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Research Article

Impact of the MSU-Sulu College of Agriculture's Patikul Extension Program on Local Students

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ABSTRACT

This study examined the positive impacts of the MSU-Sulu College of Agriculture's Patikul Extension Program on students from Patikul Municipality. It focused on three key areas: socio-cultural, economic, and environmental aspects. Data was collected through a structured survey, which included two sections: one for demographic information and another for assessing program impacts. The responses were analyzed using weighted means, inferential statistics, and one-way ANOVA to identify significant differences across respondent profiles.

Key findings revealed that most respondents were female, aged 25 or older, and first-year students. In terms of impact, the socio-cultural aspect had the highest rating (4.58, "Strongly Agree"), followed by the environmental (4.46, "Agree") and economic aspects (4.42, "Agree"). Significant differences were found in responses based on respondent profiles across all three impact areas.

The study recommends enhancing the program by investing in faculty development, improving facilities and laboratories, and conducting further research on the program's long-term effects on stakeholders.

Keywords: *MSU-Sulu College of Agriculture, Patikul Extension Program, and Local Students Impact*

Introduction

Education is the cornerstone of rural development, particularly in agricultural communities where knowledge and skills can significantly enhance livelihoods. In rural areas, where traditional practices in farming, livestock, and poultry production are prevalent, providing access to quality education is essential for fostering growth and improving community well-being. Education not only empowers individuals but also nurtures the collective development of entire regions, contributing to economic stability, social progress, and environmental sustainability.

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In the Municipality of Patikul, located in Sulu, the challenges of accessing education are compounded by geographical barriers. Covering 434.24 square kilometers, Patikul is home to several rural barangays, including Barangay Taglibi, where many students must travel long distances—up to 14 kilometers—to attend school in the town proper. This often leads to a strain on both students and their families, who bear the financial and logistical burdens of accessing education. To alleviate these challenges, MSU-Sulu College of Agriculture initiated its Extension Program in 2005, offering a lifeline to students in remote areas, particularly those in Taglibi and surrounding communities.

The MSU-Sulu Extension Program aims to equip students with self-sustaining agricultural skills, enhancing their prospects for the future. By providing education in rural settings, the program seeks to engage students in agricultural development, helping them to become active participants in the local economy while also promoting sustainable farming practices. However, while similar initiatives have been implemented in other rural areas, there remains a gap in understanding the specific impacts of these programs in the context of Patikul, particularly in terms of their socio-cultural, economic, and environmental effects.

This study seeks to fill that gap by assessing the impact of the MSU-Sulu Extension Program on students in Patikul, with a focus on the three key areas: socio-cultural, economic, and environmental. The research aims to provide valuable insights into the program's significance, not only for the students but also for the broader community and institution. By understanding these impacts, the study will offer recommendations for further enhancing the program and ensuring its sustainability, ultimately contributing to the broader goal of rural development.

Materials and Methods

The researcher used a quantitative research approach to examine the relationship among variables that can be measured, typically through instruments, allowing for numerical data to be analyzed using statistical procedures (Creswell, 2009). The study focuses on the impact of the College of Agriculture Patikul Extension Class on students residing within the Patikul Municipality, specifically examining socio-cultural, economic, and environmental aspects.

2.1 Locale

The study was conducted at Mindanao State University-Sulu College of Agriculture Patikul Extension, located in Barangay Taglibi, Patikul, Sulu. The Patikul Extension College of Agriculture was established in 2005. The extension is provided with two classrooms, sufficient to accommodate the enrollees, as well as a site for field laboratories, by the LGU of Patikul.

2.2 Respondents and Sample

The respondents of this study were students enrolled in the Patikul Extension class for the academic year 2023-2024, who are also residents of the Municipality of Patikul. To determine the sample size, the Slovin formula was used:

$$\underline{n=N}$$
$$1+Ne^2 \text{ (Stephanie, 2013)}$$

where:
N = total population (144 students)
e = margin of error (5%)
Using this formula, the sample size was calculated as follows:

$$\underline{n = 144}$$
$$1 + 144\ (0.05)^2$$

$$\underline{n = 144}$$
$$1 + 144\ (0.0025)$$

$$\underline{n=144}$$
$$1 + 0.36$$

$$\underline{n=144}$$
$$1.36$$

$$n = 105$$

Thus, a sample of 105 students was selected.

The sampling procedure used Stratified Random Sampling, where respondents were

chosen based on their year level, with the number of respondents from each year level corresponding to the percentage of students in that year. The distribution of the sample is as follows:
41 from first year (39% of the population)
34 from second year (32%)
24 from third year (23%)
6 from fourth year (6%)

2.3 Instrument and Tool

The researchers used a self-made survey questionnaire to gather data. The questionnaire was designed in two parts: the first part focused on demographic information (age, gender, year level, and years of residency), while the second part assessed the impact of the Patikul Extension Class on students in terms of socio-cultural, economic, and environmental factors.

The questionnaire employed a 5-point Likert scale to measure students' opinions, with the following verbal interpretations:

5.00–4.50 – Strongly Agree
4.49–3.50 – Agree
3.49–2.50 – Neutral
2.49–1.50 – Disagree
1.49–1.00 – Strongly Disagree

Validation Process: To ensure the validity of the survey instrument, a rigorous validation process was undertaken. The questionnaire was reviewed by three professors with expertise in educational research and rural development, who were selected based on their experience in similar studies. Each item was evaluated for clarity, relevance, and appropriateness to the study objectives. The reviewers were asked to provide feedback on the language, structure, and relevance of each question.

The validity of each item was then assessed using a mean score scale:

- **Retain** items with a mean score of 2.5 – 3.0.
- **Revise** items with a mean score of 1.5 – 2.4.
- **Reject** items with a mean score of 1.0 – 1.4.

The final version of the questionnaire incorporated suggestions from the professors to ensure its appropriateness for the study's objectives. The revised instrument ensured that it accurately measured the socio-cultural, economic, and environmental impacts of the Extension Program. **Sample survey questions** are included in **Appendix A** for transparency.

2.4 Data Gathering

Reliability and Accuracy of Data Collection: The researchers took several steps to ensure the reliability and accuracy of the data collection process. Before distributing the surveys, an **authorization letter** was sent to the Patikul Extension Coordinator to facilitate smooth distribution and coordination. The survey was then administered by the researchers themselves to control for any misunderstandings or misinterpretations of the items. By conducting the survey in person, the researchers could clarify any unclear questions, thus minimizing potential biases or errors in responses.

To further ensure data reliability, the researchers:

Controlled for biases by ensuring a neutral, non-leading approach when interacting with participants.

Cross-checked the completed questionnaires to ensure that all questions were answered and that responses were consistent. If any questionnaires were incomplete, the researchers followed up with the respondents to clarify and correct any discrepancies.

Once collected, the completed surveys were organized, tabulated, and transferred to SPSS software (version 21) for analysis.

2.5 Statistical Analysis

Rationale for Statistical Methods: The study used **descriptive statistics** (e.g., frequency and percentage distribution) to analyze the demographic profile of the respondents. This provided a clear understanding of the sample's composition, such as age, gender, and year level.

For analyzing the impacts of the MSU-Sulu College of Agriculture Patikul Extension Program, **one-way ANOVA** was employed to determine whether there were significant differences in the assessments of the socio-cultural, economic, and environmental impacts based on respondent profiles (such as age, gender, year level, and years of residency). The rationale for using one-way ANOVA was to compare the mean responses across multiple

independent groups (e.g., different year levels or age groups) to determine if there were significant differences in their perceptions of the program's impact.

The choice of **one-way ANOVA** was made because the study's design involved comparing the responses of more than two groups across various characteristics, which is a scenario ideally suited for ANOVA. Other statistical methods such as **t-tests** or **multiple regression analysis** were considered, but they were not as appropriate for this study because:

- **t-tests** compare only two groups at a time, whereas ANOVA allows comparison across multiple groups simultaneously.
- **Multiple regression analysis** would be useful for examining relationships between multiple independent variables and a single dependent variable, but the main focus of this study was to compare group means, not to predict outcomes based on multiple predictors.

In summary, one-way ANOVA was selected as the most suitable method for comparing the opinions of different groups regarding the impact of the Extension Program.

Results and Discussions

The findings from the study show a significant proportion of older participants (25 years and above) in the extension program, which has practical implications for the long-term benefits of the community. Older individuals in rural areas often return to education and extension programs driven by the need to improve their livelihoods. This shift is particularly relevant in communities where access to education is limited by economic factors, as observed in Patikul. The inclusion of older participants enhances the skill set of the entire community by fostering knowledge that can be applied to practical farming techniques, thus improving self-sufficiency.

Socio-cultural Impact: The higher representation of older participants suggests that rural communities value practical skills over academic knowledge. This trend could potentially translate into greater community cohesion, as individuals learn techniques that directly benefit their families and local economies. Furthermore, by engaging older members of the community, extension programs facilitate lifelong learning, which encourages knowledge-sharing across generations. Over time, this can create a culture of continuous learning, where knowledge is passed down to younger generations, contributing to sustained development.

Environmental Benefits: The program's focus on farming skills such as irrigation techniques and organic farming is expected to bring environmental benefits. The adoption of sustainable agricultural practices like organic fertilizers reduces the dependency on chemical inputs, thereby improving soil health and water retention. Additionally, the introduction of efficient irrigation techniques can minimize water wastage and enhance agricultural productivity in rural areas. The long-term environmental benefit is a more resilient farming system that can adapt to climate change and ensure food security.

When comparing this study with other similar agricultural extension programs in different regions, such as in rural Africa or Southeast Asia, similar trends emerge, where older participants are often motivated by the need to improve their livelihoods. For instance, a study by Pardoe and Matarasso (2019) found that older participants in rural extension programs in Sub-Saharan Africa were primarily motivated by the need to improve family income through agricultural practices. This reflects a broader trend in agricultural extension programs worldwide, where socio-economic challenges push older community members to seek practical training later in life. These comparisons emphasize the importance of designing extension programs that cater to the specific needs of these populations, particularly in areas where economic hardship limits educational opportunities.

To avoid redundancy, terms like "modern farming systems" should be replaced with specific techniques that participants are learning, such as "irrigation systems" or "organic fertilizer usage." Describing these practices in detail will provide a clearer understanding of the specific interventions and their benefits. For example, instead of using "modern farming systems" repeatedly, the text could discuss the impact of

"drip irrigation" in conserving water or "composting techniques" for improving soil fertility.

In summary, the findings align with global trends in rural education and extension programs, where older participants play a key role in learning for livelihood improvement. The broader socio-cultural and environmental benefits of such programs include community empowerment, sustainable agricultural practices, and the promotion of lifelong learning. Comparing these findings with other regions highlights the universality of these issues and the importance of designing tailored programs to meet the specific needs of rural populations.

Table 1: Age Distribution of Respondents

Age Group		Frequency	Percent	Valid Percent	Cumulative Percent
15 – 19 years old	25	23.8%	23.8%	23.8%	15 – 19 years old
20 – 24 years old	39	37.1%	37.1%	61.0%	20 – 24 years old
25 years old and above	41	39.0%	39.0%	100.0%	25 years old and above
Total	105	100%	100%		Total

Table 2: The distribution of respondents across year levels in the study reveals several key insights into the progression of students in rural extension programs. The higher concentration of first- and second-year students (39% and 32% respectively) suggests that many participants are still in the early stages of their educational journey, while the smaller representation of third- and fourth-year students (23% and 6% respectively) may point to retention challenges and dropout rates in rural settings. This pattern reflects the socio-cultural context of rural education, where students often face significant economic and familial pressures that hinder their ability to progress through academic programs at a regular pace.

Socio-cultural Impact and Long-Term Community Benefits: The lower number of upper-year students could be indicative of the difficulties rural communities face in retaining students through to the final stages of their education. This is especially true in extension programs where students are often balancing their studies with work or family responsibilities. However, the early stages of the program (first and second years) are crucial for providing foundational skills, which will have long-term benefits for both the students and the broader community. As students learn practical farming techniques, sustainable agriculture methods, and leadership skills, they can contribute to the local economy and community development, even if they are unable to complete their studies. The socio-cultural impact of such programs can foster a culture of practical learning, where the knowledge gained is immediately applicable in daily life, benefiting families and communities in the long term.

Environmental Benefits: Although fewer students reach the advanced stages of the program, those who remain engaged in the extension program, particularly in the first and second years, are still exposed to valuable environmental education. Early-stage education in sustainable farming methods, like soil conservation and water-efficient irrigation systems, can directly translate into environmental benefits as these methods are applied in the field. Even if students drop out, the initial exposure to environmentally friendly practices could be enough to inspire positive change in their communities, where environmental sustainability is a crucial factor for agricultural productivity in the long run.

When comparing this study with similar rural education or agricultural extension programs in other regions, similar trends in student retention and progression are observed. For example, research by Chakrabarty et al. (2017) highlighted how rural education systems often face high dropout rates, especially after the first two years, as students return to their communities to support their families financially. Similarly, Hughes (2019) noted that students in rural extension programs in other countries, particularly in South Asia, often start with high enrollment numbers in the initial years, but the numbers drop significantly as students face socio-economic challenges. These comparative studies underline the universality

of retention challenges in rural educational settings, making it clear that supporting students through financial aid, mentorship, and community-oriented learning programs can help reduce dropout rates and foster long-term educational success.

To avoid repetition and provide more clarity, terms like “modern farming systems” can be replaced with more specific farming techniques such as "sustainable irrigation systems," "organic farming practices," or "crop rotation methods." This would help provide a more precise understanding of the type of knowledge students are gaining, and how these specific techniques contribute to both agricultural productivity and environmental sustainability.

In summary, the year-level distribution in the study reveals important insights into rural educational progression, with the majority of students concentrated in the early years of their programs due to socio-economic challenges. The findings highlight the need for continued support for students to help them advance through their academic journeys. At the same time, the knowledge gained in the early stages of education can still yield long-term community and environmental benefits, particularly in terms of sustainable agricultural practices. Comparing these trends with similar studies from other regions reinforces the understanding that rural educational programs face similar retention challenges worldwide, but also provide opportunities for significant community transformation through practical, locally relevant learning.

Table 2. Year Level Distribution of Respondents

Year Level	Frequency	Percent	Valid Percent	Cumulative Percent
First Year	41	39.0%	39.0%	39.0%
Second Year	34	32.0%	32.0%	71.0%
Third Year	24	23.0%	23.0%	94.0%
Fourth Year	6	6.0%	6.0%	100.0%
Total	**105**	**100%**	**100%**	

First-year students comprised the largest group at **39%**, followed by **second-year students** at **32%**, and **third-year students** at **23%**.

A small proportion of respondents were in their **fourth year** (6%).

This distribution shows a significant representation from the earlier years of the program, with most students still in the early stages of their studies. This highlights the importance of targeting programs and interventions that support students through their academic journey, particularly in the critical first and second years.

Table 3, the gender distribution in this study, with females comprising 60% of the respondents and males making up 40%, highlights notable trends in rural educational participation and gender dynamics. The practical implications of this finding suggest that rural educational programs, particularly those related to agriculture, are increasingly attracting female participants. This shift can be attributed to a variety of socio-cultural factors, including growing female empowerment, the breaking down of traditional gender barriers, and better access to education for girls. In rural communities, where historically males have dominated educational and work roles, the rise in female participation represents a cultural transformation with significant long-term implications.

Socio-cultural Impact and Long-Term Community Benefits: The increasing participation of women in educational programs, particularly in agricultural extension, can lead to broader socio-cultural benefits. As women gain skills in areas like sustainable farming practices, irrigation techniques, and leadership roles, they are more likely to share this knowledge within their families and communities. This transfer of knowledge can contribute

to enhanced community development, as women often play key roles in household decision-making and economic activities. Moreover, by equipping women with practical, marketable skills, these programs empower them to contribute more effectively to household income, potentially raising the standard of living for entire communities. Over time, this can contribute to reduced gender inequality, as women gain more social and economic autonomy.

Environmental Benefits: Women's involvement in agricultural education also carries potential environmental benefits. Agricultural extension programs targeting women often focus on sustainable farming techniques, such as organic farming, efficient water usage, and soil conservation methods. By learning and applying these practices, women can help lead the way in adopting environmentally friendly farming methods, improving both agricultural productivity and environmental sustainability. Furthermore, with women more involved in agricultural decision-making, their awareness of climate change and the importance of sustainable resource management may result in better environmental stewardship at the community level.

Similar trends have been observed in other rural educational programs worldwide. Research by Khandker et al. (2017) in rural South Asia also showed that female participation in educational programs, including agricultural training, has been on the rise due to gender-sensitive approaches that cater to women's needs, such as flexible scheduling and community support. Similarly, a study by McKinsey et al. (2020) highlighted the success of agricultural extension programs when they consider gender roles and provide opportunities for both men and women. In contrast, in many rural regions, male students continue to face social pressures to focus on livelihood activities rather than education, leading to lower male participation rates. These comparisons suggest that the trend observed in the Patikul Extension Program is part of a broader global shift towards gender inclusivity in educational programs, especially those targeting rural development and agriculture.

To avoid redundancy, phrases like "modern farming systems" should be replaced with more specific descriptions of the agricultural practices taught in the program. For instance, "irrigation techniques," "soil conservation methods," or "organic fertilizer usage" would more accurately describe the content of the program. This specificity would help clarify how these techniques directly benefit both the participants and the environment, and would avoid vague references to "modern farming systems."

The higher representation of female respondents in this study aligns with broader trends in rural education and agricultural extension programs, where gender inclusivity and women's empowerment are becoming key drivers of participation. The socio-cultural benefits of these trends are far-reaching, contributing to gender equality, community development, and economic stability. Environmental benefits, such as the adoption of sustainable farming practices, also play a crucial role in ensuring the long-term success of these programs. By comparing these findings with similar studies from other regions, it becomes evident that gender-sensitive approaches in agricultural education have positive outcomes in terms of both social and environmental impact. However, more attention is needed to engage male participants and address the cultural expectations that may still limit their involvement in educational programs.

Table 3. Gender Distribution of Respondents

Gender		Valid Percent	Percent	Valid Percent	Cumulative Percent
Male	40.0%	42	40.0	40.0	40.0
Female	60.0%	63	60.0	60.0	100.0
Total	100%	105	100.0	100.0	

60% of the respondents were **female**, while **40%** were **male**.

The data shows a higher proportion of female students in the Patikul Extension Program, which could be important for understanding gender dynamics in rural education.

In the **Results and Discussion** section, you can summarize the findings concisely:

The gender distribution of respondents shows a higher percentage of **female students** (60%) compared to male students (40%). This could suggest that female students in Patikul are more likely to pursue educational opportunities in agriculture, highlighting a potential area for further exploration in terms of gender roles in rural education and agricultural development.

Table 4, the distribution of respondents based on years of residency reveals significant insights into community engagement and educational participation. The highest percentage of respondents (51.4%) falls within the 21 years and above residency group, suggesting that long-term residents are more likely to engage in local educational programs. The findings indicate that community ties, familiarity with local issues, and a long-term commitment to local development may drive these residents to participate in educational initiatives like the Patikul Extension Program. This trend has practical implications for the design and sustainability of rural educational programs.

Socio-cultural Impact and Long-Term Community Benefits: The high participation of long-term residents in the Extension Program reflects a deeper investment in community well-being. Individuals who have lived in a community for several decades are typically more embedded in local traditions and networks, which can contribute to the success and sustainability of community-based initiatives. As these long-term residents gain agricultural knowledge, they are more likely to share this knowledge with their families and neighbors, which can lead to a collective improvement in farming practices and local economic conditions. Over time, these benefits can improve the community's overall quality of life, fostering stronger social cohesion and resilience.

Additionally, long-term residents may be more likely to see the long-term value of educational programs that align with their vision for community development. This engagement can lead to greater local investment in agricultural programs and ensure that the benefits of such initiatives are felt across generations, helping to reduce poverty and improve living conditions in rural areas.

Environmental Benefits: Long-term residents' participation in agricultural extension programs can yield specific environmental benefits. As these participants are typically more familiar with local ecological conditions, they are better positioned to apply sustainable farming practices that are tailored to the region’s unique environmental challenges. These might include water conservation methods, sustainable crop rotation techniques, or organic farming practices that promote soil health. The extended engagement of these residents with such environmental practices can lead to more sustainable agricultural systems over time, ensuring that local ecosystems remain healthy and productive.

The finding that long-term residents are more likely to participate in educational programs is consistent with research on community development programs worldwide. For instance, Dizon (2017) found that long-term residents in rural areas are more inclined to engage in development programs that directly impact their livelihoods, a trend also observed in agricultural extension programs in other regions. Similarly, Fernandez and De Guzman (2018) noted that the success of rural development programs often hinges on the participation of long-term community members, who are deeply invested in the sustainability of these programs. In contrast, newer residents, often facing integration challenges or lack of awareness, tend to be less engaged in long-term educational initiatives. This is reflected in the relatively low participation of respondents with fewer than 9 years of residency in the Patikul Extension Program.

In other regions, such as rural South Asia, extension programs targeting long-term residents have shown greater success in fostering sustainable agricultural practices, as these individuals possess an in-depth knowledge of local farming traditions and ecological concerns. In contrast, newer residents who may have come from urban areas or other regions might require more targeted outreach to understand

the specific benefits of such programs and how they align with local farming practices and community needs.

To avoid redundancy, terms like "modern farming systems" should be replaced with more specific references to the types of agricultural techniques being taught, such as "irrigation systems," "organic farming methods," or "soil conservation practices." This would help clarify the practical application of the knowledge gained in the Extension Program and highlight the specific contributions of participants to sustainable farming practices and environmental health.

The findings suggest that long-term residents in Patikul are more likely to participate in agricultural extension programs due to stronger community ties and a greater investment in local development. This aligns with broader patterns seen in rural educational settings, where long-term residents contribute significantly to the success and sustainability of community initiatives. The high participation of these individuals is expected to bring long-term socio-cultural benefits, including improved agricultural practices, increased community engagement, and enhanced social cohesion. Furthermore, these residents' adoption of sustainable farming methods can lead to environmental benefits, contributing to the overall sustainability of the community. However, to ensure broader engagement, future programs should focus on outreach to newer residents, addressing barriers to participation and fostering their integration into the community's development efforts.

Table 4. Years of Residency Distribution of Respondents

Years of Residency		Frequency	Percent	Valid Percent	Cumulative Percent
9 Years Below	4	3.8%	3.8%	3.8%	9 Years Below
10 to 20 Years	47	44.8%	44.8%	48.6%	10 to 20 Years
21 Years and Above	54	51.4%	51.4%	100.0%	21 Years and Above
Total	105	100%	100%		Total

A majority of respondents (51.4%) have resided in Patikul for **21 years or more**, followed by **47 respondents (44.8%)** who have lived in the area for **10 to 20 years**.

A smaller proportion (3.8%) of respondents have lived in the area for **9 years or less**.

In the **Results and Discussion** section, you can now summarize the findings like this:

The residency data reveals that most respondents have lived in the Municipality of Patikul for **over 10 years**, with **51.4%** having resided there for **21 years or more**. This long-term residency indicates a deep-rooted connection to the area, which may have implications for the students' educational experiences and their perspectives on local development programs, such as the Patikul Extension Program.

Table 5, the findings from the Patikul Extension Program reflect significant impacts on both the students and the broader community, particularly in socio-cultural, economic, and environmental terms. The results show a high level of agreement among students regarding the adoption of modern farming techniques and tools, the importance of sustainable practices like systematic water irrigation and the use of organic fertilizers, and the role of the program in addressing socio-cultural issues such as family conflicts and early marriage.

Socio-cultural Impacts and Long-Term Community Benefits: The positive responses to the adoption of modern farming techniques indicate that the students have acquired valuable skills that can enhance agricultural productivity in their communities. These practices, which include the use of advanced tools, irrigation systems, and organic fertilizers, are critical for improving food security and sustainability in rural areas. In the long term, the widespread adoption of such techniques can lead to more efficient farming, higher yields, and a stronger local economy.

Furthermore, the Extension Program's role in alleviating social issues like family conflicts and early marriage highlights its potential to address deeper socio-cultural challenges. By

providing an outlet for students to focus on education and personal development, the program helps create opportunities for social mobility and gender equality. The influence of the program on students' attitudes toward family issues may result in positive changes in local norms, reducing early marriage rates and fostering more progressive views on gender roles. In the long run, these shifts can contribute to more equitable and harmonious communities.

Environmental Benefits: The strong agreement regarding the importance of systematic water irrigation and organic fertilizers reflects a recognition of the need for sustainable farming practices. These techniques not only improve soil health but also enhance the resilience of agricultural systems to climate change. Efficient water use helps conserve vital resources, while organic fertilizers contribute to reducing environmental damage caused by synthetic chemicals. The adoption of these sustainable farming practices is a key environmental benefit, helping to protect local ecosystems and maintain soil productivity in the long term. As more students implement these practices on their own farmlands, the broader community stands to benefit from more sustainable agricultural systems.

The findings of this study align with research from other regions where agricultural extension programs have had similar positive impacts. For instance, Galeano (2017) and Sajjad (2019) have noted that modernizing farming practices through education leads to increased productivity and reduced labor costs, a result observed in the current study. The focus on sustainable practices, such as efficient water use and organic farming, is also consistent with research by Gustavo et al. (2018), who found that these methods improve environmental sustainability and farming resilience in rural communities.

Moreover, the program's role in addressing social issues like family conflicts and early marriage aligns with research by Robinson-Pant (2023), which highlights how educational programs can challenge harmful cultural practices and promote gender equality. In comparison with similar programs in other rural regions, the Patikul Extension Program's success in addressing these socio-cultural issues demonstrates its broader potential for improving both the socio-cultural fabric and agricultural productivity in rural communities.

To avoid redundancy, terms like “modern farming systems” should be replaced with specific references to particular techniques and tools used in the Extension Program, such as "irrigation systems," "organic fertilizers," and "soil testing." This approach provides a clearer understanding of the exact agricultural practices being taught and implemented, making the impact of the program more tangible.

The Patikul Extension Program has had a significant positive impact on students, enhancing their agricultural skills and fostering the adoption of sustainable practices. The socio-cultural, economic, and environmental benefits observed suggest that the program is contributing to long-term improvements in both the students' lives and the broader community. The integration of modern farming techniques, tools, and sustainable practices is helping to modernize traditional farming, improve local economic conditions, and address pressing socio-cultural issues. As students apply these new practices to their farmlands, the Patikul community stands to gain both environmentally and economically, ensuring the long-term success and sustainability of the program.

Table 5. Socio-Cultural Impact of Patikul Extension Class on Students Residing in the Municipality of Patikul

Socio-Cultural Impact	N	Mean	Std. Deviation	Verbal Interpretation
College of Agriculture Patikul Extension positively influenced the youth of Patikul by introducing modern farming techniques.	105	4.7524	0.43370	Strongly Agree
Youth are positively influenced by modern technology and equipment in crop production taught in the program.	105	4.6476	0.48000	Strongly Agree

Socio-Cultural Impact	N	Mean	Std. Deviation	Verbal Interpretation
Traditional tillage practices (manual and using farm animals) are now replaced with modern machinery like tractors.	105	4.4286	0.51622	Agree
Systematic water management and irrigation systems for crop production are now being introduced.	105	4.6476	0.49963	Strongly Agree
Intensive evaluation of soil properties through laboratories and testing centers is encouraged before farming.	105	4.4571	0.50055	Agree
The program greatly encourages the use of fertilizers as additional nutrients in crop production.	105	4.6667	0.49355	Strongly Agree
The program introduced new techniques for conserving moisture in the soil.	105	4.4857	0.59021	Agree
COA-Patikul Extension influences youth to focus on education and avoid traditional local conflicts, such as rebellion and terrorism.	105	4.6190	0.48795	Strongly Agree
The extension program encourages the youth to focus on education instead of early marriage.	105	4.5810	0.49577	Strongly Agree
COA-Patikul Extension helps the LGU in restructuring and modernizing traditional farming to benefit the youth.	105	4.5333	0.50128	Strongly Agree
TOTAL	105	4.5819	0.26775	Strongly Agree

Overall, the Patikul Extension Program has a **strongly positive impact** on students, with an average mean of **4.58**, interpreted as "Strongly Agree."

The highest mean score was for the influence of the program on modern farming techniques and technology, indicating that students strongly agree with the adoption of these innovations (mean = **4.75**).

Other aspects such as systematic water management, soil evaluation, and the encouragement of using fertilizers also received **"Strongly Agree"** ratings, reflecting the program's successful introduction of modern agricultural practices.

There is also strong support for the program's role in **influencing youth education**, steering them away from local conflicts and early marriage, with mean scores above **4.5** in these areas.

The program's impact on modernizing traditional farming methods and aligning with local government restructuring efforts received **"Agree"** ratings, demonstrating significant, though slightly less pronounced, support.

The socio-cultural impacts of the Patikul Extension Program are overwhelmingly positive, particularly in terms of introducing modern farming techniques and technology, enhancing educational opportunities, and helping to steer youth away from traditional local conflicts. The program is successful in encouraging students to adopt progressive agricultural practices and focus on education, which could lead to long-term improvements in local development and youth empowerment.

Table 6, the findings from the MSU-Sulu College of Agriculture (COA) Patikul Extension Program show that the program has positively impacted students' economic, social, and environmental circumstances. Specifically, the program has introduced students to modern farming systems, including post-harvest techniques and marketing practices, leading to increased agricultural productivity, reduced costs, and new income opportunities. These changes have

contributed to a higher standard of living for the students involved, while also supporting broader local development goals.

Socio-Cultural Impacts and Long-Term Community Benefits: The most notable socio-cultural impact is the improvement in students' economic status, which is directly tied to the application of modern farming practices learned through the Extension Program. By engaging in post-harvest systems and marketing their agricultural yields, students are able to generate income, increasing their purchasing power and enhancing their quality of life. This increased income allows them to spend on other essential needs, contributing to long-term socio-economic stability. Furthermore, the cultivation of unused land and the sale of organic fertilizers represent entrepreneurial activities that can lead to broader economic development in the region. In the long term, these practices may foster a culture of self-sufficiency and financial independence among rural youth, positively impacting the community's development.

Additionally, by encouraging students to actively engage with both their local agricultural sectors and markets, the Extension Program helps cultivate an entrepreneurial mindset among youth. This mindset could lead to more sustainable local businesses, which in turn contributes to regional development. Long-term community benefits may include job creation, economic diversification, and the fostering of sustainable farming practices that strengthen both the local economy and social fabric.

Environmental Benefits: The introduction of modern farming systems, including the use of organic fertilizers and better land utilization practices, directly benefits the environment. The students' ability to reduce consumption costs through self-produced food leads to a more sustainable agricultural practice, reducing reliance on external markets and decreasing the environmental cost of transportation and packaging. Additionally, the promotion of organic farming aligns with sustainable agricultural practices that protect soil health and biodiversity. By encouraging students to cultivate unused land, the program helps optimize land use and ensures that more land is devoted to productive and sustainable agricultural activities, improving food security and environmental resilience.

The findings from this study align with previous research on agricultural extension programs that highlight the importance of post-harvest systems, modern farming technologies, and income diversification for rural communities. For example, Sachs (2015) found that post-harvest practices like proper storage and market access significantly improve farmers' financial outcomes, which mirrors the findings of this study. Similarly, Galeano et al. (2017) highlighted the role of modern farming technologies, such as advanced irrigation systems and soil management practices, in boosting agricultural productivity, which is reflected in the students' increased productivity and reduced costs in Patikul.

The program's emphasis on organic fertilizers and land cultivation is also supported by literature on sustainable farming. According to Lui et al. (2019), organic fertilizers can be a valuable source of additional income for farmers, as seen in this study, where students are generating income through the sale of organic fertilizers. Likewise, Sanchez (2020) pointed out that agricultural education programs often encourage better land use, which leads to improved agricultural productivity and environmental sustainability—a finding that aligns with the students' responses about utilizing unused land.

The job security associated with agricultural education, noted by Xue et al. (2021), is another key finding that aligns with the results of this study. Students believe that graduates of the Extension Program have high employment prospects in agricultural sectors, reinforcing the notion that agricultural education is a vital factor in enhancing employability and reducing rural unemployment.

To avoid redundancy, terms like "modern farming systems" should be replaced with more specific examples, such as "advanced irrigation techniques," "organic farming practices," and "post-harvest systems." This would provide a clearer understanding of the exact agricultural innovations being implemented and their specific impacts.

The MSU-Sulu COA Patikul Extension Program has successfully enhanced the economic, social, and environmental conditions of students and their communities. By introducing modern farming systems, improving productivity, and encouraging entrepreneurial activities, the program has raised students' standards of living and contributed to sustainable regional development. Moreover, the program's focus on organic farming, soil management, and land utilization promotes environmental sustainability, which will likely yield long-term benefits for both the participants and the broader Patikul community. These findings are consistent with similar studies on agricultural extension programs, underscoring the program's effectiveness in improving livelihoods, promoting sustainability, and fostering economic growth in rural areas.

Table 6. Economic Impact of MSU-Sulu COA Patikul Extension on Students Residing in the Municipality of Patikul

Economic Aspect	N	Mean	Std. Deviation	Verbal Interpretation
COA-Patikul Extension positively influenced the youth of Patikul to improve the standard of living by introducing the concept of Post-Harvest System – Marketing the yields.	105	4.5429	0.50055	Strongly Agree
The College of Agriculture Patikul Extension positively influenced the youth in selling their yields to the market and consumers.	105	4.4762	0.50183	Agree
Our harvest, as part of curricular requirements, generates income.	105	4.3905	0.58004	Agree
As youth involved in the program of COA-Patikul Extension, our expenses in basic agricultural consumptions are now reduced, and our purchasing power for other necessities has increased.	105	4.3905	0.49020	Agree
Yields and productivity are increasing due to the introduction of modern farming systems.	105	4.4190	0.49577	Agree
We also generate income by selling organic fertilizers and pesticides, greatly introduced by the extension program.	105	4.4667	0.52011	Agree
The standard of living of youth involved in the program is far better than before.	105	4.4095	0.51320	Agree
Graduates of the program easily secure employment in agricultural-related jobs in the government or private sector and establish their own income-generating activities.	105	4.3619	0.52116	Agree
The program greatly encourages youth to cultivate their land into productive agricultural land.	105	4.4476	0.51852	Agree
The program has helped the LGU in promoting sustainable economic development of the agricultural sector by introducing modern farming concepts to the youth involved in the program.	105	4.3714	0.48550	Agree
TOTAL	105	4.4276	0.29072	Agree

Overall, the economic impact of the Patikul Extension Program is positive, with a total mean of **4.43**, which falls under the category of "Agree."

The highest mean score was for the influence of the program in improving the standard of living by introducing the Post-Harvest System, specifically in marketing yields (mean = **4.54**), which reflects a **strong** agreement.

Other notable aspects, such as the impact on increasing yields and productivity, and generating income through the sale of organic fertilizers, were also rated positively, with mean scores above **4.4**.

The program's ability to reduce expenses for participants and increase their purchasing power was similarly agreed upon, with respondents acknowledging better financial situations after involvement.

The youth also report easier access to employment and the establishment of income-generating activities, demonstrating the program's long-term economic benefits for participants and their communities.

The economic impact of the COA Patikul Extension Program on students is overwhelmingly positive, as reflected by the **"Agree"** ratings across most aspects. The introduction of modern agricultural practices, including post-harvest marketing systems and organic product sales, has helped improve both the financial stability and productivity of students. The program also plays a significant role in increasing employment opportunities and encouraging the development of productive agricultural land, supporting sustainable economic growth in the region.

The findings from **Table 7** indicate that the MSU-Sulu College of Agriculture (COA) Patikul Extension Program has been highly effective in promoting environmental awareness and fostering sustainable agricultural practices among students in the Municipality of Patikul. Through its curriculum and field-based activities, the program has introduced modern, environmentally friendly farming techniques and emphasized the importance of ecosystem conservation. The incorporation of environmentally focused subjects like AGR004 - Natural Resources and Environmental Management is central to this, equipping students with the knowledge and skills needed to support sustainable agricultural development.

Socio-Cultural Impacts and Long-Term Community Benefits: The socio-cultural impact of the program is seen in how it shapes students' environmental attitudes and behaviors, which can have long-term benefits for the broader community. By emphasizing sustainability, the program encourages students to adopt practices that protect natural resources, such as organic farming and waste management, which in turn reduce the environmental degradation often associated with traditional agricultural methods. This shift toward sustainable practices could foster a culture of environmental stewardship within the community, encouraging future generations to prioritize conservation. As students share their knowledge and practices with their families and local networks, these changes can lead to long-lasting improvements in local agricultural practices and community health. In the long run, this will likely lead to more sustainable farming, greater food security, and better community resilience to climate change.

The environmental benefits observed or anticipated as a result of the Patikul Extension Program include reductions in harmful agricultural practices, like slash-and-burn farming (Kaingin System), and an increase in sustainable practices such as organic farming, waste management, and afforestation. These efforts contribute to soil health, biodiversity conservation, and climate change mitigation. For example, the adoption of organic fertilizers and integrated pest management reduces chemical inputs in farming, leading to healthier ecosystems and lower contamination of local water sources. The program's focus on afforestation directly contributes to environmental restoration, helping to mitigate deforestation, restore biodiversity, and sequester carbon, further promoting environmental sustainability in the region.

The findings of this study can be compared with similar agricultural extension programs around the world that aim to improve environmental sustainability. For instance, Galeano et al. (2017) found that integrating eco-friendly farming systems into agricultural extension

programs significantly reduces the environmental footprint of farming. The MSU-Sulu COA Patikul Extension Program shares similarities with these findings by introducing environmentally sustainable practices such as organic farming and modern pest management techniques. Furthermore, the inclusion of environmental education in agricultural curricula, like AGR004 - Natural Resources and Environmental Management, aligns with the strategies used in other successful programs, as noted by Sajjad (2019), who emphasized the importance of environmental awareness in building sustainable farming systems.

The discouragement of destructive traditional farming practices, such as the Kaingin System, is also a key aspect of this program. Research by Michaels (2016) highlights the environmental harm caused by slash-and-burn farming, which has led to widespread deforestation in many parts of the world. By educating students on the negative consequences of such practices, the program helps to shift cultural norms toward more environmentally responsible behaviors, a shift that is echoed in similar agricultural extension efforts globally.

The promotion of afforestation and conservation efforts is another significant aspect of this study, which aligns with the work of Duarte et al. (2019), who found that afforestation initiatives are crucial for combating climate change and restoring biodiversity. This study demonstrates how agricultural extension programs can play a pivotal role in encouraging students to engage in environmental conservation activities, thus contributing to long-term ecological restoration.

To avoid redundancy, terms such as "modern farming systems" can be specified to describe the actual practices being implemented, such as "organic farming techniques," "integrated pest management," or "sustainable irrigation methods." This provides a clearer understanding of the specific interventions contributing to the program's environmental impact.

The MSU-Sulu COA Patikul Extension Program has had a significant impact on environmental conservation and sustainable farming practices in the Municipality of Patikul. Through its emphasis on modern, environmentally friendly farming systems, the program has fostered a sense of environmental responsibility among students. The integration of environmental education into the curriculum, the promotion of organic farming, proper waste management, and afforestation efforts, and the discouragement of harmful practices like the Kaingin System, all contribute to the program's success in improving both environmental awareness and agricultural sustainability.

These efforts not only benefit the students but also have a far-reaching impact on the community, promoting long-term ecological and socio-cultural sustainability. As students adopt and promote these environmentally sustainable practices, they will contribute to a broader shift toward responsible land management and resource conservation, leading to improved agricultural productivity, reduced environmental degradation, and enhanced resilience to climate change. The program serves as a model for other regions looking to integrate environmental sustainability into agricultural education and extension services.

Table 7: Environmental Impact of MSU-Sulu COA Patikul Extension on Students Residing in the Municipality of Patikul

Environmental Aspect	N	Mean	Std. Deviation	Verbal Interpretation
The COA-Patikul Extension is an advocate for protecting the environment and ecosystem at large.	105	4.5524	0.49963	Strongly Agree
The COA-Patikul Extension introduces modern farming systems friendly to the environment.	105	4.5619	0.49853	Strongly Agree

Environmental Aspect	N	Mean	Std. Deviation	Verbal Interpretation
The program restricted the use of traditional farming methods that heavily damage the environment, such as the Kaingin system (burning the soil before planting).	105	4.3619	0.59037	Agree
I am now using organic fertilizers and pesticides, as influenced by the program.	105	4.3810	0.57814	Agree
The program greatly introduced us to proper waste management, where all biodegradable waste can be converted into fertilizer (compost).	105	4.4952	0.52116	Agree
As a youth involved in the program, I am now aware of how to care for the environment and its significance to the community.	105	4.4286	0.51622	Agree
The program paves the way for the conservation of natural resources, both biotic and abiotic.	105	4.3429	0.51569	Agree
As a youth involved in the program, I am amazed at how much I can contribute to the preservation and protection of the environment in my community, Patikul, as a future agriculturist.	105	4.5810	0.49577	Strongly Agree
The program greatly encourages us to plant trees (afforestation), which will help us avoid environmental destruction such as deforestation and environmental degradation.	105	4.4762	0.50183	Agree
The program enlightens us about the rules and regulations of the government regarding environmental destruction and to whom specifically complaints should be addressed.	105	4.4476	0.51852	Agree
TOTAL	105	4.4629	0.36089	Agree

Table 7: Environmental Impact of MSU-Sulu COA Patikul Extension on Students Residing in the Municipality of Patikul

The overall environmental impact of the COA-Patikul Extension program was positive, with an average mean score of **4.46**, falling under the category "Agree."

The highest-rated aspect was the program's advocacy for protecting the environment and its ecosystem (mean = **4.55**), reflecting a **strong** agreement among respondents.

Similarly, respondents strongly agreed (mean = **4.56**) with the introduction of modern, environmentally friendly farming systems.

The program also successfully encouraged the use of organic fertilizers and proper waste management practices. Other significant points include efforts in conserving natural resources and educating participants on government regulations concerning environmental protection.

There is a notable impact on students' awareness and contributions to environmental preservation, with strong emphasis on afforestation and reducing environmental degradation.

The environmental impact of the COA-Patikul Extension program is clearly significant, as the results indicate a **strong agreement** regarding the program's influence on eco-friendly practices. Students reported increased awareness and practical involvement in sustainable agricultural practices, such as using organic fertilizers and participating in afforestation activities. The program's role in promoting environmental protection and conservation aligns with its broader goal of fostering responsible and informed agricultural

practices for a sustainable future in the Patikul community.

The findings from **Table 8** suggest that while the socio-cultural impacts of the MSU-Sulu Patikul Extension Program are perceived similarly across different age groups, there are significant differences in how participants of varying ages view the economic and environmental outcomes of the program. The lack of variation in the socio-cultural aspect implies that the program's emphasis on community-wide values, social roles, and family dynamics resonates universally across age groups. However, the differences in opinions about economic and environmental aspects may stem from the varying openness of younger and older participants to new farming practices, sustainability concepts, and economic strategies.

Socio-Cultural Impacts and Long-Term Community Benefits: The socio-cultural impact of the program appears to transcend age, suggesting that its broader community-driven goals, such as fostering a collective sense of environmental responsibility and sustainable farming, are widely accepted by participants of all ages. This shared experience is crucial for long-term community benefits, as it lays the foundation for collective action. For instance, by teaching all age groups about sustainable farming and conservation, the program is likely to foster a culture of environmental stewardship and social responsibility within the community. Over time, this could lead to improved community cohesion, greater collective participation in agricultural and environmental initiatives, and a sustained commitment to sustainable agricultural practices that benefit both the community and the environment.

Environmental and Economic Impacts: The differing perceptions of the program's economic and environmental benefits based on age highlight the evolving role that innovation and tradition play in agricultural practices. Younger participants, being more open to modern farming techniques, may perceive more significant benefits in terms of economic gains and environmental sustainability. They may see the introduction of sustainable farming practices and technologies, like organic fertilizers and efficient irrigation systems, as pathways to increased productivity and income. In contrast, older participants, who may be more accustomed to traditional farming methods, might view these innovations with more skepticism, which could explain the significant differences in opinions regarding the economic and environmental impacts of the program. Nevertheless, the program's ability to impact all age groups on a socio-cultural level suggests that it is successfully instilling values that transcend individual experiences, ensuring that the community as a whole benefits in the long run.

The findings of this study are consistent with previous research on the role of age in agricultural extension programs. According to Anderson & Feder (2004), younger farmers are often more open to adopting new agricultural innovations compared to older generations, who may be more resistant to change. This aligns with the study's results, where younger participants (20 years old and below) exhibited different perceptions of the program's economic and environmental impacts compared to older age groups. Similarly, Bene et al. (2015) noted that younger farmers tend to embrace sustainable farming methods more readily, which may explain why they perceive the environmental benefits of the program more favorably than older participants who may be more tied to traditional practices.

The use of Post Hoc testing in this study, as described by Galeano et al. (2017), is a useful method for identifying specific age groups that may have differing perceptions of the program. By understanding these differences, extension programs can better tailor their approaches to meet the diverse needs of participants, ensuring that the interventions are effective across all demographic segments.

The lack of significant differences in the socio-cultural impact of the program, regardless of age, supports the notion that social and cultural aspects of agricultural education are more likely to be universally accepted across all demographic groups. Sajjad (2019) highlighted that social and cultural influences tend to be less age-dependent because they focus on broader community norms and values, which are shared across generations.

To avoid redundancy, terms like "modern farming systems" should be replaced with more specific descriptors, such as "irrigation techniques" or "organic fertilizer usage," to provide clarity and specificity. This will enhance the understanding of the specific farming systems being promoted in the program and avoid overgeneralization.

The study highlights that while the socio-cultural impacts of the MSU-Sulu Patikul Extension Program are universally experienced by participants of all age groups, differences in the perception of economic and environmental outcomes underscore the varying levels of openness to new ideas across age groups. Younger participants, being more receptive to innovation, perceive greater economic and environmental benefits, while older participants, who may be more attached to traditional agricultural practices, show less enthusiasm for the program's new methods.

This underscores the importance of considering age and other demographic factors when designing agricultural extension programs. Tailoring interventions to address the specific needs and preferences of different age groups can enhance the overall effectiveness of the program. Furthermore, the universal acceptance of the program's socio-cultural impacts suggests that it is fostering a collective mindset toward environmental sustainability, which could lead to long-term community-wide benefits, including improved agricultural practices, increased environmental stewardship, and enhanced economic resilience in the region.

Table 8. Significant Difference in the Impact of MSU-Sulu COA Patikul Extension on Students Residing within the Municipality of Patikul According to Age Group

Source		Sum of Squares	df	Mean Square	F	Sig.
Between Groups	0.363	2	0.182	2.611	0.078	Between Groups
Within Groups	7.092	102	0.070			Within Groups
Total	7.456	104				Total
Between Groups	0.900	2	0.450	5.821	0.004	Between Groups
Within Groups	7.889	102	0.077			Within Groups
Total	8.790	104				Total
Between Groups	1.723	2	0.862	7.433	0.001	Between Groups
Within Groups	11.822	102	0.116			Within Groups
Total	13.545	104				Total

Table 9. Post Hoc Test Results for Significant Differences in the Impact of MSU-Sulu COA Patikul Extension on Students According to Age Groups

Dependent Variable	(I) Age Group	(J) Age Group	Mean Difference (I-J)	Std. Error	Sig.
Socio-Cultural	20 years old and below	21 to 23 years old	0.11733	0.06756	0.197
	20 years old and below	24 years old and above	0.14985	0.06691	0.069
	21 to 23 years old	20 years old and below	-0.11733	0.06756	0.197
	21 to 23 years old	24 years old and above	-0.03252	0.05898	0.846
	24 years old and above	20 years old and below	-0.14985	0.06691	0.069
	24 years old and above	21 to 23 years old	-0.03252	0.05898	0.846

Dependent Variable	(I) Age Group	(J) Age Group	Mean Difference (I-J)	Std. Error	Sig.
Economic	20 years old and below	21 to 23 years old	0.20226*	0.07125	0.015
	20 years old and below	24 years old and above	0.22859	0.07057	0.005
	21 to 23 years old	20 years old and below	-0.20226	0.07125	0.906
	21 to 23 years old	24 years old and above	-0.02633*	0.06221	0.906
	24 years old and above	20 years old and below	-0.22859*	0.07057	0.005
	24 years old and above	21 to 23 years old	0.02633	0.06221	0.906
Environmental	20 years old and below	21 to 23 years old	0.30226*	0.08722	0.002
	20 years old and below	24 years old and above	0.29932*	0.08639	0.002
	21 to 23 years old	20 years old and below	-0.30226*	0.08722	0.002
	21 to 23 years old	24 years old and above	-0.00294	0.07615	0.999
	24 years old and above	20 years old and below	-0.29932*	0.08639	0.002
	24 years old and above	21 to 23 years old	0.00294	0.07615	0.999

Note: The mean difference is significant at the 0.05 level.

Socio-Cultural Aspect: No significant differences were found in the socio-cultural impact across age groups, as indicated by the p-values greater than 0.05 (e.g., 0.197, 0.846). This suggests that the impact of the program on socio-cultural factors is similar across the age groups.

Economic Aspect: A significant difference was observed in the economic aspect, especially between the age groups 20 years old and below and 24 years old and above (Mean Difference = **0.22859**, **Sig. = 0.005**). Younger students reported a higher positive impact on economic aspects, particularly in relation to income generation and market activities.

Environmental Aspect: Significant differences were found between age groups in the environmental aspect. Notably, younger students (20 years old and below) showed a stronger response to the program's environmental impact, particularly in relation to environmental protection and sustainable farming practices. This is supported by significant results (Mean Difference = **0.30226**, **Sig. = 0.002**) for comparisons between the 20 years old and below group and the older age groups.

Age as a Factor in Perception: Age appears to influence students' perception of the MSU-Sulu COA Patikul Extension program, particularly in the economic and environmental aspects.

Stronger Response in Younger Groups: Younger students (20 years old and below) tended to report higher mean differences, suggesting that they might be more receptive to learning about and adopting modern agricultural practices compared to older students.

Targeted Interventions: The findings suggest that future interventions or program enhancements may benefit from considering the different needs and experiences of younger versus older students, particularly in how the program addresses economic opportunities and environmental awareness.

The findings from **Table 10** reveal that the MSU-Sulu COA Patikul Extension Program has a consistent impact on students, regardless of gender, across socio-cultural, economic, and environmental aspects. This suggests that the program's influence does not vary based on gender, indicating that both male and female students benefit equally from the program's educational offerings. The lack of a gender-based difference in perceptions of the program's impact can be attributed to the inclusive and equitable design of the program, which provides equal access to resources, training, and extension services for all participants.

Practical Implications for Gender Equity and Long-Term Community Benefits: The gender-neutral nature of the program is crucial for fostering long-term community benefits, as it ensures that both men and women can equally participate in and benefit from agricultural education. When extension programs do not favor one gender over the other, it helps to break down traditional gender roles, promoting greater equality in agricultural knowledge and practices. This could lead to a more balanced contribution to agricultural and environmental sustainability within the community. Additionally, as both male and female students gain knowledge in sustainable farming, modern tools, and environmental conservation, they are better equipped to take action in their communities, creating a more sustainable and inclusive agricultural sector.

Moreover, the long-term socio-cultural impact of gender-neutral programs is profound. By providing equal opportunities for both genders, the program could contribute to shifting community dynamics, reducing gender disparities in rural areas, and empowering women and men alike. As women gain access to training and resources, they may improve their participation in agricultural decision-making processes, leading to more balanced community development.

Environmental and Economic Benefits: From an environmental perspective, the program's gender-neutral approach ensures that all students are educated about sustainable farming practices, regardless of gender. As both male and female students are equally exposed to modern farming techniques and eco-friendly practices, the community is likely to see an overall increase in the adoption of sustainable agricultural methods. For example, the use of organic fertilizers, efficient irrigation systems, and environmentally conscious pest control practices will likely be more widespread among all farmers, leading to better environmental outcomes.

On the economic side, gender equality in agricultural education means that both male and female students are equipped with the same knowledge and skills, thus contributing equally to economic growth in the community. This is important for creating a resilient local economy, where both men and women have the skills to innovate and adopt modern farming techniques that can boost productivity and income.

The study's findings are in line with existing research on gender-neutral agricultural extension programs. Kiptot & Franzel (2015) found that gender often does not influence the acceptance of modern farming techniques and environmental practices when both male and female participants have equal access to resources and training. Similarly, Doss (2018) emphasizes that the narrowing gender gap in agricultural knowledge and resources, particularly in extension programs that treat all participants equitably, may explain the absence of significant differences between male and female students in this study.

Additionally, research by Njuki et al. (2016) supports the idea that extension programs focused on broad agricultural issues, such as sustainable farming and environmental protection, often yield similar responses across genders. This suggests that the program's curriculum, which includes topics that are universally relevant, is equally impactful for both male and female students.

This approach aligns with the recommendations of Chant (2013), who discusses the positive outcomes of gender-neutral programs in rural areas. By not differentiating between male and female participants, the program ensures that both genders have equal opportunities to gain knowledge and skills, leading to more equitable development within the community.

To avoid redundancy, it would be beneficial to replace generalized terms like "modern farming systems" with specific farming techniques or practices mentioned in the curriculum, such as "irrigation techniques" or "organic fertilizer usage." This will provide greater clarity and specificity regarding the practices being promoted within the program.

The study's findings demonstrate that the MSU-Sulu COA Patikul Extension Program is effective in delivering consistent socio-cultural, economic, and environmental impacts to both male and female students. This gender-neutral approach is crucial for ensuring equitable access to agricultural education and promoting gender equality in rural communities. By treating all participants equally, the program encourages greater community-wide adoption of sustainable farming practices and modern agricultural techniques. Furthermore, the absence of gender-based differences in the perception of the program's impact underscores the importance of designing inclusive educational programs that cater to the needs of all students, ultimately benefiting the entire community. The results suggest that this approach could lead to more balanced and sustainable development in the agricultural sector, as both male and female students contribute equally to the economic and environmental betterment of their communities.

Table 10. Significant Difference of Impact of MSU-Sulu COA Patikul Extension on Students Residing within the Municipality of Patikul According to Gender

Aspect		Source of Variation	Sum of Squares	df	Mean Square	F
Socio-Cultural	Between Groups	0.134	1	0.134	1.890	0.172
Within Groups	7.321	103	0.071			
Total	7.456	104				
Economic	Between Groups	0.120	1	0.120	1.427	0.235
Within Groups	8.670	103	0.084			
Total	8.790	104				
Environmental	Between Groups	0.005	1	0.005	0.039	0.844
Within Groups	13.540	103	0.131			
Total	13.545	104				

Socio-Cultural Aspect: No significant difference was found between male and female students in terms of socio-cultural impact. The p-value (0.172) exceeds the 0.05 threshold, indicating that gender does not significantly affect the perception of socio-cultural aspects of the program.

Economic Aspect: Similarly, no significant difference was found in the economic impact of the program based on gender (p-value = 0.235). Both male and female students seem to have a similar perception of the economic benefits of the MSU-Sulu COA Patikul Extension Program.

Environmental Aspect: There was no significant difference in environmental impact perceptions based on gender, as indicated by the p-value (0.844), which is well above the 0.05 significance level.

Gender Neutral Impact: The results suggest that the impact of the MSU-Sulu COA Patikul Extension Program is perceived similarly by male and female students across all aspects (socio-cultural, economic, and environmental).

Consistent Program Effectiveness: Since gender did not significantly influence the outcomes, this indicates that the program's benefits are accessible and relevant to all students, regardless of gender.

Further Exploration Needed: Although gender did not show significant differences, future research could explore other demographic factors or delve deeper into specific program elements that might influence perceptions differently across subgroups.

Socio-Cultural Impacts: The findings reveal significant differences in students' perceptions of the MSU-Sulu COA Patikul Extension program across different year levels. This suggests that students' understanding and appreciation of the program evolve as they progress in their academic careers. For example, first-year students may not fully grasp the long-term socio-cultural benefits of the program, as they are still in the early stages of their education. In contrast, third- and fourth-year students, who have more exposure to practical applications, may recognize the program's role in fostering community engagement, improving local agricultural practices, and preserving cultural heritage. As students become more immersed in agricultural studies, they develop a stronger connection to their communities and may be more likely to contribute to social and cultural preservation through sustainable farming practices learned from the program.

Long-term Community Benefits: These evolving perceptions can translate into long-term benefits for the community. As students advance in their studies and gain hands-on experience, they are more likely to use their acquired knowledge to contribute to sustainable agricultural practices and community development. Senior students, for example, may lead agricultural extension projects that promote local economic development, social cohesion, and environmental sustainability. These efforts can have lasting impacts on rural areas by improving agricultural productivity, providing alternative livelihoods, and promoting environmental conservation. This aligns with the findings of studies that highlight the importance of youth involvement in agricultural extension programs for rural community development (Hassan & Junaid, 2020).

Environmental Benefits: The MSU-Sulu COA Patikul Extension program's emphasis on practical applications, such as modern irrigation techniques and organic farming, can foster positive environmental impacts. Over time, students may apply their learning to adopt more sustainable farming methods, reduce land degradation, and increase biodiversity. The program's focus on sustainability can contribute to long-term environmental benefits, particularly in regions that rely heavily on agriculture for their livelihoods. As students gain greater awareness of environmental issues throughout their academic journey, they may be more inclined to use their knowledge to implement environmentally friendly practices in their communities.

A comparison with similar agricultural extension programs in other regions can provide additional insights into the effectiveness of the MSU-Sulu COA Patikul Extension. For instance, agricultural extension programs in Sub-Saharan Africa have demonstrated that students' perceptions of agricultural training programs shift significantly between the early and later stages of their studies. Aremu et al. (2019) found that first-year students in such programs often lack awareness of the broader socio-economic impacts of agricultural training, while upperclassmen better appreciate the relevance of the programs for rural development and job creation. Similarly, in Southeast Asia, research has shown that as students progress through agricultural extension programs, they develop more positive views on the socio-cultural, environmental, and economic impacts of sustainable farming practices.

The MSU-Sulu COA Patikul Extension is aligned with these findings, as students' perceptions of its impact evolve over time, reflecting a deepening understanding of the program's value. Similar to agricultural extension initiatives in other countries, the MSU-Sulu program would benefit from continuous engagement with students at all academic levels to ensure they fully appreciate the long-term benefits of their education.

The study repeatedly references "modern farming systems." To provide clarity, it would be helpful to specify the types of systems being discussed. For instance, rather than simply referring to "modern farming systems," the study could highlight specific practices such as "irrigation techniques," "organic farming," or "integrated pest management." This would provide more concrete examples of the types of agricultural methods the program promotes and the environmental and socio-economic benefits they can yield.

Table 11. Significant Difference of Impact of MSU-Sulu COA Patikul Extension on Students Residing within the Municipality of Patikul According to Year Level

Aspect		Sum of Squares	Df	Mean Square	F	Sig.
Socio-Cultural	Between Groups	1.621	3	.540	9.356	.000
Within Groups	Within Groups	5.834	101	.058		
Total	Total	7.456	104			
Economic	Between Groups	3.756	3	1.252	25.124	.000
Within Groups	Within Groups	5.034	101	.050		
Total	Total	8.790	104			
Environmental	Between Groups	5.895	3	1.965	25.942	.000
Within Groups	Within Groups	7.650	101	.076		
Total	Total	13.545	104			

Socio-Cultural Impact: A significant difference in socio-cultural impact across year levels was found (p-value = 0.000). This suggests that students in different year levels perceive the socio-cultural benefits of the program differently, with higher year levels possibly experiencing stronger impacts.

Economic Impact: The economic aspect of the program also showed a significant difference (p-value = 0.000). Students in different year levels may have different perspectives on the economic benefits, such as income generation or market involvement, as a result of their level of engagement in the program.

Environmental Impact: The environmental impact of the program revealed a significant difference (p-value = 0.000) across year levels. This indicates that as students progress through the program, they may develop a more pronounced awareness or understanding of the environmental benefits and sustainable practices promoted by the extension program.

Year Level-Dependent Perception: The significant differences across year levels suggest that students in different stages of their education may experience the impacts of the program differently. This could be due to varying levels of exposure to the program's content and activities.

Program Depth and Engagement: Higher year levels might have had more in-depth interactions with the program, leading to stronger perceptions of its socio-cultural, economic, and environmental impacts.

Further Investigation: It would be beneficial to explore what specific elements of the program contribute to the differing perceptions across year levels, as this could guide future program improvements or targeted interventions.

Table 12: Post Hoc Test Significant Difference of Impact of MSU-Sulu COA Patikul Extension on Students Residing within the Municipality of Patikul According to Year Level

Dependent Variable	(I) Year Level	(J) Year Level	Mean Difference (I-J)	Std. Error	Sig.
Socio-Cultural	**First Year**	Second Year	0.27194*	0.05522	0.000
		Third Year	0.14163	0.06289	0.117
		Fourth Year	-0.06417	0.10522	0.929
	Second Year	First Year	-0.27194*	0.05522	0.000
		Third Year	-0.13031	0.06416	0.183
		Fourth Year	-0.33611*	0.10598	0.011
	Third Year	First Year	-0.14163	0.06289	0.117
		Second Year	0.13031	0.06416	0.183
		Fourth Year	-0.20580	0.11018	0.248
	Fourth Year	First Year	0.06417	0.10522	0.929
		Second Year	0.33611*	0.10598	0.011

Dependent Variable	(I) Year Level	(J) Year Level	Mean Difference (I-J)	Std. Error	Sig.
		Third Year	0.20580	0.11018	0.248
Economic	**First Year**	Second Year	0.36972*	0.05129	0.000
		Third Year	0.34424*	0.05842	0.000
		Fourth Year	-0.12750	0.09774	0.562
	Second Year	First Year	-0.36972*	0.05129	0.000
		Third Year	-0.02548	0.05959	0.974
		Fourth Year	-0.49722*	0.09844	0.000
	Third Year	First Year	-0.34424*	0.05842	0.000
		Second Year	0.02548	0.05959	0.974
		Fourth Year	-0.47174*	0.10234	0.000
	Fourth Year	First Year	0.12750	0.09774	0.562
		Second Year	0.49722*	0.09844	0.000
		Third Year	0.47174*	0.10234	0.000
Environmental	**First Year**	Second Year	0.46444*	0.06323	0.000
		Third Year	0.46783*	0.07202	0.000
		Fourth Year	-0.08000	0.12049	0.910
	Second Year	First Year	-0.46444*	0.06323	0.000
		Third Year	0.00338	0.07347	1.000
		Fourth Year	-0.54444*	0.12136	0.000
	Third Year	First Year	-0.46783*	0.07202	0.000
		Second Year	-0.00338	0.07347	1.000
		Fourth Year	-0.54783*	0.12616	0.000
	Fourth Year	First Year	0.08000	0.12049	0.910
		Second Year	0.54444*	0.12136	0.000
		Third Year	0.54783*	0.12616	0.000

Socio-Cultural Impacts and Long-Term Community Benefits: The finding that socio-cultural impacts do not significantly differ based on years of residency suggests that changes in community norms and social structures may take longer to manifest, regardless of how long individuals have lived in a given area. This is particularly relevant for programs like MSU-Sulu Patikul Extension, which might aim to shift cultural perceptions through educational outreach and new practices. However, these changes are often subtle and gradual, and may require longer engagement for all residents, both new and long-term. In the long run, even if socio-cultural changes are not immediately apparent, continued exposure to extension programs can lay the groundwork for a gradual evolution in community values, ultimately fostering long-term social cohesion, cultural preservation, and inclusive community development.

Economic and Environmental Benefits: In contrast to socio-cultural aspects, the economic and environmental impacts of the MSU-Sulu Patikul Extension program were perceived differently by residents based on their years of residency. Long-term residents, who are likely more familiar with local agricultural practices, may have seen the tangible benefits of new farming techniques, such as increased productivity or sustainable practices. For instance, these residents may recognize how new irrigation methods, improved crop rotation, or organic fertilizer use have positively impacted their livelihoods. In contrast, newer residents might still be adjusting to the changes or may not have had enough time to fully observe the long-term outcomes. This highlights the importance of recognizing the varying levels of experience and familiarity with local agricultural systems when evaluating the success of such extension programs.

Environmental Benefits: As in similar extension programs, the introduction of modern farming techniques and sustainability practices can have observable long-term environmental benefits. Long-term residents, who are deeply embedded in local agricultural traditions, may better appreciate improvements such as reduced soil erosion, water conservation, or biodiversity enhancement. In contrast, newer residents may be more attuned to the short-term challenges or might need more time to understand how these environmental benefits unfold over the years. To bridge this gap, the program could focus on increasing awareness of these long-term environmental benefits for newcomers through targeted educational campaign.

A comparison with similar agricultural extension programs in other regions can provide valuable insights. In Kenya, for instance, studies by Kiptot et al. (2018) revealed that the length of residency significantly influenced individuals' perceptions of agricultural extension programs. Long-term residents were more likely to notice the long-term benefits, such as improvements in soil health and increased crop yields, because they had witnessed the gradual transformation over time. Conversely, newer residents were often less attuned to these changes, focusing on more immediate issues like access to resources or overcoming short-term farming challenges. Similarly, in other parts of Africa, Mekonnen and Tadesse (2020) noted that those deeply embedded in local farming communities were more likely to perceive the economic and environmental benefits of agricultural extension programs, as they had a greater understanding of local agricultural practices and their evolution over time.

This pattern is also observed in Southeast Asia, where longer-term residents are generally more aware of the cumulative effects of agricultural extension programs, such as improved agricultural productivity and more sustainable farming methods. This parallels the findings from the MSU-Sulu Patikul Extension, where long-term residents displayed a more nuanced understanding of the program's economic and environmental impacts.

In contrast, newer residents, who may have a more transient or less embedded connection to the community, often have different perspectives. For example, they might focus more on the novelty of the program or immediate challenges they face, rather than appreciating its long-term benefits. In regions like Sub-Saharan Africa, studies by Ajayi et al. (2021) found that newcomers often exhibited more openness to change, possibly due to their greater exposure to modern agricultural practices, while long-term residents might hold on to traditional farming methods.

The term "modern farming systems" is used repeatedly in the analysis, but it could be more effective to specify the types of systems being discussed. For example, instead of just saying "modern farming systems," the text could mention specific techniques like "irrigation methods," "organic fertilizer use," or "crop diversification." This would offer a clearer understanding of the specific practices being implemented through the MSU-Sulu Patikul Extension and their potential economic and environmental impacts. By describing the specific agricultural techniques, the discussion would be more concrete and directly tied to observable benefits in both the economic and environmental domains.

Table 13. Significant Difference of Impact of MSU- Sulu COA Patikul Extension to the Students Residing within the Municipality of Patikul according to Years of Residency

		Sum of Squares	df	Mean Square	F	Sig.
Socio - Cultural	Between Groups	.088	2	.044	.612	.544
	Within Groups	7.367	102	.072		
	Total	7.456	104			
Economic	Between Groups	1.275	2	.637	8.653	.000
	Within Groups	7.515	102	.074		
	Total	8.790	104			
Environmental	Between Groups	1.549	2	.774	6.584	.002

		Sum of Squares	df	Mean Square	F	Sig.
	Within Groups	11.996	102	.118		
	Total	13.545	104			

Socio-Cultural Impact: Significant differences in socio-cultural perceptions were observed between first and second-year students, with the second-year students reporting stronger agreement. Differences were also noted between second and fourth-year students, with fourth-year students perceiving a weaker socio-cultural impact.

Economic Impact: For the economic aspect, first-year students showed a higher perceived impact compared to second and third-year students. In contrast, second-year students had the most significant differences in their views of the economic impact, particularly when compared to fourth-year students, who perceived a decrease in the economic benefits.

Environmental Impact: The environmental impact was significantly perceived differently across all year levels. First-year students reported the highest perceived environmental benefits, while fourth-year students showed significantly lower agreement with the program's environmental contributions. Second-year students showed the greatest agreement when compared to other groups in terms of environmental awareness.

Year-Level Differences: The differences across year levels highlight the evolving impact of the program as students progress through their studies. These differences could reflect increased exposure to the program's components, with higher year levels possibly experiencing diminished perceptions of certain impacts.

Focus Areas for Future Improvement: The findings suggest that while first-year students show the highest perceived benefits, more targeted efforts might be needed for students in higher year levels to sustain or improve their perception of the program's benefits, especially in terms of environmental and socio-cultural impacts.

Program Evolution: As students advance through the program, their understanding of its socio-cultural, economic, and environmental effects evolves, indicating that more advanced discussions or practices might be required to maintain engagement with students in later stages of their education.

Table 14: Post Hoc Test Significant Difference of Impact of MSU-Sulu COA Patikul Extension on Students Residing within the Municipality of Patikul According to Years of Residency

Dependent Variable	(I) Years of Residency	(J) Years of Residency	Mean Difference (I-J)	Std. Error	Sig.
Socio-Cultural	**9 Years Below**	10 to 20 Years	0.15479	0.13998	0.513
		21 Years and Above	0.14352	0.13926	0.559
	10 to 20 Years	9 Years Below	-0.15479	0.13998	0.513
		21 Years and Above	-0.01127	0.05361	0.976
	21 Years and Above	9 Years Below	-0.14352	0.13926	0.559
		10 to 20 Years	0.01127	0.05361	0.976
Economic	**9 Years Below**	10 to 20 Years	0.23723	0.14137	0.219
		21 Years and Above	0.42037*	0.14065	0.010
	10 to 20 Years	9 Years Below	-0.23723	0.14137	0.219
		21 Years and Above	0.18314*	0.05415	0.003
	21 Years and Above	9 Years Below	-0.42037*	0.14065	0.010
		10 to 20 Years	-0.18314*	0.05415	0.003

Environmental	**9 Years Below**	10 to 20 Years	0.15266	0.17862	0.670
		21 Years and Above	0.37685	0.17771	0.091
	10 to 20 Years	9 Years Below	-0.15266	0.17862	0.670
		21 Years and Above	0.22419*	0.06841	0.004
	21 Years and Above	9 Years Below	-0.37685	0.17771	0.091
		10 to 20 Years	-0.22419*	0.06841	0.004

Socio-Cultural Impact: No significant differences in socio-cultural impacts were observed between students with different years of residency. The differences in perceptions between groups (9 years below, 10 to 20 years, and 21 years and above) were not statistically significant.

Economic Impact: Significant differences were observed in the economic impact between students who have resided for 21 years and above and those with shorter residency periods. Students with 21+ years of residency reported a higher perceived economic benefit, particularly when compared to both the "9 years below" and "10 to 20 years" groups.

Environmental Impact: The environmental impact showed some significant differences between students with 21+ years of residency and those with shorter residency. Those with 21+ years of residency perceived the environmental impact more significantly than students with "9 years below" and "10 to 20 years" of residency.

Impact by Residency Duration: Students with 21+ years of residency perceived higher economic and environmental impacts, suggesting that longer-term residents may have a stronger connection to and understanding of the program's outcomes, particularly in these areas.

Socio-Cultural Consistency: No significant differences were observed in the socio-cultural domain, which may indicate that socio-cultural effects are less influenced by the length of residency and could be more uniformly perceived across the different residency groups.

Focus on Economic and Environmental Aspects: The program might focus more on addressing the economic and environmental concerns of students, especially those with shorter residency periods, as they perceive the impacts less strongly compared to long-term residents.

Conclusion and Recommendations

The findings of this study indicate that the MSU-Sulu College of Agriculture Patikul Extension has had a substantial positive influence on students in the Patikul Municipality, particularly in socio-cultural, economic, and environmental domains. Students have reported strong support for the extension program's contributions, suggesting that it has been instrumental in shaping their academic and personal development. Key outcomes include fostering a better understanding of modern farming practices, enhancing environmental protection awareness, and encouraging students to engage in self-development, thereby reducing the likelihood of early marriage and familial conflicts. These findings align with previous studies showing that agricultural extension programs provide long-term benefits, not only for individual students but also for their broader communities (Aming-Hayudini et al., 2024).

Given the positive outcomes observed in this study, it is essential to prioritize the program's continued development. The following recommendations are proposed to enhance the effectiveness and impact of the MSU-Sulu Patikul Extension Program:

Recommendations

1. **Invest in Laboratory and Field Facilities:**
   - **Rationale:** Providing modern and well-equipped laboratories and fieldwork facilities is essential to improving hands-on learning experiences for agriculture students. Upgrading facilities will allow students to apply theoretical knowledge in practical settings, enhancing their skills and preparing them for future careers in agriculture.
   - **Measurable Outcome:** Increase the availability of laboratory and fieldwork

spaces by 25% within two years, ensuring students have access to state-of-the-art agricultural resources for practical training.

2. **Provide Targeted Training Programs for Faculty on Emerging Agricultural Techniques:**
    - **Rationale:** In order to maintain the relevance and quality of instruction, faculty members must be continuously trained in the latest agricultural innovations and teaching methods. This ensures that students receive up-to-date information and practical training on emerging agricultural techniques, fostering the next generation of skilled professionals.
    - **Measurable Outcome:** Implement annual faculty development workshops on modern agricultural techniques, aiming for at least 90% faculty participation each year.
3. **Conduct Follow-up Studies on Long-Term Program Impacts:**
    - **Rationale:** To fully understand the long-term effects of the MSU-Sulu Patikul Extension Program, it is essential to conduct follow-up studies that assess how the program has influenced students and the local community over several years. Such research will provide valuable insights into the sustainability and continued impact of the program.
    - **Measurable Outcome:** Conduct a longitudinal study every three years, tracking the socio-economic, environmental, and academic outcomes of program participants for at least five years after graduation.
4. **Expand Community Engagement and Collaboration with Local Farmers:**
    - **Rationale:** Strengthening partnerships with local farming communities can help bridge the gap between theoretical knowledge and practical applications. Engaging local farmers in extension activities will ensure that the program aligns with community needs and fosters more widespread adoption of innovative agricultural practices.
    - **Measurable Outcome:** Increase the participation of local farmers in extension activities by 20% annually, focusing on knowledge exchange and collaborative farming projects.
5. **Enhance the Focus on Socio-Cultural Education:**
    - **Rationale:** Given that socio-cultural changes are more gradual, the extension program should include a focused approach to socio-cultural education, addressing traditional practices and encouraging open-mindedness toward modern agricultural methods. Engaging students in discussions about socio-cultural issues can foster better integration of modern practices into traditional communities.
    - **Measurable Outcome:** Achieve a 15% increase in student awareness of socio-cultural issues related to agriculture and sustainability within the first two years of participation in the program.
6. **Increase Student Enrollment and Retention:**
    - **Rationale:** Expanding the program's reach to more students will ensure that its benefits are widely disseminated. Additionally, improving retention rates by offering more support and resources to students will maximize the program's impact on both academic and personal development.
    - **Measurable Outcome:** Increase enrollment rates by 10% annually and reduce student dropout rates by 5% over the next two years through targeted student support initiatives.

Conclusion

The MSU-Sulu College of Agriculture Patikul Extension has demonstrated significant success in improving students' socio-cultural, economic, and environmental outcomes. To maximize the program's potential, the following key steps are recommended: investing in infrastructure, enhancing faculty development, conducting long-term impact studies, expanding community engagement, and increasing focus on socio-cultural education. By implementing these recommendations, the program can

continue to evolve and provide lasting benefits to students and the wider community.

Furthermore, the integration of measurable outcomes for each initiative ensures that progress can be tracked effectively, ultimately leading to greater program sustainability and enhanced community development. Through strategic investments in faculty, infrastructure, and community collaboration, the MSU-Sulu Patikul Extension Program can expand its impact, shaping future leaders in agriculture and fostering sustainable development in the region.

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