Nig. J. Anim. Prod. 2021, 48(2): 200 - 209.doi.org/10.51791/njap.v48i2.2930 *Nigerian Journal of Animal Production*

Assessment of the challenges of nomadic farming activities in Daura agricultural zone of Katsina State, Nigeria

[1]*Aruwayo, A., [2]Adeola S. S. and [3]Ibrahim, U.

[1]*Department of Animal Science, Faculty of Agriculture and Agricultural Technology, Federal University Dutsin-Ma, P.M.B 5001, Post Code 821221, Dutsin-Ma, Katsina State, Nigeria*

[2]*Department of Agricultural Economics, Faculty of Agriculture and Agricultural Technology, Federal University Dutsin-Ma, P.M.B 5001, Post Code 821221, Dutsin-Ma, Katsina State, Nigeria*

[3]*Veterinary Unit, Agricultural Department, Daura Local Government Area*

***Corresponding author:** aruwayoadebayo@gmail.com

Abstract

Nomads have been credited to be the producers the chunk of the ruminants in Nigeria yet have been greatly marginalized. This study assessed the challenges of nomadic activities in selected four Local Government Areas (LGA) comprising of Daura, Sandamu, Dutsi and Mai'adua in Daura Agricultural Zone of Katsina State, Nigeria. A Multi-stage sampling procedure was employed in the selection of 60 nomads in the study area. Using a well-structured questionnaire, information was gathered from the selected respondents with the help of trained enumerators. The information collected include socio-economic characteristics of the farmers, types of animals kept by them as well as the challenges they faced in the process of carrying out nomadic activities. The information obtained from them was analyzed using descriptive statistics. The study revealed that the major age group is 61-70 years and about 37% of the respondents have no form of formal education. Most of the nomads keep more cattle (63% having more than 200 heads) and less of camel and goats (77% and 88% having less than 50 camels and goats respectively). The major challenges they face are disease and pest attack (90%), insecurity (60%), and inadequate water (83%). A request for accessible veterinary services, adequate security, and a model school designed to meet the peculiarity of the nomads was made. The study concludes that establishment of ranches will improve output and better living standards among the nomads. The study recommends from the response in the research that training in modern animal rearing systems and ranching should be vigorously pursued.

Keywords: Forage, livestock, nomad, ruminants

Une Évaluation des défis des activités agricoles nomades dans la zone agricole de Daura dans l'État de Katsina, Nigéria

Résumé

Les nomades ont été crédités d'être les producteurs de la part des ruminants au Nigeria, mais ils ont été fortement marginalisés. Cette étude a évalué les défis des activités nomades dans quatre zones de gouvernement local (LGA) sélectionnées comprenant Daura, Sandamu, Dutsi et Mai'adua dans la zone agricole de Daura dans l'État de Katsina, au Nigéria. Une procédure d'échantillonnage en plusieurs étapes a été utilisée dans la sélection de 60 nomades dans la zone d'étude. À l'aide d'un questionnaire bien structuré, l'information a été recueillie auprès des répondants sélectionnés à l'aide de recensements formés. Les

informations recueillies comprennent les caractéristiques socio-économiques des agriculteurs, les types d'animaux qu'ils ont gardés ainsi que les défis auxquels ils ont été confrontés dans le processus de réalisation d'activités nomades. Les informations obtenues à partir d'eux ont été analysées à l'aide de statistiques descriptives. L'étude a révélé que le groupe d'âge principal est âgé de 61 à 70 ans et qu'environ 37 % des répondants n'ont aucune forme d'éducation formelle. La plupart des nomades gardent plus de bovins (63 % ont plus de 200 têtes) et moins de chameaux et de chèvres (77 % et 88 % ont moins de 50 chameaux et chèvres respectivement). Les principaux défis auxquels ils sont confrontés sont les attaques de maladies et de ravageurs (90 %), l'insécurité (60 %) et l'insuffisance de l'eau (83 %). Une demande de services vétérinaires accessibles, une sécurité adéquate et une école modèle conçue pour répondre à la particularité des nomades ont été faites. L'étude conclut que l'établissement de ranchs améliorera la production et l'amélioration du niveau de vie des nomades. L'étude recommande, d'après la réponse de la recherche, que la formation aux systèmes modernes d'élevage soit vigoureusement poursuivie.

Mots-clés: fourrage, bétail, Nomade, ruminants

Introduction

Nomads depend on livestock as the major source of food and income but also contribute to national development of the host countries. The Oxford English Dictionary (11th edition) defines the terms “nomad”, “nomadic” and “nomadism” as relating to people who travel from place to place to find fresh pasture for their animals and have no permanent home. Nomads are exclusive livestock producers, who grow no crops and depend solely on the sale or exchange of animals and their products to obtain foodstuffs. Their movements are opportunistic and follow pasture and water resources in a pattern that varies from year to year. This type of nomadism almost directly reflects the availability of forage resources; the patchier these are, the more likely an individual herder is to move in an irregular pattern (Blench, 2001). They usually occupy drylands. Nomads move from place to place in search of water and pasture for their animals. The mobility of these communities means that education of their children faces a great risk as their children have to be rearing animals during the time they are meant to be in school. On the African continent, its documented that pastured areas occupy 40% of Africa landmass amounting to the 50% of total value of market production and subsistence production provided by every pastoral household (African Union, 2010). It was documented that about 200 million pastoralists in the whole world listing 180 million nomads living in developing countries of Africa, and Central/South America; 19.5million nomads in China and 15.7 million nomads in Pakistan (USAID, 2016). Recent estimates indicate that Nigeria's national herd comprises 18.4 million cattle, 43.4 million sheep, 76 million goats and 180 million (FMARD, 2017). The nomads produce the chunk of the ruminants in Nigeria. FAO (2019) reported that the majority of animals are raised in extensive production systems comprising smallholders and nomadic herders.

However, despite this significant large number of nomads involved in ruminant production, their productivity has dropped over time. FAO (2019) reported that the contributions of the pastoral sector to total milk production has significantly decreased although pastoralism remains the largest production system in terms of cattle population (66 percent). These could be attributed to myriads of challenges that

confronts them. Nomads are among the globally marginalized group of people in the world often without basic services such as health care and education (van der Kwaak and Maro, 2012). Global nomads population remain among the most underserved by education, healthcare, social amenities, or socialization (UNESCO, 2015). Various researchers also reported pastured groups historical marginalization (Sifuna, 2005; Kaung, 2005; Dyer, 2010). However, there are no satisfactory reasons why social activities for nomads are underestimated. While the country still struggles to provide social services to all citizens, nomad communities especially those of northwest region are rarely included in the social services decisions and planning. Mohamoud (1993) reported that nomads are certainly awkward customers for the services and structures of the modern infrastructural system. They are seen as dispersed and somehow aimless, obstinate and an inferior sort of person. The author also reported that it is very difficult to provide them with classes or clinics, or take any of the advantages of social services. This outlook seems to be in line with 'blaming the victim'. Nomads are always blamed for causing their own problems. Retention in pastoral activities is a major challenge, the sporadic drought aggravates this problem as pastoralists must move for distance in search of water and pasture for their animals whenever they make, health personal, school teachers are lost behind without performing. Nigeria government has not made sound efforts to address high levels in their social services at all. Unlike people from non-pastoral communities in the country, pastoral children maintain limited chances to develop and maintain literacy skills, restricting their future opportunities.

More so, they cannot leave their children behind when they migrate to other areas for pastures and water where they stay for long period of time, roughly six months or more before they return to their original land. Nomads have difficulty accessing natural resources such as land and water. This restricts their mobility, which is crucial for these types of work. Also, various services such as education (for the nomads) and healthcare (for the nomads and their livestock) are difficult to reach. Security of lives, destruction of property, crops, farmlands and effect on food security. All these contribute to the re-occurring challenges existing between the farmers and herders. Cattle belonging to the nomads in some instances enter into farmlands and destroy the crops that are planted. As a result, many farmers lost part or whole of their crops which means reduced yield and low income on part of the farmers (Ofuoku, 2009). The next move is the farmers clashing with herdsmen resulting to further destruction of lives and properties. Also when conflicts occur, during the farming season, some farmers will not go to farm due to the fear of being attacked. This means low agricultural productivity in the following harvest season (Okoli, 2014). Furthermore, it's difficult for pastoralists to find access to the market, which is the only way to sell their products, such as meat and milk. The above outlined problems have significantly reduced the productive capacity of the nomads with untold effect on the supply of livestock products such as meat and milk. This study then focused on assessing the challenges of the nomads and proffering possible solutions in Daura Agricultural Zone of Katsina State that has prevalent nomadic activities.

Materials and methods

The study was conducted in the Daura Agricultural Zone of Katsina State, Nigeria. Daura Zone is located in the northern part of Katsina State and on Latitude 13.03639˚N and Longitude 8.31778˚E (Wikipedia,

2020). The zone has twelve Local Government Areas and has a tropical climate with marked period of rainfall and a temperature fluctuates of between 18.5˚C minimum in cool season and 39.5˚C maximum in hot season. The Zone has a relative humidity which ranges from 22 to 52 (Wikipedia, 2020).

Daura Agricultural Zone was purposively chosen from the three (3) Agricultural Zones in Katsina because of the prevalence of nomads there. A Multi-stage sampling method was then used to select the nomads used for this research. In the first stage, four LGA were purposively selected for the prevalence of the nomads. They are Daura, Sandamu, Dutsi and Mai'adua Local Government Areas. In the second stage, two villages were randomly selected from each of the selected LGAs. These are: Gara and Daberan from Daura LGA; Katsayal and Kwasarawa from Sandamu LGA; Danaune and Minawa from Dutsin LGA and Tsabu and Danyashe villages from Maiadua LGA. In the third and final stage, sixty nomads were randomly selected from the selected villages. Fifteen Nomads were selected from each LGA (nine from the bigger village and six from the smaller one). Structured questionnaires were used to elicit information from the nomads. The information collected include socio-economic characteristics of the farmers, types of animals kept by them as well as the challenges they faced in the process of carrying out nomadic activities. The information collected was analyzed using descriptive statistics with the aid of SPSS/IBM version 20.

Results and discussion

Socio-economic characteristics

According to the result presented in Table 1, most of the nomads (48%) interviewed are fairly old (between the ages of 61 and 70 years). The group following this category (51-60years) constitutes about 22%. By implication, about 70% of the respondents are between the ages of 50 and 70 years. This shows that most of the farmers are experienced nomads with more accurate information for the study. It is also a common practice among the nomads that they live as extended families which might have been responsible for the old ages of the respondents. However, this is at variant with the findings of Kannabiran *et al*. (2017) who reported just 2.2% of pastoralists above 60 years of age. This might be due to the level of development attained in the region. Also, Yusuf *et al.* (2018) reported that majority (51%) of small ruminant keepers were within the age range of 18- 30 years in the Semi-Arid Urban areas of Northern Nigeria. All of them are males and married similar to the report of Yusuf *et al.* (2018) that majority of the players in ruminant animal productions were males. Showing that they are men of responsibilities and may not have been careless with their trade. About 80% of the respondents have household sizes of between 1 and 10 people while those with household members of between 11 and 20 people constitute about 14% of the respondents. Just about 3% of the respondents have very large families of between 31 and 40 people. About 63% of the respondents have Qur'anic education while the remaining 37% do not have any form of formal education. This may imply that the respondents may not have touch with the modern way of rearing animals except those that might have diffused from other farmers around them. Kannabiran *et al.* (2017) reported a good level of education among similar categories of farmers. The reported not less than 20% level of child education and about 39% of the farmers undergoing formal education. The findings also show that all the nomads have other things they also do for living apart from nomadism. About 80% of the respondents are into crop farming while only 3% engage

in civil service jobs and trading respectively. Also, the nomads have wealth of experiences in their trade as shown by the findings of the study. More than 50% of the respondents have between 41 to 50 years' experience in nomadic farming. While another 32% had between 31 and 40 years of experience in nomadism. This shows that more than 80% of the respondents have not less than 30 years' experience in nomadic farming.

Table 1: Socio-economic characteristics of the nomadic farmers

Variables	Frequency	Percentage
Age		
20-30	1	02
31-40	3	5
41-50	6	10
51-60	13	22
61-70	29	48
71-80	7	11
81-90	1	02
Gender		
Male	60	100
Female	0	0
Marital Status		
Married	60	100
Single	0	0
Household Size		
1-10	48	80
11-20	08	14
21-30	02	03
31-40	02	03
Level of Education		
No Form of Education	22	63
Qur'anic Education	38	37
Other Occupation		
Crop Farming	48	80
Trading	04	07
Artisans	8	13
Years of Experience		
1-10	0	0
11-20	02	03
21-30	04	07
31-40	17	32
41-50	31	52
51-60	02	03
61-70	02	03

Institutional variables of the respondents

According to Table 2, about 39% of the respondents belong to cooperative societies with about 54% of those who joined the cooperatives having spent between 16 and 20 years in the groups. Another 36% have joined the cooperatives for a period ranging from11 to 15 years. About 90% of the respondents do not have access to extension services. About 97% of the respondents also have access to the market which is very important in getting good price for their products. Majority (68%) of the farmers have between 16 and 20 km from their

places of abodes to the nearest major livestock market while 19% have between 21 and 25km.

Most of the nomads (97%) have no veterinary services available to them and none of the respondents have ever had any access to any form of training in livestock production and management. This will definitely have had a negative effect on the quality of output of animals and animal products. About 95% move constantly from their places of abode in search of feed for their animals and about 83% noted that the method affects the productivity of the animals in a negative way. The negative effect might be due to burning off of energy consumed instead of converting it to meat.

Table 2: Institutional variables of the respondents

Variables	Frequency	Percentage
Membership of Cooperative		
Members	39	65
Non-Members	21	35
Years of membership		
1-5	04	10
6-10	00	00
11-15	14	36
16-20	21	54
Access to Extension Service		
Have no Access	54	90
Have Access	06	10
Access to Market		
Have no Access	02	03
Have Access	58	97
Distance to closest Livestock Market		
1-5	02	03
6-10	00	00
11-15	00	00
16-20	41	68
21-25	11	19
26-30	02	03
31-35	04	07
Availability to Veterinary Services		
Have Access	02	03
Have No Access	58	97
Training in Livestock Management		
Trained	00	00
Not Trained	60	100
Movement of animals out of base		
Yes	57	05
No	03	95
Does constant movement of animals over long distances have negative impact on the productivity of Animals?		
Yes	50	83
No	10	17

Types of animals kept by the nomads

The Table 3 below shows that the nomads keep camel, cattle, sheep, goat and donkey. However, it is shown in the table that most of the nomads keep more of cattle. About 63% of the respondents have more than 200 heads of cattle while 20% of the respondents have between 101 and 150 heads of cattle. Majority of the nomads (35%) keep between 101 and 150 sheep in their flocks while 77% of the respondents keep less than 50 camels at a time. Only 3% of the respondents keep more than 200 camels. All the respondents keep less than 50 donkeys. Very clear from the table also is the fact that the nomads do not keep much goats. Most of them (88%) reported to have less than 50 goats. It is important to know that of these percentage included those that do not keep goat at all. This trend is in line with the report of Lawal and Lawal (2012) that farmers in the north keep more of cattle she and goats. This finding is similar to the report of One major reason given by the respondents for the few number of goats is their flock was that goats are more difficult to control compared with cattle and sheep.

Table 3: Type of animals kept by nomads in the study area

Range	CAMEL		CATTLE		SHEEP		DONKEY		GOAT	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
<50	46	77	2	3	6	10	60	100	53	88
51-100	9	15	4	7	4	7	0	0	3	5
101-150	0	0	12	20	21	35	0	0	3	5
151-200	3	5	4	7	19	31	0	0	1	2
>200	2	3	38	63	10	17	0	0	0	0
Total	60	100	60	100	60	100	60	100	60	100

Challenges encountered during movement of livestock from one place to another

The major challenges facing the nomads are diseases infection, pests infestation, lack of formal education, insecurity and inadequate availability of water for the animals and households as expressed by 90%, 63%, 60% and 50% of the respondents respectively (as in Table 4). The issue of diseases infection and pest infestation may be due to the fact that they do not have access to veterinary services probably due to their constant movement nature thereby having contact with disease pathogens and various pests. Although according Macpherson (1994), periodic movement removes nomads and their animals from environment contaminated with faeces thereby reducing build-up of infectious parasitic stages as eggs or larvae of most nematodes' species must mature in the environment before becoming infective. On the other hand, however, constant movement in the bush areas brings nomadic pastoralists and their herds into contact with parasitic infections (Macpherson, 1994). For the people in the study area, the problem of diseases seems to be prevalent as a result of their constant migration. Insecurity in the north-western region of Nigeria (where the study was carried out) has escalated in recent times with cattle rustling being a frequent occurrence. This is in line with the reports of Mirjam *et al.* (2011) that nomads are increasingly prey to banditry or gangsterism and criminality. They said further that the nomads are victims to bandits roaming in the area making such criminality a major worries of the cattle rearers. This has severely affected the productivity of the nomads due to loss of some or all their animals and in some instances productive family members and wives to this act of banditry. Gadzama *et al.* (2018) reported the impact of insecurity

farming activities, prevents livestock rearing, loss of livelihood/income, and lower standard of living. Inadequate availability of water might be due to the shortness of rain and fast drying nature of rivers in this region. According to Mirjam *et al.* (2011), drought is a resultant effect of both natural and human factors. The natural relates to the inadequacy and shortness of the period of rainfall while the human factors include overgrazing and bushfires among others. Water challenges therefore is not surprising especially with the incidence of global climate change. However, it becomes more challenging because artificial supply of water is not available during periods of severe shortage of water. This portends a debilitating effect on the animals because of the importance of portable drinkable water to livestock production. Educating the nomad may be challenging since they are itinerants. Educating the nomads has a lot of challenges. According to Sa'adu and Sifawa (2020), the challenges among others include poor funding, inadequate learning and teaching facilities; and inadequate qualified teachers. The low-level education of nomads is believed to affect the farmers' productivity since they cannot access policies enacted and cannot benefit from them.

Proposed solution to the challenges

The respondents made the following major suggestions on ways to handle their challenges (Table 5). First is the creation of a Veterinary Clinic and provision of vaccination against common diseases (65%). This is believed to have the ability of reducing their losses to diseases and pests. Also, the nomads suggested that trainings be conducted for them on basic livestock management strategies as well as non-farm skills to help them diversify their sources of income (68%). On the issue of security, the nomads (95%) are depending of the government to make them secure. Surprisingly, 48% of the nomads also requested establishment of ranches to mitigate the seasonal effect of feed shortage. The study also revealed that the nomads demanded for assessment of the existing policies on nomadic education so that it could be made more effective and accessible to the nomads and their family, that the schools should be brought closer to them. This was according to about 32% of the respondents

Table 4: Challenges encountered during movement of livestock from one place to another

Respondents	**Frequency**	***Percent (%)**
Diseases/Pests	54	90%
Insecurity/theft	36	60%
Inadequate formal Education	38	63.3%
Accommodation	06	10%
Inadequate Water	50	83.33%
Feed and Feeding	50	83

*Multiple responses allowed

Table 5: Proposed solution to the challenges

Suggested Solution	Frequencies	Percentages
Creation of Vet clinics	39	65
Training on livestock management	41	68
Better security	57	95
Establishment of Ranches	29	48
Review of Government policies	19	32

? Multiple Responses were allowed

Conclusion and recommendations

The study concludes that the nomads in the study area are well-positioned in their own ends to excel in their profession and their contribution to the sustenance of livestock production is immense. If there could be a supply of basic needs stated by nomads such as basic school that will meet their needs and way of life, access to veterinary services and water supply, the nomads are willing to live in a ranch. Security of their lives and properties is utmost importance and should therefore be given the desired attention. The study therefore recommends that ranches should be established in the Zone where provision of water and grazing field will be strategically made available. This will make the nomads to be stable and that will in turn make them accessible to formal education and better social amenities. This will also make them more productive and help them to contribute more to the national gross domestic product.

References

African Union 2010. Policy framework for pastoralism in Africa: Securing, Protecting and improving the lives, livelihood and rights of pastoralist Communities. Department of Rural Economy and Agriculture.

Bashar, S. and Sifawa, A. 2020. Redressing the Management Challenges of Nomadic Education Institutions for Optimum National Security in Nigeria. https://www.researchgate.net/publication/340982508_Redressing_the_Management_Challenges_of_Nomadic_Education_Institutions_for_Optimum_National_Security_in_Nigeria

Blench, R. 2001. Pastoralism in the New Millennium. Food and Agriculture Organization Animal Production and Health Paper. FAO Publication: Rome. Available at: http://www.fao.org/ docrep/005/y2647e/y2647e00.htm#toc. Accessed on 12 July 2016.

Dyer, G. 2010. Climate Wars. The Fight for Survival as the World Overheats. New York: Oneworld Publications.

FAO. (2019). Africa Sustainable development 2050: NIGERIA The future of livestock in Opportunities and challenges in the face of uncertainty. http://www.fao.org/3/ca5464en/CA5464EN.pdf

FMARD 2017. Animal population data. Federal Ministry of Agriculture and Rural Development.

Gadzama, I. U., Saddiq N. M., Oduehie T. C. , and Dariya C. J. 2018. Appraisal of rural Banditry in "kamuku" Forest in Birnin Gwari Local Government Area of Kaduna state, Nigeria. Nigeria *Journal of Rural Sociology*. Vol 18, No.1.

Kannabiran K, Mishra, S. K., Vinayan, S. and Jafar, K. 2017. Socio-Economic status and Educational Attainment and Challenges of denotified, Nomadic and Semi-Nomadic Tribes A study of (a) Western & Northern States final Report Sponsored by Indian Council of Social Science Research Final Consolidated Report

Kaung J, 2005. 'Indegenous Peoples' experinces with formal Education System: The case of Kenyan Pastoralist, Indigenous Affairs, 1:35-40

Lawal, O. A. and Lawal, A. 2012. Dynamics of Ruminant Livestock Management in the Context of the Nigerian Agricultural System. Intech open.

https://www.intechopen.com/books/livestock-production/dynamics-of-ruminant-livestock-management-in-the-context-of-the-nigerian-agricultural-system

Macpherson, C. N. L. 1994. Epidemiology and control of parasites in nomadic situations. *Veterinary parasitology 54(1-3):87-102*

Mohamoud, A. J. 1993. Strategies on Nomadic Education Delivery, UNDOS DOCUMENTATION UNIT. PP22

Ofuoku, A. U. 2009. The Role of Community Development Committees in Farmer-Herder Conflicts in Central Agricultural Zone of Delta State, Nigeria. International Journal of Rural Studies (IJRS), vol. 16 no. 1 April 2009, p10

Okoli, A. I. C. and Atelhe, G. A. 2014. Nomads against natives: A political Ecology of Herder/Farmer conflict in Nasarawa State, Nigeria. *American International Journal of contemporary Research 4(2):76-88*

Sifuna, D. 2005. Increasing Access and Participation of Pastoralist Communities in Primary Education in Kenya. *Review of Education, 51*, 499-516. 19, 2012

The Oxford English Dictionary (11th edition) https://www.oxfordlearnersdictionaries.com/definition/english/nomadic, Accessed on 6th December, 2020

UNESCO 2015. Regional Overview: Sub – Saharan Africa. Education for All global monitoring Report.

USAID 2016. Pastoralist right and resource governance: overview and Recommendations for managing conflicts and strengthening pastoralist rights. USAID issue brief.

van der Kwaak, A. and Maro, G. 2012. Understanding nomadic realities: case studies on sexual and reproductive health and rights in eastern Africa. Amsterdam: Royal Tropical Institute Press KIT; p. 136.

Wikipedia, 2020. Daura Emirate. https://en.wikipedia.org/wiki/Daura_Emirate. Assessed on 20th September, 2020

Yusuf, A., Aruwayo, A. and Muhammad, I. R. 2018. Characterisation of Small Ruminant Production Systems in Semi-Arid Urban Areas of Northern Nigeria, *J. Appl. Sci. Environ. Manage. Vol. 22 (5) 725 – 729 May 2018*

Received: 14th October, 2020
Accepted: 5th February, 2021