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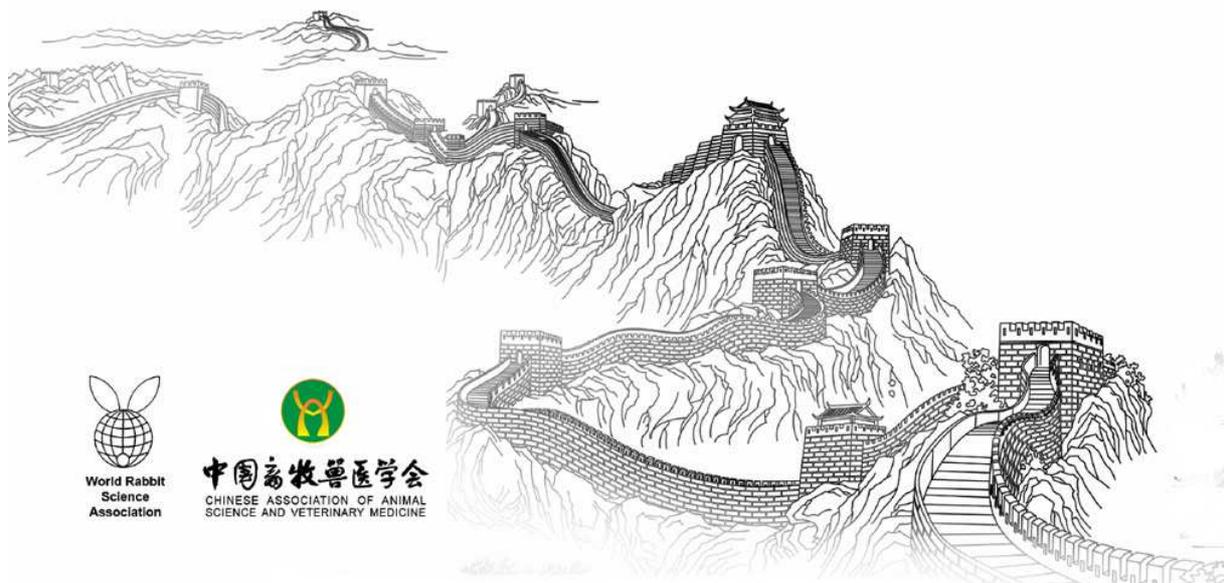### Oseni S.O., Atumah C.R., Popoola M.A., Ajayi B.A.

A SWOT ANALYSIS OF COMMERCIAL RABBIT OPERATIONS IN SOUTHWEST NIGERIA.

Full text of the communication

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A SWOT ANALYSIS OF COMMERCIAL RABBIT OPERATIONS IN SOUTHWEST NIGERIA

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ABSTRACT

Rabbit production has recently been promoted as an avenue for gainful employment, income generation and entrepreneurship. Rabbit production enterprises are however, confronted with enormous challenges including internal and external factors which hinder their ability to deliver the afore-mentioned benefits. A clear understanding of these challenges will contribute to the development of models and policies for sustainable rabbit production systems. Our study used the analysis of strengths, weaknesses, opportunities and threats (SWOT) to assess internal and external factors affecting the viability and sustainability of commercial rabbit units in southwest Nigeria. The methodology combined structured questionnaires with focus group discussions about factors related to SWOT of the operations of commercial rabbit enterprises. Data analysis applied non-parametric statistics using Kendall's coefficient of concordance (W). Results indicated that factors perceived as strengths of the enterprise included ability of rabbits to utilize forages, high prolificacy, low incidence of diseases and use of renewable resources. Attributes perceived as "weaknesses" included low overall productivity, high production costs (e.g. high cost of durable cages, quality concentrates and breeding stocks), poor quality of inputs and rabbits seen as "pets". Opportunities inherent in commercial rabbit operations included the contribution of the enterprise to family income and nutrition securities, acceptance of rabbit meat across ethnic and religious lines, low investment costs (based on renewable resources and on-farm feed security) and multiple products (e.g. weaners, breeding stocks, fryers sold live, slaughtered, frozen or grilled). Factors perceived as "threats" to the viability of commercial rabbit enterprises included low consumption of rabbit meat and marketing challenges, potentials of rabbits in poverty alleviation largely unrecognized, no government policy on sustainable smallholder rabbit development and inappropriate solutions to challenges and constraints affecting rabbit production units. For all the SWOT factors, W ranged from 0.754 to 0.942. A strategy of using attributes related to strengths to enhance opportunities and/or minimize threats was presented, with efforts geared towards sustainability of such operations with a poverty alleviation focus.

Key words: Rabbit production, Sustainability, SWOT analysis, Southwest Nigeria, Poverty alleviation

INTRODUCTION

Rabbit production has been promoted as a tool for poverty alleviation programmes (Owen *et al.*, 2005) and entrepreneurship (Kaplan-Pasternak, 2011). Critical constraints affecting the success of rabbit production units include institutional (policy-related) and environmental factors that affect the viability and sustainability of rabbit production in Africa (Oseni and Lukefahr, 2014). In essence, factors affecting the viability of a rabbit unit can be categorized as internal or external or whether such factors enhance or hinder the functions, viability and sustainability of the enterprise or system. The simultaneous evaluation of such factors constitute the basis for the analysis of strengths, weaknesses, opportunities and threats (or SWOT) of the unit. SWOT analysis has recently been advocated as a holistic appraisal of the overall functionality of an enterprise or a system. Factors related to "strengths" add value or competitive advantage to a system, while weaknesses are internal factors that hinder progress or are detrimental to its growth. In contrast, opportunities and threats are external factors that contribute to the well-being of the system or undermine it respectively (FME, 2013).

For commercial rabbit production systems, the application of SWOT analysis will help to understand system functionality, well-being and dynamics as well as key factors (internal or external) that contribute to system

stability, vitality or frailty. The objective of our study was to utilize the perception of owners of commercial rabbit farms to identify, rank and describe SWOT attributes of such operations in southwest Nigeria in order to make recommendations for policy interventions for sustainability.

MATERIALS AND METHODS

Observational Unit: This study was conducted under the EU-funded iLINOVA project activities (www.ilinova.org) on mentorship programme for rabbit farmers involving the sharing of knowledge based on science, technology and innovations in livestock management. The methodology for this study applied exploratory research design via structured questionnaire and the Likert method of summated ratings (Murphy and Dooley, 2000; Sansidar and Reddy, 2012). Farmers aged between 25 and 60 years, largely literate, managing rabbit enterprises for up to 15 years and with colony sizes ranging between 11 and 100 does. **Sampling of rabbit farms was based on snow-ball sampling.** A focus group discussion involving two sets of rabbit farmers (n=15/group) was held. The FGD involved core discussions on sustainable rabbit management, technical issues, constraints, socio-economics, marketing, etc.

Data Collection: Basic dataset included years of experience as managers of commercial rabbit unit, colony sizes, clients, technical details about their rabbit farms (e.g. mean litter size at kindling, survival rate, litter size at weaning, annual doe productivity (e.g. weaners/doe/annum, etc.). Other datasets included details about attributes related to strengths, weaknesses, opportunities and threats of the commercial rabbit operations. Terms were appropriately defined and explained to each group prior to the commencement of the discussion. In the first phase of the FGD, the managers were requested to list the most critical SWOT-related issues. In the second phase, participants were to rank (rate) each entry on a Likert scale from 1 (not important), 2 (somewhat important), 3 (very important) and 4 (extremely important). A cross-validation step involved presenting preliminary outcomes for group discussions and consensus, while noting areas of disagreement.

Data Analysis: Data on the characteristics of each farm were analyzed using descriptive statistics of SPSS® version 17. Analysis of SWOT data was done via non-parametric statistics using Kendall's coefficient of concordance (Kendall's W) to determine the extent to which the ranking of SWOT attributes are in accord (agreement) among respondents. The calculation of Kendall's W applied the following formulae (Legendre, 2005):

$$W = \frac{12\,S}{m^2(n^3 - n)} \qquad S = \sum_{i=1}^{n}(R_i - \bar{R})^2 \qquad R_i = \sum_{j=1}^{m} r_{ij} \qquad \bar{R} = \frac{1}{n}\sum_{i=1}^{n} R_i$$

S = Sum of Squared deviations; m = no of judges or raters; n = no of objects; R_i = total rank given to object i; $\bar{R}$ = mean value of total rank; r_{ij} = object i is given the rank r_{ij} by judge number j.

RESULTS AND DISCUSSION

Table 1 (A) shows the means and standard error of all the attributes listed under "strengths". Of these attributes, the highest ranking was the ability of rabbits to utilize forages. Other attributes (in decreasing order of ranking) included high prolificacy of rabbits, low incidence of diseases and ailments and use of renewable resources (e.g. wood, bamboo and forages) for housing, nutrition and healthcare (Kendall's W = 0.942). These attributes were perceived and ranked as strengths of the enterprise, that is, the basic assets of commercial rabbit units that provide competitive advantages for the functionality of such enterprises. The ability of rabbits to utilize forages has several merits including (i) low cost feeding (ii) sustainable production systems through the use of available biomass (iii) opportunities for integration of farm components in a mixed crop-livestock production system. (e.g. *Ipomea batatas* (potato) vines as feed for rabbits while the tubers are harvested for human consumption. Of particular appeal is the low-cost options provided by the use of forages for rabbit feeding and the advantage of year-round rabbit production especially in coastal areas.

High prolificacy of rabbits was ranked as the 2nd strength attribute by the participants. Prolificacy has several advantages. (i) It contributes to high overall annual doe productivity (e.g. number of weaners/doe/year or number of fryers/doe/year), if pre- and post-weaning mortality can be minimized through good management; (ii) combined with improved management, high prolificacy, contributes to improved family nutrition and income securities of the household. Low incidence of diseases and health challenges (ranked 3rd) imply that rabbit units can be managed with reduced costs of veterinary care and that risks and losses associated with health challenges are minimized; (iii) more importantly, that efficient management could contribute to high number of weaners and fryers per doe/year.

Table 1 (B) shows the ranking of attributes related to "weaknesses". Topping the ranking was low overall productivity measured as total number of weaners or fryers/doe/annum. This according to the FGD members is caused by a combination of factors including low kit survival rates, prolonged kindling interval and sub-optimal management. Thus factors contributing to low overall productivity are

Table 1: Means and Kendall's coefficient of concordance test for attributes relating to strengths, weaknesses, opportunities and threats of commercial rabbit operations

SWOT Category	Mean	SE	Kendall's 'W' Test Mean Rank
(A) Strengths			
Ability of rabbits to consume forages	3.79	0.107	3.82
High Prolificacy of rabbit does	3.14	0.091	3.11
Low disease incidence	2.29	0.117	2.00
Use of renewable resources (e.g. wood bamboo and forages) as production inputs	1.21	0.107	1.07
			Kendall's 'W'= 0.942
(B) Weakness			
Low overall productivity	3.71	0.117	3.79
High production costs e.g. breeding stocks, quality cages, etc.	3.00	0.098	3.07
Poor quality inputs	2.07	0.119	2.07
Rabbits seen more as "pets" than as livestock	1.14	0.091	1.07
			Kendall's 'W'= 0.754
(C) Opportunities			
Incomes and nutrition securities to households raising rabbits	3.86	0.091	3.86
Acceptance across ethnic and religious lines	3.14	0.091	3.04
Low investment costs especially for smallholder units	2.00	0.170	1.96
Multiple products (weaners, breeding stocks or fryers sold live, slaughtered, frozen or grilled meat, etc)	1.14	0.091	1.14
			Kendall's 'W'= 0.924
(D) Threats			
Low consumption and marketing challenges	3.86	0.133	3.75
Potential in poverty alleviation unrecognized	3.29	0.117	3.14
No government policy on rabbit production	2.07	0.154	1.96
Inappropriate solutions to constraints of production (e.g. nutrition, genetics, housing, etc.)	1.29	0.117	1.14
			Kendall's 'W'= 0.898

essentially, management-related. Other attributes related to weaknesses ranked by FGD members (in decreasing order) included high production costs, poor quality inputs (including breeding stocks, concentrate feeds, standard housing materials, etc.) and rabbits seen or treated as "pets", a factor that affects acceptability and consumption of rabbit meat as a conventional livestock. (Kendall's w=0.754). These attributes are the liabilities of commercial rabbit operations which can pose disadvantages for growth, expansion and development.

Table 1 (C) shows the means and ranking of the attributes related to "opportunities". Topmost attribute was income and nutrition securities to the household as part of the contributions of the rabbit enterprise. This is supported by Owen *et al.* (2005) who documented the contributions of such units to poverty alleviation. Other attributes in decreasing order of relevance included acceptability of rabbit meat across all ethnic and religious group lines; low costs of investment (e.g. housing and feeding, etc.) and multiple products derived from rabbit production (including weaners, fryers, frozen or grilled meat, etc.). Low-cost investment is supported by Lukefahr and Cheeke (1991). In all these, opportunities combine family well being, socio-economics, investment and marketing avenues.

Table 1 (D) presents attributes listed as "threats" as perceived by respondents. These attributes (in decreasing order of ranking) included low consumption and challenges with market networks; potentials of rabbit production in poverty alleviation not acknowledged; no policy framework on smallholder or commercial rabbit project development in relation to family nutrition, income and poverty reduction; and (iv) inappropriate solutions to problems of sourcing breeding stock, nutrition, housing, healthcare, etc.

After the identification, ranking and description of SWOT attributes related to the operations of commercial rabbit units, functional strategies can be developed, based on the outcomes. For instance, the most important strengths and opportunities can be combined into a strategy. A second approach is to confront the weaknesses with the opportunities, or overcome the weaknesses by taking advantage of the opportunities, or convert weaknesses and threats to a strategy that vitalizes the system (EURECA, 2010). For instance, all the weaknesses and threats can be addressed and resolved through a national strategic agenda for smallholder rabbit project development, with poverty alleviation as the driving agenda.

CONCLUSION

This exploratory study identified, ranked and described attributes related to SWOT of commercial rabbit operations in southwestern Nigeria. Strategies for using the strengths (**e.g. forage consumption**) to boost opportunities (**e.g. income security**) or minimize the threats (**e.g. poverty alleviation**) are also presented.

ACKNOWLEDGEMENTS

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