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| RESEARCH ARTICLE

Empowering Small-Scale Farmers: An Assessment of Small Farm Program's Effectiveness in Arkansas, USA

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| ABSTRACT

The evaluation report explores how the University of Arkansas at Pine Bluff (UAPB) Small Farm Program supports small-scale farmers in Arkansas by providing them with financial, production, and marketing assistance. This study examines the program's effectiveness in helping farmers improve their agricultural practices, profitability, and sustainability. The survey, conducted with randomly selected farmers, reveals how well the program delivers practical solutions in these areas. On financial and business planning assistance, most farmers said the training improved their ability to create farm business plans, with 73.3% noting that it helped them maintain accurate records and understand crop insurance. However, less than half felt that the program helped them secure loans, suggesting a need for more targeted financial training. In production assistance, 80% of respondents reported that the training improved their understanding of production techniques, leading to higher yields and productivity. Two-thirds experienced increased production, and 60% noticed a boost in agricultural productivity. To enhance the program's long-term impact, future efforts should focus on strengthening farmer networks, improving financial access, and keeping pace with market trends. Expanding farmer association memberships can provide better networking and collective market opportunities. Regular feedback from participants will keep the program agile, addressing evolving needs and ensuring continued relevance. This approach supports sustainable growth, helping farmers turn market reach into lasting success. Overall, the UAPB Small Farm Program has positively impacted small-scale farmers, enhanced their agricultural practices, and helped them navigate financial and marketing challenges. The recommendations aim to further boost the program's reach and effectiveness.

| KEYWORDS

Agricultural Practices, Profitability, Small Farm Program, Sustainability

| ARTICLE INFORMATION

1.0 Introduction

Small-scale farmers play a critical role in agricultural productivity, local food security, and rural economic development. However, they often face challenges in accessing financial, production, and marketing resources that are essential for sustainable agricultural growth (Schneider, 2021). In Arkansas, where agriculture is a vital sector, these barriers can limit the capacity of small farmers to improve their practices, increase profitability, and achieve long-term sustainability (Farm Bureau Arkansas 2024). The University of Arkansas at Pine Bluff (UAPB) has recognized the need to support these farmers through its Small Farm Program, which aims to empower small-scale producers by providing targeted financial assistance, production training, and marketing education. This program represents an intervention aimed at strengthening the agricultural sector in Arkansas and addressing some of the unique needs of small-scale farmers (Miller & James, 2022). Moreover, agricultural extension services, such as the UAPB Small Farm Program, are crucial in translating research-based knowledge into practical solutions for farmers, enhancing their understanding of business planning, modern production techniques, and marketing strategies (Thompson & Harper, 2023).

The UAPB Small Farm Program has been structured to address three core areas: economic management, production improvement, and marketing outreach. Financially, the program seeks to enhance farmers' ability to create viable business plans, maintain accurate records, and navigate essential financial mechanisms such as crop insurance and loan acquisition.

Additionally, the program provides training in production techniques to improve crop yields and productivity, which is particularly relevant in an era of climate change and increased market competition (Miller & James, 2022). Furthermore, marketing education equips farmers with the skills needed to reach wider consumer bases, develop stronger market linkages, and improve the profitability of their enterprises (Davis et al., 2021). Despite the benefits of extension programs, there is a need to evaluate their effectiveness continually to ensure they align with evolving farmer needs. Effective evaluation can reveal areas where the program succeeds in meeting its objectives and where improvements might be necessary. For instance, a recent survey of the UAPB Small Farm Program revealed that while 73.3% of farmers felt they gained significant benefits in record-keeping and financial understanding, fewer than half believed the program helped them in securing loans, indicating a gap in targeted financial training. Similarly, in production, two-thirds of respondents observed yield increases due to program training, yet in marketing, only a quarter noted an increase in profitability (Davis et al., 2021). And the studies provide valuable insights into the impact of small farm programs, emphasizing their role in empowering small-scale farmers and enhancing the effectiveness of business sectors as well as agricultural practices (Islam et al., 2024; Rahaman et al., 2024a,b). Such findings underscore the importance of assessing the program's impacts across its intended domains. Production is increasingly concentrated on larger farms due to economies of scale, which lower costs for certain tasks, and advancements in tillage systems, seeds, and equipment that streamline operations. These technological improvements have significantly reduced the time required for various farming activities, enabling farmers with access to adequate land and machinery to manage much larger farms compared to those 25 years ago (USDA 2024).

This study, therefore, aims to assess the overall effectiveness of the UAPB Small Farm Program in empowering small-scale farmers in Arkansas. By evaluating the program's contributions to economic management, production efficiency, and marketing success, this research intends to provide insights into how well the program supports farmers' practical needs. Furthermore, the study identifies opportunities for enhancement, such as improved financial training for loan accessibility, expanded marketing resources, and regular feedback mechanisms to refine the program. This research hopes to contribute to the ongoing development of agricultural support initiatives and foster a more resilient small-farm sector in Arkansas.

2.0 Research Methodology

The research methods for this study were designed to evaluate the effectiveness of the University of Arkansas at Pine Bluff (UAPB) Small Farm Program in empowering small-scale farmers across Arkansas. The study adopted a mixed-methods approach, utilizing both quantitative surveys and qualitative interviews to provide a comprehensive understanding of the program's impact in three core areas: economic management, production enhancement, and marketing support.

2.1 Study Design

A mixed-methods research design was chosen to capture a nuanced view of the program's outcomes and gather rich data from small-scale farmers participating in the UAPB Small Farm Program in Arkansas. Mixed methods allow for quantitative data to reveal broad trends while qualitative data offers deeper insights into individual farmer experiences and perceptions (Creswell & Clark, 2018). This design ensured that the research captures both measurable improvements, such as increased crop yields and profitability, and the subjective perceptions of program effectiveness from the farmers' perspectives (Braun and Claske 2006). This program is a crucial component of UAPB's efforts to assist those in the agricultural sector who might not have access to the latest technologies, methodologies, and research that can help improve their production capabilities and overall business sustainability (Figure 1).

2.2 Sampling and Data Collection:
Data were collected through the administration of structured questionnaires in face-to-face interviews. Before the primary data collection exercise, the questionnaire was pretested on selected farmers enrolled in the small farm program to evaluate the appropriateness of the design, coherence, and relevance of the questions. The necessary modifications were made to the questionnaires after pretesting to capture the relevant information related to the objectives of the evaluation. The evaluation team collected data from farmers with support from personnel of the UAPB small farm program. Face-to-face interviews were conducted, and the responses were recorded in English.

2.2.1 Instruments:
A well-structured questionnaire was the survey instrument employed for the evaluation. The questionnaire comprised mostly close-ended and a few open-ended questions to elicit responses from farmers regarding the small farm program. Open-ended questions prompted the respondents to formulate their answers meanwhile close-ended questions enabled them to choose a response from a given list of options. The questionnaire collected data on the demographic and socio-economic characteristics of farmers enrolled in the small farm program and the perceived contribution of the program to farmers' productivity. The reliability of the questionnaire obtained is based on Cronbach's alpha coefficient for the desired components (Smith & Wesson 2020).
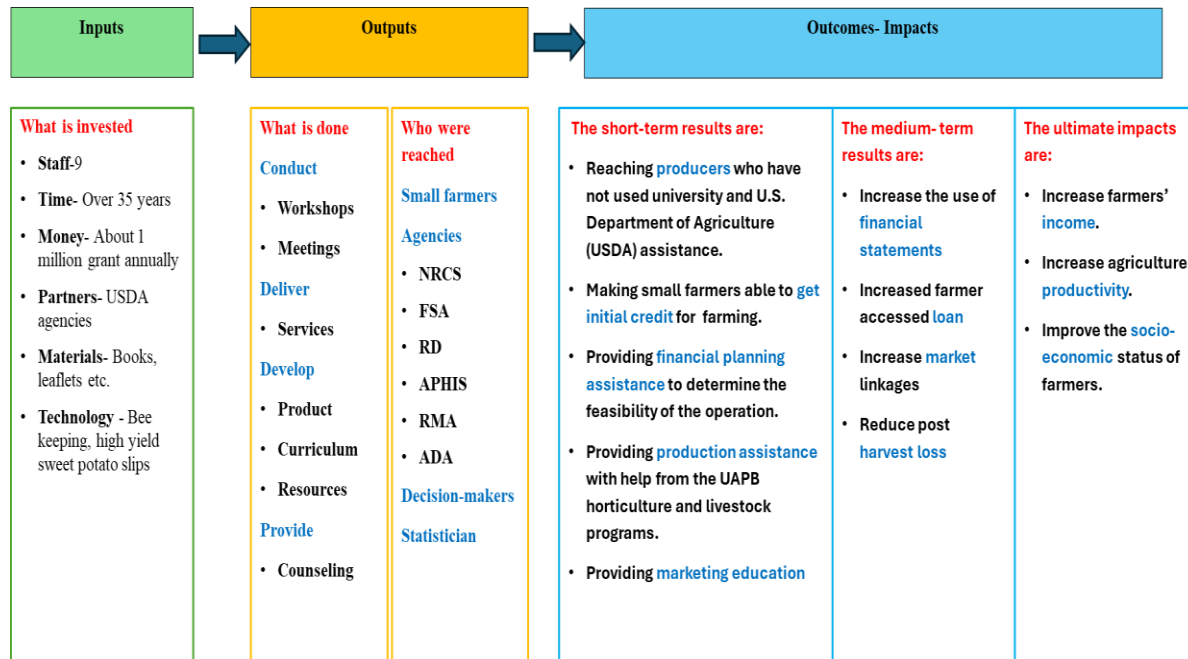
Figure 1. Logic model for Small Farmer Assistance Program: Inputs, Outputs, and Outcomes across short, Medium, and long-term impact areas.

2.3. Data analysis: The collected data was edited, coded, and cleaned to ensure uniformity, accuracy, and consistency. The privacy of individuals was protected, and personal identifiers (if any) were removed from the data. Data entered the Statistical Package for Social Scientists (SPSS V$_{25}$) which was used for data analysis. Descriptive statistics such as means, standard deviations, and frequencies were performed to explore the dataset.

The Likert scale was used to assess the perceived contributions of the small farm program using a 5-point rating scale technique. The 5-point rating scale is graded as Strongly Agree (SA) = 5, Agree (A) = 4, Neutral (N) = 3, Disagree (D) =2, and Strongly Disagree (SD). Thus, the mean score of respondents was computed based on the 5-point rating scale.

5 + 4 + 3 + 2 + 1= 15

15/5 = 3.0 Cut-off Point

Using the cut-off point of 3.0 for decision-making, items with mean values of 3.0 and above were considered as the perceived contributions of the small farm program among enrolled farmers. On the other hand, items with mean values less than the cut-off point value of 3.0 were considered as not being perceived contributions of the small farm program among enrolled farmers.

3.0 Results and Discussion

3.1 Socioeconomic Characteristics of Small Farmers

The small farmers surveyed showed diverse backgrounds in age, household size, farming experience, and education (Table 1). A majority were above 50 years old (60%), with smaller household sizes (73.3% had families of 1-3 members). Experience varied, with 40% having 1-5 years of farming experience, while the remaining farmers had no experience or more than 5 years. They owned small farms between 1 and 6 acres (46.7%), or larger farms above 6 acres (53.3%). The gender split was equal, and most were married. Educational backgrounds ranged widely, from high school graduates (13.3%) to graduate degree holders (40%). Access to credit was evenly split, but only 20% were members of an association. Most (66.7%) farmed vegetables, while a few grew row crops or other commodities. In terms of household income, most of the respondents' income falls between $25,000 to $49,000.

Table 1: Demographic and socioeconomic characteristics of respondents: Age, Household size, Farming experience, Farm size, Gender, Education, Marital status, Credit access, Association membership, Agricultural commodities, and Income levels.

Variables	Frequency	Percentage
Age		
20 - 50	6	40
Above 50	9	60
Household size		
1 – 3	11	73.3
Above 3	4	26.7
Years of farming experience		
None	4	26.7
1 – 5	6	40.0
Above 5	5	33.3
Farm size (Acres)		
1 – 6	7	46.7
Above 6	8	53.3
Gender		
Male	7	46.7
Female	8	53.3
Educational Status		
High school	2	13.3
Some college	2	13.3
Associate/diploma degree	2	13.3
Bachelor's degree	3	20.0
Graduate degree	6	40.0
Marital Status		
Married	7	46.7
Unmarried	4	26.7
Others	4	26.7
Access to Credit		
Yes	7	46.7
No	8	53.3
Membership of Association		
Yes	3	20.0
No	12	80.0
Agricultural Commodities		
Vegetable crops	10	66.7
Row crops	1	6.7
Forestry products	1	6.7
Others	1	6.7
Vegetable crops & Row crops	1	6.7
Vegetable crops, Aquaculture & Hay	1	6.7
Household Income		
Under $ 25, 000	4	26.7
$25,000 to $49,000	5	33.3
$50,000 to $99,000	3	20.0
$100,000 to $149,000	1	6.7
$150,000 to $199,000	2	13.3

3.2 Perceived contribution of the small farm program
3.2.1 Financial & Business Planning Assistance

The program's business plan training was effective in the preparation of their farm business plan for most of the respondents (86.7% of respondents either agree or strongly agree). Educational workshops on finance and investment received positive feedback (86.7% of them either agree or strongly agree). The financial planning resources and information provided are clear and easy to understand, with 80% of the farmers either agreeing or strongly agreeing. Accurate record-keeping and insurance knowledge of farmers also improved through the program (farmers either agree or strongly agree, accounting for 73.4% and 73.3%, respectively). The small farm program is meeting their business needs, with 73.3% of the farmers either agreeing or strongly agreeing. They can develop and utilize financial statements for their farm business, with 60% of the farmers either agreeing or strongly agreeing (Figure 2). However, while the program helped to secure loans, not all benefited. Only 46.7% of the respondents either agree or strongly agree that the program helped in obtaining farm loans from USDA or other credit agencies. The financial planning assistance helped to launch their farm business enterprise while 46.7% of them either agree or strongly agree that they experienced increased income through the small farm program (Table 2).

Table 2: Participant rankings on the effectiveness of financial and business planning assistance for farm development.

	SA Fre(%)	A Fre(%)	N Fre(%)	D Fre(%)	SD Fre(%)	Mean (S.D)	Rank	Decision
The training helped to prepare their farm business plan	7(46.7)	6 (40.0)	1(6.7)	0(0.0)	0(0.0)	4.43 (0.64)	1st	Positive
The educational workshops on financial and investment decisions are enlightening	4(26.7)	9(60.0)	1(6.7)	0(0.0)	0(0.0)	4.21(0.57)	2nd	Positive
The financial planning resources and information provided are clear and easy to understand	4(26.7)	8(53.3)	2(13.3)	0(0.0)	0(0.0)	4.14(0.66)	3rd	Positive
Maintain up-to-date and accurate record keeping of farming activities	4(26.7)	7(46.7)	3(20.0)	0(0.0)	0(0.0)	4.07(0.73)	4th	Positive
Acquired a good knowledge of crop insurance	2(13.3)	9(60.0)	2(13.3)	1(6.7)	0(0.0)	3.86(0.77)	5th	Positive
Business needs are being met by the small farm program	3(20.0)	8(53.3)	0.0	3(20.0)	0(0.0)	3.79(1.05)	6th	Positive
Individuals are able to develop and utilize financial statements for their farm business	3(20.0)	6(40.0)	3(20.0)	2(13.3)	0(0.0)	3.71(0.99)	7th	Positive
The program helped in obtaining farm loans from USDA or other credit agencies.	4(26.7)	3(20.0)	5(33.3)	1(6.7)	1(6.7)	3.57(1.22)	8th	Positive
The financial planning assistance helped to launch their farm business enterprise	2(13.3)	5(33.3)	5(33.3)	2(13.3)	0(0.0)	3.50(0.94)	9th	Positive
Experienced increased income through the small farm program	1(6.7)	6(40.0)	5(33.3)	2(13.3)	0(0.0)	3.43(0.85)	10th	Positive

3.2.2 Production Assistance

The training improved the knowledge of production methods (80% either agree or strongly agree). Most (66.7%) either agree or strongly agree that they experienced increased production compared with the previous production period. The majority (80%) either agree or strongly agree that their current average yield is greater than the previous average yield, attributing this to the program. 66.7% of farmers either agree or strongly agree that the training has helped to reduce their cost of production. The small farm program has increased their agricultural productivity with 60% either agree or strongly agree, and they experienced a bumper harvest due to training received 53.4% either agree or strongly agree (Table 3).
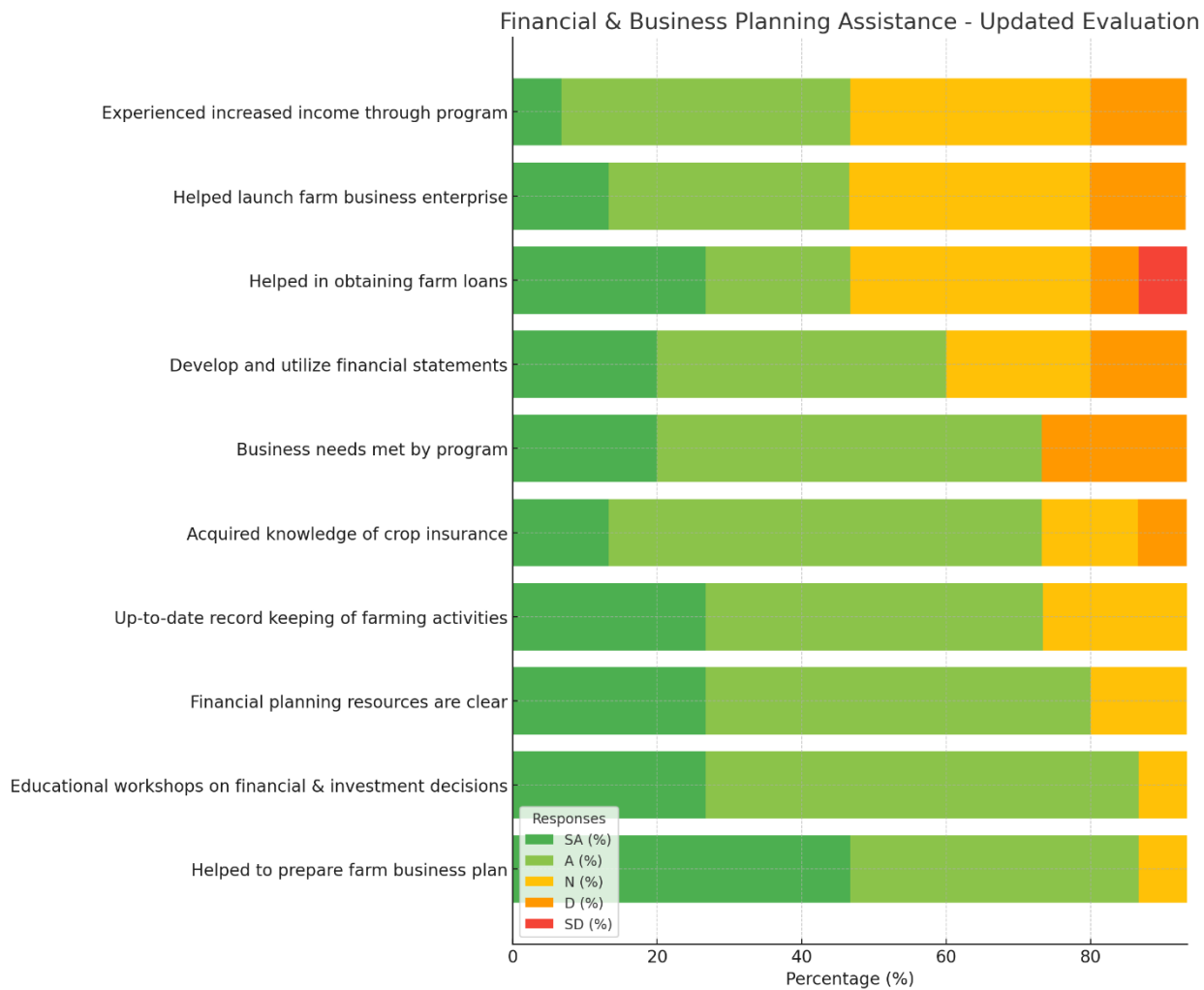
Figure 2. Evaluation of financial and business planning assistance: participant responses on program impact areas including income growth, business support, and educational resources.

3.2.3 Marketing Education
The farmers (93.3%) either agree or strongly agree that the marketing education was satisfactory and that the marketing resources and materials provided were relevant and applicable. They acquired the technical knowledge to operate, manage, and market farm produce with 86.7% either agree or strongly agree. Also, they have gained better consumer reach through the program that the program created better market linkages for their farm produce with 80% either agree or strongly agree. A significantly lower proportion (26.7%) either agree or strongly agree that the program has made them an experienced profitable business owner (Table 4).

3.2.4 Overall Program Evaluation:
The small farm training was rated highly across all criteria (mean of 4.3-4.5 out of 5). All (100%) either agree or strongly agree to all the items which include; the venue of the training was comfortable, the small farm training programs were related to their business need, the trainers were knowledgeable about the topics, the program is recommendable, the small farm program was very helpful, the training provided by the small farm program is practical-oriented, the number of training classes being held is adequately sufficient, the mode of the training was useful, the training enhanced their knowledge and will improve farming activities, training is satisfactory and the duration of the training programs was perfect (Table 5 & Figure 3).

Table 3: Evaluation of training impact on agricultural productivity: knowledge improvement, yield increases, cost reduction, and harvest outcomes among small farmers.

	SA Fre(%)	A Fre(%)	N Fre(%)	D Fre(%)	SD Fre(%)	Mean (S.D)	Rank	Decision
The training enhances their knowledge of improved production methods	3(20.0)	9(60.0)	1(6.7)	0(0.0)	0(0.0)	4.2(0.55)	1st	Positive
Experienced increased production compared with the previous production period	3(20.0)	7(46.7)	3(20.0)	0(0.0)	0(0.0)	4.0(0.70)	2nd	Positive
Their current average yield is greater than the previous average yield (before joining the program)	3(20.0)	6(40.0)	4(26.7)	0(0.0)	0(0.0)	3.9(0.76)	3rd	Positive
The training has helped to reduce their cost of production	1(6.7)	9(60.0)	2(13.3)	1(6.7)	0(0.0)	3.8(0.72)	4th	Positive
The small farm program has increased their agricultural productivity	1(6.7)	8(53.3)	3(20.0)	1(6.7)	0(0.0)	3.7(0.75)	5th	Positive
Experienced bumper harvest due to training received	1(6.7)	7(46.7)	4(26.7)	1(6.7)	0(0.0)	3.6(0.76)	6th	Positive

Table 4: Evaluation of Marketing Education and Business Development Impacts: Participant Perspectives on Program Resources, Technical Knowledge, Market Access, Consumer Reach, Market Linkages, and Business Profitability.

	SA Fre(%)	A Fre(%)	N Fre(%)	D Fre(%)	SD Fre(%)	Mean (S.D)	Rank	Decision
Satisfactory marketing education	6(40.0)	8(53.3)	0(0.0)	0(0.0)	0(0.0)	4.43(0.51)	1st	Positive
Relevance and applicability of marketing resources and materials provided	6(40.0)	8(53.3)	0(0.0)	0(0.0)	0(0.0)	4.43(0.51)	1st	Positive
Acquired the technical knowhow to operate, manage, and market farm produce	3(20.0)	10(66.7)	1(6.7)	0(0.0)	0(0.0)	4.14(0.53)	2nd	Positive
The small farm program has enabled a better reach to consumers of their produce	4(26.7)	8(53.3)	2(13.3)	0(0.0)	0(0.0)	4.14(0.66)	2nd	Positive
The small farm program has created better market linkages for their farm produce	2(13.3)	10(66.7)	2(13.3)	0(0.0)	0(0.0)	4(0.55)	3rd	Positive
Program has made them an experienced profitable business owner	1(6.7)	3(20.0)	8(53.3)	1(6.7)	1(6.7)	3.14(0.94)	4th	Positive

Table 5. Evaluation of Small Farm Training Programs: Participant feedback on Venue comfort, Relevance to business needs, Trainer expertise, Practical orientation, Training mode, Sufficiency of classes, Knowledge enhancement, and Overall satisfaction.

|	SA Fre(%)	A Fre(%)	N Fre(%)	D Fre(%)	SD Fre(%)	Mean (S.D)	Rank	Decision
The venue of the training was comfortable	6(40.0)	8(53.3)	0(0.0)	0(0.0)	0(0.0)	4.5(0.51)	1st	Positive
The small farm training programs were related to their business need	7(46.7)	8(53.3)	0(0.0)	0(0.0)	0(0.0)	4.5(0.51)	1st	Positive
The trainers were knowledgeable about the topics	7(46.7)	8(53.3)	0(0.0)	0(0.0)	0(0.0)	4.5(0.51)	1st	Positive
The program is recommendable	7(46.7)	8(53.3)	0(0.0)	0(0.0)	0(0.0)	4.5(0.51)	1st	Positive
The small farm program was very helpful	7(46.7)	8(53.3)	0(0.0)	0(0.0)	0(0.0)	4.5(0.51)	1st	Positive
The training provided by the small farm program is practical-oriented	7(46.7)	8(53.3)	0(0.0)	0(0.0)	0(0.0)	4.5(0.51)	1st	Positive
The number of training classes being held is adequately sufficient	7(46.7)	8(53.3)	0(0.0)	0(0.0)	0(0.0)	4.5(0.51)	1st	Positive
The mode of the training was useful	6(40.0)	9(60.0)	0(0.0)	0(0.0)	0(0.0)	4.4(0.50)	2nd	Positive
The training enhanced their knowledge and will improve farming activities	6(40.0)	9(60.0)	0(0.0)	0(0.0)	0(0.0)	4.4(0.50)	2nd	Positive
Trainings are satisfactory	5(33.3)	10(66.7)	0(0.0)	0(0.0)	0(0.0)	4.3(0.48)	3rd	Positive
The duration of the training programs was perfect	4(26.7)	11(73.3)	0(0.0)	0(0.0)	0(0.0)	4.3(0.45)	4th	Positive
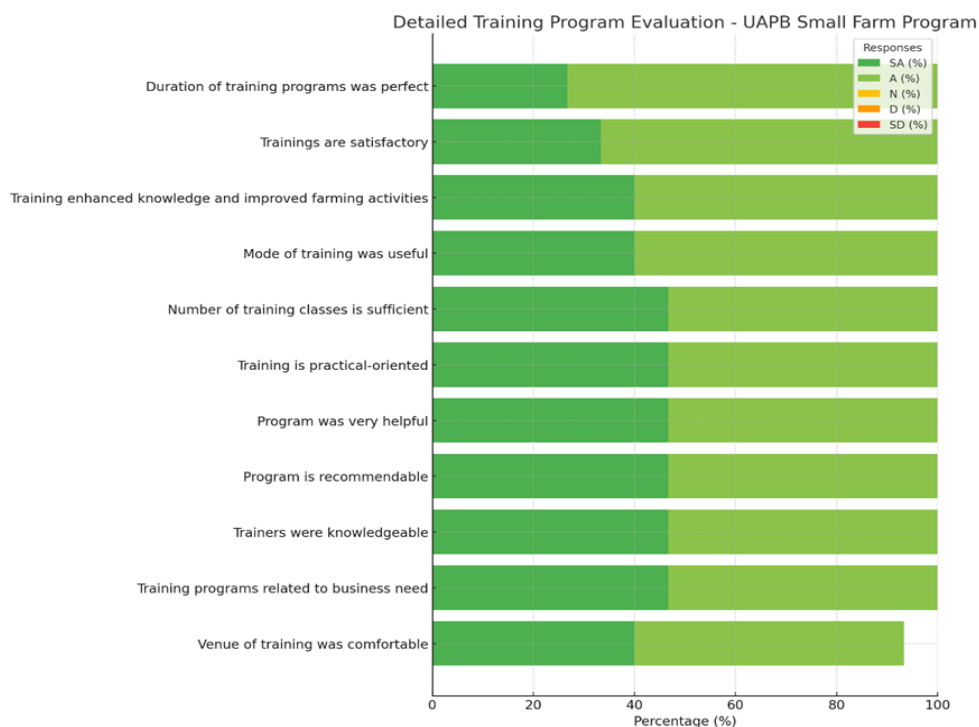
Figure 3. Comprehensive detailed evaluation of Small Farm Training Programs: Participant feedback on training quality, relevance, practical application, trainer knowledge, Class sufficiency, and overall satisfaction.

4.0 Limitations

1. Sample Size and Representation: One significant limitation of this evaluation is the sample size, which is relatively small and may not fully represent the broader population of smallholder farmers served by the UAPB Small Farm Program. With a limited number of participants, there is an increased risk that the findings may not capture the diverse experiences and outcomes of all program beneficiaries. For example, farmers in different regions or those growing several types of crops may have varied responses to the program's support in areas like financial assistance, production training, and marketing strategies. As a result, the insights gathered from the selected sample may not fully reflect the impact of the program across the state, thus limiting the generalizability of the findings. This constraint suggests that further research with a larger and more diverse sample may be necessary to gain a more accurate and comprehensive understanding of the program's effectiveness.

2. Time, Financial, and Resource Constraints: Another limitation stems from constraints related to time, budget, and resources, which inevitably impacted the scope of this evaluation. Given the limited duration allocated for data collection and analysis, the evaluation team may not have been able to explore all aspects of the program's impact thoroughly. Financial and resource constraints further limited the number of data points that were collected, as well as the diversity of evaluation methods that could be employed. For instance, with a larger budget, the evaluation could have incorporated more in-depth interviews, extended field observations, and follow-up assessments, which might have provided a more holistic picture of the program's effectiveness. These limitations may have led to a narrower evaluation scope, potentially overlooking areas such as the long-term sustainability of the program's impacts or farmers continued use of learned techniques over time. Consequently, while the findings offer valuable insights, they may not provide a fully comprehensive assessment of the program's impact, highlighting the need for a more robust evaluation framework in future studies.

5.0 Recommendations

To further strengthen the effectiveness of the UAPB Small Farm Program, several targeted recommendations are proposed. First, expanding the program's reach is crucial. Currently, only 20% of farmers surveyed participate in farming associations, missing the networking, collective bargaining, and resource-sharing benefits such associations offer. Actively promoting association membership could provide farmers with these valuable connections. Additionally, financial services require refinement to address limited access to credit. Some farmers reported difficulties in securing loans despite receiving training; therefore, tailored financial guidance and support could enhance inclusivity, ensuring more farmers can access the funding they need to grow their operations. Strengthening support networks by fostering peer-to-peer interactions could also empower farmers, as information exchange can lead to collaborative problem-solving and innovation.

Moreover, marketing education should be expanded to better prepare farmers for modern market challenges. As digital marketing and market conditions evolve rapidly, more advanced, and updated marketing workshops could improve farmers' market reach and profitability. Tailored sessions on digital marketing strategies would enable small-scale farmers to broaden their consumer base and adapt to changing market trends. Lastly, the program would benefit from continued evaluation and a structured feedback mechanism to ensure responsiveness to the shifting needs of small farmers. Regular assessments could identify areas for improvement, while detailed feedback channels would facilitate ongoing adjustments, contributing to the program's sustainability and farmer satisfaction.

6.0 Conclusion

The evaluation of the University of Arkansas at Pine Bluff (UAPB) Small Farm Program demonstrates the program's positive impact on small-scale farmers in Arkansas, significantly enhancing their agricultural practices, profitability, and overall sustainability. By providing targeted support in financial planning, production techniques, and marketing education, the program has empowered farmers to better manage their operations and meet market demands. Notably, most farmers benefited from the financial training, with 73.3% reporting improved record-keeping and a clearer understanding of crop insurance. However, the lower success in helping farmers secure loans indicates a need for more tailored financial guidance to enhance access to credit. In production assistance, the program's effectiveness is evident, with 80% of participants indicating improved knowledge of advanced production techniques and significant yield increases. Marketing education also received high praise, as most farmers found the training relevant, which led to better consumer outreach and stronger market linkages. Yet only a quarter of farmers reported increased profitability, highlighting the potential to further expand marketing resources to address evolving market trends and digital marketing opportunities. Overall, the farmers' positive response underscores the program's success in delivering practical, needs-based training, making it a highly recommendable initiative.

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