

**IMPACT OF FARMER-HERDER CONFLICT ON AGRICULTURAL
PRODUCTIVITY IN NASARAWA SOUTH SENATORIAL ZONE (2010-2020)**

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ABSTRACT

This study assessed the impact of farmer-herder conflict on agricultural productivity in the southern senatorial zone of Nasarawa State between 2010 and 2020. Data were sourced from both primary and secondary materials through quantitative and documentary analysis. The research is anchored in the Environmental Scarcity Theory, which explains farmer-herder conflicts in terms of resource scarcity and the resulting competition over access and control. The findings reveal that, despite persistent conflict, the zone has maintained a relatively steady rate of agricultural productivity, as evidenced by statistical data from the Nasarawa State Agricultural Development Agency. The study identified the specific impacts of the conflict, including the destruction of crops and farmlands, displacement of farming populations, and widespread loss of lives and property among both farmers and herders. These consequences have contributed to fluctuations in average annual productivity. However, despite these challenges, the overall trend in agricultural productivity remains positive. This resilience is attributed to factors such as increasing agricultural commercialization, supportive government policies, and the interventions of non-governmental organizations (NGOs) promoting agricultural development. The study recommends that the government adopt a more proactive, community-based approach to conflict management and fully implement the National Livestock Transformation Plan. Additionally, it suggests enhancing other determinants of agricultural productivity, such as capital and technology, while pursuing sustainable and innovative strategies to permanently resolve the farmer-herder conflict in Nasarawa State. The study concluded that the conflict affected production capabilities. However some form of agricultural incentives/assistance to farmers have continued to help the state to maintain relative overall productivity ratio.

Keywords; *Farmers, Herders, Conflict, Agricultural Productivity, Resource Scarcity, Conflict Management.*

INTRODUCTION

Agriculture remains the most significant non-oil sectors of the Nigerian economy, consistently contributing a substantial portion to the nation's Gross Domestic Product (GDP) since independence. According to Oladele and Sakagami (2004), the sector directly supports approximately 63 percent of the Nigerian population, accounting for about 70 percent of non-oil export production and 28 percent of total national exports.

Over time, agriculture in Nigeria has undergone significant transformation in response to the demands of a growing population and the resulting need for increased food production. This imperative has yielded substantial progress, especially as farming has evolved from being perceived as a marginal or subsistence activity to a respected and dignified profession. Government-led initiatives such as the Green Revolution, Operation Back to Farm, and several other policies were introduced to encourage greater participation in agriculture, and these efforts recorded notable success.

Despite the discovery of oil and the ensuing decades of neglect suffered by the agricultural sector, it has continued to play a critical role as the primary source of food for Nigeria's population of over 200 million people. However, prior to 2020, the sector faced a multitude of challenges. Some were climate-related, including drought, desertification, and soil degradation. Others were non-climatic but equally disruptive, such as ethnic tensions, armed banditry, and the alarming rise in kidnapping for ransom. Among the most pressing of these issues is the persistent conflict between farmers and herders, driven largely by competition over increasingly scarce natural resources such as pastureland and water.

According to the International Crisis Group (2017), the farmer-herder conflict has remained one of Nigeria's most severe and recurring security threats. It continues to undermine the nation's internal security architecture and poses significant risks to the socio-economic wellbeing of its people.

Violent confrontations between Farmers and herders over natural resources have in recent years heightened and have continuous to pose a great risk to the democratic progress of Nigeria. The conflict, like in other areas within the sub-continent, could be attributed to a multiplicity of factors such as the struggle for control over grazing area due to combined factors of extreme massive desertification, urbanization, as well as climate variability and volatility (Blench, 2004; Onuoha, 2007; Olorunfemi; 2009; Nchi, 2013). Factors such as desert encroachment have affected a vast area of the Sahel thereby forcing the herders to graze in the agricultural lands along the Benue valley for pasture thereby causing serious struggle. The features of this crisis are common. This struggle and competition-driven conflict between arable crop farmers and cattle herdsman have become common occurrences in many parts of Nigeria (Ingawa et al., 1999). That is why Okello (2014), argued that the tensions between Nigeria's pastoralist Fulani and settled indigenous farmers have intensified in recent years with dwindling natural resources and land availability greatly contributing to the ongoing and escalating conflict in the country. The effect of this conflict as aptly captured by Nweze (2005) is that, many farmers and herders have lost their lives and herds while others have experienced dwindling productivity in their herds. In most of these areas, inhabitants are regularly killed and the destruction or loss of agricultural produce leaves an already endangered populace even poorer.

Also arguing along this line is Nchi (2013), who opined that the herder/farmer conflicts in Nasarawa State for example have copious economic undertones. According to him ...these are clearly economic conflicts and are not sectarian in any way. You have migrant pastoralists on the one hand and sedentary farmers on the other hand fighting for pastures and farmlands which are decreasing as the population of humans and cattle increase (Nchi, 2013).

Conceptual Review

Farmers- Herders Conflict

The farmer- herder conflicts have been one of the greatest and multi-faceted challenges to the general socio-economic progress of the country. It has affected

all spectrum of the Nigerian socio economic progress. Among the principal causes and aggravating factors behind this escalating conflict between farmers and herders are climatic changes (frequent droughts and desertification); population growth (loss of northern grazing lands to the expansion of human settlements); technological and economic changes (new livestock and farming practices); crime (rural banditry and cattle rustling); political and ethnic strife (intensified by the spread of illicit firearms); and cultural changes (the collapse of traditional conflict management mechanisms). (ICGR 2017).

The major factors that have in recent time contributed to the farmers/herders conflict in Nigeria have been mixed and have become a source of controversy with arguments twisted around religious, social-economic and ethnic dimensions, Mikailu (2016). It was also observed that the some of the attackers are hired mercenaries mostly trained by jihadist groups in the Sahel region. It has been regarded as one of the important cause of population displacement in Nigeria. A good number of scholars have come to terms with the fact that all the factors are in a way connected to the climatic conditions experienced today. Those who view farmers/herders conflict from the economic perspective assert that the struggle over the use of land resources for livelihood and economic interests has been at the centre of farmers and herders conflicts in Nigeria (Zayyad, 2018). For instance, a study carried out by Ibrahim et al (2015) showed that the increase in crop farming in wetland areas and the expansion in grazing land areas have been sources for conflict between farmers and herders in Nigeria. The study further showed that there has been an increase in agricultural land uses in all parts of the country, with the major change appearing to be intensive row crop farming covering large areas within the agriculturally fertile Benue valley and other parts of the tropical forest areas of the south.

Agricultural Productivity

Productivity measures the quantity of output in relations to input or the ratio of output to inputs over a given period. It is also referred to crop yield obtained from a unit land area. Output is measured as an index aggregate of crops yield while input is measured as an index aggregate of land, capital, labour and material resources.

Agricultural productivity is defined as the measurement of the quantity of agricultural output produced for a given quantity of input or set of inputs (Lavlu, 2012). It can also be referred to as the ratio of index of agricultural output to the index of total output used in production. It is therefore a measure of efficiency where input is utilized. Agricultural productivity could be measured in terms of single or partial unit productivity where a single unit of crop (Single unit productivity) is measured in relation to the input of that unit or it can be measured as a total measure productivity where all inputs are measured to quantity output. Agricultural productivity is influenced by factors such as land, labour, water, capital etc. as well as other non-conventional factors such as conflict, fertilizer, human capital etc. The most informative measure of agricultural productivity is the total factor productivity which measures the amount of output produced from the combined set of land, labour capital and other human and material resources.

Agricultural Productivity in Nasarawa State.

Like most states in Nigeria, agriculture is one of the mainstay of the economic activities in Nasarawa State. Statistics from the state ministry of agriculture and natural resources has it that more than 87% of the population are either directly or indirectly involved in the practice of agriculture.

Bordered in the North by Kaduna, in the west by Abuja, the federal capital Territory, in the south by Kogi and Benue, in the East by Taraba and Plateau States respectively. It lies within the coordinates 80.32° N and 80.18°E and has total land area of 27,117_{sq} km. It is within the savannah region of Nigeria. The geographical location of the state gives it advantage to produce a variety of crops of cash crops throughout the year. Food crops in the state includes Yam, sweet potato, maize groundnuts, melon rice, cassava, guinea corn, sesame (beniseed) etc. others includes poultry farming as well as other ornamental crops such as oranges, mangoes, guava and aquaculture.

The global practice of agriculture has continued to experience dramatic changes which have assumed a level in the 21st century. It is undisputable true that the country's Agricultural practice is largely rain-fed, with output depending on the rain availability or somewhat on the effect of global climate change, the farmer-herder

conflict continued to impact in every facet of the Agricultural potentials of Nigeria. Agricultural environment today is as complex and competitive with acquisition of lands for other purposes other than the rudimentary practice on an increase.

The state is characterized by long period of rainy season, April to October in most cases. It has a tropical climate with two main seasons that is dry and wet seasons. The soil structure of the area is mostly sandy loam soil which makes it suitable for the production of varieties of crops such as. The Study was carried out in the Southern agricultural zone of Nasarawa state. The State has an altitude of 181.5metres above sea level and is comprised of 13 local government areas namely; Akwanga, Awe, Doma, Obi, Keana, Lafia, Nasarawa Eggon, Kokona, Keffi, Karu, Nasarawa and Toto. The study area is Nasarawa state.

However, agriculture have continued to be the main stay of economic activities in Nasarawa state. The bulk of this activities is carried out by small scale farmers whose labour emanate from the household. The state is gradually expanding to accommodate large scale commercial farming practice. Productivity in Nasarawa state over time is a success story. The ratio of output to input between 2010 and 2020 have been characterized by undulating statistics with results showing increasing output to volume of less conflict and vice versa.

Empirical Review

Factors Responsible for the Farmer-Herder Conflict.

The farmer-herder conflict in Nigeria has, in recent times, attracted diverse interpretations, often shaped by religious, socio-economic, and ethnic considerations (Mikayla, 2016). There have been claims that some of the violent attackers are hired mercenaries trained by jihadist groups operating in the Sahel region. A study on the 2010 attack on Batern village in Riyom Local Government Area of Plateau State revealed a recurring pattern of community assaults involving imported, well-trained mercenary forces (Emeni, 2012). Similarly, the 2016 herdsman attack on Uzo-Uwani Local Government Area of Enugu State, which reportedly claimed over 40 lives, was also linked to external mercenary elements (Sandra & Oiyepo, 2016; Sotubo, 2016).

Other aggravating factors include the collapse of the "burtli" system of designated cattle tracks meant to prevent animal encroachment onto farmlands (Musa, Shabu,

& Agbawua, 2014). Alawode (2013) emphasizes that the conflict has led to serious disruptions in livelihood activities, increased food insecurity, environmental degradation, and significant loss of lives and property most detrimentally impacting poor rural farmers. From an economic standpoint, the core of the conflict centers on competition over land resources critical for the livelihoods of both herders and farmers (Zayyad, 2018). Ibrahim et al. (2015) argue that intensified crop farming in wetlands and the expansion of agricultural land have increased competition for space, especially in fertile areas like the Benue Valley. Udoson (2021) asserts that access to land for economic survival underpins the conflict, thereby escalating economic, political, and environmental tensions.

Abba (2008) attributes the conflict to resource depletion and competition for survival. Knot (2011) similarly argues that land cultivation has encroached on traditional herder routes and access to water sources, while Tol (2006) views environmental scarcity as the primary driver. Okoli and Atelhe (2014) emphasize that diminished environmental resources, crop damage by livestock, and reprisal attacks all contribute to sustained violence. Hellstrom (2001) identifies unregulated competition, differing values, and weak institutions as catalysts for resource-based conflict. Mayowa (2016) includes cropland destruction, encroachment on farmland, and exploitative host community practices among the major triggers. Ajuwon (2015) adds that improper land-use practices, disregard for customary regulations, and traditional beliefs further intensify the conflict. Tietenberg (1996) also notes that a sudden increase in demand for limited resources can precipitate collapse rather than a smooth transition to sustainability.

According to Shettima and Tar (2008), resource scarcity, population displacement, institutional weaknesses, and demographic pressures all contribute to escalating land-related tensions. The Middle Belt, particularly, remains attractive to herders due to its abundant pasture (Blench, 1988-2010; Tukur, 2013; Lacino, 2016). Campbell (2016) maintains that the endemic conflict is driven by competition over land and water, religion, boundary disputes, and political manipulation, leading to mass killings attributed to herdsmen.

The intensification of crop farming into grazing lands has led to frequent clashes (Muhammed, Ismailia, & Bibi, 2015), often exacerbated by population growth and urban expansion into grazing corridors. Nformi et al. (2014) conclude that encroachment on cattle routes is a principal cause of conflict, while Adebayo and Olaniyi (2008) cite deliberate grazing on croplands as a frequent trigger.

Farmer-Herder Conflict and the challenges of Agricultural Productivity

The southern zone of Nasarawa State has experienced a significant demographic shift marked by a rapidly growing population. As Adogi (2013) describes, the state is characterized by a "prodigiously increasing population." Based on the 2006 national census, the entire state had a total population of 1,863,275 making it the least populated in the North-Central geopolitical zone. However, with an annual growth rate of 3%, its population was projected to rise to approximately 2,534,054 by 2020. Ecologically, Nasarawa State lies within a sparsely populated zone, historically favorable for grazing and agricultural activities due to its expansive arable land and low population density (Ayih, 2003). This geographic advantage once ensured limited competition for farmland. However, the recent surge in population fueled by high birth rates and increasing migration from other parts of Nigeria has led to intensified competition over land resources. Adogi (2013) attributes the emergence of violent clashes between farmers and herders to this demographic pressure.

Over time, the socio-economic impacts of the farmer-herder conflict in Nasarawa State have become increasingly devastating. These include loss of lives, destruction of property worth millions of naira, and the displacement of thousands of people. While varied perspectives exist on the causes of the conflict, Ayih (2003) links it to what he terms "population explosion," driven by both natural growth and immigration. He notes that individuals from northern and southern regions of Nigeria migrate into the Middle Belt drawn by the availability of farmland leading to rapid population growth. Consequently, lands once used for grazing are now fragmented by smallholder farms, leaving little room for pastoral activities.

Adogi (2013) observes that farmer-herder conflicts in Nasarawa State have escalated since the 1990s, mirroring broader trends across Nigeria. Many of these confrontations, though often distorted as ethnic, political, or religious disputes, are

fundamentally resource-based. They are especially prevalent in rural areas, where small-scale farming predominates and Fulani pastoralists have increasingly settled. In explaining the roots of these conflicts, Adogi emphasizes the role of ecological and demographic dynamics. He notes that Fulani herders traditionally from the Sahel and Sudan Savannah zones in the northwest and northeast have migrated into the Middle Belt, including Nasarawa, in search of greener pastures. This encroachment is perceived as a threat by local farmers, especially those cultivating root and tuber crops near the climatic margins of viable agriculture. The result is often violent contestation over land ownership and usage rights.

Blench (2004) reinforces this view by identifying climate change, desertification, drought, land scarcity, and migration patterns as key drivers of farmer-herder conflicts in the region. His findings support the prevailing academic consensus on the ecological underpinnings of the crisis.

Nchi (2013) further asserts that the conflicts are fundamentally economic rather than sectarian. He posits that the violent confrontations arise from direct competition between migrant pastoralists and sedentary farmers over increasingly scarce resources namely pasture and farmland amid growing human and livestock populations.

However, recent developments indicate that beyond ecological and economic triggers, political and primordial factors have exacerbated the conflict. The political climate in Nasarawa State, often polarized along indigene-settler lines, has intensified tensions. As Adogi (2013) notes, the politicization of farmer-herder relations often fueled by ethnic, religious, and clannish mobilization has added a dangerous dimension to the conflict, transforming it into a struggle for identity and political power. However, existing literature and official reports from the Nasarawa Agricultural Development program official bulletin suggest that the farmer-herder conflict in Nasarawa State is the result of a complex interplay of factors. These include demographic growth, ecological degradation, economic competition, political manipulation, and identity-based mobilization.

Theoretical Framework: Environmental Scarcity Theory

The theoretical framework adopted for this work is the Environmental Scarcity Theory. The theory is suitable for the study as it will help to sufficiently unravel the tensed relationship between farmers and herdsmen. This will further clarify the discourse and set the foundation for the study. Proponents of this theory include Homer-Dixon (1991, 1994, 1995, 1999) and Gizewski (1997). The theory tried to create a connection for conflict between multiple resource users and increased tension between these groups resulting from the growing vulnerability and increased insecurity of their livelihood. It considers conflict between multiple resource users as an unavoidable outcome of the competition for scarce natural resources. Dixon (1994) in his work on environmental scarcity and violence argued that environmental changes, population growth and unequal social distribution of resources are the three main sources of scarcity that lead to violent conflicts. Environmental scarcity is the supply induced scarcity which is caused by degradation and depletion of environmental resources such as erosion. Demand induced scarcity is a result of population growth or increased per capita consumption of resources while the structural scarcity arises from unequal distribution of resources that is concentrated in the hands of the privileged few as against the majority of the people. The environmental scarcity theory however provides a clear theoretical understanding of conflict due to competition over scarce natural resources.

Agricultural productivity statistics of some selected crops in Nasarawa south senatorial zone																
			2010			2011			2012			2013			2014	
S/N	CROPS	PROD. ('000MT)	AREA ('000HA)	YIELD ('000HA)	PROD. ('000MT)	AREA ('000HA)	YIELD ('000HA)	PROD. ('000MT)	AREA ('000HA)	YIELD ('000HA)	PROD. ('000MT)	AREA ('000HA)	YIELD ('000HA)	PROD. ('000MT)	AREA ('000HA)	YIELD ('000HA)
1	MAIZE	52.38	24.38	2.15	110.26	74.71	2.48	116.62	75.48	2.57	129.79	52.87	1.87	130.2	55.26	
2	RICE (PADDY)	86.6	31.57	2.74	77.03	33.91	2.46	50.68	24.88	2.03	51.25	25.23	2.03	50.46	25.68	
3	SORGHUM	51.07	31.65	1.61	44.4	832.5	1.16	48.17	38.88	1.23	48.54	39.02	1.24	47.43	39.12	
4	MILLET	7.65	5.55	1.38	4.82	4.98	0.97	4.97	4.42	1.12	4.43	4.61	0.66	4.43	4.93	
5	COWPEA	12.87	34.87	0.51	21.83	87.34	0.78	19.57	0.51	0.72	20	27.97	0.55	19.77	27.2	
6	GROUNDNUT	25.95	18.08	1.44	66.11	55.3	1.2	67.85	58.95	1.15	71.77	43.97	1.63	72.03	45.06	
7	YAM	35.5	6.5	21.69	1211.71	61	19.8	1261.09	61.62	20.446	1285.19	659.1	19.5	1311.18	67.5	
8	CASSAVA	29.8	4.5	14.97	587.3	36.22	16.21	739.24	3.86	19.75	754.38	39.12	19.28	763.47	38.94	
9	SOYABEANS	1.7	3.3	1.1	2.67	4.08	0.66	3.07	4.97	0.61	2.81	4.05	0.73	3.21	4.23	
10	BAMBARA NUT	1.3	0.2	0.65	0.25	22.53	1.23	-	25.22	-	-	-	-	2.28	1.92	
11	BENISEED	30.4	0.24	0.83	18.23	22.53	0.81	20.13	19.58	0.79	20.76	26.39	0.79	21.12	26.61	
12	MELON	3.28	42.72	-	10.47	18.75	1.45	10.06	0.8	0.92	-	-	-	14.1	20.48	
13	SWEET POTATO	28.04	6.21	11.24	48.89	0.77	10.01	9.26	0.51	11.64	-	-	-	9.66	0.69	
14	ACHA	-	-	-				0.44	1.13	0.85	-	-	-	-	-	
15	OKRA	28.04	6.21	4.52	36.62	3.98	9.48	12.69	0.13	11.74	-	-	-	13.24	1.14	
16	TOMATOES	9.47	0.75	12.63	11.88	1.36	12.63	3.2	1.37	24.76	-	-	-	4.32	0.25	
17	PEPPER	27.97	3.72	7.52	27.19	4.03	7.07	9.66	12.19	7.04	-	-	-	9.66	1.92	
18	GARDEN EGGS	1.79	2.39	7.97	43.3	14.66	3.12	70.88	0.34	5.81	-	-	-	72.24	6.33	
19	SUGAR CANE	2.76	0.25	10.82	-	-	-	12.36	-	36.14	-	-	-	14.07	0.72	
20	PEIGEON PEAS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
21	ROSSELE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
22	COCOYAM	15.65	2.67	5.86	3.93	0.66	5.96	-	-	-	-	-	-	-	-	
23	GINGER	-	-	-	-	-	-	-	-	-	-	-	-	-	-	

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24	ONION	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
25	LETTUCE	-	-	-	-	-	-	571.33	-	-	-	-	-	-	-	-
26	SPINACH	-	-	-	8021.01	8021.01	10.79	6474.53	-	10790.9	-	-	-	-	-	-
27	GARLIC	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
28	GINGER	0.19	0.07	2.6	-	-	-	-	-	-	-	-	-	-	-	-
29	PUMPKIN	-	-	-	-	-	-	-	19.57	-	-	-	-	-	288.18	24
30	WATER MELON	-	-	-	14.22	0.86	16.58	16.07	13.04	31.5	-	-	-	-	-	-

Source: - NADP Lafia, 2020

Agricultural productivity statistics of some selected crops in Nasarawa south senatorial zone																
S/N	CROPS	2015			2016			2017			2018			2019		
		PROD. ('000MT)	AREA ('000HA)	YIELD ('MT/HA)	PROD. ('000MT)	AREA ('000HA)	YIELD ('MT/HA)	PROD. ('000MT)	AREA ('000HA)	YIELD ('MT/HA)	PROD. ('000MT)	AREA ('000HA)	YIELD ('MT/HA)	PROD. ('000MT)	AREA ('000HA)	YIELD ('MTHA)
1	MAIZE	132.12	56.25	2.34	149.16	64.53	2.31	152.14	65.31	2.33	156.71	66.62	2.35	180.95	67.53	2.68
2	RICE (PADDY)	52.26	26.91	1.94	59.47	32.45	1.83	62.45	33.36	1.88	66.72	35.36	1.89	124.81	41.64	3
3	SORGHUM	45.7	40.35	1.13	46.81	41.1	1.14	47.74	42.34	1.13	46.78	42.76	1.09	49.93	46.5	1.07
4	MILLET	4.53	4.92	0.92	4.77	5.06	0.94	4.78	5.06	0.95	4.64	5	0.92	4.65	5	0.93
5	COWPEA	19.56	27.48	0.71	21.15	28.59	0.73	21.26	29.45	0.73	21.68	29.89	0.73	25.56	30.12	0.85
6	GROUNDNUT	74.88	16.89	1.59	79.11	48.29	1.64	80.69	49.74	1.62	82.71	50.74	1.63	96.21	55.06	1.75
7	YAM	1309.56	67.11	19.51	1311.06	67.33	19.47	130.79	67.2	19.8	1370.71	68.21	20.1	1590.58	72.06	22.07
8	CASSAVA	762.27	38.67	19.71	772.68	39.3	19.53	795.86	39.56	20.12	827.69	39.84	20.78	930.89	44.17	21.08
9	SOYABEANS	3.36	4.53	0.74	4.2	4.77	0.88	4.34	4.87	0.89	4.51	5.01	0.9	6.21	6.51	0.95
10	BAMBARA NUT	2.34	1.94	1.2	2.4	2.1	1.19	2.39	2.02	1.19	2.42	1.96	1.24	2.46	2	1.35
11	BENISEED	22.2	27.99	0.79	24.02	29.67	0.81	24.98	30.27	0.83	26.23	31.48	0.83	36.03	39.69	0.91
12	MELON	14.44	21.15	0.68	15.79	22.18	0.71	16.04	22.67	0.71	16.52	22.89	0.72	23.83	31.65	0.75
13	SWEET POTATO	9.81	0.72	13.6	10.32	0.81	12.74	10.53	0.9	12.81	10.85	0.83	13.05	11.74	6.84	13.98
14	ACHA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

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15	OKRA	-	1.15	11.37	13.1	1.17	11.19	13.11	1.17	11.18	12.72	1.16	10.95	13.47	1.17	11.48
16	TOMATOES	4.26	0.25	16.9	4.41	0.27	16.52	4.5	0.27	16.67	4.46	0.27	16.69	4.46	0.27	16.5
17	PEPPER	9.81	1.94	0.07	9.8	1.94	5.05	10.05	1.98	5.08	10.15	1.94	5.23	10.65	2.04	5.52
18	GARDEN EGGS	72.74	6.66	10.92	73.54	6.91	10.65	75.01	7.11	10.55	75.76	7.22	10.49	78.06	7.47	10.45
19	SUGAR CANE	14.23	0.77	18.59	14.47	0.77	18.76	15.69	0.9	17.43	16.01	0.87	18.33	16.65	0.89	18.63
20	PEIGEON PEAS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
21	ROSSELE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22	COCOYAM	-	-	-	-	-	-	15.35	2.43	6.32	15.05	2.41	6.25	15.39	2.41	6.39
23	GINGER	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
24	ONION	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
25	LETTUCE	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
26	SPINACH	-	-	-	11.67	0.79	14.73	11.69	0.8	14.64	11.91	0.21	14.77	13.61	0.92	14.83
27	GARLIC	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
28	GINGER	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
29	PUMPKIN	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
30	WATER MELON	288.94	15.54	18.59	289.68	16.02	18.08	295.47	16.5	17.9	299.9	16.83	17.82	313.74	17.61	17.82

Source: - NADP Lafia, 2020

Agricultural productivity statistics of some selected crops in Nasarawa south senatorial zone																
S/N	CROPS	PROD. ('000MT)	2020 AREA ('000HA)	YIELD ('MT/HA)	PROD. ('000MT)	2021 AREA ('000HA)	YIELD ('MT/HA)	PROD. ('000MT)	2022 AREA ('000HA)	YIELD ('MT/HA)	PROD. ('000MT)	2023 AREA ('000HA)	YIELD ('MT/HA)	PROD. ('000MT)	2024 AREA ('000HA)	YIELD ('MTHA)
1	MAIZE	207.96	67.56	3.08												
2	RICE (PADDY)	187.54	52.64	3.56												
3	SORGHUM	58.79	57	1.15												
4	MILLET	4.77	5	0.95												
5	COWPEA	28.57	30.1	0.92												
6	GROUNDNUT	124.47	64.55	1.93												
7	YAM	1755.18	75	23.4												
8	CASSAVA	1350.18	54	24.99												
9	SOYABEANS	8.73	8.76	1												

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10	BAMBARA NUT	2.67	2.1	1.27												
11	BENISEED	49.02	48.57	1.01												
12	MELON	30.59	36.21	0.85												
13	SWEET POTATO	20.19	1.25	16.22												
14	ACHA	0.3	0.6	0.5												
15	OKRA	16.38	1.41	11.62												
16	TOMATOES	4.49	0.27	16.63												
17	PEPPER	13.18	2.13	6.18												
18	GARDEN EGGS	84.05	7.62	11.03												
19	SUGAR CANE	21.34	0.96	22.23												
20	PEIGEON PEAS	-	-	-												
21	ROSSELE	-	-	-												
22	COCOYAM	21.38	2.55	8.39												
23	GINGER	0.07	0.02	4.4												
24	ONION	0.01	0.02	5.67												
25	LETTUCE	-	-	-												
26	SPINACH	15	1.02	14.94												
27	GARLIC	0.03	0.01	5												
28	GINGER	-	-	-												
29	PUMPKIN	-	-	-												
30	WATER MELON	463.6	22.69	20.43												

Source: - NADP Lafia, 2020

Results and interpretation

Table 1 (a,b and c) above shows the total annual productivity figures of some selected agricultural crops in metric tons in the southern senatorial zone of Nasarawa state between 2010 and 2020. The tables shows an undulating productivity ratio which is highly dependent on the level of conflict for that particular farming season. Annual productivity of maize for example had a steady increase from 52.38 in 2010 to 132.12 in 2015 and by 2020 it rose to 207.96 metric tons,

Rice is another important staple food crop produced in the state whose annual average productivity ratio was 86.06. This was reduced to 50.68, 51.25 and 50.46 between 2012, 2013 and 2014 annual season. This productivity figures grew to 187.54 in 2020. The state recorded heightened conflict between farmers and herdsmen during the 2012 and 2014 farming season as this have impacted on the figures for such years under review.

Melon and Beniseed are also important cash crops produced across the state. These crops also had its own share of the impact of this conflict on its average annual productivity. Average total annual yield of beniseed in 2010 was 30.04. This figure continued to fall for almost 8 season until 2019 and 2020 when it grew to 36.03 and 49.02 respectively. This also applied to all crops that spend much longer time in the field during the end of the season.

Summary/ Conclusion

This study investigated the farmer- herder conflict and its implications for agricultural productivity in Nasarawa State between 2010 and 2020. The research focused on two central variables: the farmer-herder conflict and agricultural productivity. Five specific objectives were set and achieved.

The causes of the conflict include the destruction of farmers' crops, shooting and killing of innocent persons, incidents of rape and sexual harassment, bush burning, water pollution, armed robbery by some nomadic groups, the spraying of weeds with chemicals harmful to cattle, cattle rustling, and killings, among others.

It is evident that farmer- herder conflict remains a serious challenge to agricultural productivity in Nasarawa State. The study revealed that farmer herder conflict is a serious challenge to agriculture as shown in statistical data from relevant agencies where productivity rate reduces with increasing rate of conflict. Also production increases with decreased conflict cases. However, the overall productivity ratio was steady due to increase support by Non- Governmental organization and some agencies

Recommendations

As a viable solution to the farmer-herder conflict and a means of enhancing agricultural productivity in Nasarawa State, this study recommends the following measures:

- i. There should be an effective regulation of grazing and farming activities in Nasarawa state through efficient land use laws/legislations and administration. This will help in addressing the encroachment of animals into farmland and avoiding confrontations.
- ii. There should be effective policy regulations to address the challenges of desert encroachment while ensuring that the current national livestock transformation plan should be fully implemented. This, will address the issue of continuous encroachment of herders into agricultural land where crops are destroyed resulting to dwindling productivity.
- iii. Modern and improved community based conflict resolution strategies and the involvement of NGOs should be encouraged in order to address the perennial conflict between farmers and herders while improving productivity

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