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Research Article

An assessment of the Capabilities of Internally Displaced Women to Rear Noiler chickens in Konduga and Jere Local Government Areas, Borno State Nigeria

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ABSTRACT
A cross-sectional survey was conducted on sixty internally displaced women randomly selected from a list of beneficiaries of Food and Agricultural organization chicken restocking programme. A structured questionnaire was administered on women from Dalori Internally displaced persons camp and thirty from Alakaramti community to evaluate their ability to rear brooded noiler chickens. Most of the respondents (62%) were less than 35 years. The majority of them (81.7%) did not receive any formal education. All their chickens (100%) were raised under a backyard system of production. The objective of most respondents (78%) was to raise their chickens to obtain capital for further investment. All (100%) the women reared their chickens under a backyard system of production. Their labor for raising chickens was mostly complimented by their children (41%). Most of the respondents did not receive any training in poultry production (98.3%). Respondents were able to rear 89.8% (1077/1200) to the point of sale for total revenue of N8852630. Fifteen percent (163/1077) of the chickens were sold at an average price of N10080 which was above the average market value price of N10000 for a fully grown adult Noiler chicken. Only, four farmers (6.7%) were able to keep 21 of their chickens for egg production which they at N150 per egg. Theft, Gifts and chicken mortality accounted for the remaining 8.5% (102/1200). The study was able to demonstrate the capability of IDPs to rear and sell noiler chickens.

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INTRODUCTION

Prolonged insurgency, displacement and climate change which have been projected to cause food insecurity that could affect about 178,000 people by the month of August 2025 in Abadam, Guzamela Kukawa and Marte Local Governments of Borno state (Cadre Harmonise, 2025) could spread and affect people living in Jere and Konduga Local Government Areas. Displaced persons were bound to move and settle down in Camps and communities where they can find safety and possibly access aid from Government and Non-governmental organizations.

Raising poultry was reported to assist resource poor people to meet their needs for nutrition and economic empowerment (Birhanu *et al.,* 2021; Magothe *et al.,* 2012). The distribution of noiler chickens by FAO and other non-governmental organizations to internally displaced women were aimed at engaging them in productive activity that resemble the village chicken they commonly own and actively rear for income generation and family nutrition (Abune, 2023; Sule *et al*., 2023). Noiler chicken is an improved new dual breed of resilient chickens that can utilize local feed much similar to local indigenous chicken to attain 2.5-3kg of meat in 4-6 months (Mosolobaje 2022a) and produce up to 182eggs/year (Bamidele et al. 2020). The adaptation of Noiler chicken to local conditions and its availability from the hatchery makes it a better candidate for distribution among displaced persons. This study assessed the ability of internally displaced women to rear noiler chickens and identified the contributions and challenges associated with Noiler chickens' production in IDP camps.

MATERIALS AND METHODS

Study Area

This study was carried out in Dalori camp Konduga LGA and Alakaramti community in Jere Local Government Area (Figure 1). Jere LGA lies between Latitude 11° 40' to 12° 05' degrees N and Longitude 13° 05' to 12° 20' degrees E. and has a projected population of 306,400 people (National population commission of Nigeria, 2022). Dalori was located in Dalori/Wanori ward Konduga LGA and was well known for hosting a lot of IDPs within two major camps who live in tents containing about 13 people per tent (Grema et al., 2017). Dalori ward has a population of 47353 people with 9448 households (BSMHHR, 2023) Alakaramti community host a lot of informal IDPs who depend on the good will of the host community and who mostly occupy incomplete building without access to basic infrastructure and social services (Barau 2018).

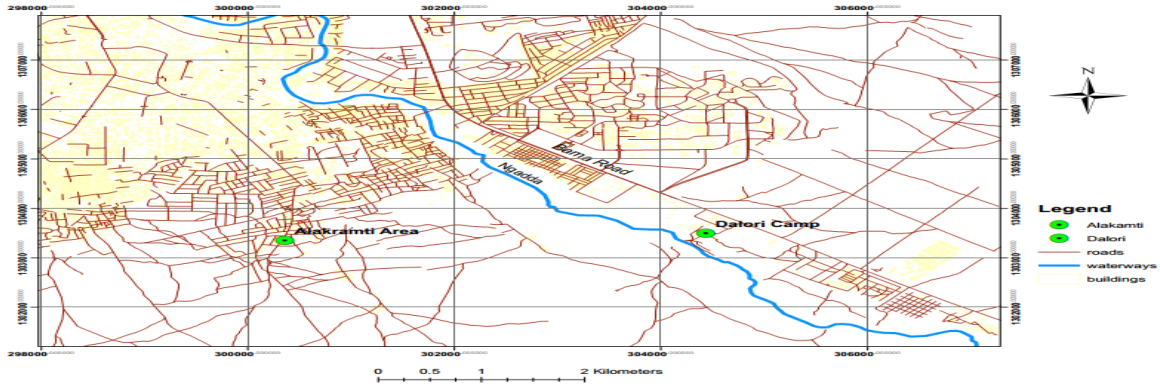


Figure 1: Map of Dalori Camp, and Alakaramti community in Konduga and Jere LGAs, Borno State. Source: OpenStreetMap, extracted 2026.

Data collection

A close ended questionnaire was self-developed, pretested and validated and translated to Hausa by staffs of the Department of Veterinary medicine University of Maiduguri. Pretesting and validation were done on data obtained from 10 displaced women that were residing in Mairi area of Maiduguri. The questionnaire was administered in an interview format to 30 women from Dalori camp and 30 from Alakaramti community. All the women were randomly selected from a list of women who had received 20 noiler chickens from FAO office in Maiduguri.

Selection of Study Area and Women Poultry Farmers

Sixty women (thirty women from Dalori Camps and thirty from IDPs residing in Alakaramti) who had received 20 noiler chickens and two bags of 25 kg poultry feed were selected to participate in the study.

Data Analysis

Data from 60 administered questionnaires were entered into Excel (2010). Data was summarized and analyzed using descriptive statistics of

frequencies and percentages. Gross revenue was calculated in Naira as: Average price of birds x number of birds sold.

RESULTS

Up to 62% (37/60) of the respondents were less than 35 years of age (Table 1). Eighty one percent of them (49/60) had not received any formal education (Table 1). The main occupation of most of respondents (43.3%) before coming to IDP camp was farming (Table 1). The objective of most respondents (78%) was to raise their chickens to obtain capital for further investment with very few of them intending to use it to offset family expenses (13%) and nutrition (9%), (Figure 2).

All (100%) the women reared their chickens under a backyard system of production which is characterized by allowing birds to scavenge around with birds confined in the night and with labor provided by the family (Table 2). Twenty eight percent of the women raised their chickens by themselves (Figure 3). The remaining women were supported by their children (41%) their men and their neighbors (Figure 3). They reared their chickens without regular extension services (table 2) and with the use of antibiotics/ antimicrobials even though no such drugs were given to them by the donors of noiler birds (table 2).

Although, 98.3% of respondents had not received any training in poultry production (table 2) they were able to rear 1077 of the 1200 birds they received (89.8%) (table 3) and generate a gross revenue of N N8852630 (table 3).

An accounting of one hundred and two (8.5%) chickens that were not sold revealed 29 (29%) chickens were lost to theft, 26 (27%) were consumed, 24 (24%) chickens were given as gift, 16 (16%) were of chickens were lost to disease and 6 (6%) of chickens were lost to predation (Figure 4).

Only four farmers (6.7%) were able to keep their chickens for egg production which they at N150 per egg (table 2).

Though, Fifteen percent (163/1077) of the women were able to sell their chickens at average price of N10080 which was above the average market value price of N10000 for a fully grown adult Noiler chicken (table 3), five percent (57/1077) of the women however sold their chickens at a lower price of an average of N5320.

Table 1: Demographic characteristics of beneficiaries of Noiler chickens in Dalori IDP camp and Alakaramti community, Borno State

Age (Years)	**Number**	(%)
≤35	37	62
36>	23	38
Total	60	100
Marital status		
Married	56	93
Widowed	4	7
Total	60	100
Educational status		
Informal (Arabic)	49	81.7
Primary	10	16.7
Secondary	1	1.6
Total	60	100
Occupation		
Civil servant	0	0
Business owner/traders	18	30
Farming	26	43.3
House wife	16	26.7
Total	60	100

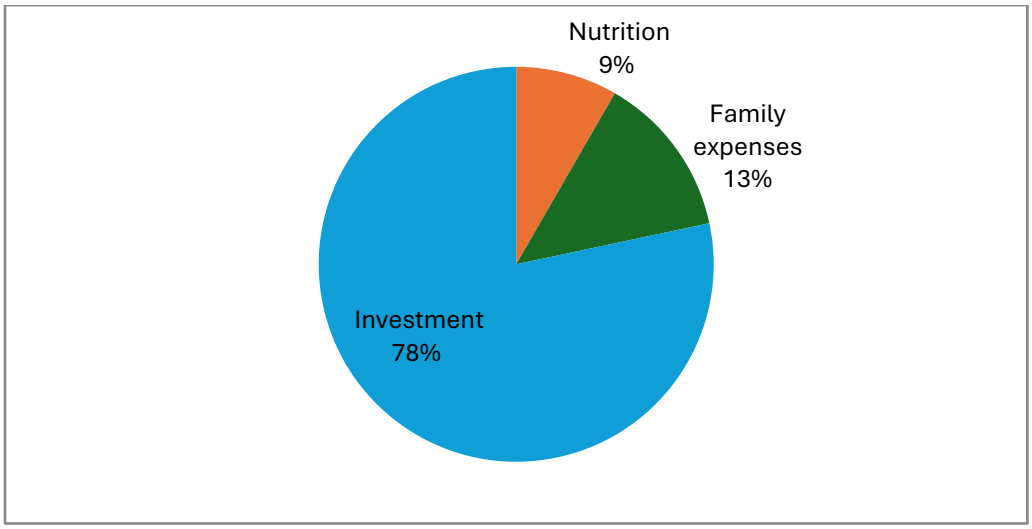


Figure 2: Respondents initial goal of keeping Noiler chickens in Dalori IDP camp, Konduga LGA and Alakaramti community in Jere LGA (N=60)

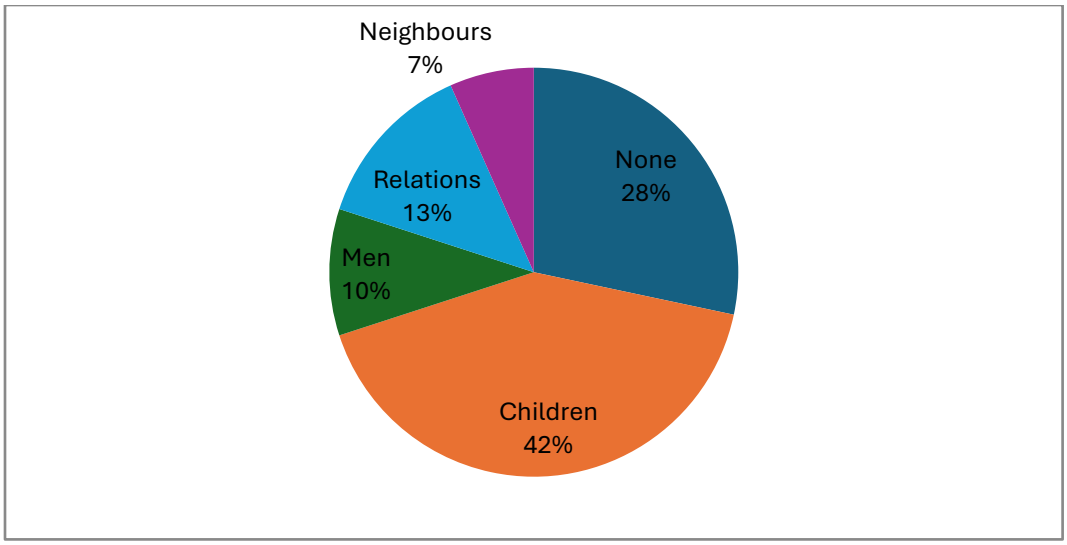


Figure 3: Distribution of persons supporting women involved in rearing noiler chickens in Dalori IDP camps and Alakaramti community in Borno State, Nigeria (N=60).

Table 2: Respondents' management practices in raising noiler chickens Dalori camp and Alakaramti community, Borno State. (N=60)

Variable	Number	%
Experience in rearing noiler chickens		
Less 1 year	60	100
Greater than 1 Year	0	0
Total	60	100
Did you receive any training in poultry production		
Yes	1	1.7
No	59	98.3

Total	60	100
Do have a place where you keep chickens?		
Yes	60	100
No	0	0
Total	60	100
How did you keep your chickens?		
Intensive (confined throughout the day& night)	0	0
Backyard system (roam around with confinement in the night)	60	100
Total	60	100
Who had received drugs to give to their chickens?		
Yes	0	0
No	60	100
Total	60	100
Who has bought or has given any antibiotic/antimicrobial to their chickens?		
Yes	37	61.7
No	23	38.3
Total	60	100
Who had enjoyed regular extension services		
Yes	0	0
No	60	100
Total	60	100
Who has picked an egg in their chicken house?		
Yes	4	6.7
No	56	93.3
Total	60	100
How did you find this project?		
Not beneficial	0	0
Beneficial	2	3.3
Very beneficial	58	96.7
Total	60	100

Table 3: Distribution of the prices noiler chickens were sold by women (N=60)

Average prices (N)	Number of chickens sold	%	Revenue (N)
5320	57	5.3	303240
6550	109	10.1	713950
7300	265	24.6	1934500
8550	312	29	2667600
9300	171	15.9	1590300
10080	163	15.1	1643040
Total birds sold	1077	100.0	N8852630

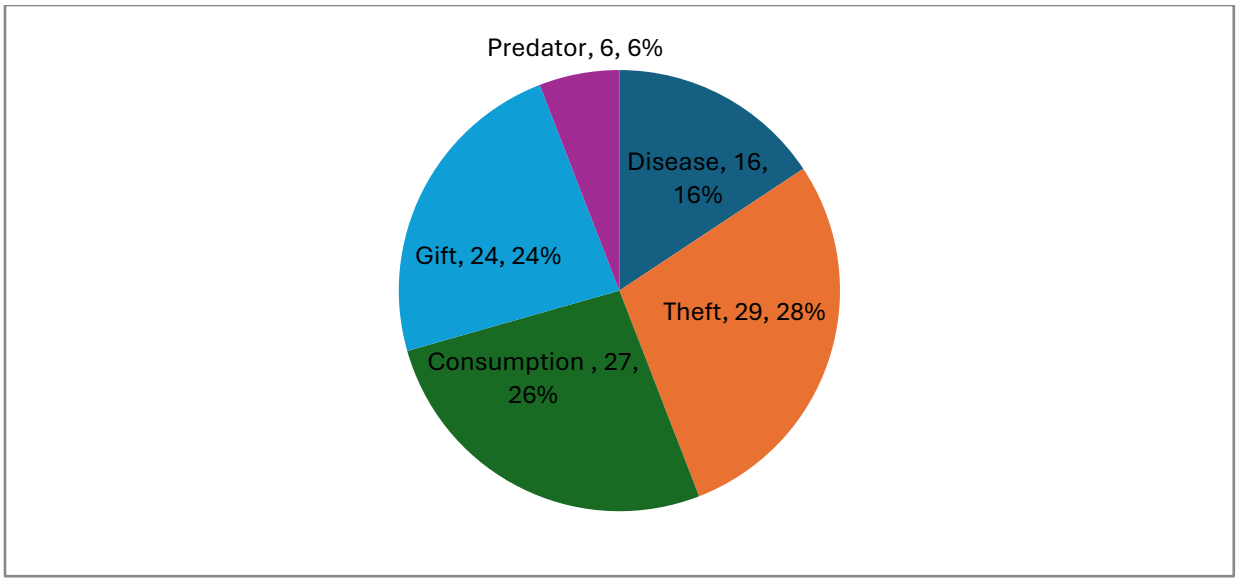


Figure 4: Causes of chicken off take other than sales among women in Dalori IDP camp and Alakaramti community, Borno State (N=60).

DISCUSSION

Displacement of most women in their youthful and productive age of 35 years (The African Youth Charter, 2006) violates their human rights and deprives them access to their homes and farmlands which was considered to be a major requirement for farming, food security, employment and income generation FAO (2014). Disruption of socio-economic activities of these women could increase their levels of poverty and vulnerability.

The participation of respondents in poultry rearing activity does require little assets like land and is likely to engage these women in meaningful socio-economic activity that would help them meet some basic needs like food and clothing especially for their children.

The finding that most of the respondents did not receive any formal education leads to poor employment outcome (Benell, 2007) which reduces their chance of having white collar job in Maiduguri metropolis. Lack of formal education also affects numeracy skills and reception of critical information associated with the rearing of poultry. Yet, raising chickens still offers them opportunities to generate income within a short period of time without requiring any educational certificate or possession of land which all the displaced women don't have.

It was a great exposure for all the women to raise noiler chickens on a mixture of two bags of 25 Kg commercial feed provided by donors, bran and kitchen residues to allow their birds to gain weight and mature. Since, the two bags of feed received by each farmer can feed 20 grower noiler for four weeks (29 days) when consuming 85.68g of feed (Mosobolaje, 2022b), it becomes necessary for respondents to allow their chickens to roam around and feed on kitchen leftovers, grasses and insects to extend the period when the birds would finish the feed they received.

The finding that most respondents' initial intention of rearing these chickens was for further investment was commendable and similar to the goal of rearing village chickens in Bauchi State (Sule, *et al*., 2019). Yet, the sales of chicken at the grower stage (<12 weeks) seems to suggest some financial pressure which eventually, would not allow the chickens to be mature enough to generate premium prices that are reserved for mature and heavier chickens.

It was a commendable practice that children provided support to their mothers in the rearing of these chickens. The involvement of children in poultry raising activities might stimulate their interest in poultry farming activities as they grow up. On the contrary, the finding that only ten percent of men in this study supported their women in raising these chickens was probably because the men leave home early and come back late and even when they are in the camp, they

prefer to stay in the company of their male counterparts where perhaps they might be discussing daily issues that border on their livelihood. The passive labor support provided by neighbors in the rearing of chickens while helpful in terms labor, is likely to affect good health practices like biosecurity and hygiene. Yet, their participation seems to highlight the possibility of having a community farm where farmers could collectively own and rear their chickens for their collective benefits.

Poor housing and general insecurity of camp conditions are conditions that could likely promote the theft of chickens. Phenotypic similarities in the color of the birds and uniformity in the age structure of the birds and the backyard system of raising these chickens are other factors that could enhance the theft of chickens.

The consumption of some chickens by respondents seems to support the view of nutrition as a reason for keeping poultry and as a tool of eliminating hunger (Dolberg 2003; United Nations 2015).

That disease was second least reported cause of chicken losses might be associated with the need for re-vaccination for diseases like Newcastle disease whose antibody titers usually wanes down with age and other bacterial and protozoan agents. Low report of chicken disease incidence in this study might be attributed to the brooding and vaccination of distributed chickens against major diseases like Mareks disease and Newcastle disease at the hatchery and Newcastle disease, Gumboro disease, and fowl pox at the mother units where the birds were kept until the age of six before they were distributed to women (Personal discussions with distributors at the Mother Unit). The collection of chickens by farmers at about their grower stage and the provision of night shelter by women might have limited predation from flying birds and carnivorous animals like cat.

Even though, these inexperience farmers who had no training on commercial poultry production were not given any drug at the point of distribution. Most of them however admitted to using both orthodox and herbal drugs for prophylaxis and treatment perhaps to counter chicken mortality in their flock. Training and involvement of community animal health workers within the camp could assist in reducing losses due disease and in prompt invitation of specialist to come and investigate disease outbreaks on the camp. Lack of regular extension services might be related to respondents' inability to attract and pay for the services of extension agent as rightly observed by Sonaiya (2009).

The gift of chickens to other people by displaced people seem to demonstrate another purpose for raising chickens especially during marriage, naming and religious ceremonies much similar to the findings of Sule *et al.* (2019) on the purpose for raising village chickens. While, depopulation of chickens in the form of consumption or for ceremonies could satisfy socio-religious satisfaction and social inclusion, nevertheless such practices could negatively affect the economic benefit derived from these chickens.

That four farmers were collecting eggs from their birds means they were resilient enough not to sell all their chickens. The sale of egg at a price of N150/egg at the time of this study is capable of bringing income to the owners of these birds. Furthermore, these farmers could benefit from eating these eggs to improve the nutritional quality of their diets.

The sale of noiler chicken was found to generate income that could play a vital role in empowering women and enhance their resettlement in their new place of abode.

That respondents sold most of the chickens they reared appears to highlight the potentials of these chickens to generate variable income to their owners. Variation in the prices of chickens could be attributed to the age at which respondents sold their chickens and to variations in both the management and marketing of their birds.

The sale of noiler birds by 15% of the women at premium prices above the average market price of N10000 appears to demonstrate the capabilities of these women to both rear and market their birds in spite of their inexperience and circumstances. Conversely, the sales of chickens far below the market price seem to suggest a premature sell of birds for probably financial reasons or the lack of capacity to manage noiler birds especially where there is disease and outbreak which triggers the fear of losing such birds.

It was commendable that some have kept their chickens to the point of lay. Selling and consuming some eggs could bring in sustainable income as well as nutritional benefits to the family.

The commendation offered by all the women who enlisted in this programme agrees with the works of Dolberg 2003, Achakzai (2020) and Ajala et al. (2021) which highlighted the appropriateness of choosing poultry as a tool for empowering women and for tackling food insecurity especially, among vulnerable persons (Idamokoro and Hosu, 2022).

Conclusion and recommendation

Respondents were able to rear 89.8% of all the brooded noiler chickens they received.

Respondents were able to sell their chickens and generate a gross revenue of N8852630.

The program was considered by almost all the respondents as very beneficial.

To sustainably raise chickens, this study recommends that donors train respondents to raise day old chickens by themselves rather than depend on brooded chickens which might not continue when the program stops. Other needs could include: training in poultry health, record keeping, provision of adequate feed for full growing period, basic extension and animal health worker support and secure night housing to reduce theft.

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