



ISSN (E): 2277-7695

ISSN (P): 2349-8242

NAAS Rating: 5.23

TPI 2022; 11(12): 2791-2796

© 2022 TPI

www.thepharmajournal.com

Received: 19-09-2022

Accepted: 25-10-2022

Chethan GN

Ph.D. Research Scholar,
Department of Veterinary &
Animal Husbandry Extension
Education, College of Veterinary
and Animal Sciences, Pookode,
Wayanad, Kerala Veterinary
and Animal Sciences University,
Kerala, India

Senthilkumar R

Director, Academic Staff College,
Kerala Veterinary and Animal
Sciences University, Mannuthy,
Kerala, India

Reeja George P

Professor, Department of
Veterinary & Animal Husbandry
Extension Education, College of
Veterinary and Animal Sciences,
Mannuthy, Thrissur, Kerala
Veterinary and Animal Sciences
University, Kerala, India

Corresponding Author:

Chethan GN

Ph.D. Research Scholar,
Department of Veterinary &
Animal Husbandry Extension
Education, College of Veterinary
and Animal Sciences, Pookode,
Wayanad, Kerala Veterinary
and Animal Sciences University,
Kerala, India

A SWOT matrix analysis of livestock development for livelihood support programme implemented in Wayanad district of Kerala

Chethan GN, Senthilkumar R and Reeja George P

Abstract

Livestock Development for Livelihood support programme (LDLS) was implemented during 2011-2012 by the Department of Animal Husbandry, Government of Kerala to uplift the socio-economic conditions of the livestock farmers. Strengths, weaknesses, opportunities and threats of the LDLS programme was studied, SWOT matrices were analysed to establish useful strategies for decision making process. The most relevant strategies were arrived at by ranking the four general strategies (Strengths-Opportunities, Strengths-Threats, Weaknesses-Opportunities and Weaknesses-Threats) for the programme. The results of the present study indicated that for the LDLS programme, the focus should be on the strategies that use the strengths of the programme to increase the effects of the opportunities as well as those strategies that use the strengths of the production system and programme to reduce the impacts of the threats. This would imply design of strategies that aim at to further developing the production system features such as effective utilization of multi species programme for enhanced production of milk, meat and egg. The value of match between the different categories of internal and external factors and therefore the value of the subsequent strategy is shown as a gradient of colours ranging from blue (the most highly valued) to red (the least valued).

Keywords: SWOT Matrix, LDLS programme and Impact assessment

Introduction

Livestock Development for Livelihood support programme (LDLS) was implemented by the Department of Animal Husbandry, Government of Kerala to uplift the socio-economic conditions of the livestock farmers. Under the programme one pregnant heifer, two adult female goats and ten layer chicks were distributed. Pregnancy ration of 50 Kg concentrate cattle feed per month for a three month period was also distributed to each beneficiary. LDLS was implemented in entire Kerala state with special preference to Wayanad district.

Materials and Methods

The study was conducted in the Wayanad district of Kerala among 150 beneficiaries of LDLS programme. Respondents of the study were selected by applying stratified multistage random sampling technique. From all three taluks (Vythiri, Sulthan batheri and Mananthavady) five panchayats each were randomly selected. From each grama panchayat an equal number of 10 beneficiaries were selected randomly

Phases of the SWOT analysis

- i) Identification of driving factors of the system: Strengths, Weaknesses, Opportunities and Threats by discussing with programme beneficiaries and other stake holders like implementation officers, presidents of gram Panchayats and milk co-operative society and bank personnel.

A total of 19 strengths, 22 weaknesses, 9 opportunities and 14 threats were identified. Responses to each statement were scored on a three point continuum namely agree, undecided and disagree. For each factor, the frequencies of various responses on three point continuum were multiplied with the respective weights and added up to get a cumulative value which was divided by the number of statements under each category to obtain a mean score. Based on the mean score the items were ranked in the descending order and the highest value was assigned the first rank

- ii) Identification and prioritization of strategies for programme to achieve its objectives

Internal factors were classified into the following six categories as per Hiemstra *et al.*, 2010 [3] with suitable modifications

1. **Farmer features:** Farmer characteristics and effect of farmer organisations on income, expenditure and employment
2. **Animal features:** Productive and functional attributes of animals
3. **Production system features:** Technical, cultural and environmental aspects of production system including animal husbandry, fodder cultivation and agriculture.
4. **Stakeholder features:** All aspects related to influence of various stakeholders under the programme
5. **Income and employment:** The expenditure of the farming and amount derived from production of livestock. Employment is the number of working hours generated from livestock rearing
6. **Infrastructure features:** The physical and organizational structures needed for the operation of a farming practice.

External factors were classified into the following six categories as per Hiemstra *et al.*, 2010 [3] with suitable modifications

1. **Policies and legislation:** Regulations of a wide range from subsidies to health at the state as well as national level
2. **Marketing system:** Aspects of the current marketing of products that are under the control of the farmer
3. **Production system:** different aspects of competition with high input-high output production systems.
4. **Animal influences:** Productive and functional attributes of animals
5. **Topographic system:** The arrangement of the natural and artificial physical features in an implemented area
6. **Farmer influences:** Farmer characteristics and effect of farmer organisations on income, expenditure and employment

SWOT matrix is a process of matching strengths and weaknesses with opportunities and threats of organizations or programmes. The SWOT matrix can be used to make strategic

decisions based on the analysis of the current and expected future situations (Wehrich, 1982) [5]. The matrix setting helps to identify interactions between internal and external factors. Strategies were developed in four ways, as shown in Figure 1,

1. To maximize both opportunities and strengths,
2. To minimize weaknesses while maximizing opportunities
3. To maximize strengths while minimizing threats, and
4. To minimize both weaknesses and threats. These four strategies were defined in more specific terms as follows:
 - **SO strategy:** To use strengths to take advantage of opportunities.
 - **ST strategy:** To use strengths to reduce the likelihood and impact of threats.
 - **WO strategy:** To overcome weaknesses that prevents the pursuit of opportunities, and to make use of the opportunities to overcome weaknesses.
 - **WT strategy:** To be aware of limitations those emerge from the combination of weaknesses and threats.

SWOT matrix (Fig 1.) was prepared at two different levels first by matching groups of internal and external factors and second by matching the categories of internal factors with the categories of external factors. By jointly considering the relative importance of all the strengths, weaknesses, opportunities and threats within the programme execution, the four general strategies were ranked to find the most relevant strategy for the programme execution.

Table 1: The SWOT matrix: strategic decisions based on SWOT factors (Weinrich, 1982) [5]

External factors	Internal factors	
	Strengths	Weaknesses
Opportunities	SO strategy	WO strategy
	Maximize both strength and opportunities	Minimize weaknesses and maximize opportunities
Threats	ST strategy	WT strategy
	Maximize strengths while minimizing threats	Minimize both weaknesses and threats

Results and Discussions

The perceived strengths, weaknesses, opportunities and threats of LDLS programme, its mean score and rank were presented from Table 1 to 4. The Matrix for the Internal and External factor categories were mentioned in Table 5.

Table 2: Perceived strengths of LDLS programme with mean scores and item rankings

Item No	Item	Category	Mean score	Rank
1	LDLS linked subsidies serve as annual economic assistance to livestock farmers	Income and employment	2.99	I
2	LDLS linked insurance scheme reduced the risk associated with sudden death of the animal	Income and employment	2.97	II
3	The experience and knowledge already possessed by the dairy farmers made this programme more effective	Farmer features	2.93	III
4	LDLS was instrumental in providing livelihood options to daily wage laborers	Income and employment	2.83	IV
5	LDLS was instrumental in cushioning farm families from economic insecurity due to crop failure.	Income and employment	2.83	V
6	LDLS provided food security to the beneficiary families by enhanced milk, meat and egg production	Production system Features	2.59	VI
7	Easy availability of the loan under this scheme facilitated its quick implementation	Stakeholders	2.56	VII
8	LDLS resulted in additional income to existing dairy farmers	Income and employment	2.54	VIII
9	The multi species programme envisaged under LDLS was suitable for Wayanad region which has farming communities practicing integrated farming.	Production system features	2.52	IX
10	Distribution of heifer as part of LDLS ensured a longer productive span	Animal features	2.49	X

	ensuring returns			
11	LDLS generated additional employment to the family members of dairy farmers	Income and employment	2.39	XI
12	Additional income for farmers was ensured by including poultry in LDLS	Income and employment	2.35	XII
13	LDLS helped in expanding existing livestock farms	Infrastructure features	2.33	XIII
14	The beneficiary selection criteria of LDLS selecting small land holdings ensured its successful implementation.	Stakeholders	2.28	XIV
15	Additional income generated as a part of LDLS was helpful in promoting education of children in the beneficiary households	Income and employment	2.25	XV
16	The goats distributed under LDLS opened up new avenues for subsidiary income	Animal features	2.25	XVI
17	Concentrate feed distribution reduced the cost of production	Income and employment	1.73	XVII
18	Veterinary health care provided as part of LDLS improved the health status of dairy animals	Stakeholders	1.64	XVIII
19	Fodder scarcity and high cost of fodder production were overcome through LDLS	Production system features	1.21	XIX

Table 3: Perceived weaknesses of LDLS programme with mean scores and item rankings

Item No	Item	Category	Mean score	Rank
1	The distribution of heifers made it difficult to have the information on the productive capacity and fertility of these animals.	Animal features	2.33	I
2	Feed subsidy not properly planned	Stakeholders	2.31	II
3	Transporting pregnant heifers from neighbor state was risky	Animal feature	2.14	III
4	Fund allotted for heifer purchase was not sufficient to procure high producing animals under the programme	Stakeholders	2.11	IV
5	Lack of accessibility and information about selection of good heifers from other state	Stakeholders	2.07	V
6	Livestock obtained under the programme acted as replacing stock rather than additional livestock	Production system features	2.05	VI
7	Land meant for agriculture and fodder production is less	Infrastructure features	2.03	VII
8	Lack of shelter space for additional livestock obtained under the programme	Infrastructure features	1.76	VIII
9	Lack of experience in poultry and goat farming	Farmer features	1.66	IX
10	Difficult to manage multi-species enterprise due to, lack of knowledge, experience and availability of time	Farmer features	1.65	X
11	Unable to access commercial marketing channels and failure to capitalize on impact on value addition due to poor production of animals under LDLS	Animal features	1.56	XI
12	Lack of man power or labor to manage different livestock enterprises.	Farmer features	1.53	XII
13	Physiological adjustment problems of animals purchased from outside the state resulting in lower milk yields	Animal features	1.47	XIII
14	Obtaining and reimbursing of loan for beneficiaries was delayed due to the official procedures	Stakeholders	1.43	XIV
15	Financial constraints and lack of other collateral mechanisms forced farmers to sell animals to repay loan.	Farmer features	1.31	XV
16	Poor training support for beneficiaries under the programme	Stakeholders	1.29	XVI
17	Well experienced but landless dairy farmers were left out of this scheme	Farmer features	1.27	XVII
18	Feed distribution was irregular	Stake holders	1.21	XVIII
19	Political interference in the selection of beneficiaries hampered the proper / selection of beneficiaries	Stakeholders	1.19	XIX
20	Utilized goats and poultry for domestic consumption / family functions	Farmer features	1.18	XX
21	Beneficiaries were forced to sell the cattle distributed under the scheme due to low productivity which may be result of poor selection	Animal features	1.17	XXI
22	Beneficiaries availed the benefit of subsidy rather than expanding their livestock farm	Farmer features	1.15	XXII

Table 4: Perceived opportunities of LDLS programme with mean scores and item rankings

Item No	Item	Category	Mean score	Rank
1	Facilitated organic farming ensuring adequate supply of manure for use on farms	Production system	2.75	I
2	LDLS provided opportunity to promote further integrated farming systems.	Production system	2.49	II
3	LDLS inculcated enhanced decision making ability in farm families.	Farmer influences	2.46	III
4	LDLS served as a means for opening up local and distant livestock market for beneficiaries	Marketing system	2.36	IV
5	LDLS opened up new vistas of information for farmers to explore newer opportunities in livestock farming	Farmer influences	2.26	V
6	As heifers were purchased from the neighboring states, the scheme was instrumental in increasing livestock population of the state	Policies and legislation	2.23	VI
7	LDLS ensured more opportunities for engaging in value addition of milk products	Marketing system	1.24	VII
8	LDLS improved the farmers access to local sandies and rural livestock markets for buying and selling the commodities	Marketing system	1.21	VIII
9	LDLS implementation facilitated beneficiaries to sell their value added products through their own marketing channels	Marketing system	1.15	IX

Table 5: Perceived threats of LDLS programme with mean scores and item rankings

Item No	Item	Category	Mean score	Rank
1	Since the milk pricing is controlled by government agencies, farmers are not able to increase the price in accordance with cost of production	Policies and legislation	2.40	I
2	Massive death of poultry due to outbreak of diseases	Topographic system	2.25	II
3	Lack of market support for animals / products leading to no gain and no loss.	Marketing system	2.20	III
4	High rate of interest for the loan	Policies and legislation	1.95	IV
5	Cost of input is high compared to the price of milk	Production system	1.91	V
6	It is difficult to pass through interstate check post, as there were many queries about the livestock being transported.	Policies and legislation	1.88	VI
7	Instances of poultry going missing and attack of poultry by stray animals and other predators.	Topographic system	1.87	VII
8	Sold goats and poultry to meet urgent family needs	Farmer influences	1.66	VIII
9	Death of animals distributed under this programme	Animal influences	1.33	IX
10	Sold the animals as it was found to have contracted a disease at the time of purchase	Animal influences	1.16	X
11	Unremunerative price for milk resulted in sale of animals	Marketing system	1.15	XI
12	Backyard poultry were nuisance and destroyed fodder and other crops	Production system	1.10	XII
13	Created labor shortage and decreased availability of human resource for other sectors	Policies and legislation	1.06	XIII
14	Animals distributed under the programme introduced diseases to existing stock	Animal influences	1.03	XIV

Table 6: Matrix for the Internal and External factor categories identified by the stake holders of LDLS programme

Internal factor category		From Table 1	From Table 2	External factor category		From Table 3	From Table 4
Farmer features	No. of Items From Table 1 and 2	1	7	Production system	No. of Items From Table 3 and 4	2	2
	Factor category Mean	2.93	1.39		Factor category Mean	2.62	1.5
	Factor category Rank	I	V		Factor category Rank	I	V
Income and employment features	No. of Items From Table 1	9		Farmer influences	No. of Items From Table 3 and 4	2	1
	Factor category Mean	2.54			Factor category Mean	2.36	1.66
	Factor category Rank	II			Factor category Rank	II	IV
Animal features	No. of Items From Table 1 and 2	2	5	Policies and legislations	No. of Items From Table 3 and 4	1	4
	Factor category Mean	2.37	1.73		Factor category Mean	2.33	1.82
	Factor category Rank	III	III		Factor category Rank	III	II
Infrastructure features	No. of Items From Table 1 and 2	1	2	Marketing system	No. of Items From Table 3 and 4	4	2
	Factor category Mean	2.33	1.9		Factor category Mean	1.49	1.68
	Factor category Rank	IV	II		Factor category Rank	IV	III
Stake holders features	No. of Items From Table 1 and 2	3	7	Topographic system	No. of Items From Table 4		2
	Factor category Mean	2.16	1.66		Factor category Mean		2.06
	Factor category Rank	V	IV		Factor category Rank		I
Production system features	No. of Items From Table 1 and 2	3	1	Animal influences	No. of Items From Table 4		3
	Factor category Mean	2.10	2.05		Factor category Mean		1.77
	Factor category Rank	VI	I		Factor category Rank		IV

The results of the present study indicated that for the LDLS programme, the focus should be on the strategies that use the strengths of the programme to increase the effects of the opportunities as well as those strategies that use the strengths of the production system and programme to reduce the

impacts of the threats. This would imply design of strategies that aim at to further developing the production system features such as effective utilization of multi species programme for enhanced production of milk, meat and egg.

Table 7: Relevant strategies for the Livestock Development for Livelihood Support programme

External factors	Internal factors	
	Strengths	Weaknesses
Opportunities	SO strategy Mean Score: 2.303 Rank: I	WO strategy Mean Score: 1.973 Rank: III
Threats	ST strategy Mean Score: 2.026 Rank: II	WT strategy Mean Score: 1.697 Rank: IV

Quantified SWOT matrix for factor categories of LDLS programme

More concrete strategies were arrived at by focusing the analysis on categories of the SWOT matrix such as farmer, animal, income and employment features, production and marketing system etc., the process consisted of developing strategies based on the pair of categories of internal and external factors with higher values (Collado *et al.*, 2010) ^[1]. The results of the matching process are depicted in Table 6. The value of match between the different categories of internal and external factors and therefore the value of the subsequent strategy is shown as a gradient of colours ranging from blue (the most highly valued) to red (the least valued). Analysis of the categories shows that the strengths of the LDLS programme related to the farmer features, income and employment features, animal features and to a lesser extent infrastructure and stake holders features as well. Opportunities were however related not only to the production system and farmer influences but also to policies and legislations. So also, potential weaknesses with respect to farmer features and among stakeholders need to be addressed. Specific strategies in this regard could include minimizing the threats to the topographic system by ensuring appropriate

manage mental strategies to minimize poultry mortality such as effective vaccination and controlling predation of birds by providing shelter. So for poultry also, minimizing the weaknesses identified in the production system such as creating awareness among the beneficiaries about importance of livestock provided under programme especially as an additional stock to the existing farm by providing incentives for the additional production of the products like milk, meat and egg. Panayotova *et al.*, (2021) ^[4] in his study, SWOT analysis of GREENANIMO project activities found that Knowledge and know-how of the farmer was the major strength, Low purchase prices from the farm was the important weakness followed by Insufficient subsidies was one among other weakness, Low productive performance of the animals and High feed prices were the important threats of the above mentioned project, This findings concurred with the similar observations were made by LDLS SWOT analysis. Swot analysis of Bravia goat rearing towards its sustainability by Costa and Costa (2011) ^[6] found that main source of income derived from farm final products along with monetary support by selling the kids and additional source of income from animal products were the most important strengths, low profitability of the system, Low income/ productivity / production efficiency and High mortality rate of goat kids were important weakness, Collection of food for own-farm households was one among opportunities and Weak role of producers association in getting good price & ensuring food safety was the prime threat found on Economic SWOT analysis of the Bravia goat production system. Garg *et al.*, (2021) ^[2] conducted SWOT Analysis of Dairy Sector Development in Haryana and found that Lower animal productivity was important weakness and Low milk prices was one among the threats in their study.

Table 6: Quantified SWOT Matrix for categories of LDLS programme, colors represents the value of the match of the different categories of internal and external factors ranging from Blue (most important) to Red (least important)

External Factors	Factor Categories		Internal factors											
			Strengths					Weaknesses						
			Farmer features	Income and employment features	Animal features	Infrastructure features	Stake holders features	Production system features	Production system features	Infrastructure features	Animal features	Stake holders features	Farmer features	
Opportunities	Production system													
	Farmer influences													
	Policies and legislations													
	Marketing system													
	Topographic system													
	Threats	Policies and legislations												
	Marketing system													
	Farmer influences													
	Production system													
	Animal influences													
1	2	3	4	5	6	7	8	9	10					

Conclusion

Analysis of SWOT matrix of LDLS programme sheds light on the possibilities of making new in-roads in less explored aspects of production such as organic farming and integrated

farming through effective utilization of strengths of programme such as farmer features, in particular to the experience and knowledge already possessed by the beneficiaries. Specific threats in policies and legislation that

need to be addressed include facilitating beneficiaries to focus on value addition of milk products so as to ensure farmer income in accordance with cost of production besides improving access to markets.

References

1. Collado DM, Gandini G, de Haas Y, Díaz C. Decision making tools for the development of breed strategies. In: Local cattle breeds in Europe. Hiemstra S.J., de Haas Y., Maki-Tanila A., Gandini G. (eds.). Wageningen Academic Publishers, The Netherlands; c2010. p. 120-140.
2. Garg L, Kumar K, Singh RK. SWOT Analysis of Dairy Sector Development in Haryana. *International Journal of Current Microbiology and Applied Sciences*. 2021;10(2).
3. Hiemstra SJ, de Haas Y, Maki-Tanila A, Gandini G. Local cattle breeds in Europe. Development of policies and strategies for self- sustaining breeds. Wageningen Academic Publishers; c2010. p. 161.
4. Panayotova M, Krastanov J, Varlyakov I, Stoyanchev T, Marinov I. SWOT analysis for supporting development of the grazing livestock meat production sector in Bulgaria through the GREENANIMO project activities. *Bulgarian Journal of Agricultural Science*. 2021;27:1065-1073.
5. Weihrich H. The TPWS Matrix. A tool for situational analysis. *Long Range Planning*. 1982;15:54-66.
6. Marta-Costa A, Costa H. Swot analysis of goat rearing towards its sustainability: Case study with Bravia goat breed. Economic, social and environmental sustainability in sheep and goat production systems. Zaragoza: CIHEAM / FAO / CITA-DGA (Options Méditerranéennes: Série A. Séminaires Méditerranéens; n. 100); c2011. p. 179-184.