

# SMALLHOLDER RABBIT PRODUCTION IN SOUTHWESTERN NIGERIA: CURRENT STATUS, EMERGING ISSUES AND WAYS FORWARD

Oseni S.O.\*, Ajayi B.A., Komolafe S.O., Siyanbola O., Ishola M., Madamidola G.

Department of Animal Science, Faculty of Agriculture, Obafemi Awolowo University, Ile-Ife, 220005 Osun State, Nigeria

\*Corresponding author: soseni@oauife.edu.ng

## ABSTRACT

The preponderant nature of smallholder rabbit production units and their contributions to food security are cardinal reasons to design a clientele-based approach to Research and Development (R&D) for such units. An assessment of critical factors affecting such units will help to design appropriate intervention measures to boost and enhance their contributions to food security. This study examined the current trends in small- and ultra-smallholder rabbit units in southwestern Nigeria with emphasis on current constraints, prospects, benefits and challenges. The methodology combined questionnaire surveys with on-farm monitoring and recording of data in relation to socio-economic characteristics of rabbit keepers, features and attributes of such units, reproductive management, annual doe productivity and economics and marketing outlets. Results showed that a combination of ultra-small (units with at most two breeding does) and smallholder units (>two breeding does and less than 10) constitute 80% of all the rabbit farmers, while medium (>10 and less than or equal to 50 does) and large scale (>50 does) had frequencies of 15 and 5%, respectively. The rabbit farmers cut across all ages and professions, including retirees. The primary reason for keeping rabbits was for home consumption, with occasional sale of exceeding stocks, while the sale avenue involved direct sale of live animals to consumers or other farmers. Majority of the rabbit keepers (57%) indicated that all members of the family were involved in animal care and management. Breeds used were invariably crosses among imported commercial meat type rabbits (mainly New Zealand White, Californian and Chinchilla). There was no reliable and steady supply of breeding stocks anywhere. Instead, foundation and replacement stocks were mostly acquired from friends and other smallholder farms. With respect to animal housing, there were no prototypes for the backyard units since 50% of the rabbit farmers used assorted materials (wood, wire mesh, tires, etc) for the construction of rabbit cages and the designs varied widely. Cages were mostly (67%) single-tiered and placed outside the house. Mating of does follows a seasonal pattern, due to seasonal heat stress. About 70% of the farmers noted that doe receptivity and conception rates were markedly low during the dry season. Principal constraints facing the units include getting reliable and stable sources for foundation/replacement stocks, feeds, theft, access to information on rabbit management under smallholder units, etc. Detailed proposals were made on ways to streamline R&D activities in favour of smallholder rabbit units.

**Key words:** Smallholder rabbit units, Nigeria, Food security.

## INTRODUCTION

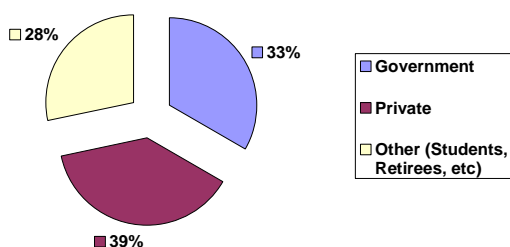
For over three decades now, the contribution of smallholder rabbit units to food security in developing countries has been clearly recognized (Owen, 1976; Cheeke, 1986; Lukefahr and Cheeke, 1991a). A study by Oseni (2008b) noted that most of the research outputs emanating from sub-Saharan Africa are not clientele-based, which leads to poor adoption or uptake by backyard rabbit keepers. In order to facilitate a clientele-based approach to research and development involving smallholder units, there is the need to understand critical factors, constraints and challenges affecting such units. Thus study was thus designed to address such issues, so as to facilitate the design and implementation of appropriate R&D approaches to small- and ultra-smallholder backyard rabbit units.

## MATERIALS AND METHOD

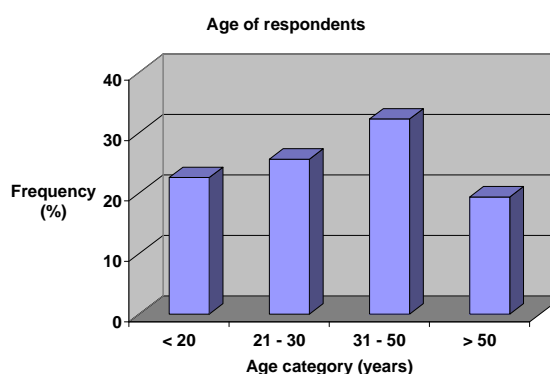
The methodology combined questionnaire surveys with on-farm monitoring and recording of data in relation to socio-economic characteristics, features and attributes of such units, routine and reproductive management, healthcare, economics and marketing outlets. Direct observations recorded in each farm included reproductive performance, morphological features of the animals, cage placement (whether indoors or outdoors), cage design, ranking of units based on the quality of management,). The study, which is part of an on-going International Foundation for Science (IFS) supported research, was conducted in seven towns (Ile-Ife, Ilesa, Ila-Orangun, Ede, Osogbo, Ipetu and Ibadan) in Osun and Oyo States in Southwestern Nigeria. A total of 69 farms were monitored. The study lasted for one year (from February 2006 to January, 2007). Part of the data on the features and characteristics of smallholder farms are presented in this report.

## RESULTS AND DISCUSSION

Figure 1 shows the distribution of rabbit farmers by occupation. About 33% of all the farmers are government employees (civil servants, teachers, etc) while 39% and 28% represent private sector (artisans, businessmen, farmers, etc) and others (students, retirees, etc) respectively. This trend shows that those engaged in rabbit farming cut across all professions and walks of life in the society.



**Figure 1:** Distribution of rabbit farmers age



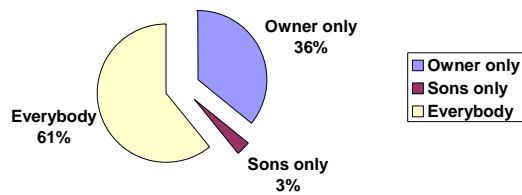
**Figure 2:** Distribution of rabbit keepers by a occupation

Figure 2 shows the age distribution of rabbit keepers. The highest proportion (34%) of the rabbit farmers belong to the age range of 30 to 50 years (mainly family heads), while other categories (<20, 21–30 and >50 years) had frequencies of 20%, 25% and 18% respectively. Thus, this distribution spreads across all age brackets.

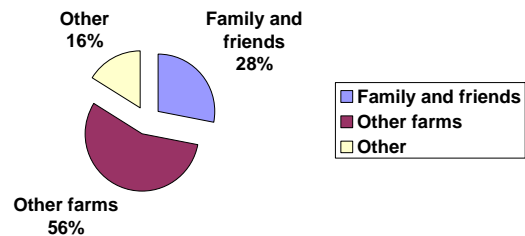
Figure 3 shows the distribution of rabbit units by person(s) in-charge of the unit. Among a majority (61%) of the rabbit farmers, all members of the family are involved in animal care and management, which implies that labour is shared among family members. About 36% of the farmers indicated that the owner alone was in-charge – this category largely include the unmarried rabbit keepers who do not have families. Such involvement of family members helps to create a sense of family harmony and togetherness, while contributing to increased family welfare through the provision of animal protein for the household. Figure 4 shows the trend among rabbit keepers in the source of foundation/replacement stocks. Most of the rabbit keepers (56%) source their stocks from other rabbit farms, while some keepers (28%) get their stocks from family and friends.

It is noteworthy that in the areas surveyed, there are no reliable and stable sources of breeding stocks (whether government-owned, NGO or University) for backyard rabbit units. Thus, there is the need for the creation of a centre for the provision of stocks for such units. Benefits of such a centre to smallholder rabbit industry include (a) providing appropriate genetic stocks for backyard units, (b) a

special programme of R&D tailored towards the needs of backyard rabbit units, and (c) as an information and coordination centre and as a service delivery for backyard units. Details for the actualization of such a centre are presented in a companion paper for the 9<sup>th</sup> World Rabbit Congress (Oseni, 2008a).

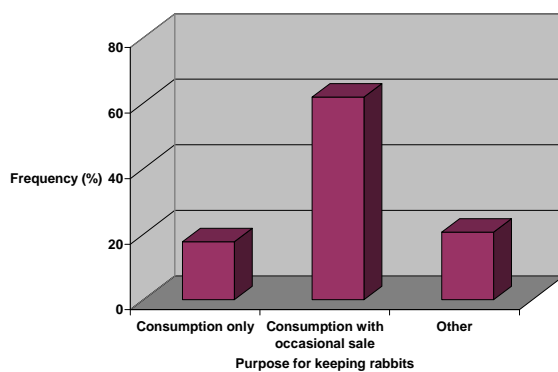


**Figure 3:** Distribution of rabbit farmers by person(s) in-charge of the units

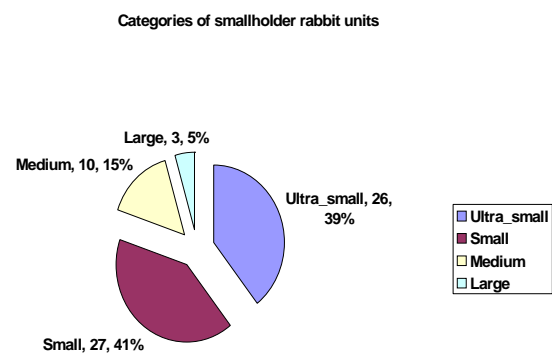


**Figure 4:** Distribution of rabbit farms by source of foundation/replacement stocks

Figure 5 shows the distribution of units by purpose for keeping rabbits. A significant proportion of the farmers (60%) indicated that the primary reason for keeping rabbits is for family consumption, with occasional sale of excess stocks. This implies that rabbit keeping serves the primary goal of providing supplemental protein for the household. Others (18%) stated multiple reasons for establishing enterprise.



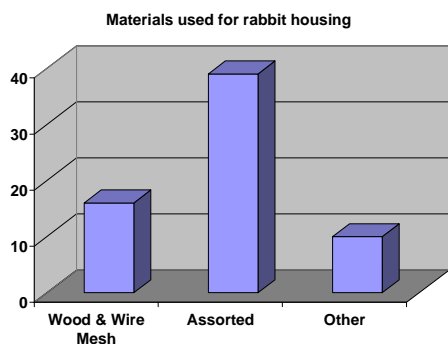
**Figure 5:** Distribution of rabbit farms by purpose(s) for keeping rabbits



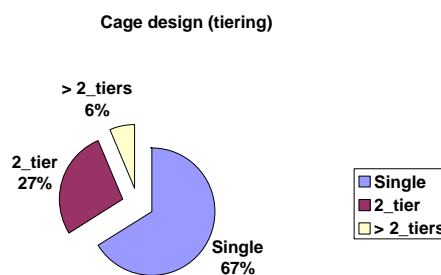
**Figure 6:** Distribution of rabbit farms by the number of breeding does in the unit

Figure 6 shows the distribution of units by the number of breeding does per unit. The combination of ultra-smallholder ( $\leq$  two breeding does per unit, 39%) and smallholder units ( $>2$  does and  $\leq 10$  does, 41%) together, accounted for four-fifth (or 80%) of all the rabbit keepers. Medium ( $>10$  does and  $\leq 50$  does) and large holder rabbit units ( $>50$  does) had 15% and 5% respectively. This finding agrees with previous reports (Colin and Lebas, 1996; Lukefahr, 2007) that the rabbit industry in the developing world is dominated by small scale units. This observation should serve as a major policy issue in the design of intervention measures for backyard rabbit production units.

Figure 7a shows the distribution of smallholder units by the type of materials used for rabbit houses. About 50% of the farmers (principally the ultra-small- and smallholder units) use assorted materials (wood, bamboo, sacks, wire mesh, tires, etc) for the construction of rabbit cages. This reflects very low level of investment in rabbit housing. Cage design (and tiering, Figure 7b) and placement (Figure 7a) varied with farms, with each design showing its own unique features. This trend calls for the need to design appropriate low-cost and durable prototypes for use by all smallholder units in the region. In terms of the cage design (Figure 7b), single tiering was the most predominant (67%), due largely to low-cost, ease of design and construction, while 2- and 3-tier cages were mostly associated with medium and large rabbit farms.

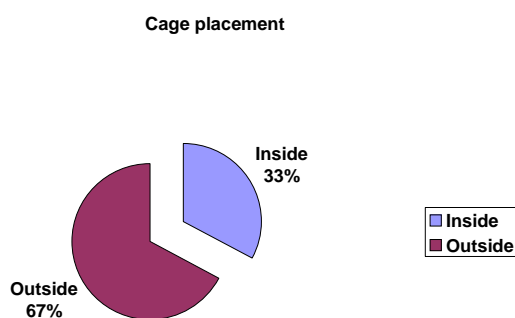


**Figure 7a:** Distribution of rabbit farms by type of materials used for cage construction;

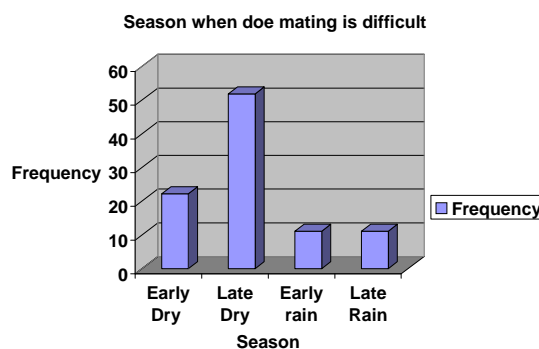


**Figure 7b:** Distribution of rabbit farms by type of cage design

Cage placement (Figure 8) was mostly outside the house (67%), while the remaining units place their cages inside their houses because of thieves or to minimize the effect of heat stress. Figure 9 indicates seasonality of doe breeding. About 70% of the rabbit keepers noted that mating of does was usually most difficult in the dry season period (early and late dry seasons), which may indicate some level of intensification of breeding activities during the cooler months of the year. As a form of protection against heat stress, 80% of the farmers whose cages are located outside the building, place their cages under shade trees.

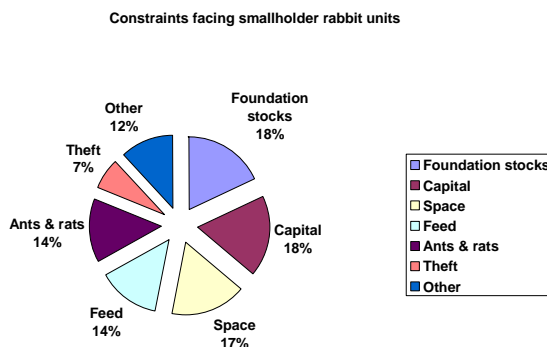


**Figure 8:** Distribution of rabbit farms by cage placement



**Figure 9:** Distribution of rabbit farms by seasonal effects on doe matings

Figure 10 shows the ranking of constraints facing smallholder units. Major constraints identified by the owners include start-up capital (18%) and access to foundation stocks (18%). Other constraints include space (17%), high costs of feeds and feeding especially during the dry season period (14%), predators (ants and rats, 14%), theft (7%) and others (marketing channels, labour requirements, awareness, heat stress, etc, 12%).



**Figure 10:** Ranking of constraints facing smallholder units

All the observations above call for a major policy intervention for smallholder rabbit units through the design of appropriate measures suitable for such units in Nigeria. There is also the dire need for R&D programmes with a special focus, attention and service delivery to smallholder rabbit units, based on local resources and expertise. Such a focused R&D programme will help to address crucial issues facing backyard rabbit units.

## CONCLUSIONS

The study noted a preponderance of small- and ultra-smallholder rabbit production units in southwestern Nigeria. Backyard rabbit keepers cut across all ages and professions. There are no designated centres for foundation/replacement stocks. Breeding activities were mainly seasonal. Notable constraints include finance, access to foundation and replacement stocks, dry season feeding, theft, etc. There is the need for coordination and streamlining of the activities of smallholder units.

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## REFERENCES

- Cheeke P.R. 1986. Potentials of rabbit production in tropical and sub-tropical agricultural systems. *J. Anim. Sci.*, 63, 1581–1586.
- Colin M., Lebas, F. 1996. Rabbit meat production in the world. A proposal for every country. In: *Proc. 6<sup>th</sup> World Rabbit Congress, 1996 July, Toulouse, France, Vol. 3*, 323–330.
- Lebas F., Coudert P., Rochambeau H. De, Thebault R.G. 1997. *The Rabbit : Husbandry, Health and Production. 2<sup>nd</sup> Edition. FAO Rome, Italy.*
- Lukefahr S.D. 2007. The small-scale rabbit production model: intermediate factors. *Livestock Res. for Rural Dev.*, 19, Article Number 69. Accessed September 21, 2007 at <http://www.cipav.org.co/lrrd/lrrd19/5/luke19069.htm>.
- Lukefahr S.D., Cheeke P.R. 1991a. Rabbit project development strategies in subsistence farming systems. 1. Practical considerations. *Wld Anim. Rev.*, 69, 26–35.
- Oseni S.O. 2008a. A proposal for the genetic improvement of rabbits for smallholder units in Nigeria. In: *Proc. 9<sup>th</sup> World Rabbit Congress, 2008 June, Verona, Italy, 1585-1590.*
- Oseni S.O. 2008b. Research output in rabbit science and production emanating from sub-Saharan Africa – implications for future research and development efforts. In: *Proc. 9<sup>th</sup> World Rabbit Congress, 2008 June, Verona, Italy, 1591-1596.*
- Owen J.E. 1976. Rabbit production in tropical developing countries: a review. *Trop. Sci.*, 18 (4), 203–210.

