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Assessment on the Impact of Agricultural Cooperative on the Development of the Members of Kasapi: Samahan ng Magsasaka Cooperative

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Abstract— There is no doubt that farmers require an agricultural cooperative in order to overcome obstacles. In Palayan City, Nueva Ecija, Philipines "KASAPI: Samahan ng Magsasaka," a cooperative is situated. This agriculture cooperative is the only agricultural cooperative that can be found in the city. This study aims to determine the impact of agricultural cooperatives on the development of KASAPI: Samahan ng Magsasaka Cooperative in Palayan City, Nueva Ecija, Philippines. Specifically, this study intends to answer how agricultural cooperatives affect the development of KASAPI: Samahan ng Magsasaka cooperative in terms of agriculture technical efficiency, input usage efficiency, increasing farm income, and increasing crop production. The design of this study was Quantitative Research Method using percentage, weighted mean and thematical analysis to interpret and determine the result. This study was conducted in Palayan City, Nueva Ecija, Philippines. As to the results, assessing the development among members of KASAPI: Samahan ng Magsasaka in terms of Agriculture Technical Efficiency rank as number 1 . The agricultural cooperative, according to the respondents, has shared its knowledge with the farmers and can offer assistance using technical methods that increase production. Also, the respondents have experienced decrease in crop prices came out as the top challenge they have encountered. Lastly, the KASAPI cooperative must establish a policy that will help the members' development and growth. Since this study is an impact assessment, the output of this research can be used by the management team of the said cooperative for them to design the appropriate development plan for their members.

Keywords— Agricultural Cooperative; Agriculture technical efficiency, Input usage efficiency, Increasing farm income, and Increasing crop production.

INTRODUCTION

According to Zelong Yi et al. (2021), farmers must deal with fluctuating yields, volatile input and output prices, and sudden changes in production technology as part of their everyday farming operations. These factors influence the variation in agricultural profitability from one year to the next and from season to season. Risk factors and their severity might vary based on farm type, agricultural system, region, climate, government legislation, and farming system itself.

The types and severity of risks that farmers face vary from location to location, and risk is a major concern in developing countries where farmers have limited information to forecast future factors such as farm input prices, product prices, and weather conditions that may affect their farms. In agriculture, business risk and financial risk are two types of risk. Production or yield risk, marketing or price risk, institution, policy, and legal risk, human or personal risk, and technical risk are additional categories of business risks. When farmers borrow money to

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finance their business operations, they risk incurring debt due to their frequent exposure to variable interest rates, insufficient cash flow to cover debt payments, and fluctuating credit terms and conditions.

In light of the foregoing, there is no doubt that farmers require an agricultural cooperative in order to overcome obstacles. An agricultural cooperative, often known as a farmers co-op," is an agricultural cooperative in which farmers pool their resources in certain areas of activity. Individuals organize themselves voluntarily to provide themselves and others with goods and services under democratic control and for mutual benefit (Fatemah Allahdadi, 2011). Agriculture cooperatives are widely regarded as the most important organization that promotes rural development and poverty alleviation. Additionally, cooperatives are seen as pillars of organizational development and food security (Tshimangadzo Ashley N., 2016).

In Palayan City, Nueva Ecija, Philipines "KASAPI: Samahan ng Magsasaka," a cooperative is situated. This agriculture cooperative is the only agricultural cooperative that can be found in the city. Palayan City is the capital of the province of Nueva Ecija, where vast numbers of farmers can be found. According to the members of the farmer's cooperative "KASAPI: Samahan ng Magsasaka" in Palayan City, the most common challenges they face are account receivables, which frequently owe them goods or services that have not yet been paid; competition, which frequently has trouble selling their product because there are so many competitors; technology, which lacks agricultural technologies they use; rising costs and prices of equipment for their crops, which are also issues; and low commoditization.

With the above stated challenges, the Kasapi Cooperative cannot fully reach its purpose of supporting rural development to alleviate poverty. Aside from that, the members of the said cooperative cannot fully receive the benefits that they might get from joining the cooperative.

This study aims to determine the impact of agricultural cooperatives on the development of KASAPI: Samahan ng Magsasaka Cooperative in Palayan City, Nueva Ecija, Philippines. Specifically, this study intends to answer how agricultural cooperatives affect the development of KASAPI: Samahan ng Magsasaka cooperative in terms of agriculture technical efficiency, input usage efficiency, increasing farm income, and increasing crop production. This study also aims to identify the challenges encountered by KASAPI: Samahan ng Magsasaka cooperative members. Lastly, the researchers want to propose solutions to address the challenges encountered by the cooperative members.

Agricultural Cooperative and Its Impact in Farmers

According to Candemir et.al (2021), agricultural cooperatives may play a significant role in supply chains to support farmers in changing their agricultural practices and favoring the adoption of more sustainable methods because of their close ties to farmers.

Cooperatives have a unique identity that sets them apart from other types of business and suggests that they have a unique organizational characteristic.

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According to Getnet and Anullo (2012), agricultural cooperatives are important rural organizations supporting livelihood development and poverty reduction. In recognition of such roles of cooperatives, Ethiopia showed a renewed interest in recent years in promoting cooperative sector development. However, there is lack of a wider and systematic analysis to produce sufficient empirical evidence on the livelihood development and poverty reduction impacts of cooperatives in the country.

According to Candemir et.al (2021), agricultural cooperatives have a wide range of potential actions because cooperative members are the owners, investors, and users of the cooperative. Through the services offered, a better market position, and the pooling of assets that results in cost sharing among members, they can create incentives to urge farmers to improve their methods.

Additionally, cooperatives may encourage the use of these techniques by lowering farmers' perceptions of risk and making investment more feasible. However, there are certain governance issues with cooperatives, particularly in monitoring and management, which could prevent the reforms. Since the majority of members might not be in favor of the necessary changes, the distinctive governance structure of cooperatives may then have conflicting results. The incentives for farmers may even be reduced by membership heterogeneity.

According to Lei Deng et.al (2021), Agricultural modernization and intensification have been regarded as a significant way to support agricultural development and improve farm income in China. Agricultural cooperatives have played an important role in promoting the modernization and intensification of Chinese agricultural sector.

According to Eric Ofori et.al (2019), Cooperatives are increasingly advocated as a means to improve incomes, livelihoods and the sustainability of smallholder farmers.

MATERIALS AND METHOD

Research Method

The study used Quantitative research design to assess the Impact of agricultural cooperative on the development of the members of KASAPI: Samahan ng Magsasaka Cooperative. This design was Quantitative Research Method using percentage, weighted mean and thematical analysis to interpret and determine the result.

According to Pritha Bhandari(2022), Quantitative research is the process of collecting and analyzing numerical data. It can be used to find patterns and averages, make predictions, test causal relationships, and generalize results to wider populations.

Research Locale

This study was conducted in Palayan City, Nueva Ecija, Philippines. Where the respondents are identified. The respondents of this study were the members of KASAPI: Samahan ng Magsasaka Cooperaive to give the researchers enough data to find out the result.

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Respondents of the Study

The respondents of the study were the members of "Kasapi Samahan ng Magsasaka", a cooperative which you can found in Palayan City. The researchers used 128 respondents or 10% of members to collect data and information to come up with the result.

Sample and Sampling Technique

This study used the purposive sampling technique. Purposive sampling, also known as judgmental, selective, or subjective sampling, is a form of non-probability sampling in which researchers rely on their judgment when choosing members of the population to participate in their surveys, Alchemer (2021).

Research Instrument

The findings of this study were conducted through survey questionnaire form. The study applied the quantitative method, that's why the instruments used to collect data are questionnaire survey form and interview. On the other hand, the questionnaire was personally developed by the researchers. The first part of the questionnaire was formulated using a 4 point likert scale. The second part of the questionnaire is an open-ended question.

Data gathering procedure

The research study entitled "Impact of Agricultural Cooperative on the Development of the Members of KASAPI: Samahan ng Magsasaka Cooperative" was conducted after the approval of the topic. The researchers used survey questionnaires and interview as a research tool, which serves as a medium to collect data. This paper formulated semi-interview questions and survey questions that are depth analysis and focus group discussion to further describe and explore each variable and the topic. The reliability coefficient of the instrument was tested and measured with a score of .8122 which means that the instrument has a good internal consistency. The validity of the research instrument was established by presenting the developed research instrument for the comments of the research teacher who rated the instrument with 4.78 as it is weighted mean having a verbal interpretation of "very good". Before distribution of the questionnaires, the researchers obtain approvals from the head of the cooperative. After the dry run of the questionnaire, it was tallied, and further revisions of the questionnaire were done. After the distribution, the formation that was gathered from the answered questionnaire was tallied for further interpretation.

Data Analysis Techniques

The data collected from the locale were encoded, tallied, and analyzed. Statistical tools such as Percentage, Frequency Distribution, Weighted Mean, And Thematic Analysis were used in analyzing the data gathered. The scale below was employed to interpret the results.

Table 1. Scales for Interpretation

Scale	Mean Range	Interpretation	Description
4	4.00-3.00	Strongly Agree	Highly In Favor
3	2.99-2.00	Agree	In Favor

2	1.99-1.00	Disagree	Not In Favor
1	1.00-0.99	Strongly Disagree	Highly Not In Favor

Table 2 present the scales applied by the researchers in the interpretation and description of data under Impact of Agricultural Cooperative on Development of the respondents to assess the level of impact of those development among members of cooperative. To determine the favorable using a 4-point Likert scale. The purpose of the research is to identify the perspective of the respondents which among the development of the farmers are being highly in favor, in favor, not in favor, and highly not in favor.

Aside from the said scale, the researchers used the following statistical tools to classify, tabulate, and analyze the data of the following objectives of the research study:

1. To assess and analyze the impact of Agricultural Cooperative on the development of the members of KASAPI: Samahan ng Magsasaka cooperative, the researchers employed weighted mean.
2. To determine the challenges encountered by the members of KASAPI: Samahan ng Magsasaka Cooperative, the researchers employed thematic analysis, treated with frequency and percentage.

RESULTS AND DISCUSSIONS

1. Assessing the development among members of KASAPI: Samahan ng Magsasaka in terms of Agriculture Technical Efficiency, Input Usage Efficiency, Increasing Farm Income, and Increasing Crop Income.

Table 2. Assessing the development among members of KASAPI: Samahan ng Magsasaka in terms of Agriculture Technical Efficiency

Agriculture Technical Efficiency	WM	VI	Rank	VB
1. Agricultural cooperative helps in imparting knowledge on the efficient use of technical methods.	3.49	STRONGLY AGREE	2	HIGHLY IN FAVOR
2. With the help of the cooperative, each member gains knowledge and becomes efficient in the use of agricultural technology.	3.44	STRONGLY AGREE	3	HIGHLY IN FAVOR
3. Agricultural cooperative is one of the main means of providing services to share knowledge in the use of technical methods that cause the improvement of its members.	3.59	STRONGLY AGREE	1	HIGHLY IN FAVOR
AVERAGE WEIGHTED MEAN	3.50	STRONGLY AGREE		HIGHLY IN FAVOR

The table above shows, the development among members of KASAPI: Samahan ng Magsasaka in terms of Agriculture Technical Efficiency. The weighted mean of 3.59, which is interpreted as Strongly Agree, indicates that the majority of respondents strongly agree that the agricultural cooperative is one of the primary means of providing services to share knowledge in the use of technical methods that improve its members. The agricultural

cooperative, according to the respondents, has shared its knowledge with the farmers and can offer assistance using technical methods that increase production.

According to Naziri et al. (2014), other empirical studies examine how technical support encourages environmentally responsible behavior among producers. The impact of technical assistance services on farmers' decisions to implement practices with higher fixed costs can be substantial. Technical assistance provided by cooperatives encourages producers to alter their practices, thereby reducing pesticide residues in Vietnam's vegetable industry.

The majority of technical education provided by training participants is frequently poorly targeted, restricted, and aimed at a limited audience, among other defects. Through one-on-one training and field guidance, agricultural cooperatives have distinct advantages in training farmers and promoting agricultural technologies. For instance, Wang et al. and Suvedi et al. (2020) discovered that farmers who join cooperatives have simpler access to cutting-edge technologies and make more rational decisions regarding technology adoption.

Table 3. Assessing the development among members of KASAPI: Samahan ng Magsasaka in terms of Input Usage Efficiency.

Input Usage Efficiency	WM	VI	Rank	VB
1. Cooperative helps each member to choose the right chemical to use in their crops.	3.35	STRONGLY AGREE	2	HIGHLY IN FAVOR
2. With the help of the agricultural cooperative each farmer knows what method they should do to maintain the production of their crops.	3.37	STRONGLY AGREE	1	HIGHLY IN FAVOR
AVERAGE WEIGHTED MEAN	3.36	STRONGLY AGREE		HIGHLY IN FAVOR

The development among members of KASAPI: Samahan ng Magsasaka in terms of Input Usage Efficiency shown in the table above. The weighted mean of 3.37, which is interpreted as "Strongly Agree," shows that the majority of respondents came to the conclusion that with the assistance of the agricultural cooperative, each farmer knows what method they should use to maintain the production of their crops. According to the respondents, the agriculture cooperative assists farmers in determining how to maintain crop production.

Numerous benefits accrue to farmers who join cooperatives, as well as to frequent nonmembers. According to Mather et al. (1978), cooperatives permit farmers to democratically own and control business enterprises for acquiring inputs (supplies and services) and marketing outputs. (products).

According to Eka (2023), co-ops can purchase essential inputs in abundance, such as seed, fertilizer, and pesticide, and sell them to members at a significantly lower price than they would pay individually. This reduces input costs for member producers and ensures timely delivery of high-quality inputs. Co-ops are able to purchase inputs in

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mass and sell them to members at a much lower price than they would be able to do on their own. This reduces input costs for member producers and ensures timely delivery of high-quality inputs.

Table 4. Assessing the development among members of KASAPI: Samahan ng Magsasaka in terms of Increasing Farm Income.

INCREASING FARM INCOME	WM	IV	RANK	VB
1. Agricultural cooperative helps to provide adequate knowledge on how to earn more than the normal income of the farmers.	3.39	STRONGLY AGREE	2	HIGHLY IN FAVOR
2. Agricultural cooperative conducts seminars to provide sufficient knowledge to farmers in having high income.	3.44	STRONGLY AGREE	1	HIGHLY IN FAVOR
3. Agricultural cooperatives can help farmers earn at least what they have spent or invested.	3.35	STRONGLY AGREE	3	HIGHLY IN FAVOR
AVERAGE WEIGHTED MEAN	3.39	STRONGLY AGREE		HIGHLY IN FAVOR

The KASAPI: Samahan ng Magsasaka members' progress in terms of raising farm income is depicted in the table above. Researchers found that the majority of respondents came to the conclusion that agricultural cooperatives hold seminars to give farmers the knowledge they need to have high incomes, with a weighted mean of 3.44, which is interpreted as "Strongly Agree." According to the respondents, agricultural cooperatives have helps the farmers in producing high income. The effects of agricultural cooperatives on income have been the subject of numerous recent studies. In the Philippines, backyard pig producers were the subject of a field study conducted by Maharjan and Fradejas (2006), which revealed that cooperatives improved not only the efficiency of their small-scale agricultural operations but also the socioeconomic well-being of their families. In addition, they demonstrated that farmers who participated in the cooperatives seminar earned more money from production and that their agricultural products were more competitive on the market. According to Abebaw and Haile (2013), the literature describes the successes of agricultural cooperatives and illustrates the positive effects of cooperative membership on farm income, farm profits, technology adoption, and market participation.

Table 5. Assessing the development among members of KASAPI: Samahan ng Magsasaka in terms of Increasing Crop Production.

Increasing Crop Production	WM	IV	Rank	VB
1. Agricultural cooperatives contribute to the ever-increasing flow of agricultural products.	3.46	Strongly Agree	1	Highly In Favor

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2. Agricultural cooperative helps in maintaining a constant supply of agricultural products sold in the market to meet the needs of the consumers.	3.39	Strongly Agree	3	Highly In Favor
3. Agricultural cooperative helps in increasing the production flow of good yield of agricultural products.	3.43	Strongly Agree	2	Highly In Favor
Average Weighted Mean	3.42	Strongly Agree		Highly In Favor

The KASAPI: Samahan ng Magsasaka members' growth in terms of increasing crop production is depicted in the table above. Researchers found that the majority of respondents, with a weighted of 3.46 interpreted as Strongly Agree, said that agricultural cooperatives contribute to the continuously increasing flow of agricultural products. The agricultural cooperative, according to the respondents, contributed to in the farmers' increasing of agricultural crops. According to Cook et al., as a prominent business institutional form in the global agri-food system, agricultural cooperatives play a crucial role in organizing smallholder farmers to increase production scale and skill globally. (2000).

Globally, cooperative organizations have played significant roles in small-scale farming and agriculture development, as well as in enhancing members' livelihoods, and there are numerous examples Hyakumura et al., (2018). According to Islam et al., Japan is one of the world's foremost agricultural development nations due to farmer cooperative movements. (2018). According to a 2012 FAO report, dairy cooperatives control roughly 80% of dairy production in the United States, whereas the vast majority of special crop producers in California are organized as cooperatives.

2. Challenges encountered by the respondents

Table 6. Challenges encountered by the respondents

Challenges encountered by the respondents	Frequency	Rank	Percentage
Lack of financial assistance	18	3	14%
Lack of transportation and equipment	8	8	6.3%
High price of product	7	9	5.5%
Lack of fertilizer	10	7	7.8%
Unfair treatment of the leader of cooperative	11	6	8.6%
Decrease in crop prices	29	1	22.7%
Natural calamity	14	5	10.9%
High interest loan	12	4	9.4%
Pest	19	2	14.8%
Total	128		

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The table above shown the Challenges encountered by the respondents. Researchers found that the majority of respondents was encountered Decrease in crop prices, with the frequency of 29 and has a percentage of 22.7%.

Based on the above findings, there are several problems that respondents have been encountered that hinders them from having a well-performing operation including the prices, production, climate hazards, and the transparency of relationship of the leaders and members to each other. The respondents claimed that farmers encountered difficulties with declining crop prices, which resulted in income loss.

According to Saunders et al. (1997) & Angus et al. (1998), production and price risks play a significant role in farmers' decision-making (2009). Price risks primarily arise because crop growth is highly dependent on its environment, which can change quickly (e.g., weather conditions and pest pressure, which are reflected in price risk; Harwood et al., 1999).

3. Development Plan

The researchers have crafted a development plan to address the challenges of the respondents. The proposed development includes the following portions: Issues/Problems/Challenges, Objectives, Solutions, Brief Description, Agencies Involve, and Budget.

Table 7. Proposed Development Plan

Issues/Problems/Concerns	Objectives	Solutions/Strategic Initiatives/Project	Brief Description of Strategy/Project	Agencies Involve	Budget
Unfair treatment for every member	To have a fair task distribution to each individuals.	Create an optimal task distribution policy that focuses on the fairness of each individual to have effective and efficient task accomplishment.	The policy will benefit the farmers or laborer in fairness of task allocation and to be transparent for everyone.	All members/farmers	Php. 0 (Depends on the policy requirement
Limited fertilizer and pesticide	To reduce the additional expenses.	Maximize the productivity of labor force while cutting out the expenses.	This strategy will help to reduce the additional expenses.	All members/farmers	Php. 0 (Depends on the policy requirement

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Improve the next income of the farmers	To help prevent the farmers from its losses from the shortage of capital.	Avoid hiring workers on permanent basis. Maintain and take care the crop to produce large number of production.	This strategy guaranteed that every cent spent on labor is worthy. This strategy helps the farmer to increased production as well their income.	All members/farmers	Php. 0 (Depends on the policy requirement
Additional financial expenses for transformation and equipment	To reduce the additional expenses	Maximize the expenses in transformation and equipment.	This strategy will help to reduce the additional expenses.	All members/farmers	Php. 0 (Depends on the policy requirement
Increased Interest loan	To reduce the additional expenses	Maximize the interest rate of loans.	This strategy will help to reduce the additional expenses.	All members/farmers	Php. 0 (Depends on the policy requirement

The following are the recommendations of the researchers based on the above findings:

The KASAPI cooperative must establish a policy that will help the members' development and growth. Since this study is an impact assessment, the output of this research can be used by the management team of the said cooperative for them to design the appropriate development plan for their members.

Next, the members and the officers should adopt the results of this study for them to have a basis for the challenges that each of the members where facing. It is important to address these challenges for them to feel the involvement and engagement.

Next, the researchers strongly recommend the use of the crafted development plan to address the challenges of the respondents. It could offer them a same-time problem.

Lastly, the future researchers can use this research as reference for any future research.

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