Feed the Future Innovation Lab for Food Security Policy

Policy Research Brief 90 April 2019

Nigeria Agricultural Policy Project

Demographic Factors and Nigeria's Dairy Production for the Year 2015

Onyinye Prince Choko

Introduction

Nigeria is primarily an agrarian country with over half of its population involved in one or several forms of agriculture. Apparent amongst the forms of agriculture practiced in the country is pastoral farming. This form of agriculture is the protein base of the nation, providing not just meat but also milk, which contains essential nutrients for bodybuilding and development. Milk products are highly consumed by Nigerians, either in isolation or combination with other foodstuffs. Previous literature shows that milk consumption in Nigeria has increased over the years (Bénard *et al.*, 2010; Burgess, 2014). A major factor influencing the demand is the constant increase in Nigeria's population and their exposure to western education (Akinsoye, 2006). Unfortunately, demand is not met by local production. Hence, there is substantial importation of milk into the country (Olusoji *et al.,* 2014; FAO, 2016). On this note, the national Agriculture Promotion Policy seeks to ensure that this product is readily available and affordable for Nigerians. Understanding the nation's production capacity is critical. Nigerian producers need to know how to respond to this market opportunity and policy makers need to know how to make them successful.

Previous studies targeted specifically on milk production in Nigeria are outdated (Malau-Aduli & Anlade, 2002; Modupe & Babayemi, 2007); recent studies have been generalized (FAO, 2016), or specifically focused on a few states' and selected regions' production and consumption patterns (Alphonsus *et al.,* 2011; Mustapha *et al.,* 2016). Therefore, this study documents Nigerian 2015 milk production by geopolitical zone, and reveals factors that determined 2015 output.

Study Area

Nigeria, in West Africa, shares borders with Cameroon to the east, Chad and Niger to the North and Benin to the west. The southern boundary is the shores of the Atlantic Ocean. Its total land area is about 910,000sqkm (USAID, 2010), with varying vegetation types ranging from dense forest in the south to savannah in the north. There are two major rivers (Niger and Benue) traversing the country, while minor ones are mainly found in the south. The climate record of Nigeria shows a mean annual temperature of 29ºC, precipitation of between 20 to 80 inches and rainfall ranges of 2,400 to 4,000mm. Two seasons are prominent in the country: the rainy season (lasting up to eight months) and the dry season (four months). The country has about 180,000,000 individuals and a density of about 209/sqkm (World Bank Group, 2015). These features support agriculture in the country; hence most of its populace is engaged in agriculture. Crop production and animal husbandry are dominant in the north and western parts of the nation, while aquaculture is mainly associated with the south.

Key Findings

- Production is limited to 4 zones of the country
- The North Central zone is the leading producer followed by the South West, North West and North East respectively.
- The enterprise is dominated by men
- Most producers are uneducated
- The industry is located predominately in rural areas
- Average production is low

Materials and Methods

Data for this study was extracted from the World Bank living standards measurement study on Nigeria's milk production for the year 2015 (World Bank, 2015) . The data was decoded and filtered in order to obtain the desired sample population. Data analysis was done with R software (v 3.5.2) using descriptive statistics tools in the form of mean, percentages and frequencies. Results are presented in the form of charts.

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Result and discussion

The result revealed a total of 175 milk producers in Nigeria, located mainly in the North Central (30%), North East (36%), North West (31%) and South Western (3%) zones of the nation (Fig 1). Ninety nine percent of the producers were males and 1% were female. The predominance of

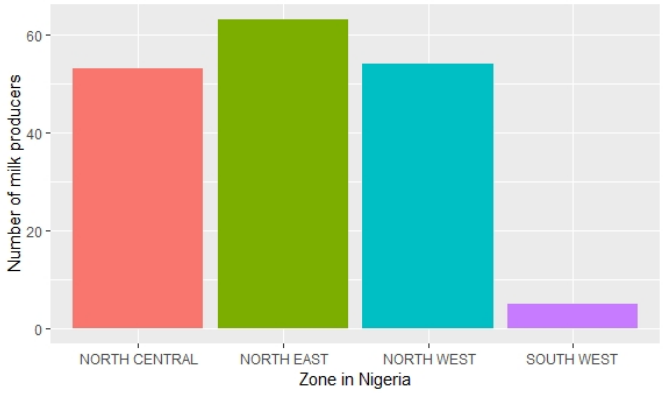

Figure 1 Milk producers' distribution by zones in Nigeria

males in the industry could easily be attributed to the tedious nature of the job as it has to do with managing herds, thus discouraging women from participating; but in contrast to this, women have been reported to dominate the dairy business in a western state in Nigeria (Nigerian dairy development programme (NDDP), 2017). Therefore a more detailed study on gender contribution to the country's dairy value chain would be a welcomed development. The average age of milk producers by zone ranged from 31 to 50 years (Fig 2), 99% were married (Fig 3) with average range household size range of 4 to 7 (Fig 4), and a mean household asset value range of ₦22 000 to ₦58 000 (Fig 5).

Figure 2: Average age of producers in the study area

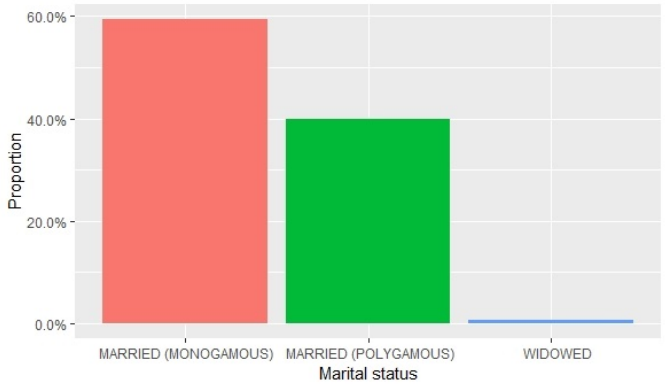

Figure 3: Marital status of milk producers

In summary, the dairy enterprise is dominated by adults in their active age, hence the ability to move around to source inputs that would benefit the enterprise. More so, based on their marital status, one can easily deduce that the enterprise is for highly resourceful persons, those who could take up the rigors/challenges for the success of the industry. The result further revealed that 57% of the producers had not received formal education and 37% of them had (Fig 6). This value indicates a low literacy level among milk producers in the country and consequently an impediment to the sustainability of the enterprise because it requires some form of record keeping and market analysis to run smoothly.

Figure 4: Average household size of producers

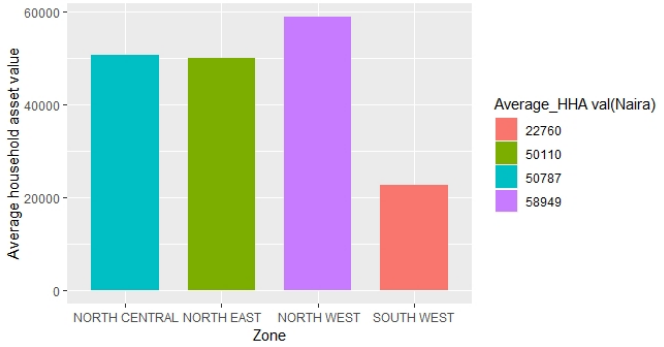

Figure 5: Average household asset value by zone

The industry was mainly situated in the rural areas of the nation, with an average temperature of 26 ºC (Fig 7), and a relative distance of 67 to 160km from the administrative capital, the Northwest being the closest (Fig 8), and 60 to 129km from any closest market (Fig 9). This is in accordance with the findings of other studies (FAO, 2016). This distance implies that educational services, resources and modernized inputs needed to boost production may be

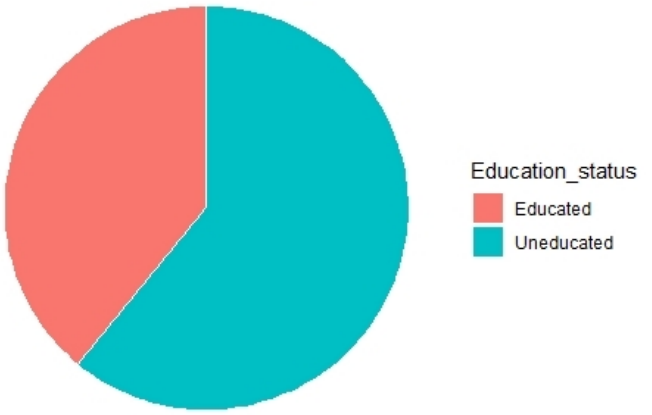

Figure 6: Education status of milk producers

challenging to establish. More so the temperature values recorded in this study could reduce the productivity of dairy cattle, consequently milk production (Zejdová *et al.*, 2014).

Furthermore, the average output of milk (by producer) in the country (Fig 10) was 834.8L (138 Litre for the North east, 529 Litres for the North West, 730 Litres for the South West and 1942 Litres for the North central). Similarly, the average sales (by producer) for 2015 (Fig 11) was 540L (±403); while regionally, the highest was recorded in the North central (1065L), followed by the South west (730L: production recorded for just one state in the zone), then the North west (463L) and the North east (84L). This indicates a very low level of output in relation to the population and demand. This creates the opportunity for importation but also affords a market opportunity for producers.

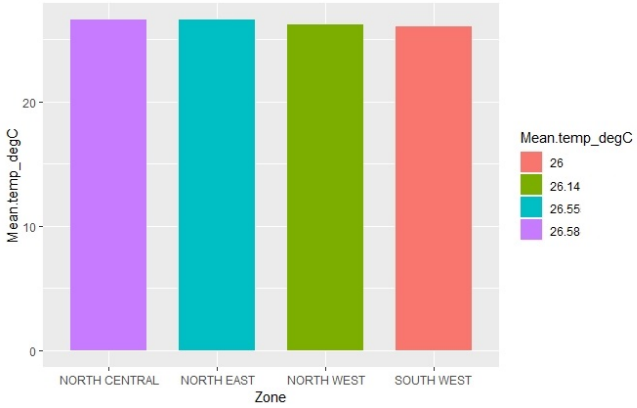

Figure 7: Average temperature of the facilities in the zones

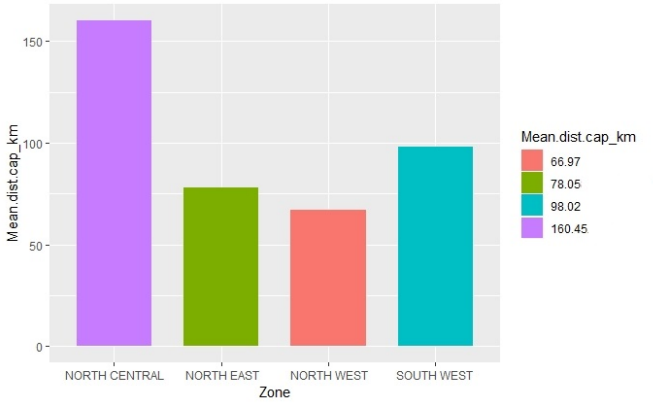

Figure 8: Average distance to administrative capital

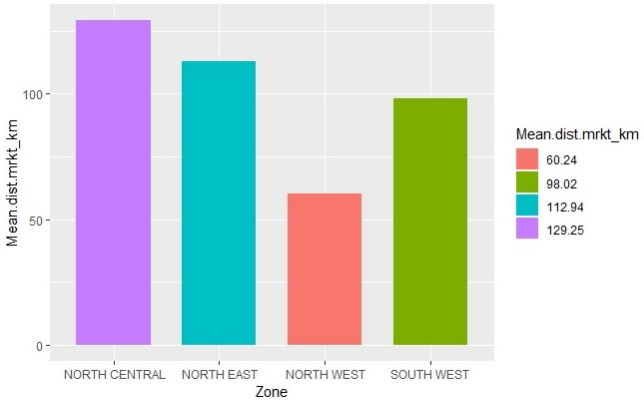

Figure 9: Average distance to nearest market

Finally, the result of the association between the output of milk and household size was significant ($p<0.05$) and negative ($r=-20$). This implies that an increase in the house hold size of the producers resulted in a 20% decline in the output of milk for the year under investigation (Fig 12). Therefore an understanding of the optimum household size which would improve the output of dairy production in the country is critical, as this serves as the manpower for the smooth running of the enterprise (Ducrotoy *et al.*, 2017).

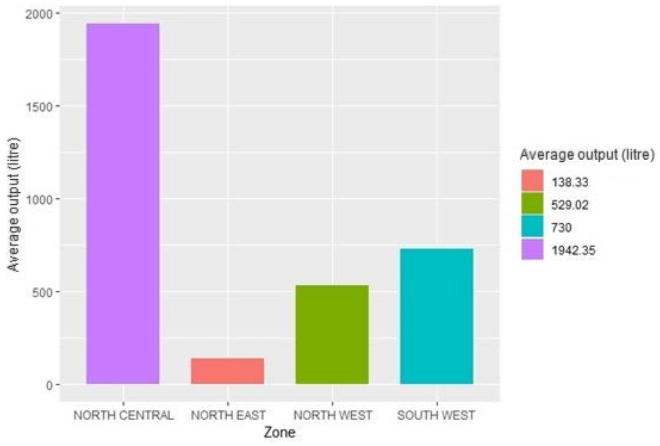

Figure 10: Average milk output

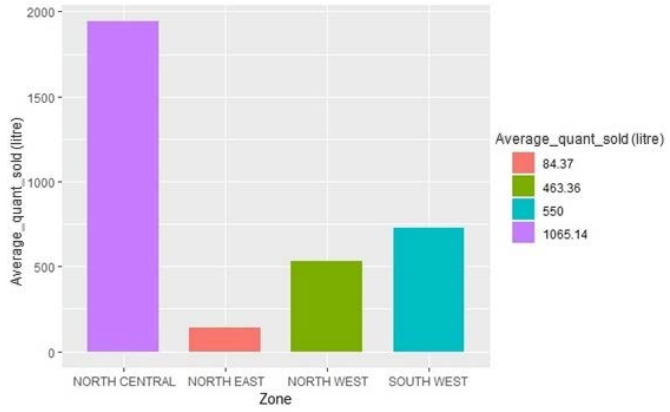

Figure 11: Average quantity sold

Conclusion

The study has shown the production of milk in Nigeria, the distribution and demographic characteristics of producers in the area for the year 2015. Hence this document provides an understanding of milk production in Nigeria and serves as a set of metrics for monitoring and improving on the country's dairy production in subsequent years.

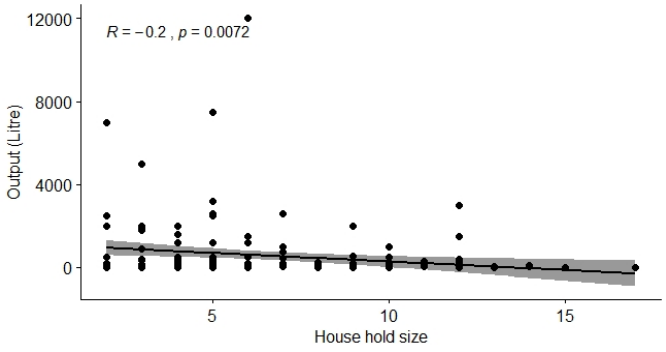

Figure 12: Association between milk output and household size

Policy Recommendations

Based on the result, the following are hereby recommended:

a) Production should commence in other zones and states of the country and these facilities should also be suited close to the administrative capital
b) Marketing facilities should be made available and accessible to the producers
c) Improved facilities where the temperature can be regulated should be made available and subsidized for the producers

d) Producers should be given basic education and trained accordingly
e) Women should be trained and encouraged to engage in the enterprise.

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About the Author

Onyinye Prince Choko is an MS student in the Department of Forestry and Wildlife Management at the University of Port Harcourt, Port Harcourt, Nigeria. This policy brief was written by Mr. Choko at Michigan State University as part of his activities as a Project Scholar of the Feed the Future Nigeria Agricultural Policy Project.

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