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PERFORMANCE CHARACTERISTICS AND TRAIT PREFERENCE AMONG SMALLHOLDER RABBIT FARMERS AROUND JOS, NIGERIA.

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ABSTRACT

Rabbit production is becoming a business of choice among smallholder farmers in a number of communities particularly peri urban areas in Nigeria, because of the potentials that abound in it. The present investigation examined the production performance and traits of choice in rabbit breeding stock among smallholder rabbit farmers in peri urban areas of Jos North and South Local Government Areas of Plateau State, Nigeria. A semi-structured questionnaire was administered to 68 randomly selected households engaged in rabbit farming in the study areas. Kruskal-Wallis test was used to determine mean ranks of traits. Preferential traits for breeding rabbits, buck and does were obtained. Mean herd size, litter size and percentage kit mortality were 10.6 ± 2.41 , 3.5 ± 0.26 and 32.4 ± 4.68 respectively. Majority of farmer got their breeding stock from friends and from an institute, with little or no idea of breed types. Large proportion of the rabbit breeders have them mainly for home consumption. Number of kits produced per doe, live weight and carcass weight were the most preferred traits among rabbit breeders in these studied areas. With increase in research, the tendency for increase production and consumption of rabbit in this communities is assured with the enthusiasm noticed with people currently involved.

Key words: preference trait, rabbit, production

INTRODUCTION

In recent years, there has been increased awareness of the advantages of rabbit meat production in Nigeria as a means to alleviate food shortages. This is largely due to the rabbit's high rate of reproduction; early maturity; small body sized; rapid growth rate comparable to that of broiler chicken (Rao *et al.*, 1977) high genetic selection potential; efficient feed and land space utilization, limited competition with humans for similar food; and high quality nutritious meat (Cheeke, 1980; Arijeniwa, *et al.*, 2000). Rabbit has the ability of turning forage into high protein and yet remains within the investment ranges of the poorest families (Smith, 1991).

Rabbits have a number of characteristics that might be of great importance in the smallholder, subsistence-type integrated farming and gardening food production systems in developing countries (Cheeke, 1986). The advantages of keeping rabbits over other livestock are many. Starting a rabbit project requires minimal initial capital outlay. Additionally, a rabbit can be easily sold when a small amount of money is needed to meet immediate family needs. In addition, rabbits require small amounts of feed and use inexpensive, easily constructed housing. Furthermore, rabbits do not compete with humans for grains as strongly as chickens. In Nigeria, a major limitation to the development of smallholder rabbit production is the absence of reliable sources for quality genetic stocks of rabbits. Farmers in different production systems have different trait preferences due to the varying production activities and available resources (Ouma *et al.*, 2004; Duguma *et al.*, 2010). Definition of breeding objective should be a follow up activity, after defining the production system, in designing genetic improvement strategies Duguma *et al.* (2010), since it would provide guidance for people involved in genetic improvement programmes (Kosgey, 2004). Involvement of farmers and pastoralists in defining breeding objectives and identifying traits to be targeted helps to increase the success of breed improvement programs (Getachew *et al.*, 2010).

Rabbits are not indigenous to the Nigerian, but are highly valued by small holder farmers because of their adaptive nature and ability to thrive in the tropical environment. Their small nature, inexpensiveness easy to management and their ability to feed on some local forage like the tridax makes them easily accepted by the local community. Rabbits farming around Jos and its neighborhood is growing rapidly because of the introduction of various breeds of rabbit by the National Veterinary Research Institute (NVRI) Vom, with the sole purpose of establishing breeding herds for local communities. These breeds which include NewZealand White, Chinchilla and California White have continuously been crossed leaving a mixed crossbred population with varied colours which is adapted to the local community. This study was aimed at evaluating status of rabbit farming and preference traits among smallholder farmers around Jos Plateau.

MATERIALS AND METHODS

The study was conducted in some selected communities of Jos North and South local government of Plateau State, Nigeria between March 2012 to December 2013. Vom is 1280m above sea level and lies on longitude 8° 45' East and latitude 9°43' North. Rainy season extends from April to October with peak rainfall in July/August while the dry season starts in November and ends in March. The mean annual rainfall ranges between 1250 to 1650 mm. The average air temperature ranges from 19.5 to 23.5°C. Compared to the surrounding lowland areas, the climate shows characteristic coldness common at high altitudes. The climate has therefore been described as being sub-tropical (Mbap and Ngere, 1989).

A questionnaire was designed to collect farm level data pertinent to rabbit production and preference traits among 68 rabbit farmers. The targeted communities include Vom, Zawan, Anguldi, Bukuru, Nasarwa, Zaria road and Rukuba between January and March 2015. Production performance data collected include, herd size, number of buck and does in the herd, average litter size on kindling and average kit mortality. Question "What is the main objective of keeping rabbits". They subsequently, enumerated from a list of possible choices, the qualities that led them to choose their preferred breed. The available list of options, farmers choose among the following qualities; fur (FU), mothering ability (MO), carcass weight (CA), availability (AV), number of offspring (OF), best as pets (PE), other farmers preference (OT), disease resistance (RE), Beauty (BE), Growth (GR), ability to forage on wide variety of forbs (FO), and market price (PR). Farmers were also allowed to indicate any other qualities that drew them to certain breeds. In addition, farmers also had a chance of identifying from the portfolio of breeds that they had on the farm as their preferred breed. Designed this way, it was possible to associate various breeds with their inherent characteristics from a farmers' perspective and also the farmer's driving objective of keeping rabbits

RESULTS AND DISCUSSION

Mean herd structure of rabbit in the study area is presented in Table 1. In all the traits herd size and kit mortality varies significantly between Jos North and south. The values for herd size 10.6±2.41 though varies with location

Table 1. Production performance of rabbit among smallholder famers

Trait	Mean	Location		P<
		Jos North	Jos South	
Herd size	10.6±2.41	8±2.13	13±3.14	*
Number of buck	2.5±0.12	2±0.21	3±0.16	ns
Number of doe	4.6±1.43	4±1.31	5±1.02	ns
Litter size	3.5±0.26	3±0.16	4±0.13	ns
Kit mortality	32.4±4.68	35.25±4.31	30.20±2.36	*

* = Significantly different , ns= not significant

The Table 2. presents the production characteristics of rabbit farmers. The major sources of breeding stock of rabbit in these communities are from friends and the Veterinary Research Institute, with few purchasing theirs from open market. The Institute constitute a significant driver in the introduction and propagation of rabbit in this area, as it is the first to introduce breeding stock into the area with a view to propagated the animal breed within the area (Ibrahim *et al.*, 2007) . On knowledge of breeds in rabbit, majority of the farmers 78% have indicated that they do not have any knowledge of breeds in rabbit and considered all rabbit as same, only vary in coat color and indication of poor information on rabbit as a meat animal in the area. This suggest that extensive information on rabbit as a commercial breeding animal is required through extension service.

Table 2. Production characteristics of the rabbit famers

Parameter		Frequency	Percentage
Sources of stock	Research station	21	30.9
	Open market	8	11.8
	Friends	39	57.3
Knowledge of breeds	Yes	15	22
	No	53	78
Sources of feed	Purchase feed	4	5.9
	Home compounding	6	8.8
	Use forage	32	47.1
	Kitchen waste	6	8.8
Common breed known	Kitchen waste and forage	20	29.4
	Newzealand white	9	13.2
	Chinchilla	6	8.8
	Local	53	78
Reasons for keeping rabbit	Source of meat	33	48.5
	Income	24	35.3
	Both	11	16.2

Farmer's preference traits in rabbit they keep is presented in Table 3. Number of kits, live weight, carcass weight, mothering ability and growth rate are traits most preferred as having utmost important among rabbit farmers in the study area. While coat colour and fur ranked low. Productivity and carcass performance were the major preference traits among smallholder farmers in these communities. This similar interest was observed by smallholder poultry farmers (Muchadeyi *et al.*, 2009, Dana *et al.*, 2010). This suggest that in most livestock farming the owners are mainly concerned with increase in number and income that will accrue.

Table 3. Mean ranks of preference for some traits and according to Kruskal- Wallis test*

Trait	Mean	Standard error
Fur	2.31	0.041
Mothering ability	1.43	0.023
Coat colour	2.11	0.016
Carcass weight	1.23	0.011
Number of kit	1.11	0.013
Live weight	1.21	0.011
Growth rate	1.45	0.013

** Significant at $P < 0.01$ ($\chi^2 = 136$)

Development of a breeding goal for improvement of rabbit particular in the local population should focus on the traits perceived important by farmers. This is because rabbit been an introduced species will need to be bred to meet the need of the farmers who are ignorant of breed types of rabbit and variations that is associated with the types.

CONCLUSIONS

The study have been able to identify the significant of rabbit farming among the population studied. with the farmers having high interest in rabbit meat. With Number of kits produced per doe, live weight and carcass weight as the most preferred traits among rabbit keepers.

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