



## **Socio-demographic characteristics and perceived constraints of the farmers to crop production in selected barangays of Cawayan, Masbate, Philippines**

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### **ABSTRACT**

This study was conducted to comprehend the agricultural status of farmers by analyzing their socio-demographic characteristics and their perceived constraints in farming. The study utilized a descriptive research design and employed a well-structured survey questionnaire to gather data. The study found that the average age of farmers in Cawayan, Masbate was 50 years old. Farmers in Cawayan were dominated by male farmers (71%), with an average of five children (5) and 58% of them had not completed elementary education. The education level of their children was also low, with 23% not completing elementary years. It was observed that 39% of the farmers' children were unemployed and only 20% of the 114 farmers' children under legal age were working in relation to farming, with the remaining 80% having another source of income. The majority (62%) of the farmers in Cawayan were classified as small farmers, with land ranging from 1 to 2 hectares. Seventy-three percent (73%) of the farmers engaged in farming solely to produce crops for their own consumption. In terms of the perceived constraints faced by the farmers, soil fertility and water supply were the main problems related to natural resources. The high cost of inputs such as fertilizers, planting materials, pesticides, labor, and machinery was the top problem for farmers. Another significant difficulty the farmers experienced was a lack of understanding regarding how to use these supplies efficiently. The farmers believed that free inputs, free training and seminars, better irrigation systems, and financial help were all answers to these issues.

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## **INTRODUCTION**

Agriculture is a crucial sector in the Philippine economy, as it remains a major source of employment and is a significant contributor to the country's overall economic growth. According to the Asian Development Bank (2016), agriculture still makes up a big part of the Philippine economy, employing 36% of the total employed population in the country. Despite this, the agricultural sector is facing challenges, including declining numbers of people engaged in farming and an aging population of farmers. Agriculture is defined as the art and science of growing crops and raising animals for human consumption (Rimando, 2001). As a purposeful work, it involves harnessing the elements of nature to produce plants and animals that meet human needs. Agricultural workers need knowledge and skills to be successful in this sector, and their level of education has a positive impact on their productivity and income (Signabon et al, 2017). However, many farmers have limited education and this can contribute to low productivity and low income (Palis, 2020).

Moreover, most of the workers in the Philippines are graduates of secondary school, yet the better-educated workers do not typically work in agriculture-related farms or sectors and one-third of agricultural workers had not finished primary school compared to the industry and services sector (Briones, 2017). Similarly, Palis (2020) found that most farmers had only completed elementary education, and some had even stopped attending school after eight years. This situation, combined with the desire for better lives for their children, has led many farmers to quit their livelihoods in agriculture (Palis, 2020).

Given the importance of agriculture to the Philippine economy and the challenges facing the sector, it is important to understand the status of farming in local areas. Masbate province is an agricultural province with a sizable land area for agricultural production (207,500 hectares), ranking second in terms of farm area in the Bicol Region (Philippine Statistics Authority, 2004). This paper focuses on the municipality of Cawayan in Masbate province, which is an agricultural municipality with a vast land area for agricultural production. The specific objectives are to analyze the background of the farmers, to analyze their crop production practices, to identify their perceived constraints in farming, and to craft an extension program.

There is limited research on the socio-demographic profile of farmers and their production constraints in the Philippines. This paper aims to fill this gap by providing data on the status of farming in Cawayan, Masbate, and to inform the development of extension programs that can help address the constraints faced by farmers in the area.

## **MATERIALS AND METHODS**

### **Sampling, Data Collection, and Analysis**

The study examined the sociodemographic characteristics and perceived crop production constraints among farmers in selected barangays of Cawayan, Masbate, Philippines. To collect the required data, a descriptive research design was employed. Out of the 37 barangays in Cawayan, Masbate, three barangays—Barangay Pin-as, Barangay Maihao, and Barangay Itombato—were selected for the study due to their active farming activities. For each of the three barangays, a sample size of 20 farmers was chosen, resulting in a total sample size of 60 farmers. The sample population was chosen using a purposive sampling approach. Data collection was performed through the utilization of structured survey questionnaires, direct observations, and informal interviews. The survey questionnaires aimed to gather information on the farmers' socio-demographic characteristics and perceived constraints in crop production, while observations were conducted in the farming areas to gather additional information. Informal interviews were also conducted with selected farmers to gain a deeper understanding of the issues they faced in crop production. The data obtained underwent analysis utilizing descriptive statistics including frequency counts, mean, and percentage. The analyzed data was then utilized to formulate conclusions regarding the socio-demographic profiles of the farmers and the difficulties they perceived in crop production. Before the study, the farmers were made cognizant of the study's objectives and methodology and provided their informed consent. The confidentiality of the collected data was maintained and the farmers' identities were kept confidential.

## RESULTS AND DISCUSSION

### Socio-Demographic Status of Farmers

Below are the socio-demographic characteristics of the farmers in selected barangays of Cawayan. Data showed that 32% of the farmers of Cawayan belong to the middle age bracket. The average age of the farmers in the municipality of Cawayan is 50 years old. The youngest farmer is 24 and the oldest is 83 years old. It was noticed in Table 1 that 25% of the farmers are considered seniors, and Liu (2021) found that aging farmers had a negative effect on learning capacity. Not only has their strength needed for farming activities decreased, but their abilities to learn new things and digest information are also weakened. If the trend of aging farmers continues to increase and no new generation of farmers comes out, the dream of the nation of self-sufficiency is merely impossible to achieve. One of the reasons highlighted in the work of Ottosen (2014) why there is an increasing trend of aging farmers across the globe is the rural-urban migration, in which young people are prepared to stay in towns and cities, leaving older people behind on their farms to cultivate. When the children of the farmers reach the legal age to work, they immediately leave their barangays in search of better jobs in rich cities like Cebu and Manila. High poverty incidence in rural areas also forced the young to migrate to other places.

Table 1. Farmers' sociodemographic characteristics

Background	Frequency	Percentage
<i>Age Group</i>		
20-30	5	8
31-40	7	12
41-50	19	32
51-60	13	22
61-above	15	25
<i>Gender</i>		
Female	17	29
Male	42	71
<i>Civil Status</i>		
Married	53	90
Single	2	3
Separated	1	2
Widow/er	3	5
<i>Number of Children</i>		
1	9	15
2	8	14
3	10	17
4	10	17
5	20	34
<i>Educational Attainment</i>		
College Graduate	1	2
College Level	4	7

High School Graduate	5	8
High School Level	7	12
Elementary Graduate	8	14
Elementary Level	34	58
<i>Source of Income</i>		
Farming	59	100
<i>Annual Income</i>		
below 1,000	2	3
1,000-3,000	3	5
4,000-5,000	12	20
6,000-9,000	6	10
10,000 and above	36	61

Farmers in Cawayan are mostly (71%) dominated by males. As the head of the family, male farmers are tasked to cultivate the land and ensure that their families have enough food to eat at the end of the day. There is evidence that women's empowerment gradually took place in Cawayan because female farmers occupied 29% of the total farmers being studied. As to the marital status, 90% of the farmers are married, 5% are widowed, 3% are single and 2% are separated from their husband/wife. Most (34%) married farmers have 5 children which is higher than the ideal number of children set by the national government which is 3 (NDHS, 2017). However, 17% of the farmers conformed to the desired number of children set by the government. Larger families are hard to manage and prone to bad influences in society, and mothers of large families suffered physical and emotional stress in raising the children. Wagner (1985) stated that children in large families tend to have lower IQs compared to small families. This is true because children in large families are being neglected and they don't get enough nourishment to sharpen their memory which resulted in poor academic performance.

More than half (58%) of the farmers did not complete their primary education followed by elementary graduates (14%), HS level (12%), HS graduates (8%), college-level (7%), and college graduates (2%). The level of education among farmers significantly increases the possibility of adopting the technology offered to them by the government or other entities. Farming is the only source of income for all farmers in the selected barangays of Cawayan. Most (61%) of the farmers have an annual income amounting to P10,000.00 or P833.00 per month. Their income is below the poverty threshold set by the PSA in which a family needs an income of P8,392.50 per month to support their basic needs to survive (PSA, 2018). As of 2018, farmers posted the highest (31.6%) poverty incidence among the identified key basic sectors (PSA, 2020). This is quite alarming because when the frontliners of the economy continue to suffer poverty and felt no improvement in their production, they will force to stop tilling the land. If that happened, famine will occur in all corners of the nation.

### **Farmers' Children's Background**

Education is very important because it can change the lives of individuals who are dreaming of a positive outlook in their lives. As stated by Mandela (n.d.), the most impactful tool available to every individual for altering the world is education. Table 2 revealed that 23% of the farmers' children did not finish their elementary years, high school level (20%), high school graduate and college level garnered 7% respectively, college graduate (5%), elementary graduate (4%) and 3% of the children under surveyed were not attended formal education. The result conformed to the study of Canete (2019) that most of the educational attainment of farmers' children was only elementary level. Out of 114 children of legal age, 39% of them are unemployed and 30% are employed. Farming is the most favored job by farmers' children but it was only 20% of the jobs chosen. The remaining 80% are the jobs that were not related to farming like; construction worker (14%), factory worker (12%), fisherman (12%), baker (6%),

driver (6%), saleslady (6%), security (6%) guard (6%), teacher (6%), backhoe operator (2%), Brgy. Official (2%), OFW (2%), tutor (2%), vendor (2%), and waiter (2%). Other children do not want to follow in the footsteps of their parents in farming because they witnessed that after how many years of cultivating the land, no progress or improvement happened to their family. Resorting to other means of living pushed the children to move to another place and leave their farmland in idle or alien areas. Low literacy level among farmer's children is evident during the survey and based on the evidence presented in this study, particularly on their educational background. Therefore, helping their parents' on-farm operations like fertilizer computation, seeding rate and calibration of sprayer load for pesticide application is impossible to do because those farm skills require technical know-how and deep understanding.

Table 2: Farmer's Children Background

	Frequency	Percentage
<i>Educational Background</i>		
College Graduate	8	5
College Level	12	7
High School Graduate	11	7
High School Level	33	20
Elementary Graduate	7	4
Elementary Level	38	23
None	5	3
<i>Employment</i>		
Employed	50	30
Unemployed	64	39
<i>Work Classification</i>		
Farmer	10	20
Construction worker	7	14
Factory worker	6	12
Fisherman	6	12
Baker	3	6
Driver	3	6
Saleslady	3	6
Security guard	3	6
Teacher	3	6
Backhoe Operator	1	2
Brgy. Official	1	2
OFW	1	2
Tutor	1	2
Vendor	1	2
Waiter	1	2

## Farming Background

Farmers' service in providing and supplying food to the people is considered a heroic act because without them people and the nation as a whole are dying. Table 3 showed that most (46%) of the farmers tilled their land for 26-30 years. Some (27%) of the farmers are still into farming for 31 years and beyond, 11-15 years (7%), 6-10 years (8%), and neophyte farmers (12%) operating their farms for several months to 5 years. Despite the longest years in farming, the majority of the farmers still suffered high poverty and this can be attributed to some factors like age and low educational background. These factors positively affected farmers' decisions in understanding and adopting new technologies (Cubelo, 2016) because they anchored and lived on the traditional way of farming. They do not mind the outcome of their farming actions. What's important for them is they produce crops and have food on the table regardless of the farm size.

According to TractorJunction (2022), farmers can be categorized into five groups: marginal, small, semi-medium, medium, and large. The majority (62%) of the farmers in Cawayan are classified as small farmers with an area ranging from 1 to 2 hectares. Other 22% of the farmers fall into the marginal farmers' category with an area of below one (1) hectare. Fourteen percent (14%) of the farmers in Cawayan are classified as medium farmers with a land area of 4-10 hectares. Only 2% of the farmers are classified as large farmers having a farm size of more than 10 hectares. During the visit, farmers that were classified as medium and large farmers did not utilize the total size of their farm. Other portions remained uncultivated and serves as pastures area for their animals. Unable to manage due to aging, the high cost of farm inputs, and high labor costs are the reasons of the farmers for not utilizing the total size of their farms. Almost half (49%) of the farmers have positions on the land they cultivated for so many years. Some farmers inherited the lands from their ancestors and other parcels were given by their siblings who migrated to other places and had no plan of going back to their native land. Forty-seven percent (47%) of the farmers are tenants and they serve as stewards of the land owned by their relatives and other people who don't have time to manage it with corresponding agreements, particularly on production shares. These farmers are at high risk of losing everything once they committed a mistake and they don't have an assurance of how long they will be occupying the land. Only 3% of the farmers rented land to engage in farming and other activities related to farming.

Table 3: Farmers' Farming Background

	Frequency	Percentage
<i>Years in farming</i>		
31 years and above	16	27
26-30 years	27	46
11-15 years	4	7
6-10 years	5	8
0-5 years	7	12
<i>Total land area</i>		
10 ha and above	1	2
4 ha - 9 ha	8	14
1 ha - 3 ha	37	62
below 1 ha	13	22
<i>Land Ownership</i>		
Owned	29	49
Rented	2	3
Tenant	28	47

<i>Sources of capital</i>		
Owner	48	81
Borrowed	11	19
<i>Crops Planted</i>		
Corn	47	80
Fruit trees	8	14
Rice	57	97
Root crops	23	39
Vegetables	23	39
<i>Purpose of growing crops</i>		
Family Consumption		73
Additional Income		15
Family Consumption & Additional Income		12

Money or capital is one of the factors of production needed by a farmer to make his farm operational. It is also used as a medium in availing goods, services, and other farm inputs. Most (81%) of the farmers used their own money in financing all farm expenses and some (19%) borrowed cash from neighbors and other microfinance with a certain amount of interest per month or depending on the agreements of both parties. Farmers who borrowed capital disclosed that they suffered losses after the harvest of their crops. High transportation costs and the low market prices of produce due to poor quality are some of the reasons for the losses experienced by the farmers. Most of the crops being planted by the farmers are rice (97%), corn (80%), root crops and vegetables (39%), and fruit trees (14%). Farmers in Cawayan practiced multi-cropping and crop rotation for several years to sustain the supply of food in the market.

The majority (73%) of the farmers engaged in farming solely to produce crops for their consumption. Few (15%) farmers considered farming as a business to augment their family income, and 12% of them engaged in farming for family consumption and business purposes. One of the reasons why a nation like the Philippines imports some basic agricultural commodities like rice is due to the limited supply in the market because farmers produce solely crops for consumption. In the long run, if the farmers considered the production of crops for business, in 10 years, self- or food sufficiency is in the hand of the nation.

### **Animals Raised**

Table 4 shows the animals raised by the farmers of Cawayan as a source of their alternative income. Most (83%) farmers raised chickens, both native and commercial breeds; pigs (63%), cattle (53%), carabao (56%), goat (29%), horse (12%), and duck (10%). The reasons for farmers' raising these animals are additional income (62%), family consumption (28%), and both consumption and additional income (9%). According to the farmers, during difficult times when no one lends them money to be used in farming or for emergency purposes, these animals serve as saviors. They sold these animals in exchange for money, with a price ranging from P1,500-P3,000/head for goats; P30,000-P50,000/head for horses, cattle, and carabao, P150/kilo for live commercial broilers; P300-P400/head for native chickens, 140-150/kilo for pigs; and P300-P500/pair for ducks.

Table 4: Animal Raised by Farmers on the Farm

	Frequency	Percentage
<i>Animals Raised</i>		



Carabao	33	56
Cattle	31	53
Chicken	49	83
Duck	6	10
Goat	17	29
Horse	7	12
Pig	37	63
<i>Purpose of raising animals</i>		
Additional Income		62
Family Consumption		28
Family Consumption & Additional Income		9

### Perceived constraints on soil and water resources

Table 5 shows the data on the perceived constraints of farmers on soil and water resources. The majority (76%) of the farmers in Cawayan perceive that there is a problem in their soil in terms of fertility. The farmers believe that the soil fertility on their farms is already low. This problem is similar to that studied by Kanafany et al. (2020). The second perceived problem of farmers regarding their soil is water retention, poor drainage, and soil acidity, with a percentage of 61%, 44%, and 9%, respectively. These properties of the soil are some of the factors that will affect the production performance of the crops planted in their area. In the papers of Devi et al. (2020), soil properties are also part of the production constraints of farmers. Furthermore, none of the farmers think that there is no problem in their soil, they think that there is problem in their soil. Over-exploitation of soil nutrients and improper soil fertility management were the main culprits of these problems because of the low level of education of farmers towards farming. These perceptions of soil problems are the reasons why farmers get weary of farming because they believe that their soil can't be enhanced because of their perceived problems with soil properties.

Table 5. Perceived constraints on soil and water resources

Constraints	Frequency	Percentage
<i>Problems regarding soil properties</i>		
Low soil fertility	45	76
Poor water retention	36	61
Poor drainage	26	44
Soil Acidity	5	9
No problem	0	0
<i>Problems on Water</i>		
Yes	56	95
No	0	0
Sometimes	3	5

On the other hand, regarding problems with the water, almost all (95%) of the farmers stated that there is a problem with water in their crop production. They also added that they do nothing about this problem with the water.



According to ADB (2016), one factor of low productivity among Filipino farmers was due to a problem with the water supply which is why some lands in the country are not productive.

**Perceived constraints on agricultural inputs**

Agricultural inputs such as planting materials, fertilizers, pesticides, and labor supply are the major determinant of crop production, without or limitation of these inputs will limit the yield or harvest of the farm production. The data in Table 6 are the perceived problems of farmers with agricultural inputs. Expensive price for all inputs such as planting material, fertilizers, pesticides, and even labor is the most common problem for the farmers in Cawayan. These production constraints were similar to the problems faced by farmers in other countries like Nigeria, high input cost was among the top important problems encountered by the farmers (Adelani, 2011). Other problems with planting materials were a lack of information on improved and suitable varieties (53%), quality is not guaranteed (49%), and not locally available all the time (12%).

Table 6. Perceived constraints on agricultural inputs

Constraints	Frequency	Percentage
<i>Problems with seed/planting materials</i>		
Price is expensive	32	54
Lack of information on improved and suitable varieties	31	53
Quality is not guaranteed	29	49
Not locally available all the time	7	12
No problem	0	0
<i>Problems on Fertilizer</i>		
Price is expensive	50	85
Cost of transportation is high	35	59
Lack of knowledge of the proper use	32	54
No problem	5	9
Not locally available all the time	1	2
<i>Problem with chemical/synthetic pesticide</i>		
Price is expensive	38	64
Lack of knowledge on how to use them	33	56
Not effective in controlling pest	7	12
No problem	5	9
Not locally available all the time	1	2
<i>Problem with labor supply</i>		
Labor cost is expensive	44	75
Labor Intensive operation (High labor requirements)	39	66
Lack of Labor Supply	37	63
Others: Choosy labor	1	2
No problem	0	0

For the fertilizer perceived constraints (Table 6) the second constraint in fertilizer is the cost of transportation is high, followed by lack of knowledge on proper use, no problem and lastly, it is not locally available all the time with 59%, 54%, 9%, and 2 % respectively. The main reason for this is because the source of fertilizer for farmers in their crop production is synthetic fertilizer and it is only available in the public market is distant from the farm and the road is not concreated from the national road. Another reason is that farmers lack education about farming since most of them have not yet attended seminars/training relative to farming.

Expensive price is still the top problem of the farmers with regards to synthetic pesticides with 64%. The lack of knowledge on how to use them is the second perceived problem of farmers while the question on the effectiveness of controlling the pest is only on the third spot of the perceived constraints of the farmers with percentages of 56 and 12 respectively. Moreover, there are some farmers (9%) stated that they do not have problems with synthetic pesticides, and 2% stated that the pesticide is not locally available all the time. The second common problem of farmers shows that there is limited advisory and technical assistance given to the farmers in Cawayan, Masbate.

In terms of labor supply, there were also some perceived constraints of farmers about this input. Labor cost is the top problem that farmers think about labor supply, 75% of the interviewed farmers shared the same problems. Hight labor requirements and lack of labor supply almost got the same percentage of responses 66%, and 63% respectively. There was also one respondent who said that farm labor is now "choosy" with the work given to them. This problem in labor supply is quite universal, Davi et al (2020) and Adeline et al (2011) also found that limited and expensive labor caused some problems in crop production such as weed infestation.

**Perceived constraints on agricultural machinery, equipment and facilities**

The discussion on perceived constraints on agricultural machinery, equipment, and facilities was divided into two parts, the pre-harvest operation and post-harvest operation problems of farmers about these technologies. For the pre-harvest operation, 75% of the farmers responded that the machinery for land preparation or tractor is very expensive to buy, they said they can't afford to buy one for themselves. The second perceived constraint is the lack of machinery and equipment, the next is the lack of knowledge on how to use them, fourth is not accessible or no one to borrow with responses of 46%, 29%, and 19% respectively. There are also a few farmers who responded that they do not have problems with machinery for pre-harvest operations.

Table 7. Perceived constraints on agricultural machinery, equipment and facilities

Constraints	Frequency	Percentage
<i>Problems with machinery/equipment/facilities for land preparation and pre-harvest operation</i>		
Very expensive to buy	44	75
Lack of Machinery and equipment	27	46
Lack of knowledge on how to use them	17	29
Not accessible, no one to borrow from	11	19
No problem	4	7
<i>Problems with machinery/equipment/facilities for post-harvest operation</i>		
Lack of access to mechanical threshers	23	39
High Milling Cost	21	36
Lack of Adequate storage facilities	18	31

Lack of access to mechanical dryers	14	24
No problem	7	12
No local rice mills located in distant places	3	5

In terms of post-harvest machinery and facilities, farmers have various perceived problems as well. Lack of access to mechanical threshers is the top response with 39% since most of the farmers are rice producers, second is high milling cost with 36%, third is lack of adequate storage facilities with 31% responses, next is lack of access to mechanical dryers with 24% responses, lastly is no local rice mills located in distance places with 5%. Some farmers responded that there are no problems (12%) with post-harvest machinery and facilities.

**Perceived constraints on marketing agricultural produce**

In terms of marketing their farm produce, farmers also responded to various answers with their perceived constraints. High transportation cost got the most responses with regards to marketing (69%), it was followed by distant market (53%), high post-harvest losses (49%), low, unstable, fluctuating price (36%), no local buyer (10%), exploitation by middle man (3%). There were also 5% of farmers who responded that they don't have any problems marketing their farm produce.

Table 8. Perceived constraints on marketing agricultural produce

Constraints	Frequency	Percentage
<i>Problems in marketing produce</i>		
High Transportation Cost	41	69
Distant Market	31	53
High post-harvest losses	29	49
Low, Unstable, Fluctuating price	21	36
No Local Buyer	6	10
No problem	3	5
Exploitation by the middleman	2	3

**Sources of information and support services for the farmers**

The source of farm technologies and information is one of the important contributory factors to the successful farm operation. It was found in the study that most of the farmers get their information in farming from other farmers (72%), this result is not different from other studies like the study of Yaseen et al (2016) and Rahman et al (2016) that majority of farmers get their information from their neighboring farmers, especially those successful farmers. Department of agriculture is only in the second spot for the most answer of the farmers to get their information with 32%. Other sources of information for farmers are radio/TV (19%), extension/agricultural technicians (17%), chemical dealers (5%), and 2% of farmers who read brochures and pamphlets.

Table 9. Sources of information and support services received by farmers.

<i>Sources of Information on farming technologies</i>	Frequency	Percentage
Neighbors or other farmers	45	76
Department of Agriculture	19	32
Radio/TV	11	19

Extension or agricultural Technician	10	17
Chemical Dealers	3	5
Brochures and pamphlets	1	2
Other Government Agencies	0	0
Other, Specify:	0	0
<i>Support Services for the farmers</i>	Frequency	Percentage
Training/seminars	28	47
Seeds or planting materials	26	44
Fertilizers	23	39
Technical information/advice	13	22
Credit/financial assistance	4	7
Irrigation	1	2
Farm to Market roads	2	3
Market assistance	0	0

In terms of support services, there were some support services given to the farmers. (1) training/seminars; (2) seeds or planting materials; (3) fertilizers; (4) credit/financial assistance; (5) irrigation; lastly (6) farm-to-market road. There was no market assistance given to the farmers in selected barangays.

#### **Number of farmers affiliated/member in farmers association and attended seminars/training**

Data in Table 10 revealed that half (49%) of the farmers are not yet members of the farmers' association, this is an indicator that they are not active in their farming activity since those who are members are willing to learn some knowledge in farming. Being a member of the farmers' organizations also gave farmers opportunities to receive various government interventions. This is why more than half of the respondents never attended some training/seminars relative to their livelihood or farming.

Table 10. Farmers' membership in farmers' associations and attendance to training/seminars

<i>Membership in farmers' organization or association</i>	Frequency	Percentage
Member	30	51
Not member	29	49
<i>A number of farmers attended training or seminars on topics related to farming</i>	Frequency	Percentage
Attended	26	44
Never attended	33	56

#### **Perceived Solutions of farmers to their problems in farming**

The following are the top solutions farmers think of to solve their problems in crop production. An irrigation system is a common answer among farmers, with a 75% response rate. The next priority solution of the farmers is their appreciation of the pieces of training/seminars, 71% of the farmers believe that with training their problems in crop production will get relief. Free inputs such as seeds and fertilizer are the next solution farmers think of because they are financially challenged and the price of inputs is rising. Financial support, types of machinery, and lower

input costs can also help farmers ease their problems. Support from the department of agriculture and knowledge of farming got a 5% response. Free presides, agricultural tools, quality seeds, a farm-to-market road, and market assistance were also part of the response that farmers think can solve their problems in crop production.

Table 11. Perceived solution of farmers to their current farming problem

Perceived solutions	Frequency	Percentage
Irrigation System	44	75
Training/Seminars	42	71
Free Fertilizers	29	49
Free seeds	19	32
Financial Support	10	17
Machinery	7	12
The lower price of fertilizer/inputs	5	9
Support from DA	3	5
Knowledge on farming	3	5
Free pesticides	2	3
Agricultural tools and supplies	2	3
quality seeds	2	3
Farm-to-market road	2	3
Market assistance	1	2

## CONCLUSION

The research findings indicated that the average age of farmers was 50 and that this had a negative effect on their ability to acquire new knowledge and skills. Learning new things is essential in farming since the technology in agriculture keeps on changing. Farmers in Cawayan are dominated by male farmers, and the average number of children is higher compared to the ideal number of children set by the Philippine government to ease their living conditions. Education has a positive effect on farming since it is both an art and a science, and it is evident that the level of education of farmers is quite low since most of them did not even finish their primary education. The annual income of the farmers was below the poverty threshold level set by PSA. The level of education among children is low because some did not finish their elementary years and others did not attend formal education. The unemployment rate of the farmers' children is very high. Only 20% of the 114 farmers' children under legal age are working related to farming. The majority of the farmers in Cawayan are classified as small farmers, with an area ranging from 1 to 2 hectares. Most of the farmers engaged in farming solely to produce crops for their consumption. It is manifested in the study that the socio-demographic characteristics of farmers have contributed to the living situation of the farmers and are also a factor in the constraints they are facing in farming. In terms of the farmers' perceived constraints, soil fertility, and water supply are the major problems in natural resources. The expensive price of inputs such as fertilizers, planting materials, pesticides, labor, and machinery is the biggest problem for farmers. Lack of knowledge to maximize those inputs is also one of the major problems faced by farmers. Thus, various solutions such as irrigation systems, pieces of training and seminars, free inputs, and financial support are among the top solutions perceived by farmers.

## RECOMMENDATIONS

To hear and solve the agonies of the farmers, the government and other non-government agencies should work together in providing support to the farmers. The Department of Agriculture should strengthen its extension unit to

provide appropriate and up-to-date agricultural practices to farmers. Capacitate extension workers to better understand the situation of the farmers as well as the farmland. The responsibility of the department should not end with giving disbursals to the farmers. Strict and regular monitoring of the programs being implemented must be done by their assigned employee. Construction of farm-to-market roads should also be a priority project of the department to ease the burden of high transportation costs and ensure the quality of the harvested produce is intact when it reaches the market. The National Irrigation Authority should visit the farmland of the small farmers and provide appropriate irrigation systems or build more solarized irrigation facilities. To encourage the children of the farmers to enroll in agriculture-related courses and solve the aging farmers' problems, the DA in partnership with CHED must provide a scholarship program intended only for the children of the small farmers. State universities and colleges should also strengthen their extension activities or services to the community. They must ensure that the agricultural technologies they developed are immediately available to the farmers for adoption and utilization. Also, SUCs should provide a long-term program to address the literacy and numeracy problems of the farmers and their children.

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