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ACADEME-COOPERATIVE EXTENSION PARTNERSHIP: EFFECTIVENESS AND IMPACT TOWARD SUSTAINABLE AGRICULTURE DEVELOPMENT IN VISAYAS, PHILIPPINES

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ABSTRACT

Agricultural extension is a core mandate of higher education institutions, fostering knowledge transfer and strengthening farming communities. This study evaluated the effectiveness and impact of the KABUHI-ASENSO academe-cooperative extension program. A descriptive-evaluative design was employed using a structured survey administered to 35 cooperative members who completed at least 80% of the training, supported by focus group discussions. Data were analyzed using weighted means and Pearson's r correlation. Findings showed the program was highly effective in enhancing livelihood, income, food security, and access to resources, while job creation was rated effective. The impact assessment indicated significant contributions to food and nutrition, decent work, and institutional support, but only moderate gains in poverty reduction. Correlation analysis confirmed significant positive relationships between effectiveness and impact, with job creation strongly linked to poverty reduction ($r = .790$, $p < .01$). The focus group discussions reinforced these results, citing improved household diets, women's confidence in organic production, and collective benefits from cooperative assets such as shredders, composters, and ramp-pump systems. Overall, the program demonstrated measurable effectiveness and impact, highlighting academe-cooperative partnerships as a viable model for agricultural community development.

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INTRODUCTION

Agricultural extension is a core mandate of higher education institutions (HEIs) in the Philippines, complementing instruction, research, and production. It refers to the organized exchange of knowledge, skills, and technologies between academe and farming communities to improve productivity, enhance livelihoods, and promote sustainable resource management. Beyond technology

transfer, extension emphasizes participatory learning that strengthens farmers' capacities to adapt to socio-economic and environmental challenges, making it a vital instrument for food security, inclusive growth, and resilient farming systems. Academe-cooperative partnerships have emerged as effective platforms for agricultural extension. Farmer cooperatives provide organized structures for the diffusion of technology, enterprise development, and social learning.

When linked with HEIs, they become active players in agricultural innovation systems—adopting context-appropriate technologies, co-creating solutions with faculty and students, and validating research outputs in the field. In turn, the academe benefits from enriched pedagogy through student immersion and faculty-community collaboration, ensuring interventions are both scientifically sound and socially relevant.

The PASTO Agrarian Reform Cooperative (PASTO-ARC) in Barangay Magtikol, Toboso, Negros Occidental exemplifies this partnership model. Established in 2007, it consists of 75 smallholder farmers engaged in sugarcane, rice, and diversified crops. Its collaboration with the State University of Northern Negros (SUNN) was formalized through Memoranda of Understanding that mobilized local governments, NGOs, and universities. Guided by a 2018 Community Needs Assessment, the academe launched the “KABUHI-ASENSO” program. This integrated initiative addresses low farm productivity, limited access to water, weak post-harvest systems, and a lack of gender-responsive livelihood opportunities.

Since then, SUNN has introduced activities such as vermicomposting, organic fertilizer production, sustainable free-range chicken raising, digital applications for rice crop management, swine production training for women, sugarcane intercropping, and improvements in post-harvest technology. These were reinforced by infrastructure projects, such as a ramp-pump for potable water, and by participation in the DOST-CEST Pandayan ng Bayan program, which provided facilities for the fabrication and repair of farm tools. Collectively, these interventions demonstrate how academe-cooperative partnerships can address the realities of smallholder farmers and promote agricultural development.

Despite these efforts, a systematic evaluation of their effectiveness and impact remains essential. Assessing outcomes on farmer capacities, productivity, household incomes, and community resilience is crucial to ensuring sustainability and scaling the academe-cooperative model across other farming communities.

Thus, this study aims to assess the effectiveness and impact of the agricultural extension partnership with PASTO-ARC. By examining the results of the KABUHI-ASENSO program and related agricultural interventions, the study seeks to generate evidence on how academe-cooperative collaboration contributes to agricultural productivity, livelihood improvement, and sustainable agricultural community development.

METHODOLOGY

The study utilized a descriptive–evaluative design to assess the effectiveness and impact of the academe-cooperative agricultural extension partnership under the KABUHI-ASENSO program of SUNN and PASTO-ARC. Respondents were drawn from members of the agrarian reform cooperative who had actively participated in the agricultural extension trainings. To ensure the reliability of responses, only those who completed at least 80% of the scheduled training were included, resulting in a total of 35 respondents.

Data Collection Instruments

The main data collection tool was a structured survey questionnaire developed from a review of the extension evaluation literature and validated by subject-matter experts. The instrument was divided into two major parts: (1) Effectiveness of the extension program, defined as the extent to which the program achieved its intended outcomes in improving the lives of beneficiaries. This was measured across four dimensions—livelihood and income improvement ($\alpha=0.77$), food security ($\alpha=0.80$), job creation and opportunities ($\alpha=0.82$), and access to resources and benefits ($\alpha=0.82$); and (2) Impact of the extension program, referring to the broader and long-term effects of the program on beneficiaries’ lives, particularly in relation to sustainable development goals. Impact was measured across four thematic areas—poverty reduction ($\alpha=0.87$), food and nutrition outcomes ($\alpha=0.86$), decent work and economic growth ($\alpha=0.84$), and institutional support and community development/partnership ($\alpha=0.87$). Each item was rated on a four-point Likert scale (1 = not effective/ no impact, 2 = less effective/less impact, 3 = effective/moderate impact, 4 = highly effective/ high impact).

Additionally, the questionnaire included items to capture respondents’ socioeconomic profiles, such as age, gender, educational attainment, monthly income, and occupation/nature of work. This information was used to contextualize the findings and assess variations in program effectiveness and impact across different demographic groups.

To reinforce the quantitative findings, focus group discussions (FGDs) were conducted using a semi-structured interview guide. The FGDs explored participants’ lived experiences regarding the extension interventions. This qualitative component provided richer context and triangulation of survey results.

Data Gathering Procedure

Prior to data collection, informed consent was secured and courtesy meetings were held with cooperative leaders to ensure cooperation. The survey was administered in person to the respondents, with the researchers available to clarify any questions as needed. FGDs were facilitated in two small groups to allow interactive sharing, and discussions were documented with participants' permission. Both approaches ensured that the perspectives of cooperative members were systematically captured.

Data Analysis

The survey data were processed using descriptive statistics, particularly frequencies and percentages to describe the distribution of respondents across various socioeconomic categories, weighted mean and composite mean, to determine the level of effectiveness and impact of the extension program along the identified dimensions. To examine the relationship between effectiveness and impact, Pearson *r* correlation analysis was employed. Qualitative data from FGDs were used to help explain the quantitative results. These procedures ensured that findings reflect both measurable outcomes and contextual insights from the farming community.

RESULTS

Profile of the Respondents

The study involved 35 cooperative members who participated in both the survey and the focus group discussions. The respondents, as presented in Table 1, were almost evenly split by gender, with 51.4% male (*n* = 18) and 48.6% female (*n* = 17), indicating balanced participation of both men and women in the academe-cooperative extension program. This gender distribution reflects the cooperative's inclusivity, particularly in extension activities, where women often assume supportive yet increasingly active roles in household- and farm-based enterprises. In terms of age, the largest group of respondents was 41–50 years old (28.6%), followed by 21–30 years old (20.0%) and 61 years and above (20.0%). This shows that both younger and older members are engaged, with mid-life farmers forming the majority. Such diversity in age suggests opportunities for intergenerational transfer of farming knowledge, as well as the infusion of new practices by younger members.

Educational attainment was generally low, with 54.3% reaching only the elementary level and smaller proportions completing high school (8.6%), vocational training through

TESDA (8.6%), or the Alternative Learning System (5.7%). The limited formal education underscores the importance of extension interventions as practical and accessible sources of technical knowledge. Similar observations were reported in other extension studies, in which low educational attainment necessitated participatory, hands-on training methods (Stoecker, 2014; Simmons et al., 2015). Economically, almost all respondents (97.1%) fell below the poverty threshold of ₱9,100 monthly income, classifying them as poor households. Only one respondent (2.9%) reported a middle-income status. The majority of the cooperative members were primarily engaged in farming (65.7%), while others worked as hired laborers (25.7%) or tractor drivers (8.6%). This profile highlights the respondents' vulnerability to livelihood insecurity and their reliance on the cooperative as a support structure for both agricultural and non-farm income.

Effectiveness of the Kabuhi-Asenso Community Extension Program of Sunn

The effectiveness of the KABUHI-ASENSO agricultural extension program was assessed across four dimensions: livelihood and income improvement, food security, job creation and opportunities, and access to resources and benefits (Table 2).

Livelihood and Income Improvement

The results revealed a composite mean of 3.50, indicating a highly effective level. Among the items, rice crop management practices (*WM* = 3.77) and swine production profitability (*WM* = 3.57) were rated highly effective. Focus group discussions reinforced these findings, as participants narrated how the adoption of vermi-composting reduced expenses in fertilizer and improved overall vegetable production: "Mas nakatipid kami sa inputs at tumaas ang ani namin sa gulayan" ("We saved on inputs and our vegetable yields increased"). Similarly, women trainees in vegetable production reported confidence in organic vegetable production, adding that the additional income "helped cover school expenses for children." These qualitative insights highlight the program's gender-responsive dimension and its direct contribution to household livelihood resilience. These results align with earlier studies. Llenares and Deocarís (2018) reported that community extension initiatives led by academic institutions strengthened participants' entrepreneurial competencies and fostered a more optimistic outlook on livelihood prospects. Similarly, Anderson and Feder (2007)

emphasized that well-designed agricultural extension programs raise farmers' earnings by improving access to knowledge, local resource use, and the adoption of productivity-enhancing practices. More recently, Albao and

Rubi (2019) showed that entrepreneurial livelihood programs anchored in community settings reinforced income stability and resilience by supporting microenterprises and cooperative-driven projects.

Table 1. Socioeconomic profile of the Respondents.

Demographic profile	Frequency	Percentage (%)
Gender		
Male	18	51.4
Female	17	48.6
Age (in years)		
21 - 30 years old	7	20.0
31 - 40 years old	6	17.1
41 - 50 years old	10	28.6
51 - 60 years old	5	14.3
61 years old and above	7	20.0
Educational level		
Elementary level	19	54.3
Elementary Graduate	1	2.9
High School Level	7	20.0
High School Graduate	3	8.6
Alternative Learning System (ALS) Graduate	2	5.7
TESDA Graduate	3	8.6
Economic profile		
Monthly income		
Poor (Less than ₱ 9,100)	34	97.1
Middle - Middle Income (₱ 36, 401 - ₱ 63, 700)	1	2.9
Occupation/Nature of Work		
Cooperative Member/ Farmer	23	65.7
Cooperative Member/ Hired Laborer	9	25.7
Cooperative Member/ Hired Tractor Driver	3	8.6

Food Security

A striking finding is that food security achieved a composite mean of 3.52, indicating it was highly effective. Items such as increased financial capacity to buy nutritious food (WM = 3.80) and reduced household food waste (WM = 3.60) were rated highly effective, while improved access to fresh, nutritious food (WM = 3.49) also showed positive ratings. Focus group discussions supported these results, with participants sharing that intercropping and backyard gardening reduced their reliance on purchased food: "Hindi na lang kami nakadepende sa bigas at isda, may gulay at manok din" ("We no longer rely only on rice and fish, we now also have vegetables and chicken"). The presence of cooperative-owned machinery such as tractors, backhoes, and composting facilities further contributed to improved crop productivity and food system stability. This implies that agricultural extension programs that integrate crop

diversification, livestock, and post-harvest support directly strengthen food security at both household and community levels. Improved production translates not only into higher incomes but also into better dietary diversity and reduced vulnerability to food shortages. These findings support earlier studies. Davis et al. (2012) demonstrated that farmer field schools and extension initiatives significantly enhanced agricultural productivity and food security by aligning practices with local community needs. Likewise, Perez and Cabrera (2013) stressed that extension programs focused on the environment and food security improve access to food and strengthen community nutrition. More recently, Garcia (2016) underscored that livelihood and food security projects anchored in cooperatives are most effective when grounded in local participation and shared resources, helping ensure food supply stability even during lean periods.

Table 2. Effectiveness of the KABUHI-ASENSO Community Extension Program of SUNN.

A. Livelihood and Income Improvement		WM	VI
1	Increase in native chicken production	3.40	Effective
2	Improvement in rice production through Rice Crop Management practices	3.77	Highly Effective
3	Enhanced knowledge in post-harvest technologies	3.37	Effective
4	Increased profitability in swine production	3.57	Highly Effective
5	Additional income from sugarcane intercropping	3.54	Highly Effective
6	Positive changes and satisfaction in income	3.63	Highly Effective
7	More sources of income	3.14	Effective
8	Confidence to expand and improve farming	3.57	Highly Effective
9	Ability to save income regularly	3.54	Highly Effective
10	Improved quality of life and well-being	3.51	Highly Effective
Composite Mean		3.50	Highly Effective
B. Food Security		WM	VI
1	Improved food availability in the community	3.37	Effective
2	Easier access to food from markets or farms	3.37	Effective
3	Increased financial capacity to buy nutritious food	3.80	Highly Effective
4	Improved skills in safe food handling and storage	3.43	Effective
5	Enhanced ability to prepare healthy meals	3.63	Highly Effective
6	Strategies to maintain year-round food supply	3.54	Highly Effective
7	Proper food utilization and reduced food waste	3.60	Highly Effective
8	Increased availability of fresh and nutritious food at home	3.49	Effective
9	Ensured year-round food supply	3.49	Effective
10	Coping with food supply disruptions	3.43	Effective
Composite Mean		3.52	Highly Effective
C. Job Creation and Opportunities		WM	VI
1	Development of new community job opportunities	3.46	Effective
2	Support for employment or enterprise start-up	3.51	Highly Effective
3	Increased household employment and self-employment	3.57	Highly Effective
4	Enhanced employability through skills and resources	3.54	Highly Effective
5	Assistance in starting or expanding small enterprises	3.51	Highly Effective
6	Linkages to job and livelihood opportunities	3.40	Effective
7	Sharing of job and livelihood opportunities	3.37	Effective
8	Creation of sustainable livelihood opportunities	3.43	Effective
9	Activities to reduce unemployment rates	3.31	Effective
10	Provision of job opportunities and livelihood support	3.74	Highly Effective
Composite Mean		3.48	Effective
D. Access to Resources and Benefits		WM	VI
1	Adequate support and benefits for livelihood	3.60	Highly Effective
2	Receipt of promised program benefits	3.54	Highly Effective
3	Appropriateness of benefits to needs	3.49	Effective
4	Benefits enhancing productivity and self-reliance	3.57	Highly Effective
5	Timely provision of program benefits	3.63	Highly Effective
6	Sufficiency of benefits in quantity or value	3.37	Effective
7	Benefits improving family well-being	3.69	Highly Effective
8	Fairness in benefit distribution	3.54	Highly Effective
9	Satisfaction with program benefits	3.63	Highly Effective
10	Long-term usefulness of benefits to livelihood	3.71	Highly Effective
Composite Mean		3.58	Highly Effective

Legend: 3.50 – 4.00 Highly Effective; 2.50 – 3.49 Effective; 1.50 – 2.49 Less Effective; 1.00 – 1.49 Not Effective

Job Creation and Opportunities

Job creation and opportunities obtained a composite mean of 3.48, indicating effectiveness. Respondents rated

household employment and self-employment (WM = 3.57) and the provision of job opportunities and livelihood support (WM = 3.74) as highly effective. In contrast,

activities to reduce unemployment rates (WM = 3.31) were only moderately effective. FGDs clarified this gap, with participants noting that while trainings enabled them to earn supplementary income, scaling these into full employment remained a challenge: “May dagdag na kita pero hindi pa sapat para masabing trabaho talaga” (“There is additional income, but it is not yet enough to be considered full employment”). Agricultural extension generates livelihood streams and enhances employability. Still, without strong market linkages and value-chain support, these are often confined to part-time or supplemental income opportunities rather than full-time employment.

This result is consistent with Llenares and Deocarís (2018), who noted that although extension programs strengthened entrepreneurial confidence, beneficiaries highlighted the importance of wider market access to sustain their earnings. Similarly, Dugyon (2016) observed that community extension initiatives enhanced skills and supported small livelihood activities, yet participants still sought stronger institutional linkages to secure employment stability. In the same vein, Borbon (2020) stressed that industrial livelihood programs must be embedded within local business ecosystems to ensure sustainable job creation.

Access to Resources and Benefits

Access to resources and benefits recorded the highest composite mean (3.58, highly effective). Items such as long-term usefulness of benefits (WM = 3.71), timely provision of program benefits (WM = 3.63), and improved family wellbeing (WM = 3.69) were highly rated. FGDs supported these results, with participants highlighting the ramp-pump project as transformative for daily life: “Hindi lang nagamit namin ang patubig sa mga halaman kundi sa mga bahay namin” (“It was not only useful for crop production but also for our households”). Members also appreciated the cooperative’s role in ensuring fairness and transparency in benefit distribution. Agricultural extension programs become more effective when paired with institutional partnerships that deliver tangible resources, infrastructure, and support services. Beyond training, access to physical assets and timely benefits fosters trust, strengthens cooperative identity, and enhances overall productivity. This finding is further supported by Soska and Butterfield (2013), who stressed that university-community partnerships yield the best results when anchored in shared resources and capacity development. In

the same way, Magnaye and Ylagan (2021) reported that beneficiaries perceived extension initiatives as more effective when these provided consistent support, such as health services and livelihood resources. Likewise, Salazar (2020) contended that extension programs supported by strong institutional collaboration yield more sustainable outcomes through equitable, timely assistance.

Impact of the Kabuhi-Asenso Community Extension Program of Sunn

To further capture the outcomes of the extension activities, the study assessed the impact of the KABUHI-ASENSO agricultural extension program across four thematic areas: poverty reduction, food and nutrition outcomes, decent work and economic growth, and institutional support and community development/partnership. The results, summarized in Table 3, present the respondents’ ratings on how the program influenced their household well-being, food security, livelihood opportunities, and cooperative strengthening.

Poverty Reduction

Poverty reduction achieved a composite mean of 3.27, interpreted as a moderate impact. Respondents reported improvements in family housing (WM = 3.54) and consistent support for children’s education (WM = 3.43), but financial resilience to economic shocks (WM = 3.11) remained limited. FGDs supported this, as members shared that while incomes rose from diversified farming and livestock, they remained vulnerable to fluctuating crop prices: “Kung bumaba ang presyo ng tubo, balik din sa dati ang hirap” (“When sugar prices fall, we return to hardship”). This implies that agricultural extension programs contribute to reducing poverty by diversifying livelihood opportunities and improving basic living conditions. However, without stable markets and safety nets, gains remain precarious.

This is consistent with the observations of Dugyon (2016), who noted that while extension programs enhanced skills and raised incomes, they did not completely protect households from economic vulnerability. In the same vein, Garcia (2016) emphasized that livelihood extension must be paired with market access and financial literacy to achieve more lasting poverty reduction. Supporting this view, Albao and Rubi (2019) highlighted that entrepreneurial livelihood initiatives can stabilize household earnings when reinforced by institutional backing and cooperative-driven efforts.

Table 3. Impact of the KABUHI-ASENSO Community Extension Program of SUNN.

A. Poverty Reduction		WM	VI
1	Ability to meet basic needs without borrowing	3.00	Moderate Impact
2	Reduced dependence on irregular income sources	3.23	Moderate Impact
3	Affordability of essential goods and services	3.17	Moderate Impact
4	Stable income for unexpected expenses	3.23	Moderate Impact
5	Reduction or elimination of debts	3.29	Moderate Impact
6	Investment in productive assets	3.34	Moderate Impact
7	Improved family housing	3.54	High Impact
8	Consistent support for children's education	3.43	Moderate Impact
9	Increased financial resilience to economic shocks	3.11	Moderate Impact
10	Improved overall standard of living	3.40	Moderate Impact
Composite Mean		3.27	Moderate Impact
B. Food and Nutrition Outcomes		WM	VI
1	Consistent availability of sufficient food	3.54	High Impact
2	Quicker and more convenient food access	3.71	High Impact
3	Affordability of diverse and nutritious foods	3.40	Moderate Impact
4	Reduced spoilage through proper storage	3.51	High Impact
5	Preparation of healthier, balanced meals	3.57	High Impact
6	Stable food supply during lean months	3.66	High Impact
7	Reduced household food wastage	3.57	High Impact
8	Regular inclusion of fresh, nutrient-rich foods	3.74	High Impact
9	Seasonal food planning for year-round supply	3.54	High Impact
10	Resilience to food supply disruptions	3.60	High Impact
Composite Mean		3.58	High Impact
C. Decent Work and Economic Growth		WM	VI
1	Increased sustainable community jobs	3.57	High Impact
2	Skills leading to stable employment or self-employment	3.71	High Impact
3	More household members in long-term jobs	3.46	Moderate Impact
4	Growth of local businesses and job creation	3.49	Moderate Impact
5	Profitable livelihood projects from program support	3.54	High Impact
6	Linkages between local businesses and workers	3.54	High Impact
7	Reduced dependence on unstable jobs	3.43	Moderate Impact
8	Empowerment of women and youth in the workforce	3.49	Moderate Impact
9	Job creation is contributing to lower unemployment	3.57	High Impact
10	Livelihood training generating long-term income	3.54	High Impact
Composite Mean		3.53	High Impact
D. Institutional Support and Community Development/Partnership		WM	VI
1	Strengthened local organizations for livelihood support	3.63	High Impact
2	Increased community access to resources and services	3.60	High Impact
3	Networks linking beneficiaries to opportunities	3.66	High Impact
4	Improved delivery of benefits through collaboration	3.77	High Impact
5	Tools and training for sustainable livelihoods	3.66	High Impact
6	Fair distribution of benefits via partnerships	3.57	High Impact
7	Strengthened governance for transparent resource allocation	3.49	Moderate Impact
8	Community initiatives improving well-being and stability	3.63	High Impact
9	Capacity-building for independent community management	3.71	High Impact
10	Long-term systems for resource sharing and support	3.71	High Impact
Composite Mean		3.64	High Impact

Legend: 3.50 - 4.00 - High Impact; 2.50 - 3.49 - Moderate Impact; 1.50 - 2.49 - Less Impact; 1.00 - 1.49 - No Impact

Food and Nutrition Outcomes

Food and nutrition outcomes received a composite mean of 3.58, rated high impact. Respondents noted quicker

food access (WM = 3.71), regular inclusion of nutrient-rich foods (WM = 3.74), and more balanced meals (WM = 3.57). FGDs confirmed that backyard farming and

livestock integration allowed families to diversify diets: “Mas madalas nang may gulay, lalo na gabi, mesa” (“There are now more frequent vegetables, especially taro, on the table”).

This means that extension programs that integrate diversified farming systems directly improve dietary diversity and reduce the risk of hunger during lean months. Perez and Cabrera (2013) showed that agricultural and environmental extension programs strengthened household nutrition and improved community food resilience. In a similar vein, Davis et al. (2012) highlighted the crucial role of agricultural extension initiatives in promoting food sufficiency by enhancing farming practices and aligning them with community needs. Likewise, Figueroa (2017) reported that recipients regarded health and nutrition-focused extension services as highly effective, leading to enhanced family wellbeing.

Decent Work and Economic Growth

Decent work and economic growth recorded a composite mean of 3.53, rated high impact. Skills leading to stable employment or self-employment (WM = 3.71) were highly rated, though empowerment of women and youth (WM = 3.49) and dependence on unstable jobs (WM = 3.43) reflected only moderate progress. FGDs indicated that while vegetable production and fabrication of farm inputs like hand trowel through “Pandayan” opened new livelihood streams, limited market linkages hindered full transition to stable employment: “Kaya namin magparami ng gulay at mga bolo pero hirap kami sa bentahan” (“We can produce more vegetables or fabricate hand trowels, but marketing is still difficult”). This suggests that agricultural extension strengthens workforce participation and self-employment but must be linked to markets and enterprise incubation for sustained impact. In their study, Llenares and Deocaris (2018) highlighted that while extension initiatives strengthened entrepreneurial skills, they required stronger institutional backing to improve market access. Evidence from Magnaye and Ylagan (2021) further showed that livelihood and entrepreneurship programs were considered effective but had only a moderate impact when market linkages remained limited. In another study, Borbon (2020) also noted that industrial livelihood efforts yield more sustainable employment when integrated with formal enterprises and supported by government interventions.

Institutional Support and Community Development/Partnership

Institutional support and partnerships had the highest impact score, with a composite mean of 3.64, indicating high impact. Items such as improved delivery of benefits (WM = 3.77) and long-term systems for resource sharing (WM = 3.71) stood out. FGDs confirmed that members experienced stronger unity and trust in the cooperative: “Mas matibay ang tiwala at tulungan sa kooperatiba” (“Trust and cooperation in the cooperative have become stronger”). This point toward agricultural extension programs grounded in partnerships and institutional linkages achieves more sustainable and equitable outcomes than standalone interventions.

According to Soska and Butterfield (2013), university-community partnerships strengthen social capital and long-term sustainability when based on shared resources. Salazar (2020) likewise observed that institutional linkages increased community confidence and sustained extension initiatives. Findings by Apaliyah et al. (2012) further emphasized that community leadership development, when supported by institutional collaboration, fosters resilience and builds more substantial social capital.

Relationship Between Impact and Effectiveness

To test whether program effectiveness translates into broader impact, correlations between each effectiveness dimension (livelihood & income, food security, job creation, and access to resources) and the four impact areas (poverty reduction, food & nutrition outcomes, decent work & economic growth, and institutional support/partnership) were examined. Table 4 summarizes these relationships and their significance levels. Results showed that livelihood and income effectiveness were significantly correlated with all four impact domains, with the strongest relationship found with food and nutrition outcomes ($r = .573$, $p < .01$). This means that improved farm decision-making and profitability, such as through rice crop management, contributed to both livelihood gains and better household nutrition. This observation is supported by Anderson and Feder (2007), who emphasized that extension services raise productivity and incomes, and Davis et al. (2012), who found that Farmer Field Schools increased adoption and productivity, thereby reducing poverty. Waddington et al. (2014) confirmed that farmer training programs improve agricultural practices and generate positive

welfare outcomes. In a related study, Ragasa et al. (2018) demonstrated that extension services enhance

productivity and strengthen household food security in developing-country contexts.

Table 4. Correlation between Effectiveness and Impact of KABUHI-ASENSO Community Extension Program of SUNN.

Effectiveness	Impact							
	Poverty Reduction		Food and Nutrition Outcomes		Decent Work and Economic Growth		Institutional Support and Community Development/Partnership	
	r	p	r	p	r	p	r	p
Livelihood and Income Improvement	0.422	0.012*	0.573	0.000*	0.417	0.013*	0.404	0.016*
Food Security	0.532	0.001*	0.413	0.014*	0.314	0.067 ^{NS}	0.328	0.054 ^{NS}
Job Creation and Opportunities	0.790	0.000*	0.453	0.006*	0.370	0.029 ^{NS}	0.374	0.027*
Access to Resources and Benefits	0.456	0.006*	0.364	0.032*	0.203	0.241 ^{NS}	0.435	0.009*

*Significant relationship ($P < 0.05$), NS is a non-significant relationship ($P > 0.05$)

Food security effectiveness was positively correlated with poverty reduction ($r = .532$, $p < .01$) and food and nutrition outcomes ($r = .413$, $p < .05$), but not with decent work and institutional support. This outcome suggests that while improving food security reduces poverty and hunger, its impact remains limited when not connected to employment generation and institutional development. For lasting results, food security programs must evolve into integrated systems that link agricultural productivity with market access, enterprise creation, and strong institutional partnerships. This includes supporting agri-based livelihoods, formalizing cooperative enterprises, and building governance structures that sustain both food systems and decent work opportunities. Advisory services, according to Swanson and Rajalahti (2010), should be embedded within broader systems to generate outcomes beyond mere production gains. In line with this, Birner et al. (2009) advanced the “best-fit” framework, emphasizing that extension services achieve broader impact only when connected to governance and market structures. Evidence from the World Bank (2012) further underscored that agricultural innovation systems require strong linkages among research, extension, markets, and institutions to drive systemic transformation.

Job creation and opportunities showed strong positive correlations with all impact domains, particularly with poverty reduction ($r = .790$, $p < .01$). This demonstrates that when extension activities translate into viable livelihood and enterprise opportunities, they directly reduce poverty and improve welfare. Kondylis et al. (2017) showed that peer-to-peer extension networks promote

greater adoption of technologies among farmers. Likewise, BenYishay and Mobarak (2019) emphasized that social learning, coupled with appropriate incentives, leads to improved farming practices and higher incomes. These findings align with the present study’s results, which show that cooperative-led enterprises, such as organic vegetable production and sugarcane intercropping, play a central role in alleviating poverty. Finally, access to resources and benefits was significantly correlated with poverty reduction ($r = .456$, $p < .01$), food and nutrition outcomes ($r = .364$, $p < .05$), and institutional support ($r = .435$, $p < .01$), but not with decent work. This suggests that while resource provision, such as office buildings, multi-purpose shed houses, rice thresher and shredders, although valuable for community development and poverty alleviation, must be complemented by employment-focused strategies. These include providing access to start-up capital, mentoring, and business incubation; encouraging youth- and women-led enterprises within the cooperative; and promoting scalable livelihood projects with the potential to generate formal, sustainable employment to improve decent work outcomes meaningfully. Leeuwis (2013) emphasized that effective extension depends on communication processes that link resources to innovation. In the same way, Aker et al. (2016) cautioned that information technologies and resource delivery alone are insufficient unless paired with market access to generate lasting outcomes. Evidence from the World Bank (2012) further reinforced the need for innovation systems to align advisory services with institutions and markets to transform resources into sustainable employment opportunities.

Limitations

The limitations of this study primarily stem from the small sample size of 35 respondents, all active members of the PASTO Agrarian Reform Cooperative (PASTO-ARC) in Barangay Magtikol, Toboso, Negros Occidental. This number reflects the total population of the cooperative members who completed at least 80% of the SUNN extension programs. While this ensured participants possessed sufficient knowledge and experience with the KABUHI-ASENSO Program, it limited the representativeness of the sample, potentially affecting the generalizability of the findings and the statistical power of the analyses. To further validate and strengthen these findings, future studies involving larger and more diverse samples are recommended within the broader cooperative community.

CONCLUSION

The study found that the KABUHI-ASENSO program of the State University of Northern Negros was highly effective in improving livelihoods, food security, and access to resources, while job creation was assessed as effective based on the study's descriptive results. Agricultural interventions such as rice crop management, livestock production, and sugarcane intercropping enhanced productivity and diversified household income. In terms of impact, the program showed moderate gains in poverty reduction but high impact on food and nutrition, decent work, and institutional support. These findings suggest that the Academe-Cooperative Extension Partnership offers a promising model for improving community wellbeing and advancing sustainable agricultural development. However, as the study provides strong preliminary evidence from a limited sample and a localized context, further research involving larger, more diverse populations is needed to validate the model's broader applicability and long-term impact. The following recommendations are made:

Program Implementers (SUNN): Incorporate an Integrated Agribusiness Development Training module. This training should cover essential areas such as business planning, financial management, marketing strategies, enterprise development, food innovation, value addition, and value chain mapping and analysis. By equipping cooperative members with comprehensive entrepreneurial skills, SUNN can help transform job creation efforts into sustainable, high-impact, and decent work opportunities, fostering entrepreneurial growth and economic resilience within the cooperative community.

Policy Makers: Institutionalize and fund academe-cooperative partnerships that promote capacity building, access to credit, insurance, and market infrastructure, supported by inter-Genderncy coordination and digital innovation to strengthen farmers' resilience and advance sustainable agricultural development. Establish business incubators within universities that support cooperative-led enterprises through mentorship, market linkage, and product development. These incubators can help cooperatives diversify income sources and become more resilient to price shocks. Prioritize input subsidies for cooperatives in geographically isolated and disadvantaged areas (GIDAs) to reduce production costs, improve access to essential agricultural inputs, and strengthen their capacity to participate in formal markets, enhancing sustainable poverty reduction.

Partner Institutions: Deepen collaboration with universities, LGUs, and NGOs to align training, technology transfer, and enterprise development support. Facilitate resource-sharing mechanisms and promote the dissemination of best practices for wider replication.

PASTO-ARC Members: Sustain active participation in cooperative activities, apply the technologies and skills gained from training, and build collective enterprises to strengthen market access and cooperative income. Mentor new and less-active members to ensure continuity of program gains.

Local Government Units (LGUs): Integrate academe-cooperative initiatives into local agricultural development plans and provide logistical, technical, and financial support to sustain and expand successful projects within their jurisdictions.

Future Researchers: Conduct studies with larger, more diverse samples to improve generalizability; include additional factors such as education, farming experience, and market participation; and employ comparative or longitudinal designs to validate and strengthen the extension model's broader applicability. Explore how academe-cooperative extension partnerships differ within the wider cooperative community across various geographic regions, including urban, rural, and geographically isolated and disadvantaged areas.

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