Small Holders' Willingness to participate in a Nucleus Breeding Programme for West African Dwarf Goats under Low Input Environment

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ABSTRACT

Participatory willingness of smallholders in a nucleus breeding scheme (NBS) involving West African Dwarf goats in Ejigbo, Osun State, Nigeria was assessed using structured and open ended questionnaires. The questionnaire was administered on two hundred respondents selected through purposive sampling technique. Socio-economic characteristics, routine and management practices, breeding characteristics and participation in rural NBS were studied. Female muslims were actively engaged in goat rearing than their males counterpart and majority of them are uneducated. Their acquisition of livestock knowledge and animals were through traditional means and family members as well as occasional purchase. Goats were reared mainly for family consumption and occasional sales. Goats were kept on free range, individually identified through local names, no record kept and their animals were exposed to a combination of diseases. The respondents never selected their animals for breeding nor were they aware of any form of breeding programme. However, majority of the respondents were not satisfied with the present productivity level of their goats and desired a change. The participants welcome the suggestion of a community NBS for their goat improvement and agreed to share the proceeds base on number of goat donated and meeting attendance. The willingness of the majority of the respondents to participate in NBS is an indication that they were not satisfied with their animals' production, therefore, alternative approach of communal NBS is then advocated.

Keywords: *Cooperative breeding, local goats, routine management, socio-economics.*

INTRODUCTION

Nigeria is blessed with three main breeds of goats namely, Red Sokoto, Sahel and West African Dwarf (WAD). West African Dwarf goats constitute one-third of the goat population in Nigeria and are predominantly owned by a large proportion of the rural population in

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Southern Nigeria (Solomon and Kassahun, 2006). They are hardy, small, plump, measuring less than 50cm in height, weigh between 20-25kg and are trypanosome tolerant. Livestock production in developing regions is generally characterized by small herd size, uncontrolled mating, and absence of pedigree and performance recording (Charray, Humbert and Levif, 1992). These characteristics limit the implementation of effective genetic improvement programmes. More often, genetic improvement of livestock is viewed as a complex set of tasks requiring a high level of organization and technical sophistication. However, the required supportive infrastructure is largely unavailable in the developing countries. Attempts to replicate developed-country approaches have met with little success. Also, within breed selection programs based on proven approaches from the developed world and importation of exotic breeds for breed replacement and/or crossbreeding have generally failed, suggesting a need for new, more suitable methods for the developing world.

Arising from this therefore, genetic improvements of livestock breeds in developing countries remain a challenge. For a sustainable genetic improvement, the new thinking is to involve local communities and institutions in the design of breeding strategies and implementation of resulting programmes. To achieve this, one of such approaches that could be adopted is a community-based breeding strategy which utilizes nucleus breeding scheme. This programme takes into account the farmer's need, views, decisions and active participation from inception through to implementation and their success is based upon proper consideration of farmers breeding objectives, infrastructure, participation and ownership (Mueller, 1991; Wurzinger, Solkner and Iniguez, 2011). With this aforementioned therefore, there is need for comprehensive approaches to design simple, yet effective breeding strategies in low-input environments of Ejigbo, a humid environment of Osun State, Nigeria.

MATERIALS AND METHOD

This study was carried out in Ejigbo local government area of Osun State, Nigeria. The environment is characteristically humid. It has a population of 138,357 (NPC, 2006). Ejigbo was purposively selected because of its rural and ownership structure of large population of West African Dwarf goats. West African Dwarf goats in the study area are on free range with occasional offers of left-over farm products and kitchen wastes. Generally, goats were not housed and they slept at their owners' compound or backyard. There was no health care provision for the animals. Two hundred smallholders were purposively selected from six villages. The villages were also selected amongst several villages in the local government using simple random sampling technique. The selected villages were Araromi, Isundunrin, Isoko, Masifa-Ile, Ejigbo and Ola. Structured and open-ended copies of questionnaire were administered with personal interview on the respondents. The questionnaire administered focussed on: socio-economic characteristics, routine and health management practices, breeding characteristics and participation in rural nucleus breeding programme. The responses of the respondents were entered into the excel spread sheets and coded. The statistical analysis was done using descriptive statistics such as frequencies and simple percentage.

RESULTS AND DISCUSSION

The socio-economic characteristics of WAD goats' smallholders in Ejigbo are presented on table 1. It shows that majority of the respondents engaged in farming activities apart from keeping livestock were females. Majority of the respondents have no formal education. They acquire their livestock knowledge through traditional mean, obtained animals through family members and occasional purchase. The animals are mainly kept for both family consumption and occasional sales to meet their needs. The average spread of livestock keeping in terms of male and female; and Muslim and Christian is an indication that there were no sex, religion nor cultural barriers against keeping of goats. This is in collaboration with Charray, Humbert and Levif (1992), who observe that religion and culture are not the barriers to goat keeping in the study area. The non acquisition of formal education by the significant proportions of the respondents disagreed with earlier studies of Wozniak (1984), who identifies positive and significant relationship between education and participation in livestock production which is at variance with the results of this study.

The traditional means of acquiring livestock knowledge in the study area suggests that the respondents were not privileged of livestock extension agents visitation and as such they acquired their knowledge through their parents and this has been passed on from generation to generation. Few respondents who acquired their knowledge through extension agents might be those who were privileged of going outside their villages to acquire secondary education in nearby town. The respondents' reason for keeping goats is similar with the findings of Nsoso, Monkhei and Tlhwaafalo (2004) in a survey of traditional small stocks in Botswana. They opine that most of the farmers sold their goats to meet cash needs. However, the study conducted by Alli-Balogun, Lakpini, Alawa, Mohammed and Nwanta (2003) in a rural community of South Africa favoured meat consumption as the only major reason of keeping goats.

Acquisition of goats through family members (usually takes the form of gift and inheritance) is not surprising because the respondents lived in a close-knit fashion and family relationship is high. The management characteristics of respondents in the study area as presented on table 2 reveal that goat were on free range, fed occasionally with kitchen wastes and left-over farm residues with no record kept. Both Bucks and Does were most times reared together and they were identified by local names such as; 'Suuru', 'Igbehinadun', 'Omolere' etc. Goats were often exposed to a combine form of diseases such as, Pneumonia, diarrhoea and foot rot. The opportunities for treatment of these diseases were through the use of herbs and Animal Health Assistants. Left-over foods on-farm and at home are cheap feed sources which are readily available (Ajala, 2004). The free range type of rearing is possibly a reflection of the care-free attitude, low literacy and or poverty level of the respondents in the rural areas. Most respondents believed that goats are animals therefore they should not compete with human for scarce foods. Inability of the respondents to keep records of their animals might not be unconnected with the low literacy level and mode of rearing which is free range. The respondents did not even know the importance of record keeping; they believe it is a waste of valuable time. However, Solomon and Kassahum (2006) identify record keeping as an improvement tool for breeding programme

in their studies. Fakoya and Oloruntoba (2009) report diseases as one of the notable constraints to small ruminant production in Nigeria. Breeding characteristics and Rural Nucleus breeding scheme of West African Dwarf goats in Ejigbo, Nigeria are presented on table 3. The table shows that respondents did not select Bucks and Does for breeding purposes. This is not surprising in that all goats irrespective of sex are reared together in a flock. The implication of this is that inbreeding is indirectly encouraged and the consequential effects will be far reaching. The study also reveals that the respondents are not aware of any breeding programme before but are ready to participate in any form of breeding programme for their goats. This suggests that they are serious about the business as it serves as their source of income among other engagements. Philipsson, Rege and Okeyo (2006) opine that farmers in an area using the same communal grazing area can be organized to undertake breeding improvement programme such as nucleus breeding scheme. All the respondents were ready to release their good Does/Bucks for the scheme but the number volunteered varied per year. Majority of the respondents have volunteered to release between 1 to 2 goats and they are majorly kids of both Bucks and Does. All the respondents are not satisfied with the current productivity level of their goats hence, desired for a communal improvement programme. The entire respondents strongly supported that the breeding programme should be situated within their locality and to be managed by goat donors in the community on a rotational basis. A weekly meeting schedule of the goat donors was jointly agreed and the sharing formula of proceed from the scheme would be based on members' meeting attendance, weekly financial contribution and number of goats donated to the scheme.

Table 1: Socio-Economic Characteristics of the Respondents in Ejigbo, Oyo State, Nigeria

Variables	**Frequency**	**Percentage**
Occupation:		
Farming/Herdsmen	178	89.00
Trader	22	11.00
Sex:		
Female	110	55.00
Male	90	45.00
Religion:		
Christianity	90	45.00
Islam	110	55.00
Educational level:		
None	160	80.00
Primary	20	10.00
Secondary	20	10.00
Purpose of keeping goats:		
Consumption/Occasional sales	100	100.00
Source of foundation stock:		
Family members/purchase	162	81.00
Purchase only	38	19.00
Livestock training:		
Extension services	10	5.00
Traditional	190	95.00
Herd size:		
Less than 3 bucks/3-4 does	82	41.00
Less than 3 bucks/5-6 does	70	35.00
Less than 5 bucks/7 does	48	24.00

Source: Survey, 2014

Table 2: Routine and Health Management Practices of Respondents in Ejigbo, Oyo State, Nigeria

Variables		Frequency	Percentage
Management type:	Free range	100	100
Keeping of record:	No	100	100
	Yes	-	-
Feed Supplement:	Kitchen waste/farm/products	196	98
	Occasional concentrate	4	2
Mode of identification:	Name calling	100	100
Mode of rearing adult goats:	Mixture of Bucks and Does	100	100
Common diseases:	Pneumonia/diarrhoea	42	21
	Pneumonia/diarrhoea/foot rot	140	70
	Foot rot	18	9
Avenue of treatment:	Local herbs	22	11
	Animal Health Assistants	34	17
	None	144	72
	Total	100	100

Source: Survey, 2014

Table 3: Breeding Characteristics and Rural Nucleus Scheme's Participation in Ejigbo, Oyo State

Variable			Frequency	Percentage
Do you select Buck or Does for Breeding:		No	200	100
		Yes	-	-
Are you satisfied with your goat productivity:		No	5	3
		Yes	195	97
Awareness of Nucleus/Cooperative Breeding Scheme:		No	200	100
		Yes	-	-
Willingness to release and participate in NBS:		No	5	3
		Yes	195	97
Number of goats that can be released/year:		1 to 2	170	85
		3 to 4	28	14
		5	2	1
Category of goats to be released:	Buck kids		90	45
	Doe kids		90	45
	Adults		20	10
Location of the scheme:	Within the community		195	100
	On-station		-	-
Management of the Scheme:	Hired personnel		5	5
	Community goat donors		190	95
Meeting Schedule:	Weekly		150	75
	Fortnightly		45	25
	Monthly		-	-
Proceed sharing:	Based on number of goat donated		60	30
	Equal sharing		10	5
	Meeting attendance/number of goat donated		130	65

Source: Survey, 2014

CONCLUSION

The study was conducted to assess the Participatory willingness of smallholders in a nucleus breeding scheme (NBS) involving West African Dwarf goats in Ejigbo, Osun State, Nigeria. Socio-economic characteristics, routine and management practices, breeding characteristics and participation in rural NBS were studied. Two hundred respondents were selected through purposive sampling technique. The respondents in the study area are ready and willing to participate in a nucleus breeding scheme within their locality with the use of community men and women. Hence, goat owners will have the opportunity to make an indirect genetic improvement of their flock and at the same time generate income from sales of their improved stocks.

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