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## **Assessment of Crop Farmers' and Pastoralists' Perceptions on the Establishment of Cattle Ranches in Niger State, Nigeria**

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### **Abstract**

The Nigeria government have tried in many ways, initiated lots of policy and programmes which is aimed at restoring the country's agricultural sector to its pride. Despite the efforts to promote positive perception and adoption of innovative technologies (IT) by the Government and international development projects, the adoption rate among farmers has always been low in Nigeria. In continuation, recently the federal government of Nigeria introduced the Rural Grazing Areas (RUGA Settlement). The idea was an initiative of the National Economic Council (NEC) presented under the National Livestock Transformation Plan. The essence of the initiative is to abolish the age-long crop farmers and pastoralists' crisis and to massively develop the livestock industry and seek to promote ranching as the way forward for cattle rearing in the country. According to Alh. Muhammadu Umar, the Permanent Secretary in the Federal Ministry of Agriculture and Rural Development, made it known to News Agency of Nigeria (NAN) in Abuja on 25<sup>th</sup> of June 2019 that nomadic livestock production in Nigeria is facing major challenges and is at crossroads due to declining availability of pasture, overgrazing, and expanding fatal conflicts between crop farmers' and pastoralists'.

### **Introduction**

Population outburst throughout the world, conflicts and malnutrition are among the serious problems being faced by millions of people in developing countries especially in Nigeria (Noor et al., 2016). As a result of the challenges being faced, Nigeria government had tried many ways, initiated lots of policy and programmes which are aimed at restoring the country's agricultural sector to its pride (Adama J.I. et al., 2016). The contribution to the sector was able to make significant progress. For example, output of crops such as maize, millet, sorghum, cassava, rice, vegetable oil and yam increased tremendously as a direct response to presidential initiatives in these areas. Particularly, yearly yield of cassava increased from 33 million metric tonnes in 1999 to 46.0 million metric tonnes in 2006 while output of rice increased from 3.3 million metric tonnes to 4 million metric tonnes during the same period (Food and Agricultural Organization (FAO) 2017).

Crop production and livestock production contributes in boosting and stabilising Nigeria's economy by providing food and employment to its populace and raw materials for agro allied companies. Food crop farmers who engage majorly on arable crops constitute about 95% of the total food crop farming units in the country producing about 90% of the food output (Nigerian Bureau of Statistics, (NBS) 2012). Livestock industry is also an important section of the general agriculture as a key contributor to the economic growth and development of Nigeria which has the capacity for providing food, employment, farm energy, manure and revenue for the farmers and even the government (Africa Sustainable Livestock (ASL) 2050, (2018).

The dairy production in Nigeria is mainly subsistence oriented, low productivity with the average production per cow every year is 213 litres, less than one tenth of the global average (Makun, 2018). Nigeria, as in other places in West and Central Africa, pastoral production is based on grazing animals on natural pastures with seasonal movement of families and animals from one place to another in response to availability of fodder, crop residues and water for stock needs, or as an evasive strategy against threats of animal diseases, pests or personal security (Aliyu, 2015). This mode of livestock production and management is becoming increasingly difficult or nearly impossible for lack of access to land in the wake of degrading grazing resources, conflict as a result of farm encroachment and lack of policy support to protect grazing routes (Mwamfupe, 2016; Benjamin *et al.*, 2009; Abroulaye *et al.*, 2015).

In the recent years (since the turn of new millennium), many parts of Africa have continued to experience violent conflicts that constrain sustainable food security, livelihoods, and development in the region. Nigeria has

experienced and is still experiencing conflicts of grave proportions among several ethnic and religious communities across the states (Aliyu, 2015). These conflicts significantly vary in dimension, process and the groups involved. Massay, (2017) opined that some conflicts arise between same resource user group such as between one farming community and another, others occur between different user groups such as between pastoralists and farmers or between foresters and farmers.

In view of the reports of increasing number of violence at this occupational boundary makes understanding perception of the crop farmers and pastoralists on the resuscitation and establishment of cattle ranches particularly in Niger State an urgent task. It is against these backdrops that this study seeks to provide answers to the following research questions.

1. What are the socio-economic characteristics of the farmers and pastoralists in the study area?
2. What are the perceptions of crop farmers and pastoralists on the establishment of cattle ranches in the study area?
3. What are the perceived constraints associated with the establishment and practices of cattle ranching among crop farmers and pastoralists in the study area?

The aim of this study is to assess farmers' and pastoralists' perception on establishment of cattle ranches in Niger State, Nigeria. The specific objectives are to describe the socio-economic characteristics of the farmers and pastoralists in the study area, examine the perception of crop farmers and pastoralists on establishment of cattle ranches in the study area and determine the perception of the crop farmers and pastoralists on the constraints associated with the establishment and practices of cattle ranches.

### **Socio-economic factors influencing farmers' and pastoralists' perception to ranching**

The Crop farmers' and pastoralists' socio-economic characteristics is essential in articulating and responding to the problems in scientific research, especially in cattle ranching. Adelokun., Adurogbangba and Akinbile, (2015) narrates that socio-economic characteristics plays vital role influencing the perception of crop farmers' and pastoralist in making a decision at the farm level by providing a hint for social and economic conditions either at the micro level or macro level in relation to others in the society. Similarly, Otekhile and Verter, (2017) determine the drivers of farm income, off-farm income and perception among crop farmers' and pastoralists' in South East Nigeria. Their results show farm size, the age of farmers, educational attainment, and their occupation are important explanatory factors that influenced farm income, off-farm incomes and hence their perception in the region.

**Age:** The findings by Falanta and Bengasi (2018) revealed that, a significant proportion of the farmers were between 36 and 64 years indicating that the farmers were mainly middle aged who are in their economically active stage and responsible for decision making, as such, can undergo the stress and has the ability to accept or reject an innovation which can affect productivity of the crop farmers and pastoralists. Their findings agrees with Mwasha (2016) who opined that the age of a person usually is a factor that can explain the level of production and efficiency; it influences individual's experience, wealth and decision-making especially when they are in their active stage. In pursuit for improve economic activities by crop farmers and pastoralists to satisfy their basic needs it can also influence them to venture into cattle ranching. Usually older farmers are less likely to explore new sources of information and thus less likely to depend on multiple sources. It is assumed that the increase in age would have influence on access to different sources of information (Imo, 2017).

**Sex:** International Fund for Agricultural Development (IFAD) (2010) narrates that men are responsible for taking care of livestock and farming, while women are responsible for household chores and farming. Also Mwasha, (2016) and Imo (2017) reported that about 80% of women perform most of farming activities in addition to performing their house hold chores which contribute significantly to Gross Domestic Product (GDP) and agricultural productivity. It is asserted that in rural economies the majority of women folk are involved in agricultural activities and right from the process of production to marketing we find their engrossment. In this type of economy role of gender is conceived as an important socio-economic variable affecting the quality and quantity of agriculture products (Ekong, 2010). However, Adelokun *et al.*, (2015) disagreed and believed that most of the farmers and pastoralist are males who are more involved in both farming and pastoral activities.

**Educational level:** Education is undoubtedly an important asset not only for an individual but for the society as a whole by means of providing the fundamentals to the nature and significance of the society. In order to investigate whether this assertion holds true in the case of agriculture, it is very important to examine the variable, education status of the farmers which is believed raises the level of cognizance and understanding. While most studies consider education in terms of number of years of formal education, the categorization of education

by Baumgart-Getz *et al.*, (2012) seems more appropriate. In contrast to formal education, it reflects knowledge farmers attain through other means such as extension programs, workshops, and field days.

The findings by Mwashu, (2016) indicate that the majority (52.5%) of respondents had attained primary level education; while very few (5.8%) had attained secondary level education. These findings suggest that many people had attained the basic level of education, which is important in comprehending various technological innovations that could be extended to farmers and pastoralists in the study area. The education level is often argued as a variable that influence positively the perception and adoption of crop farmers' and pastoralists' ( Fouzai, Smaoui, Frija and Dhehibi 2018.).

In almost every adoption study, education of the farmer is considered to positively influence the farmer's likelihood of adopting a new technology or practice because farmers with better education have more exposure to new ideas and information, and thus have better knowledge to effectively analyze and use available information (Kassie *et al.* 2013; Prokopyet *al.* 2008). Also Solomon, (2008)indicated positive relationship between education and efficient utilization of production inputs. The reports of findings by Yengoh (2010) agreed that education enhances positive perception among crop farmers and pastoralist households in the humid forest, dry savannah, and moist savannah agro-ecological zones of Nigeriaas they tend to be more aware of the importance of adopting new technical innovations and that makes them earlier adopters of modern technologies and apply modern inputs more efficiently throughout the adoption process. However, a study conducted by Asnaquet *al.* (2005) in Ethiopia showed that education had no significant effect on the perception of improved farming practices. **Household size**

A household comprises all persons who generally live under the same roof and eat from the same pot (Esiobuet *al.*, 2014 and Fouzai *et al.* (2018). Onubuogu *et al.* (2014) and also describe a household as all people who live under one roof and who make or are subject to others making for them, joint financial decision. It comprises of the head, the wife or wives, children and other dependents that live in the same house. Large household size is a proportional to labour availability, ensure ease adaptation to new technology and reduce the cost of hired labour (Teklewold *et al.*, 2006; Tizale, 2007; Esiobuet *al.*, 2014).

In addition, it is revealed that family size has a positive impact on the perception and adoption decision, since it is usually associated with more labor availability, which is likely to respond positively to the demands of innovations and the establishment of cattle ranches (Fouzai *et al.* (2018). Therefore farmers with large hectares of land are generally willing to invest on new technologies allowing to increasing returns to scale (Fouzai *et al.* (2018). Thus, the investment requirement disqualifies small farmers to adopt new production system because small land available for cultivation.

**Access to extension services:** Extension services are a channel through which agricultural innovations and information are passed to farmers for improvement in their standard of living, production and productivity. Onubuogu *et al.*(2014) narrates that farmers and pastoralists' are poorly visited by extension agents to ascertain their farming problem and know where they need assistance. The implication of the finding is that it could bring about low productivity due to lack of innovative information. Knowler and Bradshaw (2007) and Deressa *et al.* (2008) all agreed that adequate extension contact have a positive relationship with the adoption of agricultural technologies since extension agents transfer modern agricultural technologies to farmers to help them counteract the negative perception of farmers and pastoralist to the establishment of cattle ranches.

Research conducted by Moser *et al.* (2000) and Muddassiret *al.* (2016)agreed that inadequate information through extension services was the major reason for utilization of recommended farming practice or technology. Also according toFiazet *al.*, ( 2016) Self sufficiency in agriculture could only be achieved by addressing the agricultural problems through effective use of extension services.

#### **Member of cooperative or pastoral group**

Different studies have reported several reports concerning social participation (cooperative or group) and its effect on perception, adoption and efficient utilization of innovation for example; Prokopyet *al.* (2008) indicated that people who are quick to adopt an innovation may be characterized by having active participation in many organizations. Kassie *et al.*(2015) also found that participation in cooperative societies contributed positively and significantly on the perception and adoption of improved farming practices and Ebrahim (2006) revealed social participation to have contributed positively to the perception and adoption of diary technologies. Similarly, Dereje (2006) and Rahmeto (2007) reported that social participation had significant and positive relationship withperception

**Perception of crop farmers and pastoralists on cattle ranching:** Perception is defined as “the degree to which a person has a favourable or unfavourable evaluation or appraisal of the behaviour in question” (Oyesola *et al.*,2011). It is the predisposition to respond to a giving question or innovation either positively or negatively. In other words, perception reflects feeling of favourableness or unfavourableness to exhibit a certain behaviour. Perception has been identified as a cause of intention (Rodenburget *al.*, 2014). In addition, Perception is meant

as “altruism toward other human being to incorporate either self interest or egoism and concern with other species or the biosphere itself” (Sasidharan, 2015).

Meijer *et al.* (2015) consider farmers’ perception as their views of a given technology in terms of their felt needs and prior experiences. In relation to land degradation, Pulido and Bocco (2014) define farmers’ perception as the causes and status of land degradation as detected and expressed by farmers on their lands. The decision of farmers to adopt ranching begins with their attitude (Oyesola *et al.* 2011). These attitudes are shaped by farmers’ personal characteristics (e.g., age, education, conservation attitude, norms or beliefs) and the physical characteristics of the land. Besides these personal attributes, studies suggest that farmers’ and pastoralists’ perception towards cattle ranch establishment are strongly linked to their experiences and knowledge about the practices in question (Reimer *et al.*, 2012).

Similarly, Mondal *et al.* (2014) reported that majority of the respondents (60%) had a positive perception towards sustainable farming and control grazing and that sustainable farming ranching will decrease production costs reduce risk attached open grazing. For instance Meijer *et al.* (2015) argued that the knowledge and perception of farmers and pastoralists have about a new practice closely relates to their behaviours toward such a practice which together frame the perception of farmers and pastoralists as whether to adopt ranching or not. Equally, the study investigated by Oyesola *et al.* (2011) revealed that, the majority of the farmers in the study area had a favourable perception towards sustainable agricultural practices and this supports the findings of Dipeolu *et al.* (2006) that farmers in general had a positive perception of sustainable produce and sustainable farming has a good prospect in the forthcoming years. Furthermore, cattle ranching brings a modern and scientific perception to the traditional farming system that our ancestors used to perform (Abdollahi, 2008) hence; Sasidharan (2015) showed that perception are affected by a set of variables on knowledge and socio-structural factors such as, community pressure, family concern, ethical principles and values.

However report of Patelet *et al.* (2006) do not conform with other studies who agreed crop farmers and Pastoralists have positive perception about cattle ranching, they reported that 57% of the respondents had neutral perception towards cattle ranching, followed by favorable and unfavorable perception with 25% and 17% respectively.

**Perceived constraints associated to cattle ranch establishment:** The primary perception, adoption and production challenges for farmers are weeds, soil health fertility and increasing incidence of weather volatility (Oyesola *et al.*, 2011). Weed pressure is an issue for all growers and requires regional solutions and adaptive management (Adeso *et al.*, 2012). Equally, managing for soil health and lack of access to sustainable inputs is an ongoing management challenge and barrier to improving healthy ranch establishment. Furthermore, Bwambale (2015) discloses that the most important constraint perceived by the farmers in crop production processes were short life of bio cultures, non availability of culture in time and non availability of seed/variety resistant to diseases or insect nematodes. Equally, Badodiya *et al.* (2011) reported various constraints faced by the farmers which affect their perception and Adoption of sustainable Farming Practices such as cattle ranching are found to be high cost of inputs ranked first followed by difficult methods for preparation (2), lack of inputs and raw materials (3), poor financial conditions (4), non-availability of loans in time (5), lack of proper trainings at grass root level (6).

Similarly, Dhraief *et al.*, (2018), classified the problems perceived by the farmers in continuing utilization of production technology as;

- Weather or climate change (chronic humidity, extreme rain events, drought)
- High costs of establishment
- Difficulty of disease and pest management
- Poor crop farmers’ and pastoralists’ networking in sharing ranching knowledge
- Limited technical and financial support for rice producers
- Loss of conventional farm network
- Opaque value chain – lack of communication on planting dates and yields demand
- Few forums for relationship building between crop farmers and pastoralists
- Distance to input produce markets
- Unfavourable Crop farmers and pastoralist perception
- Differences in Crop farmers and pastoralist perception
- Traditional extension service

## Conclusion

Most of the crop farmers and pastoralists are in their active age and it implies that they are capable of making decision to adopt cattle ranching if they feel it’s of economic importance their occupation. Gender is not a barrier to ranching, educational level, access to extension and membership of farming or pastoral group enhances positive perception to cattle ranching. Also household size, because large household size is proportional to labour availability, ensure ease of adaptation to new technologies and reduce the cost of hired labour. Both crop

farmers and pastoralists have positive perception to the establishment of cattle ranches if it will enhance their production, protect their crops and livestock's from destruction and theft and abolish conflict between them.

### Recommendation

Based on these review, government should intensify training programs for crop farmers' pastoralists' and for extension agents with the collaboration of the RUGA settlement project management to enlighten crop farmers pastoralists on the economic importance of establishing cattle ranches.

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