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A SWOT analysis of rabbit farming in Kerala[#]

D. Bhagathsingh*[1], P. T. Suraj[2], Joseph Mathew[3],

A. Prasad[4] and T. S. Rajeev[5]
Department of Livestock Production Management,
College of Veterinary and Animal Sciences, Mannuthy, Thrissur – 680651,
Kerala Veterinary and Animal Sciences University, Kerala, India

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Abstract

A survey was undertaken for SWOT (Strength, Weakness, Opportunity and Threats) analysis of rabbit production system in Thrissur and Malappuram districts of Kerala. Sixty rabbit units were selected randomly from the rabbit farmers of the two districts. The rabbit units were classified as small (1-10 doe unit) and medium (>10 doe unit). Thirty farms from each category were selected for SWOT analysis to assess internal and external factors affecting the viability and sustainability of rabbit farms in Kerala. The SWOT factors had Kendall's 'W' value ranging from 0.005 to 0.017 and 0.006 to 0.069 respectively for the small and medium rabbit farms. Based upon outcomes, most important strengths and opportunities could be combined to formulate a functional strategy that can vitalize the rabbit production systems.

Keywords: *Rabbit farming, SWOT analysis, Kerala.*

Running title: A SWOT analysis of rabbit farming in Kerala

Domestic rabbit (*Oryctolagus cuniculus*) is a potential, unexploited, micro-livestock species that possesses a lot of positive features such as high reproductive efficiency, early sexual maturity, short gestation length and short generation interval. Rabbit husbandry has great potential to improve the socio-economic status of the rural poor people. The SWOT analysis of rabbit production system will help to understand the functionality, stability, sustainability and viability of the rabbit farm.

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1. *M.V.Sc. student and *Corresponding author, vetdrbhagath@gmail.com, 9487880573*
2. *Associate Professor, Department of Livestock Production Management, Livestock Research Station, Thiruvazamkunnu*
3. *Professor and Head*
4. *Assistant Professor*
5. *Associate Professor, Department of Veterinary and Animal Husbandry Extension*

During the year 2014, the FSSAI (Food Safety and Standards Authority of India) did not include the Leporids in the list of animal species for human consumption, which restricted the slaughter of rabbits thereby resulting in drop in supply and demand for rabbit meat. In April 2016, the FSSAI reinstated the rabbit meat under Food Safety and Standards (Food products standards and food additives) Regulations, 2011. Rabbit production has revived after a period of decline caused by these policy restrictions imposed by the government. Hence a systematic approach is needed for the best exploitation of the rabbit farming system during the revival period. The practices of the top 10 per cent of the most successful farmers with appropriate refinement can be adopted by others for improving their production and income.

Materials and methods

Strength, weakness, opportunity and threats in rabbit farming among the different class of farmer group were studied and suggestions were put forward for the improvement of rabbit rearing in the study area. The methodology for this study applied exploratory research design via structured questionnaire and the Likert method of summated ratings (Murphy and Dooley, 2000 and Sansidar and Reddy, 2012).

Data sets included details about attributes related to strengths, weaknesses, opportunities and threats of the commercial rabbit operations. Terms were appropriately defined and explained to each rabbit farmer prior to the commencement of the survey. In the first phase of the survey, the respondents 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 consensus, while noting areas of disagreement.

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 was in accord (agreement) among respondents. The calculation of Kendall's W applied the following formulae (Legendre, 2005)

$$W = \frac{12S}{m^2(n^3 - n)} \qquad S = \sum_{i=1}^{n} (R_i - \overline{R})^2$$

$$Ri = \sum_{j=1}^{m} r_{ij} \qquad \overline{R} = \frac{1}{n} \sum_{i=1}^{n} R_i$$

S = Sum of Squared deviations

m = Number of judges or raters

n = Number of objects

Ri = Total rank given to object i

$\overline{R}$ $\overline{R}$ = Mean value of total rank

r_{ij} = Object i is given the rank r_{ij} by judge number j.

Results and discussion

SWOT analysis of rabbit farms presented in the Table 1. Out of the attributes mentioned in the strengths, first ranking was received for the ability of rabbits to utilize forages in both small and medium rabbit farms. Other attributes arranged in the order of decreasing rank included high prolificacy of does, low incidence of diseases and usage of renewable resources. These attributes were perceived and ranked as strengths of rabbit farms. Kendall's 'W' value for strengths of small and medium rabbit farms were 0.013 and 0.069, respectively. These results were in close agreement with Oseni *et al*. (2016), who reported that the strengths were basic assets of the rabbit rearing enterprise. Low-cost feeding system, usage of locally available biomass and integration of crop-livestock production system were the strengths of rabbit production system.

Out of the attributes mentioned in the weakness, top most ranked attribute was the lower productivity followed by higher production cost, poor quality inputs and rabbits treated as pets. Kendall's 'W' value for weakness of small and medium rabbit farms were 0.012 and 0.013, respectively. These results were in close agreement with Oseni *et al*. (2016), who

Table 1. SWOT analysis of Rabbit farms

Variables	Category of farm					
	Small rabbit farm			Medium rabbit farm		
	Mean	SE	Kendall's 'W' test Mean Rank	Mean	SE	Kendall's 'W' test Mean Rank
Strength						
1. Ability of rabbits to consume forages	2.67	0.211	2.58	2.87	0.218	2.90
2. High Prolificacy of rabbit does	2.60	0.189	2.53	2.50	0.178	2.43
3. Low disease incidence	2.50	0.202	2.58	2.47	0.196	2.55
4. Use of renewable resources (e.g. wood bamboo and forages) as production inputs	2.40	0.207	2.30	2.23	0.190	2.12
			Kendall's 'W'=0.013			Kendall's 'W'=0.069
Weakness						
1. Low overall productivity	2.57	0.213	2.62	2.57	0.190	2.60
2. High production costs e.g. breeding stocks, quality cages, etc.	2.50	0.208	2.60	2.50	0.196	2.55
3. Poor quality inputs	2.40	0.218	2.40	2.40	0.228	2.55
4. Rabbits seen more as "pets" than as livestock	2.40	0.201	2.38	2.27	0.225	2.30
			Kendall's 'W'=0.012			Kendall's 'W'=0.013
Opportunities						
1. Incomes and nutrition securities to households raising rabbits	2.53	0.208	2.48	2.60	0.228	2.60
2. Acceptance across ethnic and religious lines	2.50	0.218	2.60	2.43	0.196	2.55
3. Low investment costs especially for smallholder units	2.47	0.213	2.52	2.37	0.222	2.40
4. Multiple products (weaners, breeding stocks or fryers sold live, slaughtered, frozen or grilled meat, etc.	2.33	0.221	2.40	2.33	0.216	2.45
			Kendall's 'W'=0.005			Kendall's ' W'=0.006
Threats						
1. Low consumption and marketing challenges	2.60	0.212	2.62	2.53	0.190	2.70
2. Potential in poverty alleviation unrecognized	2.53	0.202	2.65	2.47	0.213	2.63
3. No government policy on rabbit production	2.33	0.194	2.33	2.20	0.222	2.40
4. Inappropriate solutions to constraints of production (e.g. nutrition, genetics, housing, etc.)	2.30	0.221	2.40	2.17	0.198	2.27
			Kendall's 'W'=0.017			Kendall's 'W'=0.031

reported that these attributes were liabilities of rabbit production which can affect the growth, development and expansion of rabbit farm.

From the attributes mentioned in the opportunities, highest ranked attribute was the income and nutrition securities to households in both small and medium rabbit farms. This was supported by Owen *et al.* (2005) who suggested rabbitry contributes to poverty alleviation. Other attributes arranged in the order of decreasing rank included acceptability of rabbit meat

across all ethnic and religious taboos and low-cost investment and multiple products from rabbits. Kendall's 'W' value for opportunities of small and medium rabbit farms were 0.005 and 0.006, respectively.

In the attributes related to threats, highest ranking was obtained for the lower consumption and challenges in marketing followed by unawareness of rabbit production in poverty alleviation, no government policy regulations regarding rabbit project and inappropriate solutions to constraints faced by the rabbit farmers. Kendall's 'W' value for opportunities of small and medium rabbit farms were 0.017 and 0.031, respectively.

Conclusion

After SWOT ranking and analysis, weaknesses can be overcome by taking advantage of opportunities and strengths. All the weaknesses and threats could be resolved and overcome by the strategy of implementing successful rabbit projects. Based upon outcomes, most important strengths and opportunities could be combined into a functional strategy that vitalizes the rabbit production systems.

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Conflict of interest

The authors declare that they have no conflict of interest.

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