 ○8 ○9 ○10

The training helped me to join an agricultural industry organization or association. ○1 ○2 ○3 ○4 ○5 ○6 ○7 ○8 ○9 ○10

Through the training, I have obtained certificates, such as completion certificate/skill level certificate/vocational qualification certificate, etc. ○1 ○2 ○3 ○4 ○5 ○6 ○7 ○8 ○9 ○10

Use of training to reduce time costs. ○1 ○2 ○3 ○4 ○5 ○6 ○7 ○8 ○9 ○10

23. Does post-training radiation drive benefits? [Matrix scale question] *

Very bad match.1, 2, 3, 4, 5, 6, 7, 8, 9, 10 Very good match

After the training, I led more and more small farmers to increase their income. ○1 ○2 ○3 ○4 ○5 ○6 ○7 ○8 ○9 ○10

After the training, I was able to provide relevant agricultural technical guidance to the surrounding small farmers. ○1 ○2 ○3 ○4 ○5 ○6 ○7 ○8 ○9 ○10

After the training, the new products/new technologies/new models I will learn will be promoted and applied in the surrounding small farmers. ○1 ○2 ○3 ○4 ○5 ○6 ○7 ○8 ○9 ○10

After the training, I brought cutting-edge agricultural information to the small farmers around. ○1 ○2 ○3 ○4 ○5 ○6 ○7 ○8 ○9 ○10

Appendix B2:

Outline of interviews with high-quality farmers Guidance

Dear HQF,

Hello! In order to build a scientific and reasonable performance evaluation index system of HQFT, understand the status quo of HQFT, provide more targeted suggestions for the design of HQFT projects and programs, and really give full play to the role of training in the development of farmer professionalism, this interview is designed.

Please talk about your experience and actual harvest of training according to your situation. Thank ou for your help and participation!

First, basic information

Time of interview: Location:

Gender: Age:

Education:

Whether you are a village cadre/Party member:

Number of years from farming:

Occupation before farming:

Main industries and scale:

Number of training:

Second, specific issues

1. What kind of HQFT do you like best? Why? (Government/Agricultural university/agricultural vocational school/agricultural research institution/agricultural organization...) Training organized by different bodies, Agricultural practical technology training, farmer training, industry training, management training, Technical training, academic training...

2. What do you think is the most urgent problem to be solved in practical work?

   What kind of training method do you think is the most effective? Why? Please tell me about the training that impresses you most.

3. Do you think the training content is relevant to your job? Could you tell me more about it?

4. Are you able to participate in the training with questions and goals? How do you prepare for the training?

5. What do you hope to gain from the training? In what areas have you improved or improved? What do you think is the biggest gain from participating in the training?

6. Is there a big difference between the training you attended and your expectation? Please give some examples.

7. After attending the training, what aspects do you think are unsatisfactory?

8. Can you apply what you learned in the training to your work? If so, what changes do you see for yourself and your farm/co-op/company?

9. What problems do you think exist in the current training of HQF?

10. What are your suggestions for improving the training performance of HQF?

Appendix B3:

Outline of Interviews With Managers of HQFT Organizations Instruction

Dear teacher,

Hello! This interview is designed to explore the factors affecting the effectiveness of training for HQF and put forward targeted improvement strategies and policy suggestions. Based on your actual experience in organizing and managing training, please talk about your thoughts on the factors affecting the effectiveness of training for HQF and improving strategies. Thank you for your help and participation!

First, basic information

Interview Time: Place: Name of the interviewee:

Gender: Education:

Age: Job Title:

Years of work: Main work:

Second, specific issues

1. What types and levels of HQFT tasks do you undertake? What are the specific objectives of each training?

2. How does your unit organize HQFT? Can you tell me more about it?

3. What is the design of your organization's HQFT program?

4. What kind of coaching or communication activities have been conducted after the training?

5. Does your organization organize training performance evaluation? When is it usually organized?

6. What do you think of the effect of the HQFT organized by your organization? From what sources?

7. What measures have you taken to improve the training effect? What are the successful experiences?

8. Has your organization formulated policies and systems to ensure the orderly and effective implementation and effectiveness of training? If yes, what policies and systems have been put in place?

9. What do you think is the biggest difficulty your organization has encountered in carrying out HQFT? What is the most salient problem?

10. In your opinion, what are the key factors affecting the training effect of HQF? Please elaborate.

11. Tell me about your understanding of on-site observation and tracking service? Could you tell me in detail how your organization carried out these two tasks?

12. What do you think should be done to improve the effectiveness of training HQF?

Appendix B4:

Quality Farmer Training Effect Evaluation Index System Weigh Questionnaire

Dear experts,

Hello! One of the research contents of the performance evaluation of HQFT is to establish a scientific and reasonable evaluation index system to measure the advantages and disadvantages of HQFT, so as to provide guidance for the follow-up training of HQF. The purpose of this questionnaire is to determine the weight of each index in the evaluation index system. The survey objects of this round of questionnaire are experts engaged in the research and training of HQF, and the survey results will be the main basis for evaluating the weight of the index system. Please rate the listed indicators in order of importance according to your experience. Thank you for your support!

Rating Notes:

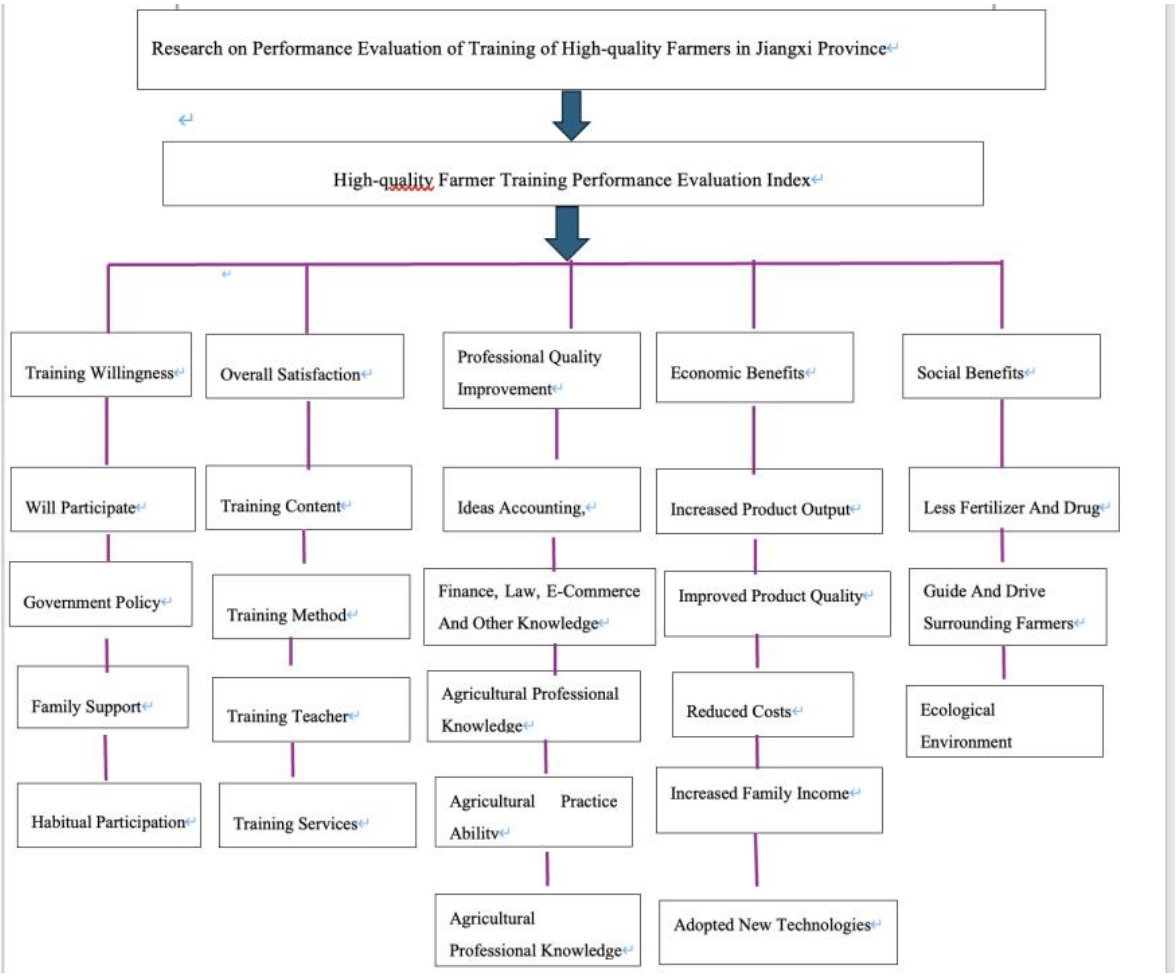
Please follow the 1-9 scale method (I represents the row, j represents the column, the specific meaning of the score is shown in Table 1)

The following table on the upper triangle area (that is, the white area) to the index pairwise score.

Table 1-9 Scale meaning

Scale U	**Meaning**
1	The I factor is as important as the j factor
3	The I factor is slightly more important than the j factor
5	I factor is more important than j factor
7	I factor is much more important than j factor
9	The I factor is absolutely more important than the j factor
2,4,6,8,	The attitude of the state in between the two judgments above
Counting backwards	If the I factor is compared to the j factor,

	the result is 1/U



1. Comparison of first-order dimensions of training performance

	Training Willingness	Overall satisfaction	Professionalism	Economic effectiveness	Social benefits
Willingness to train	1				
Overall satisfaction		1			
Professionalism			1		
Economic benefits				1	
Social benefits					1

2. A second-order dimension comparison of training intention

	I am very willing to add	Family support	Attend all training activities on time	Government policies to encourage
I am very willing to add	1			
Family support		1		
Attend all training activities on time			1	
Government policy encouragement				1

3. A second-order dimension comparison of overall satisfaction with training

	Training Content	Training method	Training Teachers	Training services
Training content	1			
Training methods		1		
Train teachers			1	
Training Services				1

4. On the second dimension of professional literacy comparison

	Promotion of Thought and Understanding	Knowledge of accounting, finance, law, e-commerce	Agricultural expertise	Agricultural practice ability
Improvement of thought and understanding	1			
Knowledge of accounting, finance, law, e-commerce		1		
Expertise			1	
Practical ability				1

5. Second dimension comparison of economic benefits

	Product yield plus	Product quality improvement	Cost reduction	Increased family income	Adopted new technologies
Product yield plus	1				
Product quality improvement		1			
Cost reduction			1		
Increased family income				1	
Adopted new technologies					1

6. Second dimension comparison on social benefits

	Less drugs for weight loss	Guide and drive surrounding farmers	Ecological environment improvement
Less medicine for weight loss	1		
Guide and drive surrounding farmers		1	
Ecological environment improvement			1