



Women entrepreneurs in agribusiness: Focus on pastoral women in grazing reserves in Nigeria.

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Abstract

Women entrepreneurs in agribusiness (pastoral women) contribute immensely in improving milk production in grazing reserves in Nigeria. Inadequate milking practices have put the pastoral women entrepreneurs to a significant disadvantage in grazing reserves. With a daily production of less than one liter per milking cow, the commercial dairies do not purchase pastoral milk for further processing due to bad flavor from direct heating and impurities making milk products like yogurt to have a low shelf life. The paper examines the women pastoralist awareness in good milking, handling, and processing as well as the adoption of these technologies. A sample of 375 women pastoralist were selected from 12 grazing reserves using purposive criteria due to the large concentration of sedentary pastoralists and milk production and processing activities. Mix method of data collection was employed. Results had shown that 87.5% of the pastoralists do not conduct indirect heating of milk which would have ensured good equality milk; suitable milking technologies such as milking protocol cleaning, fore stripping, cooling of milk before pasteurization to lower bacterial growth is not practiced by the respondents. The study recommends that improved capacity building, extension activities, and formation of milk cooperative are required in the grazing reserves by all stakeholders in order to change and improve this vital sector, the dairy value chain.

Keywords: Agribusiness, grazing reserve, milk production, pastoral women, women entrepreneurs.

1.0 Introduction

The study is about women empowerment in developing countries, which has multiplier effects on the country's micro and macroeconomics. There are many entrepreneurial engagements, particularly for women, which remain redundant over the years. Studied in these areas will bring to light not only to the individuals and prospective participants but also to policymakers and other stakeholders. Youth and women constitute a more significant

percentage of the population in Nigeria, and a considerable portion of them are unemployed.

Despite efforts by the Federal government to empower this population category, some areas remain untapped, like pastoral farming in the grazing reserves. There are many potentials in these grazing reserves. This study examined how many women entrepreneurs can be engaged in these reserves to make them self-reliant, economically supportive, and improve their



living standards. Previous studies revealed that women are considered to play a growing role in entrepreneurship all over the world and agribusiness is one areas with great potentials (Imhonopi, Urim and Ajayi, 2013).

A recent study reported Africa to be experiencing rapid economic and social growth. While many economies in the continent like Nigeria are growing by more than 6% annually, there are large income distribution disparities. Thus, rural households seek to alleviate poverty by engaging in market-oriented farming (Agribusiness), though with limited success due to low innovative solutions to production and marketing limitations. A recent report revealed that a potential mechanism was developed to empower women and youth in rural areas for prospective careers in agribusiness (IITA, 2015). The program termed the participating youth "Agripreneurs" (Agricultural Entrepreneurs). It Involves women and youth Agripreneur that are grouped in the form of registered self-help groups engaged in agribusiness incubations—thus leading to profitable rural enterprises with significant returns on investment (Sanginga, 2015).

Women entrepreneurs contribute immensely to the development of various sectors of the economy, particularly in developing countries like Nigeria. As many countries continue to develop small and medium scale enterprises, many women have embraced entrepreneurship and running their enterprises successfully. With the relevant education, work experience, improved economic condition, and financial opportunities, more women are venturing into businesses, including agri-business. (Sangolagi and Alagawadi, 2016). Encouraging gender balance in empowerment is a prerequisite for growth

and development of any economy, and therefore women must have more equitable access to assets and services should be improved for empowering them to be self-reliant and improve their standard of living (Bairwa, Kushwaha, Lakra and Meena, 2014). The improvement of entrepreneurial skills in agriculture, particularly for women is an essential condition to generate sustainable rural development and contributes to the GDP and overall economic development in Nigeria (Esiobu, Onubuogu, and Ibe, 2015).

Additionally, women entrepreneurs have roles to play to complement government's effort in enterprise development. These include making good business decisions, having the right motive, making an effort to acquire appropriate education or training, business experience or skills, innovation, market information, social networks and other similar entrepreneurial attributes (Ekpe, 2011). Women in agri-business and related entrepreneurship ventures are household identities of the majority of the Nigerian rural and urban dwellers. However, full empowerment of women and the girl-child in most Nigerian grazing reserves often faces the problems of operational setbacks and access to markets which has hitherto retarded the economic developments of the Nigerian rural dwellers (Ukpata and Onyeukwu, 2014).

Given the above background, the study investigated women entrepreneurs' role in agri-business, focusing on pastoral farming in Nigerian grazing reserve. The study used the grazing reserves in Northern Nigeria with the potential activities of pastoral women

1.2 Objectives of the Study

The general objective is to examine women entrepreneurs in agri-business with focus on



women pastoralist in grazing reserves. While the specific objectives are:

- i. To evaluate milk production technologies among pastoral women in grazing reserves.
- ii. To identify clusters of milking herds/family of pastoralist in grazing reserves in Nigeria.

2. Conceptual review

2.1 Agribusiness

Agribusiness is receiving considerable attention in the literature, policies, and strategies during the last few decades. Researchers and practitioners are increasingly engaged in agribusiness studies due to its acceptance in both research and practical engagements for empowerment and sustainability. The UN agency's literature described the agribusiness sector to comprise the line of business activities carried out from the farm to fork. Thus, it generates significant income and employment and a major source of food security and nutrition worldwide. It is a complete process that covers the entire value chain system. According to the document, it starts from the supply of agricultural inputs to production and transformation of agricultural products, and the distribution to end-users (Nogales, 2017). Literature also reveals the collaboration of agribusiness and sustainable food value chain (SFVC) work, which results in the analysis of information and experiences to understand changing realities and trends better. Similarly, King et al. (2010) described agribusiness economics as a system where markets, institutions, and organizations, influence the vertical and horizontal coordination within the food system.

However, as the scholarship on the field expands, the scope of agriculture was extended to include other related business activities. The agribusiness concept came on

board to incorporate inputs to farms and farm products to markets (Schmitz et al., 2010; Pisani 1984). Similarly, as literature continues to unveil definitions on the subject matter, many focus on size, excluding small businesses like family farms (Chait, 2014). The scope vary and the operations depends on the capital employed, staff strength and the turnover. Thus, any business that generates its revenue from agriculture can also fall under this description. Additionally, agribusiness can be a large-scale business operation that may engage in farming, processing, and manufacturing. The scope of agribusiness may include the packaging and distribution of products (Fleet, 2016). Therefore it involves multiple activities. Many participate without knowing which part or role they play in the process. For example, when you farm, you engage in it as a producer because you produce the raw materials that find its way to the end consumer. It remains a complex and efficient global food production, distribution, and marketing system (Barnard 2012).

2.2 Women entrepreneurs in agribusiness and the empowerment of postural women

Studies on entrepreneurship described women entrepreneurs as a group of women who sponsor, organize, and operate a business venture or enterprise (Jena et al. 2018). On record, statistics underestimate the records of rural women's participation in agro-based activities, simply because a significant percentage of women's activities at home and farm are considered daily chores. Thus, there are considerable efforts put together by women occasioned by mechanization and easy availability of labour that create self-employment or entrepreneurial ventures. Similarly, these rural women require innovative mind and motivation to engage in business enterprise



as they have a pool of human and non-human resources (Sidhu and Kaur, 2006).

Empowering women is like empowering the whole family. Many agribusiness activities fit women. Thus, they engage in farm and off-farm economic activities to sustain their families and ensure food security as well as to diversify their income sources (Jones et al., 2012). Their contributions to agricultural and rural economies are highly commendable as they easily acquire and share valuable knowledge in biodiversity, crop varieties, and agricultural practices. Women also engaged in off-farm work that is often low paid and low-skilled, but it significantly contributes to the adverse shocks that affect agriculture, like droughts or floods. Literature established the contribution of women's share in the agricultural labour force to be within the ranges of about 35% to 50% in the Pacific and sub-regions of Asia (Lennie, 2002; Mustapha et al. 2018).

Studies on agricultural activities revealed how women had been engaged in agricultural operations by participating in seed selection, seed treatment, and vegetables growing. Moreover, records show that women require training and motivation to quickly take up micro-enterprises in agricultural activities to exploit their skill and patience fully. Women can also perform effectively in other value addition processes like sorting, cutting, grading, seeding, quality packaging, and shelling (Ali 1997; Sidhu and Kaur, 2006). Women are deliberately left out in the decision-making process due to their low economic power. Thus, to emancipate women to take a crucial position in society. Therefore, to bring this change, there is a need to improve women's social and economic empowerment. However, these women's deprivation takes place in many

places worldwide, and Nigerian women are no exception. Thus, women need empowerment at all levels to be self-reliant and participate fully in the decision-making process (Mustapha et al. 2018).

Another major problem that hinders the success of women entrepreneurs in agribusiness is access to the market facility, marketing information, and network. Thus reduce the volume of their sales and the overall turnover of the business. Access to marketing facility and markets is influenced by some critical factors like expert experience, conception, and acquaintance. Products and services produced by pastoral women under micro, small, and medium enterprise (SMEs) needs to be marketed (Ahammad and Moudud-Ul- Huq, 2013). The pastoral women do not have cooling and preservation facilities, thereby limiting the shelf life of milk. Ineffective boiling (direct heating) had resulted in about 20-30% losses in milk volume. Commercial dairies do not purchase such milk being pasteurized by the pastoral women because of impurities, lousy flavour, and low quality.

2.3 Milk production and dairy industry

Milk and milk products serve as a source of highly nutritious food for people in northern Nigeria and the country in general. Milk is consumed either fresh, boiled, or curdled. The pastoral women in most areas sell milk the cooked millet balls (Fura da Nono) in Hausa. The milk per cow derived is between 0.7 – 1.5 liters depending on management practices, feed, and quality of feed fed to the dairy cows. Lack of good hygienic practices and milking technologies and good preservation and processing practices had lowered the potentials of the pastoral milk. Lack of clean milking utensils, poor logistical problems like collected pastoral milk in the grazing reserves had left a large volume of milk in the hands of the



pastoralist. So that cannot enter the formal channel.

The Food Agricultural Organization (FAO) in 2015 forecast, a growth of 2% in milk production all over the world and is expected to reach 805 million tons. Asia is expected to remain the main center of rising international demand in milk while other principal importers of milk that had the potential to grow to include Nigeria, Algeria, and Egypt. In Sub-Saharan Africa, milk production contributes about 16 percent of the total value of all food products from livestock which is estimated at over 18.3 million, from 1986 production of about 0.57 million metric tons annually (FAO, 2015).

The dairy industry in Nigeria evolved before independence in 1960 and was greatly influenced by the colonial master's experience and that influenced milk production with reliance on large government farms. After independence, government strategy was to encourage dairy processing plants to evolve milk processing plant-like in Vom Plateau state that was established to produce butter and cheese (Walker 1981 and Yahuza 2001). Later many processing plants were established throughout the country.

The pastoral communities provide the bedrock of local milk supply to the Nigerian nation as the over 70 processing plants established (more than 40% operating below installed capacity) rely on powdered milk production and are bedeviled by many problems:-

- i. Local production (0.57 million annual productions) cannot satisfy the demand of over 1.4 million metric tonnes of Nigeria's annual demand (Federal Ministry of Agriculture and Rural Development (FMARD, 2016).

- ii. The Herd size in Nigeria is about 20 million, of which only 2.3 million are used for milk production (Ayok, 2016).

- iii. The pastoral cows are characterized by low milk yields with an average yield of 0.8 liters/cow/day over the last decades (Ayok, 2016).

- iv. Poor milk Hygiene and handling.

- v. Poor processing methods.

However, global average milk production for pastoralist is about 30 liters/cow/day.

Nell (1991) was of the view that potentials for commercialization of milk production depend in no small extent in the production system. The potential increase in milk output from pastoralists and agro-pastoralists production system is limited and depend on costs of milk collection, quality of milk, transportation, and processing; this had proved inefficient. The objective is to study technologies such as milking procedure, hygiene, processing methods among the pastoralist, in the grazing reserves.

3. Methodology

The study area was grazing reserves in Kano, Kaduna, Jagawa, Sokoto, Abuja, and Niger states. Two grazing reserves were selected in each state, making a total of twelve grazing reserves because of their large volume of dairy production activities. Forty pastoralists were randomly selected from each grazing reserve making a total of four hundred and eighty pastoralists (women), as major actors in the processing process while 12 key informant interview was conducted for men and youth in the grazing reserve (actors in milking process).

3.1 Materials and Methods

3.2 The Study Area

The study was carried out in Northwestern Nigeria comprising of Kebbi, Sokoto,



Zamfara, Katsina, Kano, Kaduna, and Jigawa states.

3.3 Survey and Survey Instruments

Two grazing reserves and two pastoral communities in the states with respondents, both male & female, were selected, Making a total of 375 respondents using a proportionate percentage of a male-female adult and youth (male and female) respectively. A structured questionnaire was used for the survey to identify and collect data on:

- Socioeconomic characteristics of respondents, (Age, Educational level, Gender, Marital status, work experience)
- The type of technologies that pastoralist are aware of
- The type of technologies that are currently in use
- Identify problems of production, processing, marketing
- While the qualitative data through KII was done with twelve respondents.

3.4 Data Analysis

The total population of the entire women in the study area is 13,201. The study used Krejcie and Morgan (1970) to determine the sample size. While there was no exact 13,201 on the table, the next available number is 15,000, with 375 as the sample size. The sample was distributed proportionately according to the number of participating women in each grazing reserve.

3.4.1 Quantitative Data Collection

Table 1. Qualitative Data

States	Grazing Reserve/Grazing Area with population and sample size	Number of respondents

	Falgore (Doguwa LGA) 1012 (29)	
	Tsanyawa (Tsanyawa LGA)	
Kano	715 (20)	49
	Damau 1006 (28)	
Kaduna	Kachia (Kachia LGA) 2112 (60)	88
	Tulun Gwanki (Silame LGA) 760 (22)	
	Tsauna (Illela LGA)	
Sokoto	880 (25)	47
	Garbagal (Guri LGA) 820 (23)	
Jigawa	Danfisa (Babura LGA) 960 (27)	50
	Paikon kore (GwagwaladaAC) 1220 (35)	
Abuja	Bwari (BwariAC) 1010 (29)	64
	Bobi(Mariga/Masheo LGA) 2100 (60)	
Niger	Iri (Rijau LGA) 606 (17)	77
	Total 13,201 (375)	375

Source: Authors, (2019)

Key Informant Interview – Reserve Leader:
12 Respondents

QT 375 n = 387
QL 12
387

4. Results and Discussion

4.1 Results of Quantitative Data Analysis

The socioeconomic characteristic in the study areas showed that the mean age of respondents was 67 years. Thus, it implies that the active age (20-30 years) were the majority of actors in the dairy production,



processing, and marketing activities. The educational attainment in the grazing reserves was both Islamic schools (non-formal) and formal (primary-university level). Attainment with Kachia grazing reserve having women pastoralist educated up to university level. Years of experience in milk handling and processing range between five years to forty-five years among the pastoral women. About fifty percent (240) of pastoral women practice direct heating of milk when processing, while sixteen percent (80) practiced indirect heating while thirty-three percent (160) do not pasteurized milk. Pastoral women in grazing reserves in Sokoto and Jigawa state do not pasteurize their milk in the four grazing reserves. In Sokoto, it was discovered that lack of pasteurization was due to the belief that heating lowers the volume of cream being separated from milk. It was also noted that these reserves in the two states are neighbours to Niger republic.

The other pastoral women who practiced milk pasteurization may be attributed to various interventions the pastoral women received from nongovernmental organizations, development partners, and commercial milk processors. On awareness of other milk production technologies that ensure good quality milk, good milk hygienic routine (cleaning, fore stripping checking for mastitis), eighty-seven percent of pastoralists (420) are not aware of technologies that can lead to better quality milk while. Twenty-three percent (60) are aware and conducts such practices, and pastoralist in Kaduna and Kano states are aware and practice milking protocol which was attributed to sources of transferring technology, which other reserves were not exposed to, personal hygiene, pleasant milking environment on cooling of milk pre pasteurization and gradual cooling during

pasteurization, eighty seven percent of pastoral women are not aware that these technologies contribute to quality of milk while twenty-three percent are aware and had adopted the practice.

4.2 Results of Qualitative Data Analysis.

4.2.1 Method used for analyzing the qualitative data (Key Informant Interview, KII)

The researchers used coding method from the information derived from the respondents during the KII interview. Thematic analysis was used as one of the best way to gather data and analyze it using coding technique which the research developed for easy syntheses of the responses. The use of thematic analysis assumed that the messages recorded (texts) are the data. The researchers developed codes during a close examination of the texts as salient themes that emerged inductively from the recorded texts. The codes mostly consist of short phrases or words that symbolically assign in the form of "essence-capturing, and evocative attribute" (Saldaña, 2016). Thus, they are viewed as interactively and modified throughout the researcher's coding process (Brough, 2019).

Key Informant Interview – In Kano, Falgure grazing reserve members of the pastoral community nominated the secretary of fuldan to speak on their behalf. The secretary was of the view that:

“Milk production in the reserves and neighboring communities have been receiving technologies such as good milk hygienic practice, milking in a pleasant environment clean milking utensils and personal milker hygiene as key ingredients to good quality milk”. Over the years (last 10 years) through the commercial agricultural initiatives 66 pastoral communities were encouraged to form



cooperatives and had received capacity building training, milk churners and these had impacted on the milk processing and marketing in the area. In Kachia Kaduna state the chairman Miyetti Allah cattle breeders association stated that:

“Since the period of second livestock development project (a world bank assisted livestock development project), the state ADP and other N.G.Os development partners had greatly supported the dairy industry through introduction of technologies, capacity building, provision of infrastructure the reserve has the most functional dairy cooperative federation in the country and milk collection points established that help the pastoral women and children to go to formal schools and acquire education. That is why our women and girls level have Degrees, Diplomas, and other levels of educational attainments.”

In Damau grazing reserve the sarkin Fulani remarked that:

Damau grazing reserve is fortunate to have a series of interventions from NLPD in feed supply to livestock with various species of grasses and legumes developed. Currently, the napier grass is being promoted in reserve; however, insurgency rustling and kidnappings had led to settlers moving out of the grazing reserve. A milk collection center was established; however, lack of good roads had made companies collecting milk to abandon the route. During the rainy season, a large volume of milk is produced, but not collected. Members had benefitted from various production technologies targeted towards improved milk production.”

In Tsauna grazing reserve, during the survey and milk capacity building training, the pastoralist community were suspicious of the team because of the challenges facing the grazing reserve, and appropriate

extension approach had to be developed and confidence-building measures deployed for the pastoralist to respond to questions. The Sarkin Fulani remarked that:

“In the reserve, women are involved in milk marketing, while the men and youth conduct the milking process. No any form of pasteurization is conducted because of concern for cream production and local “chukwi” production. Most areas border to the Niger Republic do not pasteurize milk. This practice is viewed as a precursor to less cream production.”

However, it was demonstrated to the pastoral women that pasteurization not only ensures more cream production but better quality milk. In Tulun Gwanki grazing reserve “pastoralist do not pasteurize milk,” as remarked by the Sarkin Fulani.

In Jigawa State, the Sarkin Fulani of Garbagal grazing reserve said:

“Here in the grazing reserve, through the intervention from the state, herdsmen and farmers board received capacity building training in conflict resolution and feed production with water infrastructures complementing our livestock production.

In Abuja grazing reserves (Paikon kore & Bwari), pastoralist were advised to form milk cooperatives with enormous potentials for marketing dairy products. “However, challenges of land, encroachment, and cooperation among them could not allow this effort to succeed. While some pastoralist women pasteurize their milk, others do not, depending on their origin before they settled in the grazing reserve.” Members moved from various place to settle in the reserves. In Bobi grazing reserve, the Sarkin Fulani remarked that “in this pastoral community, some pasteurize their milk while others do not, because cream separation is a big priority.”



From the interview conducted in the selected grazing reserves, it was concluded that about 40% of the pastoral women do not pasteurize their milk because of cream separation; also there was a transfer of various milk production technologies in the reserves, these technologies include:

- i. Good hygienic practices for milking, environment and utensils.
- ii. Adequate protein supplementation before milking for better milk letdown.
- iii. Pasteurization of milk for better quality milk and milk products.

5. Conclusion

Encouraging women entrepreneurs in agribusiness (pastoral women) will improve milk production through the adoption of the right technologies and access to markets. Less quality feed especially green forages had severely affected the maximum benefit of milk from the indigenous pastoral cattle while milking process, pasteurization, and other practices had further worsened the capability of good milk supply by the pastoral cattle. Some of the practices desired to change the dairy sector may not be available or had not been adequately disseminated an adopted which would have helped in enhancing the milk production potentials of the indigenous cattle, massive demand for milk and milk products will continue to exert a pressure of demand for fresh milk in the country.

5.1 Recommendations

1. There is a need for adequate extension of milk production technologies among pastoral women that will help them raise the quality of milk.
2. Large clusters of milking herds/family of pastoralist need to be encouraged to form milk production cooperatives

so that it will enable extensive volume collection and marketing of milk.

3. There is the need for the need pastoral women to continue using the technology the indirect method of milk pasteurization.
4. There is the need for capacity building among pastoral women along dairy the production value chain

6. Theoretical and Practical Implications of the Study

The study has theoretical and practical significance in revealing the position of pastoral women entrepreneurs, the capacity, mode of operation, and turn over. Thus, it is essential as it has both economic and political implications for both participants, policymakers, and other stakeholders in the field. Moreover, the study provides a platform to assist academics, researchers, and scholars in developing future stances in this and similar research fields. The study's most significant theoretical contribution is that it provides evidence of mixed-method analysis with a significant outcome that either method (qualitative and quantitative) could provide alone. That is quite useful, particularly when dealing with people in rural areas with a poor Western education background. With the recent development evolving in the country, however, the study of this nature will assist the government in its efforts to provide permanent settlements for Fulani herders, provide them with empowerment through the proposed "RUGA" programme. The idea of providing requirements for a hygienic milk processing venture for pastoral women has become an important research issue for both researchers and practitioners. Therefore, this study has shed light, both theoretically and practically, on evolving milk processing business by women entrepreneurs in the Nigerian



grazing reserve for improvement and sustainability.

6.1 Limitations and Suggestion for Further Research

The study area was limited to five states and Abuja, the federal capital territory, there are other areas whose inclusion will add value and make more comprehensive coverage for the study of this nature. Security challenges in the country, particularly the dimension of farmers and herders clashes, had limited the scope of this study. Plateau, Nassarawa and Benue states could have provided additional insight about the condition of pastoral women entrepreneurs in the area. The sample was quite acceptable, but more participants in the future will provide more accurate and reliable results in the study area. The study suggests the incorporation of male youth in the area to understand their flight as well as provide them with necessary support and attention to reduce the tension created by persistent insecurity in the region.

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