

Agricultural training and farmers perceptions of agricultural extension in Zamboanga del Sur, Philippines

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This paper focuses on agricultural training and the attitude of farmers towards agricultural extension services in Zamboanga del Sur, Philippines. Primary data was gathered on the awareness, perceptions, and involvement of 350 farmers in training programs using a descriptive quantitative design, which used a structured survey to collect the data. Findings show that the farmers have high awareness (mean=2.75) and generally positive perception (mean=4.01) towards agricultural training, especially in the competency of the trainers, the relevancy of the contents, and the importance of the government in facilitating agricultural development. In spite of such positive

assessments, the attendance is limited by practical reasons, in particular, time issues (76.67%) and distance to training facilities (35.33%). The need to gain knowledge that can be used in the farming practices is the main reason why farmers are interested in doing so (82.67%). The results indicate that even though the extension services are effective in content delivery, and perceived usefulness, there is a need to make the services more accessible, schedule, and communicate to achieve more participation. The paper concludes that more flexible and farmer-oriented training methods and enhancing information flow may enhance the efficiency of agriculture and extension services and aid in making the agricultural sector sustainable.

Key Words: *Agricultural extension; Agricultural training; Farmers' perception; Participation; Rural development; Philippines*

INTRODUCTION

Agricultural extension and training remain central to improving farm productivity, strengthening rural livelihoods, and supporting sustainable agricultural systems. Recent evidence emphasizes that extension services are not only vehicles for technology transfer but also critical mechanisms for enhancing farmers' adaptive capacity, particularly in the context of climate change and increasing production risks [1]. In developing nations where agriculture is mainly produced by smallholder farmers, the services are limited in effectiveness due to the way the farmers perceive the applicability, relevancy, and availability of the services.

Agricultural training, as a core component of extension systems, facilitates knowledge acquisition, skills development, and behavioral change among farmers. The modern literature shows that training interventions are highly effective in fostering the adoption of climate-smart and sustainable agricultural practices by the farmers, particularly when such interventions are context-specific and participatory in nature [2]. Moreover, training enhances farmers' confidence and decision-making capacity, thereby increasing their ability to respond to environmental and market uncertainties.

Farmers' perceptions have emerged as a critical determinant of the effectiveness of agricultural extension services. Recent empirical research indicates that when extension services are perceived as credible, accessible, and responsive to local needs, farmers are more likely to engage with training programs and adopt recommended practices [3]. On the other hand, service delivery gaps, including poor access to financial services, poor infrastructures, and poor digitalization can adversely impact the perceptions of farmers and lower the participation [3].

Moreover, the shift of the agricultural extension systems into more innovative and integrated methods has been widely reported in the recent literature. The concept of extension services is becoming regarded as an element of larger agricultural systems of innovation, so that they serve as intermediaries between farmers and research institutions, markets, and policy frameworks [1]. This change highlights the need to enhance

interaction, collaboration and sharing of knowledge among stakeholders to increase effectiveness of training programs.

The rapid development of the digital technologies has additionally changed the provision of the agricultural extension services. Digital platforms, mobile-based advisory systems, and artificial intelligence-enabled tools are expanding access to information and enabling more personalized and timely support for farmers. The latest research shows that these types of innovations have the potential to enhance the level of engagement, trust, and overall efficiency of extension services, especially in rural regions where the provision of face-to-face delivery is hindered due to its inaccessibility [4]. Nevertheless, the effectiveness of these technologies will be determined by the awareness and perceptions of farmers and their digital preparedness.

Regardless of these developments, it is increasingly becoming known that the outcomes of extensions are very context-oriented. The socio-economic factors, experience of farming and institutional factors of the farmers in the area still determine their perceptions and their involvement in the training programs. As an example, the recent findings indicate that age, experience, and previous exposure to training are some of the key factors by which farmers estimate the extent to which the extension services are effective and their readiness to embrace innovations [3].

In the Philippines, the agricultural extension services are conducted in a decentralized system of the country by the national agencies and the local government units. Although various training programs have been implemented to benefit farmers, few empirical studies have been conducted to understand the way farmers perceive the training programs at the provincial level. Understanding these perceptions is essential for identifying gaps in service delivery and improving the design and implementation of agricultural training programs.

This study addresses this gap by examining agricultural training and farmers' perceptions of agricultural extension in Zamboanga del Sur, Philippines. In particular, this study will (1) Determine the level of awareness of agricultural training programs among farmers, (2) Describe the perceptions of farmers towards the programs, (3) Examine factors of participation and (4) Suggest policy-relevant interventions in order to make agricultural extension services

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more effective. By providing context-specific evidence, the study contributes to the development of more responsive and inclusive extension systems.

MATERIALS AND METHODS

Research design

The research design adopted in this study was a descriptive quantitative research design that involved a cross-sectional survey in the investigation of agricultural training and perceptions of the farmers about agricultural extension in Zamboanga del Sur, Philippines. A descriptive survey design is one of the most common agricultural economics and extension research methods to describe features, perceptions, and attitudes of a target sample in a systematic way, especially when evaluating the effectiveness and post-use of a program [5,6]. The method can be adopted to find the trends in the awareness and perceptions of farmers, as well as their engagement in the training programs in agriculture.

Study area and participants

The research was carried out in Zamboanga del Sur, which was a mostly agricultural province in the Philippines that still uses farming as a major means of livelihood. The province has a combination of crop, livestock, and fisheries production systems, thereby making it an appropriate environment to investigate training and extension services on agriculture. This area of concentration gives context-related information on the way farmers view and respond to extension programs.

Sampling design and respondents

This paper focused on the farmers who were beneficiaries or potential participants of agriculture training programs through local agricultural offices. The respondents were sampled in 350, and the probability sampling method was used. The sample size was calculated with the help of the Yamani formula that is most commonly used in the social science and agriculture studies when the population variability is unknown [7,8].

The respondents were selected proportionally among the sampled barangays to have a sufficient number of respondents. This sampling methodology will improve the external validity of the results and minimize sampling bias. Extension studies should use all the probability-based sampling to make sure that the outcomes mirror the behaviors of the overall population of farmers [8].

Data collection

The primary data were collected by structured questionnaire survey that was given to the respondents. The tool was divided into sections that included:

- Socio-demographic characteristics.
- Understanding of agricultural training programs.
- Attitudes to agricultural training and extension services.
- Involvement in training processes.

The scales used in the questionnaire to assess the perceptions were Likert scale items, making it possible to evaluate the attitudes and experiences

quantitatively. In agricultural extension research, the data collection using surveys has been one of the standard practices in data collection since it allows the researcher to capture the perceptions and behavioral responses of the farmers [9].

The survey was done in two stages, to provide a sufficient coverage and response validation. Respondent anonymity and informed consent were some of the ethical considerations that were adhered to in the process of collecting data.

Data analysis

The gathered data were studied with the help of descriptive statistics instruments, which were frequency distribution, percentage, mean, and ranking. These were the ways of summarizing the awareness, perceptions and the level of participation of farmers in agricultural training programs.

Descriptive statistics are suitable in the analysis of data based on perceptions and the detection of trends and patterns of agricultural extension research [10]. Likert-scale responses were interpreted using mean scores and the relative importance of the factors affecting participation in training programs was determined using the ranking analysis.

Analytical framework

The research ground is anchored on the fact that the perceptions of farmers determine their involvement in agricultural training and adoption of extension services. The perception-based analysis has been very prevalent in the current agricultural studies to assess the success of the extension interventions, as well as to inform policy betterment [11]. The study offers a framework of how the extension services may be enhanced to serve the farmers better by connecting awareness, perception, and participation to the study.

RESULTS

Table 1 presents the level of farmers' awareness of agricultural training programs. The findings indicate that the awareness of the respondents is generally high with an average weighted mean of 2.75 (SD=0.46), which was considered as fully aware.

Most of the indicators such as training schedules (WM=2.89), facilitators (WM=2.88), objectives (WM=2.86), venues (WM=2.84), and anticipated outcomes (WM=2.82) were high, as indicated by the farmers. Awareness of training sponsorship was however relatively lower (WM=2.12) which is understood as partially aware.

The general results reveal that farmers are quite knowledgeable on the working mechanisms of the agricultural training programs but comparatively lack knowledge on the institutions or agencies involved in the organization of such programs.

TABLE 1
Farmers' level of awareness on agricultural training programs in Pagadian city

Level of awareness	Weighted Mean (WM)	SD	AE
On agricultural trainings programs conducted in 2015, 2016 and in 2017	2.82	0.56	FA
On schedules of agricultural trainings in the community	2.89	0.33	FA
On agricultural trainings conducted in other venue outside community	2.84	0.52	FA
On the objectives of the agricultural trainings conducted	2.86	0.41	FA

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On facilitators/resource persons of the agricultural trainings conducted	2.88	0.42	FA
On the expected output/outcome of the agricultural training programs conducted	2.82	0.46	FA
On sponsorship of the agricultural trainings conducted	2.12	0.57	PA
Grand mean	19.23		
Average weighted mean	2.75	0.46	FA

Table 2 will summarize the perception of agricultural training programs by farmers. The mean weighted average of 4.01 refers to the fact that the respondents tend to agree with the positive statements about training effectiveness.

The highest-rated perception indicator is associated with the role of the government in helping farmers (WM=4.19, SD=0.39). The other aspects that have a high rating are conduciveness of training facilities (WM=4.12, SD=0.65), readiness of resource persons (WM=4.08, SD=0.27), and sufficiency of training materials (WM=4.07, SD=0.25).

Producers also fairly appraised the utility of training programs (WM=3.88), the suitability of training schedules (WM=3.88), and the quality of trainers (WM=3.85). The results indicate that the respondents consider agriculture training programs as helpful, well-structured, and attentive to their needs.

TABLE 2
Farmers' perceptions on agricultural training programs

Farmers' perceptions	WM	SD	AE
The agricultural training programs you have attended are useful	3.88	0.82	A
The resource person/s provide/s good ideas that held me in improving my crop and livestock production	3.99	0.71	A
The training is provided at times when we can apply it in the field	3.88	0.79	A
The resource person is usually prepared during the training	4.08	0.27	A
The resource person has equipped himself with the training materials needed for the activity	4.07	0.25	A
The trainer/s are excellent in helping the farmers	3.85	0.69	A
The government plays an important role in helping farmers through agricultural training	4.19	0.39	A
The trainers/experts are friendly and approachable regarding my farm problems	4.03	0.33	A
The venues of the training are conducive for farmers to learn	4.12	0.65	A
The topics of the training are interesting	3.92	0.56	A
The trainings provide/offers what a farmer really needs	4.02	0.65	A
Grand mean		44.13	
Average weighted mean		4.01 - Agree (A)	

Table 3 shows the determinants on the involvement of farmers in the agricultural training programs.

The most commonly given reason of non-participation is schedule conflict which was mentioned by 76.67 percent of respondents. This is followed by distance of the training venues (35.33%), unavailability of information regarding training locations (4.66%). A smaller percentage of respondents (3.33) have cited their lack of interest and ignorance of training schedules.

Based on the motivation factors, a majority of the respondents (82.67) cited that their major motivation factor in participating is the need to gain knowledge that can be applied in their farming activities. The need to know about farm inputs subsidies (8.00%) and a desire to know new farming technologies (4.00%), are other motives. Peer encouragement and institutional requirements were identified to have a small effect.

TABLE 3
Factors affecting farmer's participation in agricultural trainings

Factors affecting participation	f (n)	%	Rank
Possible reason/s for not attending agricultural trainings			
Did not know about when the training is conducted	5	3.33	3 rd
Did not know about where the training is conducted	7	4.66	
The training is far from my place	18	35.33	2 nd
The training given is not of my interest	5	3.33	
They are held at time when I have other obligations	115	76.67	1 st
Reason/s that motivate to participate in agricultural trainings			
Barangay/association's policy	2	1.33	1 st
Desire to get knowledge to apply on my farming	124	82.67	
Convinced by friends/other participants	2	1.33	3 rd
Want to learn new ways/technologies in farming	6	4	
Want to get awareness on market issues	2	1.33	2 nd
Be aware of the farm input subsidies (farm input assistance) in my area	12	8	
Get information on other national/local programs that I can avail of in the future	2	1.33	

DISCUSSION

The results indicate that farmers in Zamboanga del Sur are very aware and have good perceptions about agricultural training programs and this shows that extension services are usually effective in the dissemination of information and delivery of content. The awareness in most training schedules, purposes, and facilitators is an indication that the local level communication strategies are performing well. Nevertheless, the fact that training sponsorship is less known suggests that there is a disclusivity of institutional awareness, something that might restrict the knowledge of the wider extension system on the part of the farmers.

This is in line with the recent researches that show that farmers tend to be interested more in the practical side of the extension services than in the institutional structures, which points to the possibilities of better communication on the issue of program governance and support structures [1]. Improving the institutional transparency can increase the trust and promote the increased involvement in the extension programs.

The fact that the farmers held positive views about training performance especially with regards to relevance, competency of trainers and government subsidies imply that the existing extension models are sensitive to the needs of the farmers. The high level of consensus about the helpfulness of the training programs and the proficiency of the resource persons supports the role of human capital in the delivery of extension. Recent studies verify that the trust toward extension agents and the perceived applicability of training content are the primary factors to guarantee successful knowledge transfer and uptake of agricultural innovations [4].

These positive perceptions notwithstanding, the participation is limited due to logistical considerations especially time clash and accessibility. The prevalence of barriers of a schedule nature indicates the competing needs of farmers who have to juggle between training involvement and family and farm duties. The same has been evident in recent reports whereby time windows and distance also play a significant role in minimizing the engagement in extension activities [3].

Conversely, the fact that the main reason why people join it is the willingness to get practical knowledge, suggests that the farmers are self-motivated to make their farms more productive and use new technologies. This goes in line with available evidence that farmers are more apt to participate in extension programs, when they feel that they have a direct economic or practical benefit [2].

Overall, the findings indicate that although agricultural training programs in the study region are good in terms of content delivery and the perceived value, there is need to improve on the accessibility and scheduling of the programs to increase participation. The introduction of adaptable delivery tools, including decentralized training venues, online extension forums, etc. could serve to overcome these limitations and enhance the efficiency of the system of agricultural extension services in general [12].

CONCLUSIONS

This paper assessed agricultural training and the perception of the farmers towards agricultural extension in Zamboanga del Sur, in the Philippines. The results have shown that the awareness of agricultural training programs is high among farmers who tend to have most positive perceptions on relevance, usefulness and delivery. Specifically, the respondents acknowledge that the role of government and extension providers in knowledge transfer and promoting agricultural productivity is very important.

Although these positive attitudes are present, the engagement into the training programs is still limited by the practical constraints, especially the problem of time and the inaccessibility of the training facilities. These limitations indicate a lack of alignment between designing training delivery and the time/mobility constraints of farmers. Concurrently, high motivation of farmers to be part of it, which is largely due to their willingness to learn what can be applied to the farming practices, highlights the fact that there is still a need in relevant and practical extension services.

The findings imply that to enhance the efficiency of agricultural extension, it is necessary not only not to reduce the relevance and quality of training

content but also to improve delivery mechanisms. To attract more participation, it is necessary to provide prior scheduling, enhance dissemination of information and more adaptive and accessible training modalities. Increasing communication efforts especially in educating farmers on training and program support structures can increase engagement.

Policymaking-wise, the results clarify the necessity of having a more responsive and farmer-oriented extension system that would make the training programs more aligned with the real conditions and limitations of the farmers. The extension providers have been urged to be proactive and responsive such as better coordination with the local communities as well as adopting diversification in delivery systems to ensure farmers remain interested and involved in agricultural training. These are essential improvements that can be made to maximize the effects of the extension services on the agricultural productivity and rural development.

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