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An Agribusiness development approach of beef cattle in selected areas of Bangladesh

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Abstract

The study was pursued to ascertain the existing internal and external factors, alternative strategies and priorities of the strategies applied in enhancing beef cattle agribusiness at Pabna and Sirajganj districts in Bangladesh. The primary data and present study were collected by employing various techniques such as survey, FGD, KII and observation methods. The total sample size was 180 which were selected through convenience sampling technique. The following analytical tools used were employed i) IFE-EFE analysis ii) SWOT analysis, iii) SWOT matrix, and iv) QSPM model. By analyzing all the factors from SWOT four strategies were developed to determine the beef cattle development. The best strategy was selected by using QSPM matrix. The results IFE is 2.610, EFE is 2.438 and the total weighted score is 5.833 indicates that beef cattle agribusiness are opportunity to explore their strengths and minimize their weaknesses. The beef cattle agribusiness development through the implementation of the integrated or contract farming that supported to backward and forward linkage and support services.

Keywords: Beef cattle agribusiness, Strategies, IFE-EFE Matrix, SWOT analysis

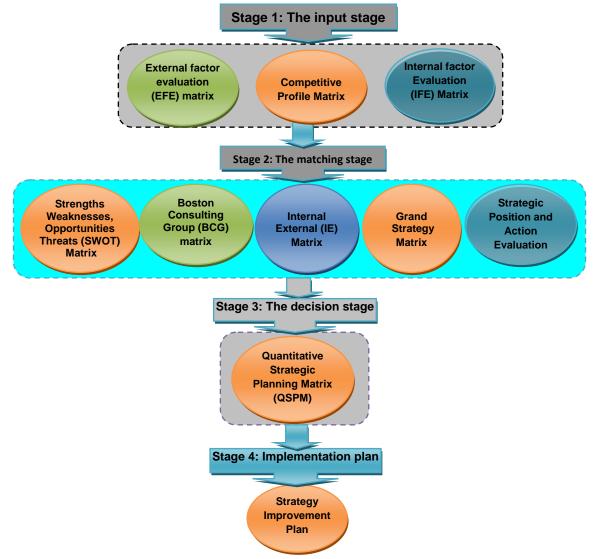
Introduction

Livestock agribusinesses play a significant role in our economy through contributing to poverty eradication by creating rural employment and to gear up the achievement of higher economic growth. Livestock is an integral component of agricultural economy of Bangladesh. Performing various functions as provisions of food, nutrition, income generation, savings, draft power, manure, fuel, transport and cultural function and earning foreign currency by exporting meat, hides and skin and value added waste products, etc. About 36% of the total animal protein comes from the livestock rest of them (64%) come from poultry, fish and pluses. Bangladesh has huge number of livestock and poultry population with a very high density but low productivity. The country has about 23.4 million cattle, 1.45 million buffalo, 25.6 million goats, 3.16 million sheep, 221.30 million chicken and 41.23 million ducks (GOB, 2012). Beef cattle are the important and potential sub-sector to economic improvement, where this sub-sector has a strategic value in the fulfillments of human need that increases steadily along with the increasing of per capita income. The study aimed to examine the existing characteristics of the farmers, i.e. their social and economic characteristics in relation to the development of beef cattle farming, to determine factors influencing the policy of beef cattle farming, and to design the strategic plan. The study is intended to contribute information and ideas in relation to sustainable beef cattle farming and also provide inputs for policy makers to develop the management plan for beef cattle development in order to fulfill the national food security needs.

Materials and Methods

The study was conducted in Pabna and Sirajganj districts. Two Upazilas namely Shatia from Pabna and Raigonj from Sirajgonj districts were selected because of the concentration of beef cattle fattening activity. Total sample size was 180 including beef cattle producers and different agribusiness actors (i.e. live cattle traders, brokers, butcher - cum -meat traders, meat processor and beef by-products traders etc). Convenience sampling technique was used for selection of respondents of the study and questionnaires survey, FGD, KII and observation methods were adapted for collection of primary data. Secondary data were also collected from the various sources. Results of the analysis were presented in the form of tables and matrix form. Data were analyzed by using SPSS software.

In this study, the following techniques were used which were also used by David *et al.*, (2009), Ananto *et al.*(2011), Achmad *et al.* (2012) and Prastuti *et al.* (2012).



Strategy Formulation frameworks

Results and Discussion

The results of the present study are presented in following heading to develop the beef cattle agribusiness strategies.

Internal Factor Evaluation Matrix (IFE matrix):

IEF Matrix is a strategic management tool used for evaluation of strengths and weaknesses for internal factors affecting the development of beef cattle in study areas. From Table 1, it can be seen that the highest weight score is 0.256 which implies that factors that are effective are innovation. These are important internal factors which are effective to develop the beef cattle in northern Bangladesh to support the food estate program. The result also shows that the sum of total weight score is 2.610. Therefore, it can be concluded that the strategy of developing beef cattle in northern Bangladesh has been effective in using the strength and minimizing weakness factors which had contributed to negative impact similar to Gunawan (2001). Suryana (2009) in his study also stated that in order to enhance the role of beef cattle as meat suppliers and livestock income sources, it is advisable to apply an intensive maintenance system with an improved feed management and improved quality of cattle with disease control.

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Table 1. IFE (Internal Factor Evaluations) Matrix

Internal Strategies Factor		Weight	Rating	Score	
		{Coefficient	(1-4)	(coefficient	
		importance (0-1)}		* rank)	
	ngth				
S1	Domestically produced	0.064	4	0.256	
S2	Beef cattle are renewable natural	0.059	4	0.236	
S3	Large number of labour force.	0.057	4	0.228	
S4	Government is committed to develop the sector	0.054	4	0.216	
S5	High interest beef cattle rearing among respondents	0.052	4	0.208	
S6	Rapid growth supermarkets, superstore, restaurant and tourist hotel.	0.065	3	0.195	
S7	Availability of innovative technology	0.056	3	0.168	
S8	Favorable geographical location, climate and breed	0.046	3	0.138	
S9	Consumers preference for beef	0.041	3	0.123	
Total Strength				1.768	
Weal	kness				
W1	Lack of feed and fodder	0.064	2	0.128	
W2	Lack of meat processing knowledge	0.063	2	0.126	
W3	Prevalence of Anthrax diseases	0.058	2	0.116	
W4	Lack of sufficient and proper slaughter houses	0.055	2	0.110	
W5	Limitations of supporting institutions related to beef cattle	0.048	2	0.096	
W6	Inadequate institutional support	0.048	2	0.096	
W7	Lack of working capital	0.064	1	0.064	
W8	Limited number of local cattle breed	0.053	1	0.053	
W9	No organized marketing system	0.053	1	0.053	
Total Weakness				0.842	
Total		1.00		2.610	

Source: Field Survey 2014

As for the improvement of genetic quality of the female calves, it is suggested to keep them in the breeding area for subsequent use as grading up cattle. Increased interest and motivation of cattle ranchers to expand their business can be facilitated through incentives in production.

External Factor Evaluation Matrix (EFE Matrix):

EFE matrix is used the weighting scoring system to identify the value opportunity weight and threat for beef cattle producers in study area. Based on external evaluation matrix the results (Table 2) showed that the total score for the opportunity factor is 1.725 and the threat is 0.713 and total score 2.438 indicate beef cattle agribusiness has a significant opportunity while minimizing threat in the study area which is similar to Achmad M. et al., (2012) and Prastit.

R.A. et al. (2012). This is consistent with Nugroho (2006) findings which states that the development of animal husbandry as a part of agricultural development will be associated with the reorientation of agricultural development policy. Animal husbandry development has new paradigms, namely alignment to people in general, responsibility delegation, structural change, and people empowerment. Therefore, it is necessary to formulate strategies and policies that are comprehensive, systematic, integrated both vertically and horizontally competitive, sustainable and decentralized.

Internal External Matrix (IE Matrix)

IE matrix is a simple analytical framework that is based on final summary of internal and external factors (IFE, EFE). It can specify appropriate strategy for the beef cattle agribusiness. Based on the evaluation of internal factors (IFE) and external factors (EFE) of the agribusiness, the following results were obtained:

Final score of internal factors evaluation matrix (IFE): **2.610** Final score of external factors evaluation matrix (EFE): **2.438**

Table 2. EFE (External Factor Evaluations) Matrix

Externa	al Strategies Factor	Weight	Rating	Score	
		{Coefficient	(1-4)	(coefficient*	
-		importance (0-1)}		rank)	
	unities				
01	Potential demand for beef over the country.	0.071	4	0.284	
02	Government support to develop beef cattle	0.065	4	0.260	
O3	Domestic and foreign private sector interested to invest.	0.074	3	0.222	
04	High potential for profitable slaughter and processing business	0.051	4	0.204	
O5	High value addition potential	0.067	3	0.201	
O6	Consumers express more interest and are willing to pay for safe food	0.061	3	0.183	
07	Domestic oriented processing plants have options to differentiate and diversify their products to satisfy some of the	0.055	3	0.165	
	untapped markets				
08	Labor intensive and employment opportunities	0.041	4	0.164	
O9	Scope exists for developing backward and forward linkage.	0.014	3	0.042	
Total C	portunities			1.725	
Threats	5				
T1	Low productivity	0.064	2	0.128	
T2	Increase in feed prices	0.061	2	0.122	
Т3	Increase in cattle prices	0.046	2	0.092	
T4	Absence of pasture lands	0.041	2	0.082	
T5	Poor access to credit	0.065	1	0.065	
T6	High transportation cost (Illegal toll for cattle marketing)	0.063	1	0.063	
Τ7	Beef cattle smuggling and Indian traders are selling cattle on credit	0.061	1	0.061	
T8	Spread of cattle diseases	0.057	1	0.057	
Т9	Lack of veterinary check of animal before and after slaughter	0.043	1	0.043	
	and low hygienic handling the meat lead to health risk for				
	consumers				
Total T	hreats			0.713	
Total		1.000		2.438	

Source: Field Survey 2014

Here IFE>EFE which indicates great opportunities to formulate the effective strategies for exploiting their strengths and minimize the weaknesses which is similar to Achmad *et al.* (2009) and Riston (2008). Based on the research on model policy for beef cattle development, Achmad *et al.* (2009) found the score of the internal and external factors was 2.603 and 3.457, respectively. They point out that the government policy should be aimed at intensive programs, such as market penetration, market development and developing products. The other government policy should also be aimed at integration programs such as backward integration, forward integration and product integration.

Formulating Alternative Strategies

Here different types of strategies were transferred to the strategic planning table after the examination of specific components of SWOT. The SWOT model is comprised of a two-dimensional coordinate table; each of its four areas is the maker of a group of strategies.

Based on various findings of SWOT analysis, four strategies are formulated which are presented in Strategic Planning Table (Table 3) and are described below.

SO strategy or Aggressive: SO strategy was formulated by maximum use of environmental opportunities with application of strengths of the beef cattle agribusiness.

ST strategy or competitive: ST strategy was generated by using strengths of the beef cattle agribusiness to avoid facing threats.

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WO Strategy or conservative: WO strategy was formulated by considering the potential advantages latent in environmental opportunities to make up for the weaknesses.

WT Strategy or defensive: WT strategy was formulated by considering minimizing loss from threats and weaknesses

Table 3. Strategic planning table for alternative strategies

Table 3. Strategic planning table for alternative strategies									
	Strength	Weakness							
	S1. Domestically produced	W1. Lack of feed and fodder							
	S2. Beef cattle are renewable natural	W2. Lack of meat processing							
	S3. Large number of labour force.	knowledge							
sw sw	S4. Government is committed to develop the	W3. Prevalence of Anthrax diseases							
	sector	W4. Lack of sufficient and proper							
	S5. High interest beef cattle rearing among	slaughter houses							
	respondents	W5. Limitations of supporting							
	S6. Rapid growth supermarkets, superstore,	institutions related to beef cattle							
от	restaurant and tourist hotel.	W6. Inadequate institutional support							
	S7. Availability of innovative technology	W7. Lack of working capital							
	S8. Favorable geographical location, climate	W8. Limited number of local cattle							
	and breed	breed							
	S9.Consumers preference for beef	W9. No organized marketing system							
Opportunities	SO Strategies (Aggressive) based on this	WO Strategies(conservative)- by							
O1. Potential demand for beef over the		improving sector's disadvantages use							
country.	environment's pleasant opportunities:	external environment's pleasant							
O2. Government support to develop beef		opportunities							
cattle	SO1. (S1,S2,S3,S4,O1,O2,O3,O4)								
O3. Domestic and foreign private sector		WO1. (W3, W4, W5, O1, O2,O6)							
interested to invest.	Developing an integration strategy involving								
O4. High potential for profitable slaughter	farmers, value chain actors and meat								
and processing business	processing industries. This can improve	and semi-intensive beef cattle							
O5. High value addition potential	productivity through transferring beef fattening	production by optimizing the principles							
O6. Consumers express more interest	technologies, provide support services and								
and are willing to pay for safe food	sustainable market linkage. Developed new								
O7. Domestic oriented processing plants	meat processing farm or abattoirs by PPP								
have options to differentiate and	model in producing areas and determining								
diversify their products to satisfy	strategies for marketing with a goal of								
some of the untapped markets	increasing domestic and foreign markets								
O8. Labor intensive and employment	share.	input and finally market linkage.							
opportunities									
O9. Scope exists for developing	Short-term strategy	Medium-term strategy							
backward and forward linkage.									
Threats		WT Strategies(defensive) - by							
T1. Low productivity	on sector's advantages use	improving its weak point in							
T2. Increase in feed prices	overcoming opportunities of external								
T3.Increase in cattle prices		non-pleasant condition and							
	•								
T4.Absence of pasture lands	influence	overcome its consequences							
T5.Poor access to credit	ST 1. (S1,S2,S3, S7, T1,T4,T6)	WT. 1. (W1,W2, W3, W5,							
T6.High transportation cost		T1,T5,T6)							
(Illegal toll for cattle	Development contract framing model								
marketing)	with provision of self help group								
T7.Beef cattle smuggling and	formation, skill development, provide	supporting programs, which							
Indian traders are selling	input and finally market linkage and	increase agribusiness potential							
cattle on credit	increasing the role of safe guards to								
T8.Spread of cattle diseases	guarantee the safeties of cattle								
T9.Lack of veterinary check of	a a ,	ability of ranchers by training							
animal before and after		programs and assistance.							
slaughter and low hygienic	Medium-term strategy	· -							
handling the meat lead to		Long-term strategy							
		Long-term strategy							
health risk for consumers									

Source: Authors own illustration 2014

Choosing Priority Strategy by the QSPM matrix

QSPM matrix is made in order to choose and determine which strategy is the best to recommend to beef cattle development.

Table 4. Quantitative strategies planning matrix (QSPM)

SI.	External and internal factors	Weight	t STRATEGY - SO							
No.		-	Strategy-I		Strategy-II		Strategy-III		Stra	tegy-IV
			AS TAS		AS TAS		AS TAS		AS	TAS
	Opportunities	а	b	C=a*b	d	e=a*d	f	g=a*f	h	l=a*h
01	Potential demand for beef over the country.	0.014	3	0.042	4	0.056	4	0.056	2	0.028
02	Government support to develop beef cattle	0.041	4	0.164	2	0.082	4	0.164	4	0.164
O3	Domestic and foreign private sector interested to invest.	0.061	3	0.183	3	0.183	3	0.183	3	0.183
O4	High potential for profitable slaughter and processing business	0.051	4	0.204	3	0.153	2	0.102	3	0.153
O5	High value addition potential	0.071	4	0.284	3	0.213	3	0.213	4	0.284
O6	Consumers express more interest and are willing to pay for safe food	0.074	3	0.222	4	0.296	2	0.148	4	0.296
07	Domestic oriented processing plants have options to differentiate and diversify their products to satisfy some of the untapped markets	0.067	3	0.201	4	0.268	3	0.201	3	0.201
08	Labor intensive and employment opportunities	0.065	4	0.260	3	0.195	3	0.195	3	0.195
O9	Scope exists for developing backward and forward linkage.	0.055	3	0.165	3	0.165	2	0.11	4	0.22
	Threats									
T1	Low productivity	0.063	1	0.063	2	0.126	4	0.252	4	0.252
T2	Increase in feed prices	0.043	1	0.043	1	0.043	3	0.129	4	0.172
T3	Increase in cattle prices	0.065	1	0.065	3	0.195	3	0.195	3	0.195
T4	Absence of pasture lands	0.064	2	0.128	2	0.128	4	0.256	3	0.192
T5	Poor access to credit	0.061	2	0.122	3	0.183	4	0.244	4	0.244
T6	High transportation cost (Illegal toll for cattle marketing)	0.057	1	0.057	3	0.171	3	0.171	3	0.171
T7	Beef cattle smuggling and Indian traders are selling cattle on credit	0.046	2	0.092	3	0.138	3	0.138	4	0.184
T8	Spread of cattle diseases	0.041	2	0.082	2	0.082	3	0.123	3	0.123
Т9	Lack of veterinary check of animal before and after slaughter and low hygienic handling the meat lead to health risk for consumers	0.061	1	0.061	3	0.183	4	0.244	4	0.244
	Strength									
S1	Domestically produced	0.059	4	0.236	2	0.118	3	0.177	2	0.118
S2	Beef cattle are renewable natural	0.064	4	0.256	2	0.128	3	0.192	2	0.128
S3	Large number of labour force.	0.057	4	0.228	3	0.171	3	0.171	1	0.057
S4	Government is committed to develop the sector	0.065	3	0.195	3	0.195	2	0.130		0.130
S5	High interest beef cattle rearing among respondents	0.056	3	0.168	2	0.112	2	0.112	2	0.112
S6	Rapid growth supermarkets, superstore, restaurant and tourist hotel.	0.052	4	0.208	2	0.104	1	0.052	1	0.052
S7	Availability of innovative technology	0.046	3	0.138	3	0.138	3	0.138	2	0.092
S8	Favorable geographical location, climate and breed	0.054	4	0.216	3	0.162	2	0.108	3	0.162
S9	Consumers preference for beef	0.041	3	0.123	4	0.164	3	0.123	3	0.123
	Weakness									
W1	Lack of feed and fodder	0.064	3	0.192	3	0.192	3	0.192	2	0.128
W2	Lack of meat processing knowledge	0.053		0.212	2	0.106	1	0.053	3	0.159
W3	Prevalence of Anthrax diseases	0.048		0.096	3	0.144	1	0.048	3	0.144
W4	Lack of sufficient and proper slaughter houses	0.063	2	0.126	3	0.189	2	0.126	4	0.252
W5	Limitations of supporting institutions related to beef cattle	0.058	2	0.116	4	0.232	2	0.116	2	0.116
W6	Inadequate institutional support	0.055	2	0.11	3	0.165	2	0.11	3	0.165
W7	Lack of working capital	0.064		0.128	2	0.128	2	0.128		0.192
W8	Limited number of local cattle breed	0.053		0.106	4	0.212	2	0.106		0.106
W9	No organized marketing system	0.048	3	0.144	4		1	0.048		0.096
	Total of attractiveness score (TAS)			5.436		5.520		5.254		5.833

N.B: Attractiveness score (AS) is: 1=not attractive, 2=somewhat attractive, 3= reasonably attractive, and 4= highly attractive

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Based on the SWOT matrix analysis these strategies chosen to be implementing to the real condition of beef cattle development Table 4 shows that the value TAS is 5.833, which is chosen as best strategy to develop beef cattle agribusiness. The implementation of strategy IV is supported by strategies I, II and III because in order to streamline the provision of developing integrated strategy involving farmers, actors and meat processors in the value chain. These findings are consistent with the results of Ananto *et al*, (2011). Furthermore the researchers recommends improving beef productivity through transferring innovative beef fattening technology, increase support services and sustainable market linkage. New meat processing firms or abattoirs may be developed by PPP model in producing areas and adopting marketing strategies for increasing share in domestic and foreign markets share. This model should be supported by government through providing advanced technologies, for cattle fattening, feed processing and meat processing, which would lead to innovative beef cattle agribusiness.

Strategy to improve beef cattle agribusiness

Table 5 provides a summary of key findings that impede the competitiveness of beef cattle agribusiness in the study areas necessary interventions doing with the concerned agencies for taking necessary actions.

Issu	ie/Barriers/Problems	erventions/Soluti	Actions taken by					
Α. Τ	A. Technical problems and solution							
1. 2.	Lack of beef breeds Lack of standard cattle fattening	Development of I farm level.	beef breeds for increased productivity at	Government				
3.	technologies and feed ingredients at local level Lack of veterinary service	using improved to establishing linka	Iral poor cattle farmers in cattle fattening echnologies, quality beef production and ges with markets actors.	NGOs+ Government +Private enterprise				
4. 5.	Marketing skill and capacity Use of unauthorized growth promoter for cattle fattening	prediction Develop local ser	of vaccination and mapping for disease vice provider or private	Government .+DLS DLS+ Veterinary University				
6.	Lack of slaughtering and processing facilities	farming. Policy update to fattening	g techniques towards organic cattle discourage used of growth promoter for raining for butchers on scientific methods	NGOs+ Private enterprise Government Government +DLS				
		of slaughtering, technique. Bangladesh Agri	meat processing and preservation icultural Universities and BLRI should arch in various aspects of cattle farming	Government				
В. Е	conomic problems and solution							
1.	Lack of working capital for beef cattle agribusiness	Arrangement of a interest.	adequate amount of credit at low rate of	NGOs + Banks NGOs+ Dept. of				
2.	Lack of coordination of different actors	Facilitate and lin operators (Comp	king farmers with different agribusiness any) and traders.	Extension				
3. 4.	Lack of processing factory Lack of contract farming and self		preneurs is established meat processing	Private enterprise				
	help groups		p group for access to inputs and support ision of contract farming.	Farmers and NGOs				
		Development of	backward and forward linkage system to nt of existing cattle farming system into	NGOs + Private sector				
C. Marketing problems and solution								
1.	Lack of cattle market infrastructure and disposal system of waste products	information betw	^f price, transaction method and market een farmers and agribusiness actors	Government Private enterprise + media				
2. 3.	Lack of marketing and distribution system Processing in unhygienic condition	Policies to encou quality, safety an	grade meat distribution network urage beef cattle fattening towards high d competitive meat price for high income	Private enterprise Government				
			Dhaka, Chittagong etc. ate sector to establish mechanized	Government				

Table 5. Strategy to improve of beef cattle agribusiness

Source: Field survey 2014

An Agribusiness development approach of beef cattle

Conclusion

Based on SWOT analysis the weighted scores are1.725, 2.438, 1.768, and 0.842 for opportunities, threats, strength and weakness respectively. Opportunities and strength scores are higher than the threats and weakness of beef cattle agribusiness. The results indicate the great opportunity to explore the beef cattle agribusiness. From the QSPM matrix analysis results show that SO strategy is the best strategy among the four strategies and total attractiveness score (TAS) is 5.833. So the strategy IV is chosen and other strategies will support strategy IV. Some recommendations to enhance beef cattle agribusiness in the study area are forwarded below:

- Preparing strategic plans for beef cattle agribusiness combination with producer and meat processor by public private partnership.
- Formal production- marketing contract farming of beef cattle may be introduced.
- Encourage investment on commercial cattle fattening, meat processing, butcher equipment and distribution network
- Arrangement for access to institutional credit with reasonable interest rate may help to enhance production of beef cattle
- Introduction of suitable/appropriate vehicles for transportation of cattle during buying and selling.
- Encourage donor agencies for taken development projects like Samiriddhi, SDVC, CLP, **M4P**, Value chain etc
- Raising awareness among the farmers, traders, value chain actors to use beef fattening technology.

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