

# Crop Production Challenges Faced by Farmers in Somalia: A Case Study of Afgoye District Farmers

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## Abstract

The objective of this article was to investigate existing challenges of crop production on farmers in Afgoye District lower Shabelle Somalia. The Focus was farmer's attitude toward existing or not constraints to their crop production and what the experts have seen and what are far from their perception. Sixty farmers and academic experts were distributed questionnaires and interviewed about the constraints of crop production other than agricultural disciplines. This paper used survey descriptive research which facilitates easy connection between past constraints and challenges of crop production. Questionnaire was comprised in the following two parts; Part one; demographic variables and Part two; objective related questions. The study found both major and minor constraints exist in the Somali farmers. The major constraints include unstable weather, water scarcity, pests damaging crops, and poor transportation, and minor constraints such as inability to access and use such as seed and fertilizers, lack of capital to buy, inadequate investment in irrigation which makes farmers very vulnerable to drought, and there is less knowledge and skill of all farmers. The finding with highest percentage that was challenged in Afgoye farmer was "there is fear of gunner and thieves in the farmers" and 75% of respondents strongly agreed and second question with highest score is "there is fear of conflict between rebels and government", and 61.7% of them selected strongly agreed.

## Keywords

Crop Production, Challenges, Somali

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## 1. Introduction

This food insecurity is a major issue in Somalia, which created hungry and fa-

mine. Mostly in the years 2011/2012, 2015/2016 and 2017, there was devastating drought in Somali regions related with low rain fall, which impacted on severely rural communities and their cropping (farming system) and livestock production which destroyed total their livelihoods, also results death of livestock and out-migration of community itself.

Agriculture production is first income source and plays key role in Somali's economy. As we know before the civil war the Somali government exported hundreds of thousands of tons of crop and fruits production, but after the collapse of center government 1991, subsequently there was also falling down of Somali crop and fruits production position in the world market. Recent years there are stable in some regions. It seems somewhat sufficient for production requirement of local needs. Furthermore, the report of FOA 15 Dec. 2005, mentions that roughly 50% of Somalia population's cereal requirements are met through domestic production, because mostly they are agro-pastoralist, which means they mix livestock and crop production depending on place they reside in [1].

Somalia has faced a lot of challenges effecting livelihood including drought, so it evokes another effect which was difficult to mitigate (for example environmental degradation) but this effect can be preventable. McCalla, A. F Spring, 2001, USA, he speaks challenges to World Agriculture in the 21st Century. He found that not only drought is challenge but there are other challenges such as insecurity, environmental degradation, and lack of knowledge and skills etc.

The zone of most field farms was controlling by terrorist groups Al-Shabab. Most farmers feel fear for visiting and natural cultivating their farms according to insecurity. The main and threat challenge was drying out of rivers in the some seasons that can automatize loss of already and recent cultivated crops, and evoke the general low morality of farmers for second sowing, that can related low yield in that season.

The constraints that crop production faces can be categorized into security, social and culture, ecological/environmental degradation, farm tool availability and market and prices; so researcher critical require knowing the main common constrains that need to interfere before it creates hazard to the life.

This article contributes to discover the constrains of crop production and also provides direction to the agronomists to aware of that constrains in Somalia particular southern region to develop strategies that may positively influence the future challenges of crop production. Furthermore, the findings of this study may be used by Government, International Nongovernmental Organizations (INGOs), Local Nongovernmental Organizations (LNGOs) and Agronomists who are willing to conduct further researches in the area.

### **Organization of the Paper**

In this article consist of seven sections. First Section is introduction, second Section literature review, methodology is third Section, result is fourth Section, fifth

Section discussion and conclusion, sixth is acknowledgement and last seventh Section is reference.

## 2. Literature Review

The studies related to the challenges of crop production and farmers became one of the interested published issues in recent years. For example, McCalla, A. F. (2001) USA, he speaks challenges to World Agriculture in the 21st Century, he mentioned three main challenges including Global Food Security, Poverty Reduction and Sustainable Natural Resource Management. He concluded that feeding two billion more people will be an enormous challenge. The bottom line is that virtually all of the increase in production globally will have to come from knowledge-based agricultural intensification, using modern science and biological technology, accompanied by improved capacity to deal with biotic and abiotic stresses [2].

Somalia has been transformed from fail state to transitional government and into the federal government. The food insecurity still exists in the many Somali communities of the urban and rural residents. Somali Agro-Pastoralists have somewhat storage likes (cave) they put their cereals after harvested and little processed in to the caves and then covered known as Somali language (Bakaar). Unfortunately most rural Somali Agro-Pastoralists have fled into the large cities after they met extreme perpetual drought and famine, still they are in the Internal Displaced People (IDP) camps.

In another side there is no policy and regulation management which will reduce the very load export of many natural resource such wood, coal, and wildlife, those are greatly integral part of the soil and land resource sustainability.

Nnenna Obidike (2011) investigating Nigeria Nsukka local government area of Enugu State, with rural farmers' problems accessing agricultural information: he found rural farmers are not well-known to produce enough food, probably due to some constraints that lead to lack of access to timely and up-to-date information which would have enabled them to achieve optimal yield from their farmlands. It was also found lack of access to basic agricultural knowledge and information by rural farmers in Nsukka local government area of Enugu State which may be as a result of certain constraints has made these farmers to stick to their old traditional methods of farming system and animal husbandry practice [3]. Olukunle, T. (2013) examined Nigeria government challenges and prospects of agriculture. The identified constraints he found included marketing problem, infrastructure inadequacies, and unstable input and output prices [4]. In Somali the farmers who are resident on the rural and villages have not educated to their children reason of lack of school near to their area and lack of awareness of the importance of education, so we could guess that they also have not timely and updated crop production knowledge and information.

In Afgoye there are constrains such as less labor force and farm equipments the farmer still use obsolete technologies such as the hand-hoe. But there are

some exceptional which use tractor with old version, with more expensive rented; working hours during first tillage. Kenga, R *et al.* they analyse constraints to agricultural production in the Sudan-Sahelian zone of Cameroon using a diagnostic survey. They found Large variations exist in agriculture management practices among villages and households in terms of access to resources, such as labors, fertilizers, livestock, farm equipment, and land [5].

Spiertz, H. (2013) examined challenges for crop production research and improving land use, so he found that most critical are water scarcity in regions that depend on stored water reserves (aquifers) and the looming shortage of phosphorus reserves. And he also found land availability for food has been considered over the last three decades to become scarce, in Somalia land wealthier than other business [6]. Makuvaro V. *et al.* (2017), Zimbabwe, they have been investigated crop production and adaptation strategies constraints in central and western Zimbabwe on small holder farmers, so they found sixty percent of the farmers in both communal areas experienced shortage of planting seed, while shortage of fertiliser was reported by 75% and 30% of the farmers in lower Gweru and Lupane, respectively. Labour was a major constraint to 65% and 20% of the farmers in both locations, respectively; while draft power shortage affected 50% and 25% of the farmers [7].

Matto, J. M. *et al.* in India they search topic constraints faced by the paddy growers in adoption of recommended paddy production practices in Budgam district of Kashmir, India. They found the major constraints faced by the farmers in adoption of recommended paddy production practices were lack of skill in seed treatment (98.88%), lack of technical advice for seed storage (93.33%), irregular visits of agricultural officers (94.44%), low rate of paddy in local market (84.44%), high cost of fertilizers (82.22%), high rate of seeds (72.73%) and inadequate and untimely supply of loans (80%) [8].

In Somalia particular our geographical scope (FSNAU Somalia 2013) conducted study in lower Shabelle Riverine Zone. The FSNAU discussed factors affecting agricultural production, which were included two factors, Land tenure, ownership and access and irrigation infrastructure. So they mention after the collapse of central government, there was confusing and non-obvious land tenure system in lower Shabelle leading to constant conflicts, land-grabbing and even displacement. They also presented factors that led to the food security crisis and subsequent famine in lower Shabelle in 2011, they list in the following; very poor crop harvest (production shock), limited on farm employment opportunities (labour constraints), import bottlenecks (trade constraints) [9].

The main uncontrollable challenge is climate changes which now days increased its effect on the world in Afgoye nearly 4 times the Shabelle River was dry out, and rain was low more than five years. Devendra, C.; 2012, he was declared effects that can emerge when climate changes in agro-ecological zones (AEZs). His research was climate change threats and effects: challenges for agriculture and food security in Malaysia. He said “The climate change effects are

serious and wide ranging, and cause *inter alia* reduced soil moisture, increased water stress and reduced yields from cropping systems; expansion of semi-arid and arid agro-ecological zones (AEZs); increased droughts; increased rangelands; increased woody encroachment; expanding desertification; increased heat stress on animals; overstocking of heat tolerant animals” [10].

The low rainfall and continues drought occurrence causes less developed crop production methods, some farmers used irrigation of shallow wells and deep wells which still not common the area, the reason is dependence of river, as mentioned role of rainfall in development, Ofana, G. O. *et al.* (2016) they study constraints to agricultural development in Nigeria, they found empirical findings reveal that rainfall, exchange rate and food export (lag one) are the most significant positive determinants of agricultural output in Nigeria [11].

Author names and affiliations are to be centered beneath the title and printed in times 12-point, non-boldface type. Multiple authors may be shown in a two- or three-column format, with their affiliations below their respective names. Affiliations are centered below each author name, italicized, not bold. Include e-mail addresses if possible. Follow the author information by two blank lines before main text.

### 3. Methodology

The main objective of this paper was to investigate existing challenges and constrains of crop production on Somali farmers particularly Afgoye district. The study used primary data (see **Appendix**) extracted from farmer, farm workers, renters and others (academic experts) living Afgoye district. Sample size was 60 persons out of 71 individuals with the use of the sample size calculating formula known as Slovene’s Formula. Quantities research used a structured questionnaire developed by Matto, J. M. *et al.* (2017), some modifications has been made and added others to meet the objectives of the study and questionnaire usually contain closed-ended questions. Descriptive statistics for overall challenges were presented. To examine the Demographic variation of research, the researcher utilized a frequency distribution.

**Study Area:** Afgoye is located 30 kilometres west away from Mogadishu there are numerous villages in which under Afgoye. The district is part of lower Shabelle region in southwestern Somalia is a very beautiful city in a strategic location. The population is estimated at approximately 79,400 residents and also has livestock market in lower Shabelle. The town has a large area of farmland. The district has Shabelle River is the longest river in Somalia. The climate is normal and has four seasons, with two rainy seasons, winter and summer; the temperature is moderate. It compasses by Shebelle River it has agricultural fields that is suitable for cultivation of fruits, vegetables and cereals grain its export is not much more and most of the farmers are subsistent farmers where by the crops they grow are mostly home use. Researcher visited north side and south farmers which were mostly cultivated cereal crops such as Maize, Sorghum and Sesame,

also the center of the district.

The research was started 1st April 2018; the data were distributed and collected five (5) days 1-5 June 2018; the data analysis methods were quantitative methods by using frequency and descriptive research with deeply explained mean score of each questions.

This survey research for discovering existed challenges in local farmers, was encouraged the administration of Jobkey University, data collectors were students of agriculture those gave training to distribute questionnaire and interviewing the respondents.

## 4. Results

This research endeavors to categories the result into demographic data and constraints; the constraints itself divided into major constraints and minor constraints faced by Somali farmers to crop production.

### 4.1. Demographic Data

**Table 1** showed one category which was the demographic data of the respondents. The research sample was 60 persons comprise with farmers, farm workers, renters and others (academics). Majority of the respondents' age were in between 25% - 35, 51.7%. And 30% were in between 35 - 45 years old, 10% were in between 45 - 50 and the remaining 8.3% were more than 50 years old. Majority of sex group of the respondents were 80% of males and 20% of females. In addition, majority of the respondents (51.7%) were married, while the other 38.3% were single and remaining 10% were divorced/window. This result illustrated that the majority of respondents were in marriage and between 25 to 35 years old.

Education level of the respondents, 40% was bachelor, 25% were primary, while 23% was uneducated and the remaining 7% were secondary level. Furthermore ownership, the majority of respondents 38% were farm workers, 25% were farm owners, whereas 12% of the respondents were others (academic students), and the remaining 10% were renters. This result explains 40% of others (academic students) and some owners, workers and renters have bachelor. But the remaining were uneducated, primary and secondary level.

### 4.2. Reliability of Data

The reliability test of this research was carried out. This test measures the internal consistency of a set of scale items; this research used Cronbach's coefficient alpha, to indicate reliability of data, the Cronbach's coefficient alpha can take value between 0 and 1. So the closer to 1 means the more reliable of the scale of our variable. It is shown in **Table 2** the Cronbach's alpha was 0.865.

### 4.3. Main Constraints of Crop Production

The results of **Table 3** showed, 55% most of respondents agreed and strongly agreed (28.3% and 26.7% respectively) that climate problem in general unstable

**Table 1.** Demographic data.

<b>Age of respondents</b>		
	Frequency	Percent
25 - 35	31	51.7
35 - 45	18	30.0
45 - 50	6	10.0
More than 50	5	8.3
Total	60	100.0
<b>Sex of respondents</b>		
Male	48	80.0
Female	12	20.0
Total	60	100.0
<b>Marital status of respondents</b>		
Single	23	38.3
Marriage	31	51.7
Divorce/Widow	6	10.0
Total	60	100.0
<b>Educational level of respondents</b>		
Uneducated	14	23.3
Primary	15	25.0
Secondary	7	11.7
Bachelor	24	40.0
Total	60	100.0
<b>Ownership of respondents</b>		
Owner	15	25.0
Worker	23	38.3
Renter	10	16.7
Others	12	20.0
Total	60	100.0

**Table 2.** Reliability statistics.

<b>Reliability Statistics</b>	
Cronbach's Alpha	N of Items
0.865	17

**Table 3.** Main constraints of crop production.

Descriptive statistics			
	N	Mean	Std. Deviation
Climate problem in general unstable weather	60	3.52	1.269
Decreasing level of groundwater and river is serious problem	60	3.70	1.499
Poor infrastructure, especially roads	60	3.65	1.300
Crop damage by pests (insects, birds and pork)	60	3.80	1.325
Problem relating land tenure, ownership of farm in community	60	3.53	1.228
There is fear of conflict between rebels and government	60	4.18	1.186
There is fear of gunner and thieves in the farmers	60	4.28	1.354
Use of obsolete technologies such as the hand hoe	60	3.62	1.223
Valid N (listwise)	60		

weather are exists, with mean score 3.52 out of 5. As well as the 60% of Respondents accepted (11.7% greed and 48.3% strongly agreed) decreasing level of groundwater (shallow) and river is serious problem to crop production with mean score 3.70 out of 5. Furthermore, 63.4% of the respondents were agreed and strongly agreed that there is poor infrastructure, especially roads with mean score 3.65 out 5. It suggested that crop damage by pests (insects, birds and pork) was common the Afgoye farms and 70% of the respondents agreed and strongly agreed (31.7% and 38.3% respectively), the presence of pest with mean score 3.80 out of 5.

With mean score 3.53 out of 5, respondents answered that there problem relating land tenure, ownership of farm in community with 55% agreed and strongly agreed but 28% of the respondent answered neutral. As well as 60% of them strongly agree that there is fear of conflict between rebels and government, 10% agreed total 70% with mean score 4.18 out of 5. But there is another fear of civil arm and thieves in farm area, 45% of respondents strongly agreed with mean score 4.28 out of 5. The last is 53.4% of respondent agree and strongly agree (21.7% and 31.7% respectively) farmers use of obsolete technologies such as the hand hoe with mean score mean 3.62 out of 5.

#### 4.4. Less Constraints of Crop Production

**Table 4** presents the results less constrains of crop production; the result suggested 76.7% of respondent was agreed and strongly agreed that there is inability of farmer to access and use such as seed and fertilizers with mean score 4.00 out of 5. Moreover general there is also lack of capital to buy seed or fertilizers or other farm operations 71.6% agreed and strongly agreed (48.3 and 23.3 respectively), with mean score 3.68 out of 5. In general 66.6% of the respondents agree and strongly agreed in same percentage (33.3%) there is inadequate investment in irrigation which makes farmers very vulnerable to drought with mean score



**Table 4.** Less constraints of crop production.

Descriptive Statistics			
	N	Mean	Std. Deviation
Inability of farmer to access and use such as seed and fertilizers	60	4.00	1.207
Lack of capital to buy seed or fertilizers or other farm operations	60	3.68	1.214
Inadequate investment in irrigation which makes farmers very vulnerable to drought	60	3.65	1.388
High postharvest crop losses caused by poor storage structures and inadequate access to pesticides	60	3.53	1.228
Inadequate market access for both crops and vegetable products	60	3.48	1.396
Unavailability of crop chemicals	60	3.28	1.263
There is less knowledge and skill of all farmers	60	3.45	1.199
Inadequate investment in processing of crop and other grains	60	3.55	1.048
Marketing process of crop is difficult and complex	60	3.43	1.254
Valid N (listwise)	60		

3.65 out of 5. Furthermore, 53.3% of respondents answered agree and strongly agree with same percentage (26.7%), that there are high postharvest crop losses caused by poor storage structures and inadequate access to pesticides with mean score 3.53 out of 5.

Inadequate market access for both crops and vegetable products, also exists and 53.3% of respondents accepted (agree and strongly agree) with mean score 3.48 out 5. As well as 45% of them answered agree and strongly agree for unavailability of crop chemicals in the market with mean score 3.28 out of 5. Although there is less knowledge and skill of all farmers with 28.3% agreed while neutral and strongly agree presents same percentage (23.3%) with mean score 3.45 out of 5.

In addition 31.7% majority of respondents answered neutral, 30% agreed and 21.7% strongly agreed that there is inadequate investment in processing of crop and other grains with mean score 3.55 out of 5. As well as 50% of respondents agreed and strongly agreed (in accordance with the scale of the study 25% and 25% respectively), the marketing process of crop is difficult and complex with mean score 3.43 out 5.

## 5. Discussion and Conclusion

Challenges and constrains have bad effect in whole the production for a long-time. Since then, several researches have been conducted in various different countries—focusing on major and minor challenges facing on crop production. Therefore, this study aimed at examining challenges on crop production in Somali farmers at Afgoye district. The study found both major and minor constraints were existing in the Somali farmers; the major constraints include unst-

able weather, water scarcity, pests damaging crops, poor transportation, problem relating land tenure, and ownership, fear of conflict between rebels and government and also there are some people who are looting crops when it harvested. The study also found minor constraints such as inability to access, use of seeds and fertilizers, and lack of capital for inadequate investment in irrigation which makes farmers very vulnerable to drought; there is less knowledge and skills for all farmers, such as, high postharvest crop losses caused by poor storage structures and inadequate access to pesticides, inadequate market access for both crops and vegetable products and unavailability of crop chemicals etc.

The importance of finding with highest percentage that was challenged in Afgoye farmer was “There is fear of gunner and thieves in the farmers” and 75% of respondents strongly agreed and second question with highest score is “There is fear of conflict between rebels and government”, and 61.7% of them was selected strongly agreed. That is real fear and oral asked questions—what is primary challenge after natural disasters; mostly they said security. The other challenges facing farmer was decreasing level of groundwater and river is serious problem; inability of farmer to access and use such as seed and fertilizers and crop damage by pests (insects, birds and pork), and percentage 48.3%, 45% and 38.3% strongly agreed respectively.

This study uncovered some of challenges that exist in the local Afgoye district, as researcher liked to suggest some points to the farmers, agronomists and official government.

1) Must get first peace and security in local communities and prevention of conflicts and make negotiation to rebels.

2) Farmers must as a matter of necessity adopt local climate change, and must try to make strategies for the development all basic needs of the production.

3) Government must interfere farmers and make continuous research to improve their productivity and to correct their errors. Also government is responsible for rebuilding of roads and continues monitoring climate changes.

4) Government must be make strategies for reducing both constraints to crop production in Somali farmers at Afgoye and other related places.

The researchers that are willing to undertake further studies in this area are advised to investigate factors effecting soil towards the occurrence of drought and also to increase the target population of the study with more than one district.

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## Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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## Appendix: Frequency Tables (Percentage)

**Table A1.** Climate problem in general unstable weather.

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Strongly Disagree	6	10.0	10.0	10.0
Valid Disagree	6	10.0	10.0	20.0
Valid Neutral	15	25.0	25.0	45.0
Valid Agree	17	28.3	28.3	73.3
Valid Strongly Agree	16	26.7	26.7	100.0
Total	60	100.0	100.0	

**Table A2.** Decreasing level of groundwater and river is serious problem.

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Strongly Disagree	8	13.3	13.3	13.3
Valid Disagree	7	11.7	11.7	25.0
Valid Neutral	9	15.0	15.0	40.0
Valid Agree	7	11.7	11.7	51.7
Valid Strongly Agree	29	48.3	48.3	100.0
Total	60	100.0	100.0	

**Table A3.** Poor infrastructure, especially roads.

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Strongly Disagree	6	10.0	10.0	10.0
Valid Disagree	6	10.0	10.0	20.0
Valid Neutral	10	16.7	16.7	36.7
Valid Agree	19	31.7	31.7	68.3
Valid Strongly Agree	19	31.7	31.7	100.0
Total	60	100.0	100.0	

**Table A4.** Crop damage by pests (insects, birds and pork).

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Strongly Disagree	7	11.7	11.7	11.7
Valid Disagree	3	5.0	5.0	16.7
Valid Neutral	8	13.3	13.3	30.0
Valid Agree	19	31.7	31.7	61.7
Valid Strongly Agree	23	38.3	38.3	100.0
Total	60	100.0	100.0	

**Table A5.** Problem relating land tenure, ownership of farm in community.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	6	10.0	10.0	10.0
	Disagree	4	6.7	6.7	16.7
	Neutral	17	28.3	28.3	45.0
	Agree	18	30.0	30.0	75.0
	Strongly Agree	15	25.0	25.0	100.0
	Total	60	100.0	100.0	

**Table A6.** There is fear of conflict between rebels and government.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	3	5.0	5.0	5.0
	Disagree	2	3.3	3.3	8.3
	Neutral	13	21.7	21.7	30.0
	Agree	5	8.3	8.3	38.3
	Strongly Agree	37	61.7	61.7	100.0
	Total	60	100.0	100.0	

**Table A7.** There is fear of gunman and thieves in the farms.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	6	10.0	10.0	10.0
	Disagree	2	3.3	3.3	13.3
	Neutral	6	10.0	10.0	23.3
	Agree	1	1.7	1.7	25.0
	Strongly Agree	45	75.0	75.0	100.0
	Total	60	100.0	100.0	

**Table A8.** Use of obsolete technologies such as the hand hoe.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	4	6.7	6.7	6.7
	Disagree	6	10.0	10.0	16.7
	Neutral	18	30.0	30.0	46.7
	Agree	13	21.7	21.7	68.3
	Strongly Agree	19	31.7	31.7	100.0
	Total	60	100.0	100.0	

**Table A9.** Inability of farmer to access and use such as seed and fertilizers.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	3	5.0	5.0	5.0
	Disagree	7	11.7	11.7	16.7
	Neutral	4	6.7	6.7	23.3
	Agree	19	31.7	31.7	55.0
	Strongly Agree	27	45.0	45.0	100.0
	Total	60	100.0	100.0	

**Table A10.** Lack of capital to buy seed or fertilizers or other farm operations.

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Strongly Disagree	7	11.7	11.7	11.7
Disagree	2	3.3	3.3	15.0
Neutral	8	13.3	13.3	28.3
Agree	29	48.3	48.3	76.7
Strongly Agree	14	23.3	23.3	100.0
Total	60	100.0	100.0	

**Table A11.** Inadequate investment in irrigation which makes farmers very vulnerable to drought.

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Strongly Disagree	9	15.0	15.0	15.0
Disagree	3	5.0	5.0	20.0
Neutral	8	13.3	13.3	33.3
Agree	20	33.3	33.3	66.7
Strongly Disagree	20	33.3	33.3	100.0
Total	60	100.0	100.0	

**Table A12.** High postharvest crop losses caused by poor storage structures and inadequate access to pesticides.

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Strongly Disagree	5	8.3	8.3	8.3
Disagree	6	10.0	10.0	18.3
Neutral	17	28.3	28.3	46.7
Agree	16	26.7	26.7	73.3
Strongly Agree	16	26.7	26.7	100.0
Total	60	100.0	100.0	

**Table A13.** Inadequate market access for both crops and livestock products.

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Strongly Disagree	9	15.0	15.0	15.0
Disagree	4	6.7	6.7	21.7
Neutral	15	25.0	25.0	46.7
Agree	13	21.7	21.7	68.3
Strongly Agree	19	31.7	31.7	100.0
Total	60	100.0	100.0	

**Table A14.** Unavailability of crop chemicals.

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Strongly Disagree	7	11.7	11.7	11.7
Disagree	8	13.3	13.3	25.0
neutral	18	30.0	30.0	55.0
agree	15	25.0	25.0	80.0
Strongly Agree	12	20.0	20.0	100.0
Total	60	100.0	100.0	

**Table A15.** There is less knowledge and skill of all farmers.

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Strongly Disagree	3	5.0	5.0	5.0
Disagree	12	20.0	20.0	25.0
Neutral	14	23.3	23.3	48.3
Agree	17	28.3	28.3	76.7
Strongly Agree	14	23.3	23.3	100.0
Total	60	100.0	100.0	

**Table A16.** Inadequate investment in processing of crop and livestock.

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Strongly Disagree	1	1.7	1.7	1.7
Disagree	9	15.0	15.0	16.7
Neutral	19	31.7	31.7	48.3
Agree	18	30.0	30.0	78.3
Strongly Agree	13	21.7	21.7	100.0
Total	60	100.0	100.0	

**Table A17.** Marketing process of crop is difficult and complex.

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Strongly Disagree	5	8.3	8.3	8.3
Disagree	9	15.0	15.0	23.3
Neutral	16	26.7	26.7	50.0
Agree	15	25.0	25.0	75.0
Strongly Agree	15	25.0	25.0	100.0
Total	60	100.0	100.0	