

Assessment Of Crop Farmers' Production Activities Differential In And Off Farmer-Herder Conflicts Period In Anambra Nigeria

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Abstract: There has been an increase in the incidences and severity of farmer-herder conflict resulting in decrease in farmers' productivity and food insecurity. Security outfits seems unable to combat this problem. Thus, the assessment of crop farmers' production activities differential in and off farmer-herder conflicts period was examined. Multistage sampling procedure was used. Agricultural Development Project (ADP) frame was followed. ADP zones: Aguata and Anambra were purposively selected due to high occurrences of conflicts. One block was randomly picked from each of the selected zone. Two cells each were then purposively selected. Total of 100 farmers were randomly selected proportionate the cell's size. The frequency of occurrence was high on a monthly basis. It increased from 25% in 2010–2012 to 55% in 2013 to 2015 to 62% in 2016 -2018 and reduced to 29% in 2019–2021. The frequency of occurrence between 2013 to 2015 was the highest. Production activities during conflict prone farming season (CPFS) was low with a mean of 1.67 while during non-conflict prone farming season (NCPF), production was higher with a mean of 3.68. Farmer-Herder conflict was major in the area of study and affects crop farmer production. Open grazing laws should be revisited, amended to suit the prevailing situation and adequately enforced.

Key words: Crops, Farmer-herder conflicts, Production differential, In and off period.

1.0. INTRODUCTION

1.1. BACKGROUND TO THE STUDY

A lot of factors has been identified to be responsible for crop farmers' production differential. These factors include improved seed, fertilizer, labour livestock machinery agricultural land, precipitation temperature (Nwachukwu and Shisanya, 2017) and security among others. Security is the main factor in crop production, for the fact that peace is the initiator of investments. It is unlikely that there would be production during the period of conflict. Agriculture that involves the practice of crop cultivation and grazing, continues to be the mainstay of Nigeria economy. These two areas are interdependent. Crops provide feeds for animals and animals supply animal manure for crop production. Southward migration of herders in search of food and water for their cattle due to climate change, limited resource (land) and some other factors, often times led to violent, conflicts, loss of lives, properties between crop farmers and herders. Farmer-Herder conflict dated back to the Sahelian drought of the 1970s continues till today.

Farmer-Herder conflicts are disagreement between farmers and herders resulting from individual or groups that differs in beliefs, attitudes, values or needs (Okoli and Atelhe, 2014). Conflicts brings about crisis, uncertainty, disruption and change. Conflicts are also harmful and threatening situation affecting the society, as well as the socio-economic development of any state. Some of the

socio-economic effects of the farmers and herders' conflicts were degrading agricultural production (Ofuoku and Isife, 2010), internal displacement and poverty (international crisis group, 2017; Genyi, 2017) disagreement between the federal and the state government on the management of the conflict and of course insecurity and low investment

Land is a major factor in crop and animal production, both need fertile land. Most importantly land is also a source of livelihood to human. All human livelihood is directly dependent on land. The climate and the land are important factors in people's lives, since about 70% of the works force are in agriculture (International Crisis Group, 2017). This is usually the origin of conflict between farmers and cattle herders. In the beginning of twenty first century the conflicts transformed by day into a violent and destructive conflict (Egbuta, 2018). Recently, the conflict has escalated, as conflicting parties could easily access arms and communication gadgets that aids the conflict. Thus, the usual, traditional negotiation method of settling this conflict in the past collapsed, consequently the ones that were better equipped strive to get what they needed without considering other parties (Gürsoy, 2019).

Nigeria population growth rate is projected at 3.2% (NPC, 2012) consequently, more people continue to compete for scarce land. The population growth, industrialization, climate change, desertification, oil boom, poor governance, infrastructure construction, weak security mechanism, cattle theft, illegal armament of non-state groups, impunity among others were the most important reasons of the ongoing clashes. According to (Okoli et al., 2014; Gürsoy, 2019). crop damage by pastoralists' livestock and reprisal attacks on pastoralists by sedentary farmers were the escalates of the conflict.

Due to climate change herders migrate and dwell in the southeast in Igboland that is blessed with all year round grazing land and perennial sources of water. consequently, the abuse of community host/stranger relationships by the herders erupted and has been a critical factor of the farmer-herder conflict in the study area. Therefore, it is important to analyze why the area of study is prone to conflict since climate is a global challenge. Crop farmers and herders in Anambra Nigeria have not clearly come to terms with the laws on open grazing. This could be attributed to lack of maintenance of grazing reserves and the oil boom of the 1970's, these factors stop the herders from being sedentary. Also, allocation of grazing lands as government layouts without compensating the pastoralist, breakdown law and order and the taking side by local rulers or judges responsible for dispute resolution

Farmer-herder conflicts between the sedentary farmers and nomadic pastoralists or herders in Nigeria, were predominantly in the North-Central region in the past. It has now spread across the country with the consequences of indiscriminate and preventable loss of lives and properties. Although, it is an agrarian resource problem, but critical analysis of the conflict revealed that it is rooted in political, cultural, and ethno-religious beliefs and so on. These narratives and profiles aided the aggressive encroachment and reprisal aggression between the farmer-herder and host farmers. This has led to mutual hostility and reverse-violent attacks that has escalated the conflict. The migration of Fulanis to south is perceived to be a strategy and an attempt to "Islamize the south", because these Fulanis are Muslims. Nigerian government at all levels, the Police Force and the Army were actors of the conflict. They were unable to prevent the occurrence of clashes most of the times. some officers were corrupt, therefore, collect bribes and cooperate with the attackers (Amnesty International, 2018). People have no trust in the state structure anymore, thereby created their own defend methods such as vigilante groups (Olaniyan and Yahaya, 2016).

Nextier SPD, Violent Conflict Database13 (2021) showed that during year 2021 farmer-herder conflicts occurred seventy-one times, with 405 civilians and one military deaths, 49 injured, and 15 kidnapped persons. The frequency of occurrence in North-Central region (58%) is the highest with (for 61%) of the casualties., while the North-West is the most violent in relation to casualties per incident. Equally, the South-West region recorded the second-highest number of incidents (25%) in the total, only (12%) of the deaths. The North-West region recorded (4 %) of the incidents, but 15 percent of the deaths. Although, the South-East recorded just (6%) of the incidents, it accounted for (9%) of the deaths. The South-South had (6%) of the incidents but only 3 percent of the casualties. Its

occurrence in the south east can be termed server and needed urgent attention if only 6 incidence amounted for 9% of the death compared the second-highest number of incidents (25%) in the west that resulted in only (12%) of the deaths in the west. This study therefore, seek to address the following objectives:

- i. 1. describe the socio-economic characteristics of the respondent.
- ii. 2. examine the frequency of occurrence of farmer-herder conflict between the herders and crop farmers.
- iii. 3. assess the difference in production activities of the crop farmers during conflict prone farming season (CPFS) and non-conflict prone farming season (NCPFS)

1.2 RESEARCH HYPOTHESES

Ho₁: there is no significant difference in production activities of the crop farmers during conflict prone farming season (CPFS) and non-conflict prone farming season (NCPFS)

2.0 METHODOLOGY

2.1 The Study Area

The study area was Anambra State which is one of the five states in Southeastern of Nigeria. The state comprises of 21 Local Government Areas and is divided into three Senatorial zones namely, Anambra Central, Anambra North and Anambra South Senatorial zones. The State also has four (4) agricultural zones, namely Anambra, Awka, Aguata and Onitsha agricultural zones. Awka is the capital of the state. The state has boundary with Delta State to the west, Enugu State to the east, Imo State and Rivers State to the south, and Kogi State to the north. The state derived its name from River Anambra. According to National Population Commission (NPC 2006), the state has an estimated population of about 5million people. The climate is humid with mean annual rainfall of 2010mm and average temperature of 37° C. Anambra State covers a land area of about 4,887 sq km (NPC, 2006). It has an altitude of 300m above sea level. The climate of the State is characterized by two main seasons which are rainy season and the dry season while the mean annual rain fall is about 1,200mm. Okereke, *et al.*, (2014). There are many agricultural activities that go on in the State at the family level. Crops grown in the state are rice, maize, cocoyam, yam, potatoes, okro, amaranthus, melon, pumpkin, pepper and garden eggs which are intercropped with cassava. The state grows some legumes such as groundnut and some varieties of cowpea. Tree crops are also grown and some of them include oil palm, mangoes, cashew, avocado pear, oranges, coconut, raphia palm, cocoa, kola, oil bean, African breadfruit, pineapples, bananas, paw paw, African star apple. They also engage in livestock and fishery farming.

2.2 Sampling procedure and Sample Size

Sampling method adopted was multi-stage. Agricultural Development Project (ADP) frame was followed. ADP zones: Aguata and Anambra were purposively selected due to high occurrences of conflict Although the South-East recorded just (6%) of the incidents, it accounted for (9%) of the deaths Nextier SPD, Violent Conflict Database13 (2021). One block was randomly picked from each of the selected zone. Two cells each were then purposively selected. Total 100 farmers were randomly selected proportionate the cell's size.

2.3 Sources of Data

Primary data was used for this study. Structured questionnaire was used to collect data on socio-economic characteristics, frequency of occurrence of the farmer herder conflict, differences in production activity during conflict and non-conflict prone farming season.

2.4 Method of Data Analysis

Data were analyzed using descriptive statistics; mean, graphs and percentages. Hypothesis was tested inferential statistics at 0.05 level of significance: Paired Samples T-Test which is used to compare the means of two groups to determine whether a process or treatment actually has an 'effect' on the population of interest or whether two groups are different from one another. Paired t-test was used since the experimental groups come from a single population.

2.5 Measurement of Variables

Variables used in this study are measured as follows;

Sex: male=1 and female=0

Age: years

Marital Status: single =1, married =2, divorced =3, others =4)

Household Size: numbers of persons in a family or household.

Educational Status: years spent in school

Farming Experience: number of years each respondent has spent in farming

Farm Size: hectares

Production: crop output of farmer in kg

3.0 RESULTS AND DISCUSSION

3.1: socio-economic characteristics of the respondents.

Sex: the sex distribution of the respondents showed that Majority of the respondents in the study area were male with 55% and female 45% as shown in the table 1 which was in line with (Onoh, 2018) report. The study of Ibekwe, Chidiebere and Mark (2012) revealed that in S.E, females are the major crop farmers.

3.1.1 Age of the respondent: the result showed that 14% of the respondent are between the ages 21-30 years. 17% are within the age of 31 to 40years. 30% are within 41 to 50years, 26% within the age range of 51-60 while 13% of the respondent were 61 and above as shown in table 2 which implies that farmers in Anambra Nigeria are in their active productive age (Dimelu, et al 2012). The finding is in agreement with Brussel (2009), who observed that farmers within 40 and 50years are productive.

3.1.2 Marital status: the result showed that 60% of respondent were married,15% were single, 16% were widowed and 9% were divorced. This finding is also in consonance with Rashid (2007) who found out that farmers in Taraba state were in their active productive age. Since the majority of the respondent were married, this could at the same time increase the family labour, thus making more hands available for agricultural production this is in line with the works of (Udemezue and Nwalieji, 2017) who had discovered that most of the crop farmers were married.

3.1.3 Education level: showed that majority (38%) of the respondent had a secondary school education. 23% had no formal education, while 21% had primary education. 18% had tertiary education. This finding agrees with (Obiesie, Komolafe and Meludu, (2022).) who showed that the most rural farmers had formal education

3.1.4 Farming experience: shows that 12% of the respondents had a farming experience below 5years, 25% had a farming experience of 6 to 15years, 20% had a farming experience of 16 to 26years, 20% had a farming experience of 27 to 30 years, while 23% had a farming experience above 38years. The average farming experience was 23 years. This implies that the farmers were highly experienced and this will impact positively on their productivity. This collaborates finding from Edet *et al* (2015) their productivity.

3.1.5 Farm size: shows that 19% of the respondent has a farm size of between 0.01 to 0.05hectares, 24% has a farm size of between 0.501 to 1.00hectares, 33% has a farm size of 1.01 to 1.50hectares, while 24% has a farm size of 1.51hectares and above. This shows that majority of the respondent has a farm size of between 1.01 to 1.50 hectares of land. This implies that the farmers were mainly smallholder farmers and it will be difficult to commercialize their farms. This finding agree with Alawode and Abegunde (2015) finding.

3.1.6 Household size: the level of labour directly may depend on the household size of the respondents. Eighteen percent of the farmers had household size of 1-5. 30% had household of 6-10. 12% had household of 11-15. 7% had household of 16-20. 33% had household of 21 and above. The average household size is 10. This implies that there were supply of cheap family labour agricultural production. This agrees with Edet *et al* (2015) finding.

3.1.7 Access to farmland: fifty percent of the land were leased out to the farmers, while 14 % of the farmer owned their land by inheritance, 24% of the land used by the farmers were gotten by rent and 12% of the land used by the farmers were gotten through their corporative societies; this could increase the cost incurred in farming as stated in the work done by (Udemezue and Nwalieji , 2017) by corporative societies

3.1.8 Source of credit: Table 4.1 showed that 19% of respondent uses formal credit sources to finance their business, 34% of the respondent used isusu, cooperatives, moneylenders, governmental loans and so on. 47% get financed from both institutions. This agrees to the finding of Udemezue Nwalieji (2017) which shows that majority of the respondent get their finances from both institutionalized facilities and non-institutionalized facilities.

Access to extension agents: sixty-nine percent agreed to having access to extension agents, while **3.1.9** Thirty-one percent of the respondent do not have access to extension agents. This shows that majority of the respondents had access to extension service

Table 1: Distribution of Respondent by socio-economic characteristics

S/N	Items	Frequency	Percentage	Mean
1.	Sex			
	male	55	55.0	
	female	45	45.0	
	Total	100	100.0	
2.	Age			
	21-30 years	14	14.0	45.7
	31-40 years	17	17.0	
	41-50 years	30	30.0	
	51-60 years	26	26.0	
	61years and above	13	13.0	
Total	100	100.0		
3.	Marital status			
	Married	60	60.0	
	Single	15	15.0	
	Widowed	16	16.0	
	Divorced	9	9.0	
	Total	100	100.0	
4.	Level of education			
	No formal education	23	23.0	
	Primary education	21	21.0	
	Secondary education	38	38.0	
	Tertiary education	18	18.0	
	Total	100	100.0	
	Farming experience			
	5years and below	12	12.0	
	6-15years	25	25.0	

5.	16-26years	20	20.0	23.16years
	27-37years	20	20.0	
	38years and above	23	23.0	
	Total	100	100.0	
Farm size(hectares)				
6.	0.01-0.5	19	19.0	1.13hectaes
	0.501-1.0	24	24.0	
	1.01-1.50	33	33.0	
	1.51hectares and above	24	24.0	
	Total	100	100.0	
Household size (numbers)				
7.	1-5			10
	6-10	18	18.0	
	11-15	30	30.0	
	16-20	12	12.0	
	21 and above	7	7.0	
	Total	33	33.0	
Access to farmland				
8.	Rented lease	24	24.0	10
	Inherited	50	50.0	
	Co-operatives	14	14.0	
	Total	12	12.0	
	Source of credit	100	100.0	
9.	Institution			10
	Non institution	19	19.0	
	Both	34	34.0	
	Total	47	47.0	
Access to extension agent				
9.	Yes			10
	No	69	69.0	
	Total	31	31.0	
		100	100.0	

Source: Field Survey
2022

3.2 Frequency of occurrence of crop farmers and herder conflict in Anambra Nigeria.

The result showed the frequency of conflict occurrence in the study area from 2010 to 2021. The frequency of occurrence was high on a monthly basis. It increased from 25% in 2010–2012 to 55% in 2013 to 2015 to 62% in 2016 -2018 and reduced to 29% in 2019–2021. The frequency of occurrence between

2013 to 2015 was the highest. The reduction of the occurrence is an indication that hands were on deck to bring down the occurrences of the ugly incidence.

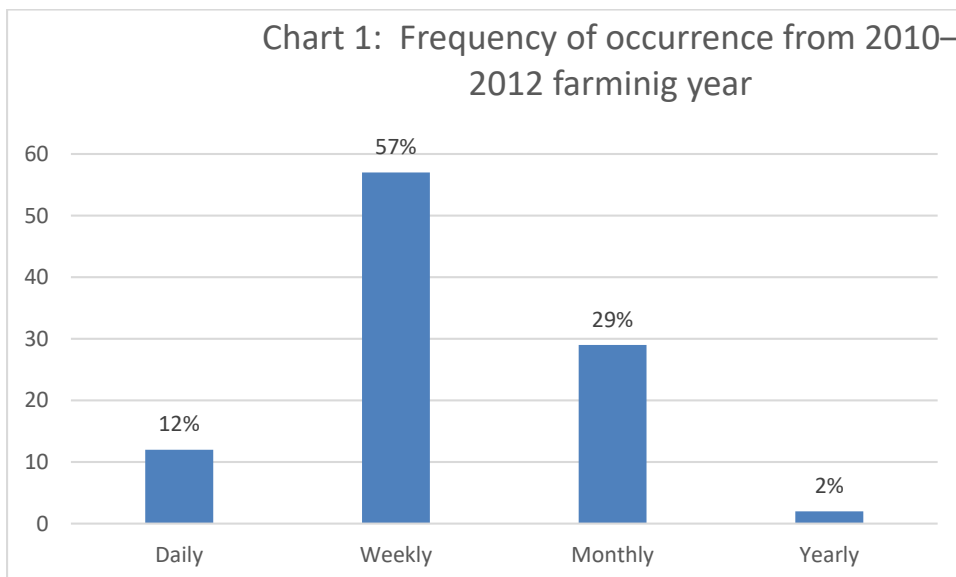


Fig1a: Frequency of farmer-herder conflict occurrence from 2010–2012

Source: Field Survey 2022

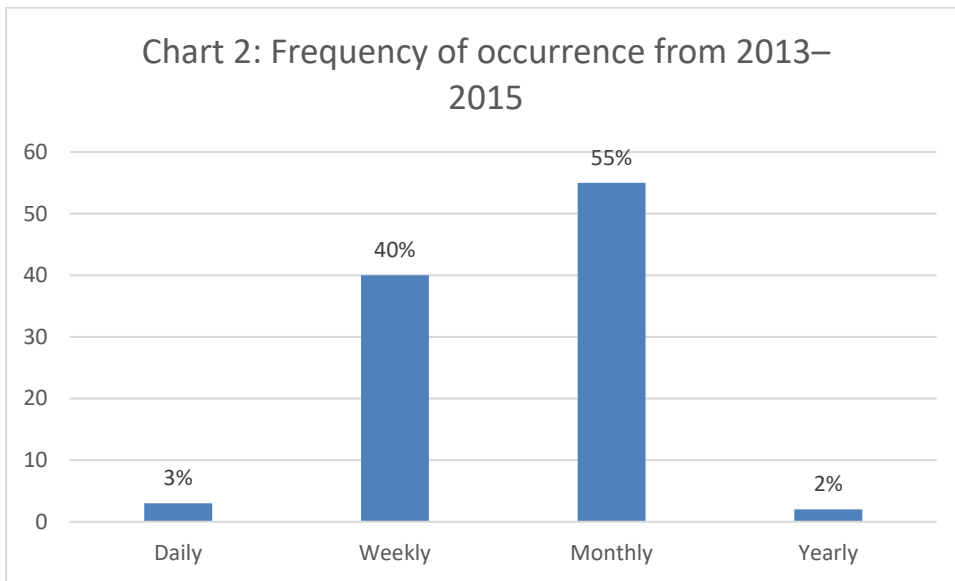


Fig 1b: Frequency of occurrence from 2013–2015

Source: Field Survey 2022

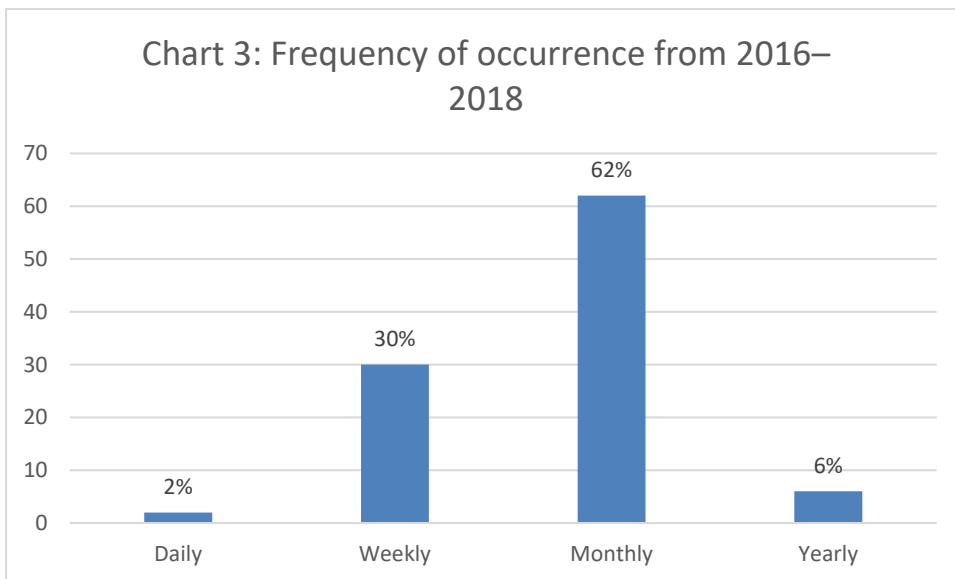


Fig 1c: Frequency of occurrence from 2016–2018

Source: Field Survey 2022

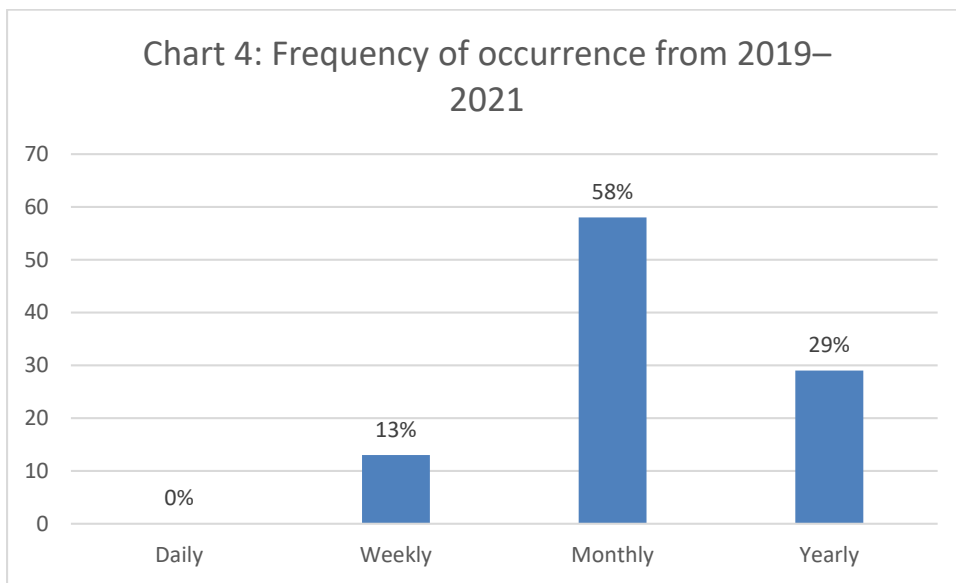


Fig1d: Frequency of occurrence from 2019–2021

Source: Field Survey 2022

3.3: Difference in production activities of the crop farmers during conflict prone farming season (CPFS) and non-conflict prone farming season (NCPFS).

Table 2: explained the difference in production activities of the crop farmers during conflict prone farming season (CPFS) and non-conflict prone farming season (NCPFS); 4–point likert scales were used; not at all (NA=1), To some extent (TSE=2), High extent (HE=3), and Very high extent (VHE=4). From the likert scales, a mean cutoff point (threshold) was calculated as follows: $\bar{x} = \frac{1+2+3+4}{4} = \frac{10}{4} = 2.5$

Based on the threshold, any issue whose mean response is less than 2.5 (<2.5) is regarded as Poor Production Indices (PPI) while those with mean responses are more than 2.5 are regarded as Strong Production Indices (SPI). The results were shown in table 4.3a below The findings of this study is in line with a study done by Abba and Usman (2008) who observed negative consequences of farmer-herder conflict to economic, political, and social lives. This to say that there cannot be much progress economically in the face of conflict. Abba and Usman (2008) also reported that farmers abandon the cultivation of some crops to avert conflicts with herdsmen.

Table 2: distribution of respondent by PPI and SPI

S/N	Issue raised	CPFS	Remark	NCPFS	Remark
1	Clearing of land	1.82	PPI	3.51	SPI
2	Preparing the land	1.79	PPI	3.62	SPI
3	Manual/tractor related activity on the farm land	1.56	PPI	3.61	SPI
4	Making ridge/staking	1.58	PPI	3.64	SPI

5	Purchasing inputs like fertilizer, seeds, biocides, labor	1.70	PPI	3.69	SPI
6	Nursery/transplanting/planting	1.69	PPI	3.72	SPI
7	Accessing of extension agent/service	1.57	PPI	3.71	SPI
8	Accessing farm labor	1.73	PPI	3.68	SPI
9	Treatment of crop and crop spraying	1.78	PPI	3.67	SPI
10	Accessing farmland	1.78	PPI	3.64	SPI
11	Accessing credit (loan)	1.56	PPI	3.68	SPI
12	Mobility or transportation facilities	1.74	PPI	3.68	SPI
13	Having farmer-groups or co-operative meetings	1.57	PPI	3.74	SPI
14	Accessing patronage/ support from government	1.56	PPI	3.69	SPI
15	Harvesting period	1.76	PPI	3.74	SPI
16	Irrigation facilities	1.54	PPI	3.69	SPI
17	Accessing support from farmer-groups and co-operatives.	1.72	PPI	3.73	SPI
18	Marketing products	1.75	PPI	3.73	SPI
Cluster Mean		1.67	PPI	3.68	SPI

Source: Field Survey Jan/Feb 2022

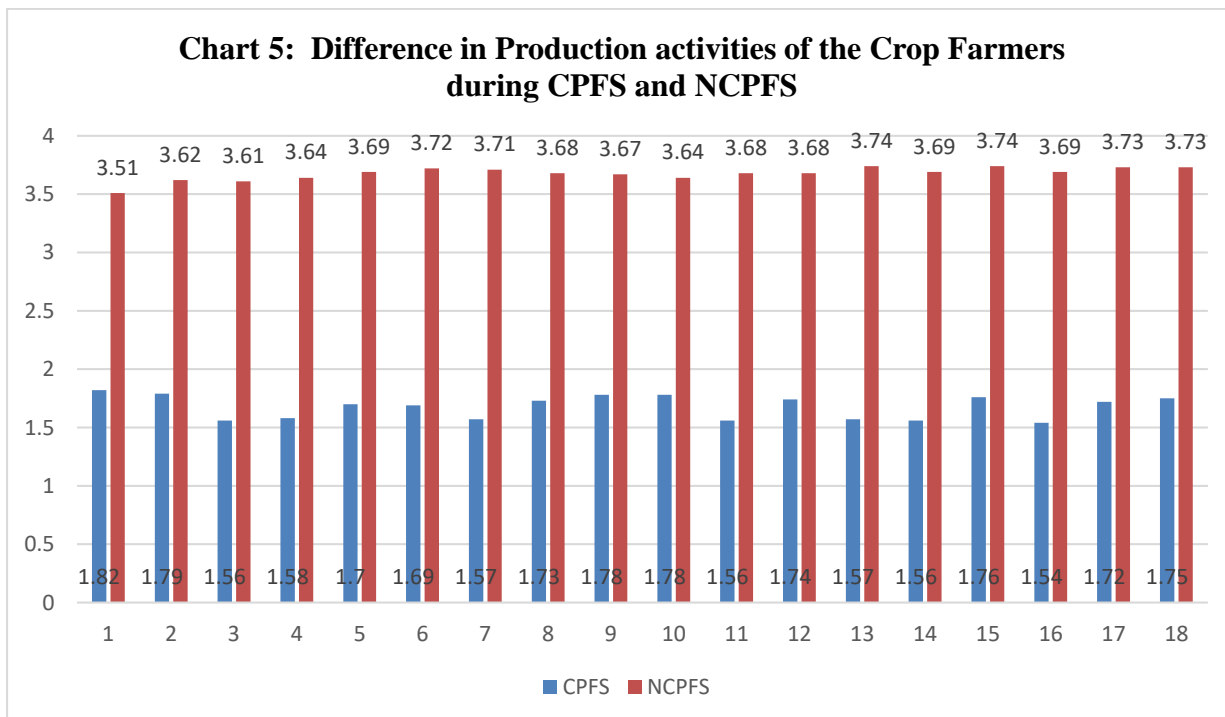


Chart 5: shows difference in the production activities of the crop farmers during CPFS and NCPFS. The clear margins drawn from Table 4.3 shows there's great and significant difference in production activities during CPFS and NCPFS.

3.4 Presentation of Hypotheses

. **H₀₁:** There is no significant difference in production activities of the crop farmers during CPFS and NCPFS

Paired Samples T-Test for difference in production activities of the crop farmers during CPFS and NCPFS

Descriptive Statistics

Sample	Mean	StDev	SE Mean
CPFS	1.6778	0.0994	0.0234
NCPFS	3.6761	0.0571	0.0135

Estimation for Paired Difference

Mean	StDev	SE Mean	95% CI for the mean difference	T-Value	P-Value
-1.9983	0.1267	0.0299	(-2.0614, -1.9353)	-66.90	0.005

Mean_difference: mean of (CPFS - NCPFS)

Decision Rule: Accept the null hypothesis if the p – value is greater than or equal to 0.05, otherwise reject it.

Decision: Since the p–value of the test is less than 0.05 (0.005), we reject the null hypothesis and conclude that there is significant difference in production activities of the crop farmers during CPFS and NCPFS; this leads to the acceptance of the alternative hypothesis.

4.0 CONCLUSION AND RECOMMENDATION

In summary the result showed the frequency of conflict occurrence in the study area from 2010 to 2021. The frequency of occurrence was high on a monthly basis. It increased from 25% in 2010–2012 to 55% in 2013 to 2015 to 62% in 2016 -2018 and reduced to 29% in 2019–2021. The frequency of occurrence between 2013 to 2015 was the highest. The reduction of the occurrence is an indication that hands were on deck to bring down the occurrences of the ugly incidence. Production activities during conflict prone farming season(CPFS) was low with a mean of 1.67 while during non-conflict prone farming season(NCPF), production was higher than the period during conflict prone farming season with a mean of 3. 68.. This work therefore, established that Farmer-Herder conflict is major in the area of study and affects crop farmer production

4.1 RECOMMENDATION

Based on the findings of this study the following recommendation were made:

i. Stakeholders should ensure the deployment of well-trained security operatives that are ready to adhere strictly to the rules of engagement to maintain peace in the affected communities during farming season.

ii. Stakeholders: government at all levels; through establishing department for ethnic and religious affair, the community leaders and NGOs should collaborate to intensify effort in maintaining peace between the crop farmers and the herders

iii. Conflict is inevitable, therefore, host community members should engage coping strategies such as; use of joint task force, reporting to policemen or the host traditional rulers, early harvest, fencing the farm and occupational diversification. this is to combat the effect on farmers wellbeing

iv. Open grazing laws should be revisited, amended to suit the prevailing situation and adequately enforced.

v. Establishment of grazing reserve and specifying penalties for careless and restless grazing will help to reduce clashes between herders and crop farmers

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