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Cooperative Learning through Education and Training in Anhui Province China

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Abstract: The purpose of this study is to investigate the role of cooperative learning in education and training within farmers' cooperatives in Anhui Province, China, and to assess its impact on their development. This research holds significant implications for enhancing the operational effectiveness of farmers' cooperatives, refining the cooperative education framework in higher education institutions, and advancing rural modernization initiatives. Utilizing a quantitative research methodology, the research analyzed the basic characteristics, participation levels in higher education training, and overall effectiveness of 157 farmers' cooperatives. A descriptive survey design was employed, targeting formal cooperative members, with data collected through a custom-designed questionnaire. The findings reveal that over two-thirds of the cooperatives have received training from universities, focusing primarily on marketing strategies, policy compliance, and agricultural production techniques. Approximately 70% of respondents acknowledged that university training significantly contributed to the development of their cooperatives; however, one-third expressed that its impact was limited. The study identified several challenges faced by cooperatives, including deficiencies in technical skills, inadequate policy support, and insufficient management capabilities. Furthermore, it was noted that university training often lacks continuity and relevance to the evolving needs of the cooperatives. To foster sustainable development within these farmer cooperatives, we recommend enhancing the relevance of training content, innovating training delivery methods, and promoting robust government policy support alongside increased financial investment. This study serves as a crucial reference for achieving rural modernization and improving farmers' income levels through effective cooperative strategies.

Keywords: Farmer Cooperatives; Educational Training; Development Impact; Policy Support.

1. Introduction

The current state of cooperative education in China is one of gradual development. Agricultural and financial higher education institutions once offered cooperative-related programs, but these were discontinued for a period of one to two decades. Currently, only Qingdao Agricultural University has established a systematic cooperative college, even after the enactment of the "Law of the People's Republic of China on Professional Farmer Cooperatives." The vast developmental space and significant talent demand in China's cooperative education sector forms the market foundation for its development. Compared to international standards, cooperative education in China is almost non-existent, making the establishment of a cooperative education system in the country both necessary and urgent. Considering the organizational nature of cooperatives, their fundamental principles, the development of cooperatives abroad, and the characteristics of cooperative human capital, it is imperative to establish a cooperative education system in China.

2. Literature Review

Farmer cooperatives are a crucial part of agricultural production worldwide, subject to many influences including the degree to which the participants are educated. As cooperatives continue to change, the level and kind of education held by the members becomes ever more important for their effective operation and growth. First and foremost, it is of paramount importance to underline the importance of education in farmer cooperatives. Those who are undereducated may have issues with comprehending the value of safe farming practices or the risks that can occur in relation to food safety (Luo et al., 2022). However, it is the reverse for those who are well-educated and experienced, since they will be able to obtain detailed knowledge and techniques on this subject matter from many places (C. Ji et al., 2019). The government should indeed prioritize the hiring of professional workers, develop systematic training programs for women co-op members, and to promote modern agricultural techniques in the region to empower women in agriculture. Initiatives such as farmer field schools and targeted training programmes have shown significant improvements in women's knowledge and decision-making power, resulting in increased household income and respect within communities (Ajeigbe et al., 2013).

Another point to consider is that households headed by individuals with higher education levels may be particularly inclined to participate in these cooperatives. They may be better equipped to recognize and appreciate the significant benefits of cooperation in agriculture, as described earlier (Mojo et al., 2017). Therefore, it is crucial for both the government and society as a whole to concentrate on supporting and fostering cooperatives in the future. Simultaneously, the transformation of the ideological concept of participative farming from being backward (Guilian & Yang, 2015). Specifically, for each additional training session within a cooperative, increased likelihood of members being "very willing" to adopt technology (Luo et al., 2022b).

Furthermore, the educational level significantly impacts farmers' decisions to join agricultural cooperatives (Y. Zhang et al., 2019). Participation in cooperatives can enhance their net income and educational levels (M. Wang et al., 2021). Education is the lifeline of cooperatives worldwide

(Wadsworth, 2011). Well-educated directors and CEOs, who recognize the uniqueness of cooperative governance, are essential (Hakelius, 2018).

Finally, the school and farmer cooperatives are establishing useful co-educational systems. Setting up a good education training system for professional farmer cooperatives can truly provide a practical way for China to resolve the "three rural issues," and profoundly build a harmonious society (Ya-Wen, 2010). In order to ensure the sustainable, stable and healthy development of farmers' specialized cooperatives, it is essential to strengthen human resources in rural areas through the training of legal and market-conscious managers. The phenomenon of "shell" cooperatives in China highlights the need for an effective regulatory and policy framework, as evidenced by the positive impact of model cooperatives in curbing this problem (S. Li et al., 2024). Dusaeva (2023) said that an integrated strategy, including training, policy support and resource allocation, to be essential for the long-term survival of these cooperatives. Agricultural cooperatives play a vital role in rural economies, providing employment opportunities and fostering community ties, so there is a need for a structured support system that is aligned with the Sustainable Development Goals(Moral & Uclés, 2022).

In addition, farmers who hold a college degree or an academic level of education and professionals are better suited to understand and respond to marketing changes, make more rational and scientific decisions, and lead co-operatives towards greater prosperity and success (Asante-Addo et al., 2017). Moreover, the educational level of the farmers also affects their credit requirements from cooperatives and has an essential impact on the cooperatives' economic activities and growth (Urang, 2009).

To sum up, the degree of education plays a crucial role in the establishment and improvement of farmer cooperatives. During the founding and development phase of farmer cooperatives, it is essential to value the schooling and training of farmers. By upgrading the education and professional skills of farmers, the operational efficiency and profit-making capacity of farmer cooperatives can be ensured. Meanwhile, universities and governments should increase their input and support, and provide educational and training courses, so that farmers can upgrade their schooling and professional skills to better engage in the resisting and managing work of farmer cooperatives, and promote the sustainable and healthy development of farmer cooperatives.

3. Theoretical and Conceptual Framework

Cooperative education theory

Cooperative education is the lifeline of cooperative development and plays an important role in improving the quality of cooperative members and enhancing the competitiveness of cooperatives. This study takes cooperative education theory as its guide and explores the current situation and effectiveness of educational training provided by universities to farmers' cooperatives.

Industry-university cooperation theory

The theory of university-industry cooperation emphasizes that cooperation between universities and enterprises can promote knowledge transfer and technological innovation. This study will analyze the modes and mechanisms of cooperation between universities and farmers' cooperatives in education and training.

Based on the above theories, this study constructs a conceptual model of a multi-party collaborative training mechanism of "government guidance, university leadership, and cooperative participation". The model is guaranteed by government policy support, with universities as the main body to carry out training, cooperatives as the demand-oriented party, and optimizing the training content and methods to improve the organizational level and market competitiveness of cooperatives, promote the integrated development of rural industries, and provide talent support for rural revitalization.

Significance of the Study

This study is of great significance for promoting the development of farmer cooperatives, improving the cooperative education system in universities, and promoting rural modernization. For government decision-making, this study provides a reference for formulating relevant policies by investigating the current situation and effectiveness of cooperative participation in university training. The government can increase investment in cooperative education and training, guide universities to actively participate in cooperative training, and improve the professional quality and comprehensive ability of cooperative members.

To many universities the findings suggest the present state of university training which is among other things irrelevant and unrealistic. Universities can further enhance the quality of training content and training methods, fully scramble their own advantages, and facilitate the training of more targeted services for cooperatives. As for cooperatives, this study reveals that university training plays an important role on enhancing market development capabilities and the levels of production technology of cooperatives. This can be used by cooperatives to pay attention to the education and training, vigorously participate in the training activities organized by universities, enhance personal development capabilities.

From the point of view of the development of rural, promoting the educational training for cooperatives through college and University is able to improve the mixed development of the primary, secondary and tertiary industry in the rural area, which make support for the talents of the rural revitalization and promote the modernization of agriculture and rural area. For researchers, this study makes up the existing research void of a comprehensive analysis of the contemporary state and efficacy of cooperative education college or universities, and offers fundamental information and knowledge for subsequent empirical research.

Hence, this study holds theoretical and practical implications for enhancing the government, cooperatives, and university collaboration and implementing sustained training to develop high-quality cooperatives.

Objectives of the Study

The main objective of this study is to explore, through quantitative research methods, whether specialized educational training by universities in the Anhui region has significantly impacted the development of farmer cooperatives. This involves the following specific objectives:

1. To investigate the basic characteristics of cooperative members
2. To determine the basic involvement of cooperatives in higher education and training
3. To evaluate the effectiveness of university training
4. To define the main problems of university training for farmers' cooperatives
5. To determine suggestions for improving university

education and training on cooperatives

4. Methodology

This paper aims to explore, through quantitative research, whether specialized educational training by universities in the Anhui region has impacted the development of farmer cooperatives, which can be considered a form of cooperative education between enterprises and schools. As China's rural modernization progresses, farmer cooperatives, as a new form of agricultural business organization, play a crucial role in enhancing farmers' production skills and increasing their income. However, due to a lack of professional knowledge and skills, the development of farmer cooperatives faces many challenges. Therefore, strengthening the educational training of farmer cooperatives and promoting cooperative education between schools and cooperatives is particularly important.

Study Design

Quantitative descriptive research design was used in this study. The reason for this research design is that numerical data can be collected and analyzed to describe and summarize specific characteristics. Predefined response options were used in this study to make the data easy to quantify and analyze statistically. Data analysis mainly involves descriptive statistics such as frequency distributions etc. quantitative descriptive survey is done by statistically analyzing the questionnaire data in order to get the desired purpose of the study.

Population of the Study

This survey adopted a purposive random sampling design. The target population was members of the Chinese farmer cooperatives where 157 cooperatives of Anhui Province were considered to be a sample. The research participants were: formal members of the cooperative and must be at least 18 years old, actively involved in cooperative's activities, has adequate understanding, and as such willing to respond to the questionnaire. The exclusion criteria include non-beneficiaries of educational training and those who are unwilling to participate in the research. The number of samples was therefore decided based on elements like statistical need, research limitation.

In order to select participants and increase the representativeness of the sample, the present study used phone announcements and "Question Star" software to screen and share questionnaires. As such, in order to maintain the data's truthfulness and validity, the following strict authentication measures have been taken to ensure that the respondents of the questionnaire are accurate through the cooperative's official phone number and by restricting the population in "Question Star".

These sampling, personnel and authentication considerations are intended to increase the generalizability of the sample and the validity and stability of the data on which the research is based. To ensure the quality of the study data and the voluntariness of the participants, a number of criteria were set, The exclusion criteria of this study mainly consider two aspects: First, cooperative members without university training will not be included in the research. Secondly, members who are not willing to participate in this study are also excluded.

Data Gathering Tools

The primary data collection tool had been survey questionnaires. The "Anhui Province Farmer Cooperative Education Survey Questionnaire" was designed, including 20 items. The questionnaire items were developed by the researcher based on an extensive review of relevant literature in the field of cooperative farmer education and training effectiveness. A part of the items was adapted from existing validated scales and another part of the items were specially designed for the study. The questionnaire was subjected to rigorous expert review to ensure its validity and reliability. The researcher made necessary adjustments based on the feedback received to improve the validity of the questionnaire in achieving the objectives of the study.

Data Gathering Procedures

Regarding the data collection for this study, Questionnaire Star software was used for information gathering. Researchers provide a detailed explanation of the research situation to potential participants before the survey, emphasizing the principle of voluntary participation. Participants are required to read and sign an informed consent form, confirm their understanding of the research content, and voluntarily participate. Only those who sign the consent form will be included in the final sample. The entire process follows research ethics and respects the rights of participants.

The survey was conducted through the online tool known as Questionnaire Star which allowed the farmer cooperatives to easily fill in the questionnaire. I advertised it to the cooperatives and called possible respondents to fill it out, so that more people would be informed and involved in the questionnaire. To enhance the response rate, the researcher provided a time limit to fill the questionnaire and used phone and SMS to remind the members of the cooperatives to fill the forms before the set time.

The total time of data collection was two weeks, and in order to exclude any possible errors in filling the questionnaire we monitored the process frequently. The collected data was valid and thus the SPSSAU statistical software was used to analyze the basic demographics of the farmers' cooperatives that received university education and training and to assess its impact.

A number of measures are in place to ensure the anonymity of participants and the confidentiality of data. The questionnaire does not collect any personally identifiable information, and data analysis and reporting only present summary statistical results. All raw data is encrypted and securely stored, with access restricted to researchers. We only conduct investigations with the informed consent of participants and guarantee their right to withdraw at any time. No information that could identify a particular person or organization will appear in the research report. Through these measures, we effectively protect the privacy of participants.

Treatment of Data

This study mainly uses descriptive statistical methods to summarize and analyze the questionnaire survey data. The specific processing methods include the following aspects: First, frequency statistics and percentage analysis are performed on the basic characteristics of the respondents and cooperatives (such as gender, age, education level, and the time the cooperative was established) to understand the basic composition of the sample. Second, frequency statistics and percentage analysis are performed on the basic situation of cooperative participation in college training (such as whether to participate, training content, training format, etc.) to understand the overall situation of training participation. Third, frequency analysis and percentage statistics were used to analyze the respondents' evaluation of the importance, effectiveness, and satisfaction of college training to

understand the overall effectiveness of the training. In addition, frequency statistics and percentage analysis were also conducted on the main problems with college training and suggestions for future college cooperative education and training.

This study used SPSSAU statistical software to process the data. Descriptive statistical methods such as frequency analysis and percentage statistics were mainly used, and inferential statistical analysis was not performed. The data analysis focused mainly on the frequency and percentage of each option to reflect the overall distribution characteristics of the sample. Through the above data processing methods, this study aims to comprehensively understand the basic situation, effectiveness evaluation and existing problems of farmers' cooperatives in Anhui Province participating in college education and training, and provide a reference for improving the college cooperative education and training mechanism.

Ethical Considerations

In conducting this research, the ethical principles of research were respected to the greatest extent. All participants were informed about the nature and purpose of the study and their consent was obtained. Confidentiality and anonymity of participants were ensured.

This study collected and processed data based on the ethical standards and considerations of the study. Ethical issues were considered during the data collection process. These principles included voluntary participation, informed consent, anonymity, confidentiality, potential harm, and outcome communication. Participants were informed of their right to withdraw from the study at any time. They had the option to withdraw their data by a specified date, after which it was anonymized and aggregated. Data was retained only for as long as needed for the study, after which it was securely destroyed.

When conducting research, the survey questionnaire followed the research protocol; All of these were appropriately coordinated. The researchers distributed the questionnaire to the selected subjects in Anhui region through online data collection platforms to fully inform them of the research content and participation. Similarly, researchers required respondents to voluntarily participate, rather than forcing them to answer the questionnaire, and did not prevent them from withdrawing their answers. In addition, the identities of the study participants were kept confidential. Anyway, neither the researchers nor the respondents were harmed; The dignity of researchers and participants is respected, and policies for conducting research were protected.

To protect participants' privacy and data security, several measures were taken in this study: anonymous questionnaires, Questionnaire star software data encryption storage, Restrict access, present only summary results, and destruction of raw data immediately after the study. The researcher undertakes to keep the whole process strictly confidential to ensure the confidentiality and credibility of the research process.

5. Results and Discussion

1.Basic Characteristics of Surveyed Cooperatives and Members

Regarding the gender profile of farmers' cooperative members, the survey reveals that the membership is balanced, with 52.23% male and 47.77% female; 67.52% of them are aged between 18 and 50, 49.04% have high school education to below and 29.93% with college degree and above. 70.70% of cooperatives were established less than 5 years ago and 56.06% of members perceived the cooperatives to be well operating.

Table 1. Analysis results of basic characteristics of surveyed cooperatives and their members

	Option	Frequency	Percentage (%)
Gender	A. Male	82	52.23
	B. Female	75	47.77
Age	18-30 years old	37	23.57
	31-40 years old	38	24.20
	41-50 years old	31	19.75
	51-60 years old	28	17.83
	Above 60 years old	23	14.65
Education attainment	A. Primary school and below	40	25.48
	B. junior high school	37	23.57
	C. High school or secondary school	33	21.02
	D. College	28	17.83
	Bachelor's degree or above	19	12.10
Member of a farmers' cooperative	A. Yes	156	99.36
	B. No	1	0.64
Establishment time of farmers' cooperatives	Within 1 year	18	11.46
	1-3 years	46	29.30
	3-5 years	47	29.94
	5-10 years	27	17.20
	More than 10 years	19	12.10
Evaluation of farmers' cooperatives	A. Very good	31	19.75
	B. Good	57	36.31
	C. Fair	46	29.30
	D. Poor	19	12.10
	E. Very poor	4	2.55

2. The research shows that the gender ratio of farmers' cooperatives in Anhui Province is relatively balanced, which, together with the participation of younger members, promotes innovation and flexibility in these organizations. This aligns with the theory of cooperative education, which emphasizes that diversity and inclusion are essential for improving

management and decision-making capabilities (Zeng et al., 2023). The integration of young members not only inspires cooperation, but also contributes to sustainable development by improving the quality of members through education (Rostami &Salehi, 2023).

3. The cooperative has diversity and innovation in parity with the younger members while the older ones provide stability and experience. While lower levels of education may severely limit the ability of Cooperatives to realize their management and technological potential; nevertheless, Cooperatives possess significant flexibility and innovation potential owing to their short history. Members are optimistic for future development and may be sustainable development.

4. Gender balance and participation of younger members increase the permeation and decision-making diversity of cooperatives, as well as gender diversity support teamwork and creativity (Yalina et al., 2023). Young members make for adaptability and new perspective that cooperatives need to navigate through the start-up stage (Yami et al., 2024) and older members offer innovation strategy with stability and experience (Pandey et al., 2024). The potential of sustainable development through gender balance and educational enhancement is evidenced by members' optimism over the cooperative's future, as does low levels of education potentially constrain management and technological development (Yami et al., 2024).

2. The Basic Involvement of Cooperatives in Higher Education and Training

University education and training received from universities by farmer cooperatives accounts for 68.15%, which demonstrates that universities have been active in promoting agricultural modernization and improving the quality of the whole cooperatives. Marketing (89.17%), policies and regulations (82.8%), and agricultural production technology (72.61%) are the main contents of training that can enhance the cooperatives' market adaptability, policy understanding and production efficiency.

According to the survey, 68.15 percent of cooperatives have received training from universities, mainly in marketing and policies and regulations. This is consistent with the Industry-university cooperation theory, which emphasizes knowledge transfer and technological innovation between universities and cooperatives, and promotes agricultural modernization and the overall quality improvement of cooperatives. Research shows that cooperative education and Training (CET) has a positive impact on the effectiveness of agricultural marketing cooperatives, guiding leaders in strategic direction and improving organizational performance(Lawrence et al., 2023).In addition, the development of cooperatives depends on supportive policies and the active participation of members, which is supported by educational initiatives (Priyono, 2023).Overall, these findings suggest that university training not only promotes agricultural modernization, but also improves the overall quality and sustainability of cooperatives(Lazarte, 2024).

Training was provided by the universities through lectures, online courses and seminars, and on-site guidance. Seminars were generally considered as an efficient form of interactive communication by Cooperatives with 89.81 % participation. The methods of training introduced here are all effective of improving the management and operational abilities of cooperatives. Besides facilitating market awareness and policy learning for cooperatives, university training represented an important opportunity to enhance cooperative management level and adaptability, thereby serving as an important part of sustainable agricultural development.

Farmers' cooperatives have greatly improved the awareness of the market, policy and management capability of the university training, which has laid the foundation for the adaptation and sustainable development of agriculture. Particularly effective is training via different methods such as seminars and online courses (Lawrence et al., 2023). Furthermore, the academic industrial collaboration enhances students' employability and entrepreneurial skills, which in a roundabout way, offers cooperatives with professionals capable of answering complicated markets (Soam et al., 2023). All this helps cooperatives to have the knowledge and skills necessary to meet modern challenges and promote sustainable agricultural development (Matviishyn, 2023).

Table 2. The basic involvement of cooperatives in higher education and training

	Frequency	Percentage (%)
farmers' cooperative received education and training from universities	107	68.15
A. Lectures	136	86.62
B. Seminars	141	89.81
C. Field instruction	118	75.16
D. Online courses	136	86.62
E. Information dissemination	110	70.06
F. Other	13	8.28
A. Agricultural production technology	114	72.61
B. Co-operative management	57	36.31
C. Marketing	140	89.17
D. Financial management	55	35.03
E. Policies and regulations	130	82.80
F. Other	4	2.55

3.The Effectiveness of University Training

According to the survey, university education and training has a complex role to play in the development of farmers' cooperatives; 69.42% of respondents consider it highly important, and 30.57% disagree, believing it comes without importance. Mostly, training helps in improving ability to

prevent risks (89.81%) and develop markets (71.97%), but internal governance (33.76%) and business management (52.23%) do not improve much. In terms of the economic impact: 58.60% think it is helpful, 23.57% disagree; 69.43% believe it helps to serve farmers and 30.57% don't; 59.87% are satisfied with the training, 13.38% are not.

According to the survey results, 69.42% of the respondents believe that university training is very important for the development of cooperatives, especially in the improvement of risk prevention and market development capabilities. This complements the theory of cooperative education, demonstrating the key role of education in enhancing the competitiveness of cooperatives and adapting to market changes. For example, studies of undergraduate translation students have shown that cooperative training aligns with job market needs, suggesting that a college education can effectively prepare students for real-world challenges (Salamah, 2023). In addition, the integration of university activities with development cooperation projects, as illustrated by Uganda's agricultural initiative, highlights the importance of academic engagement in meeting community needs and promoting sustainable practices (López et al., 2022). These findings suggest that university training not only enhances individual abilities, but also makes a significant contribution to the adaptability and success of cooperatives in a competitive market environment (Karimli, 2022).

The development of farmer cooperatives is important but university education and training has different opinion holders. Therefore, training's content should be optimized so that it is more pertinent and more practical. It is necessary to continue to support agricultural education and training, encourage the modernization of cooperatives, aid in the revitalization of the rural areas, raise the level of farmers and the capacity of cooperative management, and realize advantages of both socio economy.

The development of farmer cooperatives depends on university education and training. Adapting to new agricultural technologies and increasing productivity depends on using innovative training methods as well as providing financial education (Gaag, 2024). In order to promote rural revitalization and enhance the management capabilities of cooperatives, Mo (2024) recommends that relevant training content be optimized in terms of relevance and practicality, and strengthen the government's support for agricultural education.

Table 3. Results of evaluation and analysis of training effectiveness in universities

	option	frequency	percentage (%)
The Importance of University Education and Training in the Development of Farmers' Cooperatives	A. Very important	58	36.94
	B. Important	51	32.48
	C. Not important	30	19.11
	D. Not very important	18	11.46
A. Production technology level	pitch on	93	59.24
B. Business management ability	pitch on	82	52.23
C. Market development ability	pitch on	113	71.97
D. Risk prevention ability	pitch on	141	89.81
E. Internal governance capacity	pitch on	53	33.76
F. Other	pitch on	12	7.64
The assistance of education and training provided by universities in improving the economic efficiency of farmers' cooperatives	A.Very helpful	39	24.84
	B.Quite helpful	53	33.76
	C.Generally	28	17.83
	D.Not very helpful	23	14.65
	E.Hardly helpful	14	8.92
The education and training provided by universities help farmers' cooperatives better serve farmers	A. Yes	109	69.43
	B. No	48	30.57
Degree of satisfaction with the education and training provided by universities for farmers' cooperatives	A. Very satisfied	33	21.02
	B. Quite satisfied	61	38.85
	C. Fairly satisfied	42	26.75
	D. Not very satisfied	17	10.83
	E. Very dissatisfied	4	2.55

4. Problems of University Training for Farmers' Cooperatives

The low technical level (73.25%), little policy support (67.52%) and weak management capabilities (66.24%) are the main constraints on the development of farmer cooperatives. Also, lack of funding (52.87 %) is also a factor. University education and training this also to point the main deficiencies included lack of relevance (89.17%), single format (66.88%), lack of coverage (66.24%), lack of continuity (63.69%).

The investigation found that the training content lacked pertinence and continuity. According to the principle of consistency between theory and practice emphasized by cooperative education theory, the e gap between current collaborative training content and actual needs highlights the need to strengthen policy support and educational frameworks to ensure training is relevant and sustainable. In Tanzania, an assessment of cooperative Education and Training (CET) revealed that despite government efforts, the services provided remain inadequate, making cooperatives unsustainable(O. Lawrence et al., 2023).Similarly, a study in Iran highlighted the disconnect between the training needs of cooperatives and their educational offerings, suggesting a trial-and-error approach in policy decisions(Gilan et al., 2012).In addition, in Indonesia, training initiatives aimed at improving governance within cooperatives have shown

positive results, but the content and delivery of such training must be tailored to the specific needs of cooperatives(Vrizka et al., 2019).These countries' findings highlight the critical role of targeted ongoing training and strong policy frameworks in promoting sustainable cooperative development.

The results provide a reflection of the difficulties that cooperatives face in applying technology, policy support, managerial capacity, and gaining access to capital. They further expose a gap between current education and training and the real needs of cooperatives, particularly regarding customization, diversity and continuity. Difficulties in the process of agricultural modernization may be the source of the low level of technology, and the scarcity of policy support may be explained by the maturing of the institutional environment. Inadequacy of the universities' education and training may be blamed on the gap between the universities and cooperative practices as well as coverage and continuity shortages due to resource limitations.

Furthermore, the university training offered in evolutionary cooperatives versus the practical needs of cooperatives engenders a gap in this regard, calling for customized trainings to meet the practical demands of the cooperatives in question (Christian et al., 2024). Furthermore, cooperatives lack effective government support and technical assistance preventing modernization and commercialization of agricultural practices (Liu et al., 2024). Moreover, these barriers need to be addressed by government and educational institutions by strengthening the viability and functionality of cooperatives that, in turn, will promote sustainable agricultural development (Hanggana et al., 2023).

Table 4. Main Existing Issues

	frequency	**percentage (%)**
Insufficient funds	83	52.87
Low level of technology	115	73.25
Weak management capacity	104	66.24
Low market competitiveness	52	33.12
Little policy support	106	67.52
Other	6	3.82
A. Not well targeted	140	89.17
B. Not practical enough	50	31.85
C. Single format	105	66.88
D. Not widely covered	104	66.24
E. Lack of continuity	100	63.69
F. Others	4	2.55

5.Suggestions for Future Educational Training in University Cooperatives

According to the survey results, the future educational and training direction of universities and farmer cooperatives will focus on several key areas: E-commerce (80.89%), brand building (71.97%), product innovation (87.90%), and agricultural standardization (77.07%). These data are intended to spur cooperatives toward increased competitiveness and to adjust to modern agricultural development.

At the government end, the survey indicates that the government should create a good environment (87.90%), improve evaluation mechanism (84.08%) and invest enough in financial input (82.17%). Therefore, the importance of external support and quality assurance is demonstrated in encouraging the growth of cooperatives.

Most respondents (68.15%) accept their willingness to keep participating future training (33.12% ranked very willing, 35.03% ranked relatively willing), which proves that university teaching and training has a reputation to be accepted. While 31.85% of the respondents were unwilling or relatively unwilling to participate (18.47% of the respondents were unwilling), 13.38% were relatively unwilling); this demonstrates that we should upgrade the training quality and its pertinence.

Respondents suggested that future training should focus on skills needed for the development of modern agriculture, such as e-commerce and brand building. This is in line with the Sustainable Development Goals, which emphasize improving the market competitiveness of cooperatives through education and training, promoting rural revitalization and agricultural modernization. This approach is supported by the Industry-university cooperation theory, which advocates improving the market competitiveness of cooperatives through targeted education and training, thereby promoting rural revitalization and agricultural modernization(Shabatura & Livinskyi, 2024).The convergence of industry and education is crucial, as demonstrated by the need for video training that is aligned with the needs of innovative agri-businesses and the evolving technology landscape（Gaag，2024）.In addition, the use of e-commerce can greatly help the marketing and distribution of agricultural products, especially in rural areas where traditional sales methods are insufficient(Guan et al., 2023).By building competencies in these areas, agricultural education can better prepare individuals to tackle contemporary challenges and contribute to the Sustainable Development Goals(Zheng, 2024).

Results of the survey indicate that farmer cooperatives are confronted with many difficulties in moving to a modern agriculture, particularly technological innovation and market competition. For cooperatives to become market adaptable, there is a need for government support and policy guidance to foster an improved overall quality of cooperatives. Strengthening cooperation with universities will help disseminate knowledge and apply technology more effectively, and promote the sustainable development of the agriculture.

Modern production agriculture depends heavily on farmer cooperatives, but these marketing cooperatives face many

challenges, such as doing technical agriculture in a rapidly changing technology and market environment. The disadvantage is, internal problem such as low capital, unskilled labour, low member commitment, makes the cooperatives ineffective (Wakweya 2024). Some weak points of cooperatives' development are these: externally, there is insufficient technical assistance and poor adaptability of the courses of business (Ding & Ding 2024), which means that, government should strengthen its support and policy guidance. There are opportunities for collaboration with universities to disseminate knowledge and facilitate technology adoption with respect to sustainable agricultural practices (Freitas, 2023). Additionally, cooperatives are able to integrate digital technologies into their operations and use e commerce to improve operational efficiency and market access (Abilova, 2023). Nevertheless, by enhancing cooperative structures and developing eco-friendly approaches, these organizations can play a big role in rural revitalization and sustainable food systems (Bijman & Höhler, 2023).

Table 5. Suggestions for Future Education and Training of University Cooperatives

	frequency	**percentage (%)**
A. Brand building	113	71.97
B. Product innovation	138	87.90
C. E-commerce	127	80.89
D. Agricultural standardisation	121	77.07
E. Rural finance	52	33.12
F. Other	7	4.46
A. Provide policy support	87	55.41
B. Increase financial input	129	82.17
C. Build a co-operative platform	76	48.41
D. Improve the evaluation mechanism	132	84.08
E. Create a favourable environment	138	87.90
F. Other	15	9.55

6. Conclusion and Recommendations

Conclusion

Based on the findings of this study, the following are the main conclusions:

1. The farmer cooperatives in Anhui Province are very active to receiving college education and training and more than half of cooperatives have to take relevant training, demonstrating that colleges and universities play an important role in promoting agricultural modernization and improving the overall quality of cooperatives.

2. University training is of great significance to the development of cooperatives, and nearly 70% of participants consider it important, help reduce risk and improve their market development capabilities.

3. Although it has very obvious training effect, there are still problems of insufficient pertinence, a single form, and discontinuity which also lead to some cooperatives being less satisfied with the training effect.

4. Participants expressed that in order to better improve the education and training of university cooperatives, the government should invest in universities in terms of policies and funds, so that farmers' cooperatives can have a better environment for development. Universities should customize course content for farmers' cooperatives and combine theory with practice to help farmers' cooperatives develop in high quality. Farmers' cooperatives should actively cooperate with university training programs and provide feedback, and solve challenges in the development of cooperatives through tripartite interaction between the government, universities and farmers' cooperatives.

Recommendations

Based on the above conclusions, the following recommendations are proposed:

1. Enhance the pertinence and practicality of training: Universities should tailor training courses to truly meet their needs of farmer cooperatives so that training content can then be integrated with cooperative work and management.

2. Diversify training formats: University courses therefore should be designed in different training modes like on line courses, field guidance and seminars to enhance participation and training impact.

3. Strengthen government support: Government should strengthen the policy support and funding for farmer cooperatives, establish and improve relevant policy system, and promote sustainable development of cooperatives.

4. Establish a sustainable cooperation mechanism: Therefore, universities should continuously work with farmer cooperatives on a long-term basis, and regularly carry out training, in order to ensure the continuity and success of such training.

5. Encourage innovation and brand building: The training content shall add knowledge of product innovation, e-commerce and brand building, which are necessary for the development of modern agriculture, in order to promote the market competitiveness of the cooperatives.

By means of the above measures, the sustainable development of farmer cooperatives in Anhui Province can be effectively boosted, and the rural revitalization and modernization of agriculture can be realized.

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