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Identification of Gaps between Existing Cattle Breeding Policy and its Implementation in Mymensingh District

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ABSTRACT

Present study was conducted to identify the gaps between the existing cattle breeding policy and its implementation in Mymensingh district through a survey. A total of 120 farmers were surveyed covering 5 Upazilla of Mymensingh disrtinct (Muktagacha, Trishal, Gouripur, Nandail and Ishwarganj). It was found that indigenous cattle genotype, Holstein Friesian and Sahiwal crosses were 47%, 25% and 21%, respectively in the study areas. Found that, 57% semen straws followed breeding policy that was supplied from DLS in Gouripur whereas it's 51%, 67%, 43%, and 50% in Muktagacha, Nandail, Trishal and Ishwargonj respectively. On the other hand, only 23% and 27% cattle (dairy and beef type respectively) inseminated followed the existing breeding policy to some extent. Survey revealed that, most of the farmers have to face challenges on several aspects, such as lack of capital, inadequate availability of inputs, inadequate training, inadequate institutional credit, guaranteed and profitable markets for output, semen crisis, heat detection failure, disease control etc. Moreover, artificial insemination implementation agencies are not concerned about the government breeding policy till now. The results of the study indicated that choices of semen by farmers were 13% for beef cattle/meat production, 39% for milk purpose and 48% for both meat and milking purpose. Actually, identifying the actual field scenario could identify the actual gaps with appropriate solutions which is a prerequisite for breeding research and livestock development of a country. Consequently, this study will definitely assist in materializing and developing existing cattle breeding policy of Bangladesh.

Introduction

The economic backbone of Bangladesh is based on agricultures where livestock is one of the major components. The contribution of livestock and poultry in national GDP is about 1.66%, in agricultural GDP is about 14.21% and its annual rate of growth is 3.21% (DLS, 2016). But, livestock production faces specific challenges as a result of human population growth, urbanization and infrastructure development, especially in developing countries like Bangladesh. In future, these developments will lead to a significant rise in demand for livestock products, and they are referred to as the Livestock Revolution (Delgado *et al.,* 1999). Cattle are most promisingly inseparable and integral part of existing farming system of Bangladesh. There are many cost–worthy matters involved with cattle improvement for milk and beef production (Islam *et al.,* 2013). AI has first been introduced in 1959 during the then East Pakistan (Shamsuddin *et al*., 1987) with establishment of 5 District Artificial Insemination Centers (DAIC) and subsequently by mid-seventies a total of 23 DAIC were commissioned. These 23 District Artificial Insemination Centers (DICA) along with 1072 sub-centers and AI points are currently operating all over the country by the government of Bangladesh.

Consequently, a Breeding Policy was approved by the government in 1982. Inexistence of herd recording, lack of efficient breed improvement, progeny testing schemes and non-availability of proven superior quality breeding animals are among the factors that contributed to the slow progress in improving the genetic merit of local cattle populations in the region. Various breed improvement efforts have been made through different projects and programs using crossing zebu with exotic breeds as the strategy came out with no sustained success (Jabbar *et al*., 2010). Breed improvement efforts have been made through *ad hoc* short-term projects without any long-term clear goals. Breeding research and development work has been going on in the country in the absence of any properly defined breeding policy.

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In this context, for the improvement of cattle production in Bangladesh, the Ministry of Fisheries and Livestock (MoFL) formulated a new 'National Livestock Development Policy' in 2007 (MoFL, 2007) that the document has not been fully officially adopted, it is being used as an operational policy document. It stated that, livestock development through the application of science-led methods of breeds and breeding in Bangladesh was still at a rudimentary stage. Use of inappropriate breeds, weak infrastructure (human capacity, national service delivery, breeding farms, and limited technical knowledge has constrained the development of improved breeds (MoFL, 2007). There is no regulatory body to regulate breed imports, prices of breeding materials, merits and quality of breeds, breeding materials and breeding services. Within the existing cattle breeding services (including artificial insemination), farmers have little or no idea of the merit and quality of the semen being offered by the breeding service providers (Siddiky, 2018). The government approved breeding policy has not been rigidly followed by the insemination service providers where in many cases, the farmers choice received priority. Going through the documents it was obvious that, present breeding policy was not formulated on the basis of unbiased breed/ genotype testing program. Besides, field survey revealed that, there are problems in persuading farmers to maintain the rotational crossing when one exotic breed is perceived to be much better than the other. Keeping all those in mind, present study was designed to provide useful information to the policy makers through study of farmer's attitude towards breeding policy and constrains of implementing breeding policy at the field level to formulate appropriate policies intended to milk and meat production and the improvement of dairy and beef sector.

Materials and Methods

Study area

The present study was conducted at five areas of Mymensingh region (Muktagacha, Trishal, Gouripur, Nandail and Ishawarganj) in Bangladesh. The data were collected from five selected Upazilla Livestock Office (artificial insemination centers) and 120 random farmers of those areas.

Management system

Three management types of cattle were considered for study. They were: (a) Intensive Management System, (b) Semi-intensive Management System, and (c) Extensive Management System.

Preparation of survey

A preliminary questionnaire was developed for recording data to be obtained from the selected farmers. After necessary modifications, the questionnaire was improved, modified and rearranged in a simple manner to avoid misunderstanding and to get accurate answer.

Data collection

Before taking interview, the aims and objectives of the study were explained to the respondent so that they could be convinced and talked freely. Then the questions were asked in a very simple manner with explanation of questions whenever necessary attention was paid to the mood of the respondents and a congenial relationship was maintained between the respondents and the researcher. Any confusion was rationalized and corrected by comparing these with local standards to keep consistency of data.

Data entry, sorting and statistical analysis

After completing the pre-tabulation task of the collected data were entered in Microsoft office excel sheets. The collected data were tested for their normal distribution using Microsoft Excel and Statistical Analysis System (SAS) (SAS, Version 9.1.3, 2009) computer package.

Results and Discussion

Socio-economic status of farmers

Socio-economic status of farmers is an important issue for implement breeding policy properly. A total of 120 farmers were selected and their status was evaluated. The salient features of the status of the farmers are presented in the Table 1.

Table 1. Socio economic characteristics of farmers

Category	Farmer percentage
Farm location	
Rural	60.84
Semi urban	25.84
Urban	13.33
Education level of the farmers	
Illiterate	15.83
Can sign only	20.83
< S.S.C	39.17
S.S.C or higher level	24.17
Occupation of the farmers	
Agriculture	32.5
Business	34.17
Services	18.33
Others	15

S.S.C. = Secondary School Certificate; Total No of farmers- 120

At present study it was indicated that 60.84% farmers were found in rural level, 25.84% farmers were found in semi urban level and 13.33% farmers were in urban level. Bureau of Statistics (1992) reported that Bangladesh is predominantly an agrarian economy with 84.8% of its population living in villages and depending on agriculture and allied activities for their livelihood which is more or less similar to this study. This variation might be due to small location size of the study area. Result indicates that the most of the people (67.5%) were found to be involved in other occupations than agriculture. This result is contradicted to the findings of Rashid *et al.* (2007) who found about 50% people to be involved in agriculture and dairying in Jessore district and Hashem *et al.* (1999) who found about 70% people engaged in agriculture. Farmers with higher education level showed better comprehension of advisories, acted-upon the advisories more promptly and shared the information with fellow farmers more often than those with lower education level (Gowda and Dixit, 2015). People having higher education are more progressive, as the most of the farmers (76%) did not have higher level of education; they had less knowledge about the cattle breeding policy. Okeye and Onyenweaku (2007) and Hashem *et al.* (1999) opined that less educated farmers have not enough knowledge about cattle rearing and fattening. Educational level of farmers are indicator of their ability to adopt appropriate technologies and management practices (Borisutsawat, 1996; Cicek *et al*., 2007).

Available genotypes of cow at study areas

At the present study, it was found that, about 47% was local cows and rest 53% were crosses of different types of exotic breed such as Holstein Friesian (HF), Sahiwal (SL) and Red Chittagong cattle (RCC) and their percentages were 25%, 21% and 7% (Figure 1). In previous study, Shahjahan (2017) who observed that the percentage of Local (L) × HF, L × HF × SL, L × HF × Jersey, L × Jersey genotypes at Pabna and Sirajgong district in Bangladesh as 43%, 27%,16% and 14%, respectively are quite different to the findings of present study, which might be due to population size of animals and location.

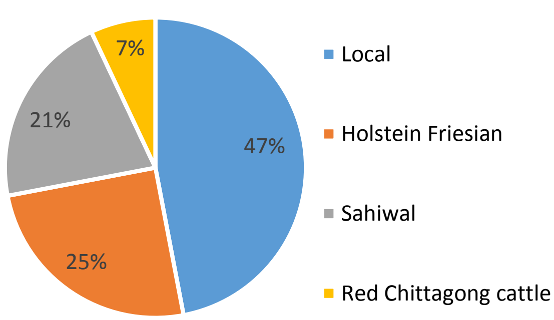

Figure 1: Percentage of genotypes of cows at study areas

Record keeping condition in study area

Success in genetic improvement to a larger extent depends, among others, on accurate recording of the farm operations and periodic analysis of the data to design future plans and take corrective measures as appropriate (Aynalem *et al.,* 2011). Study revealed a very poor rate of record keeping by the farmers about the breeding date, types of semen they used to breed their cows etc. Breeding related records that were kept by farmers and their percentages are shown in Table 2.

Table 2: Status of (AI records) kept by farmers in the study area

Sl.	Type of records	Available	Not available
1	Breed of used sire's semen (%)	44	56
2	Sire number of used semen (%)	17	83
3	Insemination date (%)	37	63
4	Performance record (%)	0	100

Total 150 animals

Mating system preferred at study areas

Percentage of cattle breeding techniques at the study area were showed at Figure 2. Maximum numbers of farmers inseminated their cows artificially (81%), while 7% preferred natural services and 12% preferred both artificial insemination and natural breeding. It was also found in the previous by Rashid *et al.* (2007) that 76% cows were inseminated artificially and 24% by both natural and artificially at Jessore district of Bangladesh. From this studied areas it was found that most of the farmers and inseminators preferred frozen semen for artificial insemination because of its quality, long term preservation and easy moveable which were directly provided from DLS, Private and NGOs breeding or semen processing centers.

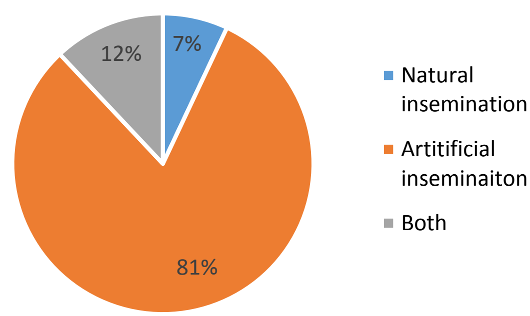

Figure 2: Percentage of existing mating systems

Choice of semen at the study areas

Although most of the farmers prefer AI for breeding their cattle but they did not follow any particular strategy for breeding their animal in heat. It was found from the study area that, the AI implementation agencies also didn't follow the breeding policy properly. Mostly farmer's choice (56%) was given more priority though they had no idea about the genotype of the bull contributing the semen. Moreover, sometimes inseminator choice (44%) got more priority which actually was based upon the availability of the types of randomly available breeding bull semen to that inseminator. As a result, indiscriminate crossbreeding is so much prevalent in those areas. This is surely, one of the major gaps for existing cattle breeding policy in Bangladesh. Rahman *et al.* (2013) found indiscriminate crossbreeding between unrelated animal thought to be major cause of genetic erosion in Mymensingh area. Rege and Tawah (1999) found haphazard crossbreeding causes for loses of indigenous cattle genetic resources in Bangladesh and Africa.

Distribution of semen from DLS to different upazilla at Mymensingh district

Semen straw distribution data from DLS to five ULO at Mymensingh region in years, 2016-2017 & 2017-2018 is showed in Table 3 and discussed at this study. It was found from Gouripur ULO (Upazilla Livestock office) that 57% semen straw out of 4550 (SL 50, SL 100, L, HF 50 and HF 100) just followed breeding policy to maintain cattle breeding policy that was supplied from the DLS. At Muktagacha ULO, 51% semen straw (out of total 4200) whereas at Nandail, Trisal and Ishwargonj ULO there were 67% (out of 2450), 43% (out of 3200) & 50% (out of total 4525) respectively semen distribution just followed the policy. The semen distribution at five upazilla varied due to area, distance, population size, demand and availability of semen, breeding purpose, manpower coverage etc. In the field area semen straw was randomly used to inseminate the cow. Large and medium scale commercial farm level farmers slightly followed the policy but small scale farmers (less than 5 cows) did not follow the policy because they don't use to keep any record. Saadullah (2001) said that Holstein crossbred and Sahiwal cattle are very popular and contribute a major portion of milk in a profitable way. In bull station, bull scarcity, poor genetic status of bull, physiological condition of bull, environment, stress etc. reduce the semen volume and quality of semen. On the other hand, at the field level, lack of experienced man power, lack of semen, distance from AI centers to farmers, cattle physiological condition, untrained farmers etc. conditions accounts for the poor success rate of AI and consecutively the breeding policy.

National breeding policy and its implementation for dairy and beef production

MoFL (2007) for improvement of milking cows suggested inseminating the top most cross bred Holstein Friesian cows (daily yield 10 kg or more) reared under intensive management system with imported semen of progeny tested bulls of Holstein Friesian. For semi-intensive system, it was suggested to inseminate cross bred Holstein Friesian cows with 50% Holstein Friesian bulls (50% HF × 50% Local) and Sahiwal or Sahiwal cross bred cows should be inseminated with semen of Sahiwal bulls. And for extensive system, inseminate native cows with low input production system with semen of progeny tested/ pedigree of indigenous bulls. The higher portion of the population studied was found 100% Holstein Friesian × Holstein Friesian cross, followed by 100% Holstein Friesian × Sahiwal cross, 100% Holstein Friesian × Sahiwal cross, 75% Holstein Friesian × Indigenous respectively with the lowest one for the 87.5% Holstein Friesian × Sahiwal Cross. A total of 48 cows (out of 150) were inseminated by Sahiwal bull semen (Table 4). Where the 100% Sahiwal × Indigenous inheritance level found to be highest (31%) followed by the 50% Sahiwal × Indigenous (17%), 100% Sahiwal × 50% Sahiwal cross (15%), respectively. It was found that total 19 (out of 150) number of Brahman breed semen straw was used for insemination (Table 4) and only 16% Brahman × Indigenous (50% - 50%) maintained the cattle breeding policy at the field area of Mymensingh region (MoFL, 2007). From this study, only few numbers of indigenous cattle (14 out of 150) was inseminated artificially or naturally with them. Breeding policy of Bangladesh (MoFL, 2007) indicated that low input indigenous cattle should be inseminated with indigenous bulls and natural breeding of cattle should be restricted. But in this study, 73% (out of 14) cattle was used natural breeding. Bhuiyan *et al.,* (2007) found that the existing breeding programme, as adopted from 1982, was (i) breed females in urban, semi-urban and milk pocket areas with 50% Friesian and 50% Sahiwal / indigenous bulls and (ii) breed females in rural areas with 50% Friesian and 50% indigenous bulls. The production level, growth performance and exotic blood level of indigenous or cross breed cattle in Bangladesh generally low where cattle breeding policy of Bangladesh (MoFL, 2007) indicated that high productivity with high exotic blood level cattle should be inseminated by 75% or 100% semen. But at the present study, it was found that only 23% cattle (4% cattle in intensive system and 19% cattle in semi-intensive system) just followed the policy for dairy purpose at the time of insemination (Table 4). And extensive system, no result was found. National breeding policy of Bangladesh (2007) also suggested to use dual purpose crossbred males (HF × Deshi), up-graded Brahman × Deshi (50% - 50%) and improved Deshi males for low input production system for improving beef cattle. But the present study found that only 27% cow (out of 150) followed that was reared in semi-intensive system (Table 5). It was said in Interim Breeding Policies (2002) that the exotic inheritance of Jersey and Holstein Friesian in the plains of J&K State shall be maintained between 50 and 62.5 percent level in graded cattle. Troxel *et al*. (2012) found their study approximately 35% to 40% of the calves that enter the United States beef production chain have some Brahman background where Brahman was taken in breeding policy as a research trial.

Table 3. Distribution of semen at 5 upazillas (Gouripur, Muktagacha, Nandail, Trishal and Ishwargonj)

Semen form	Gouripur		Muktagacha		Nandail		Trishal		Ishwargonj	
	Doses	%	Doses	%	Doses	%	Doses	%	Doses	%
SL 50%	175	4	-	-	100	4	25	1	100	2
SL100%	100	2	175	4	100	4	125	4	75	2
L	150	3	25	0.5	-	-	100	3	100	2
HF 50%	2000	44	1600	38	1325	54	1025	32	1850	42
HF 75%	1150	25	1875	45	100	4	1550	48	1600	36
HF 87.50%	650	14	100	2	625	26	275	9	625	14
HF 93.75%	150	3	100	2	75	3	-	-	100	2
HF 100%	175	4	325	8	125	5	100	3	75	2
Total	4550	99	4200	100	2450	100	3200	100	4525	102

****SL= Sahiwal, L= Local/ non descriptive, HF= Holstein Frisian*

Table 4. Comparison between national breeding policy and cattle breeding in the field for dairy purpose in Mymensingh

National breeding policy	Cattle breeding operation		
	Breeding policy	Number of Cow	Followed (%)
Intensive farming system:	100% Holstein Friesian × Holstein Friesian cross	5	
Imported semen Holstein Friesian (9,500 – 10,000 kg per lactation period) × Cross bred high yield Holstein Friesian cows (daily yield 10 kg or more).	50% Holstein Friesian × Holstein Friesian cross	2	4
	50% Holstein Friesian × Sahiwal cross	1	
Semi-intensive farming system:	50% Holstein Friesian × Indigenous	7	
a. (50% Holstein-Friesian X 50% Local) X cross bred Holstein- Friesian	50% Holstein Friesian × Holstein Friesian cross	2	
b. Sahiwal or Sahiwal cross bred crossed with SL	50% Holstein Friesian × Sahiwal cross	3	
c. Native cows with semen of progeny tested/ pedigree bulls of SL, Pabna cattle, RCC, Munshigong, other improved Deshi cattle	50% Holstein Friesian × RCC	3	
	75% Holstein Friesian × Indigenous	9	
	75% Holstein Friesian × Holstein Friesian cross	5	19
	75% Holstein Friesian × RCC	2	
	87.5% Holstein Friesian ×Holstein Friesian cross	2	
	87.5% Holstein Friesian ×Sahiwal cross	1	
	100% Holstein Friesian × Indigenous	6	
	100% Holstein Friesian × Holstein Friesian cross	6	
	100% Holstein Friesian × Sahiwal cross	10	
	100% Holstein Friesian × RCC	4	
	50% Sahiwal × Holstein Friesian cross	2	
	50% Sahiwal × Indigenous	8	
	50% Sahiwal × Sahiwal cross	4	
	75% Sahiwal × Sahiwal cross	1	
	87.5% Sahiwal × Indigenous	5	
	87.5% Sahiwal × Holstein Friesian cross	1	
	87.5% Sahiwal × Sahiwal cross	2	
	100% Sahiwal × Indigenous	15	
	100% Sahiwal × Sahiwal cross	7	
	100% Sahiwal × RCC	3	
	50% Brahman × Indigenous	3	
	50% Brahman × Holstein Friesian cross	3	
	50% Brahman × Sahiwal cross	4	
	100% Brahman × Indigenous	6	
	100% Brahman × Sahiwal cross	3	
	RCC × Indigenous	3	
	RCC × Holstein Friesian cross	1	
	Indigenous × Indigenous (natural)	11	
Extensive farming system	–	–	–
Total		150	23

RCC=Red Chittagong Cattle; National breeding policy was followed by 23% while the rest was found to be not following

Table 4. Comparison between national breeding policy and field activity for beef purpose

National breeding policy	Cattle breeding operation		
	Breeding policy	Number of Cow	Followed (%)
a. Dual purpose crossbred males (HF × L); b. Up-graded Brahman Deshi (50%-50%); c. Improved Deshi males.			
Intensive farming system:	100% Holstein Friesian × Holstein Friesian cross	5	5
	50% Holstein Friesian × Holstein Friesian cross	2	
	50%Holstein Friesian × Sahiwal cross	1	
Semi-intensive farming system:	50% Holstein Friesian × Sahiwal cross	7	22
	50% Holstein Friesian × Holstein Friesian cross	2	
	50% Holstein Friesian × Sahiwal cross	3	
	50% Holstein Friesian × RCC	3	
	75% Holstein Friesian × Indigenous	9	
	75% Holstein Friesian × Holstein Friesian cross	5	
	75% Holstein Friesian × RCC	2	
	87.5% Holstein Friesian × Holstein Friesian cross	2	
	87.5% Holstein Friesian × Sahiwalcross	1	
	100% Holstein Friesian × Indigenous	6	
	100% Holstein Friesian × Holstein Friesian cross	6	
	100% Holstein Friesian × Sahiwal cross		
	100% Holstein Friesian × RCC	10	
	50% Sahiwal × Holstein Friesian cross		
	50% Sahiwal × Indigenous cross	4	
	50% Sahiwal × Sahiwal cross	2	
	75% Sahiwal × Sahiwal cross	8	
	87.5% Sahiwal × Indigenous	4	
	87.5% Sahiwal × Holstein Friesian cross	1	
	87.5% Sahiwal × Sahiwal cross	5	
	100% Sahiwal × Indigenous	1	
	100% Sahiwal × Sahiwal cross	2	
	100% Sahiwal × RCC	15	
	50% Brahman × Indigenous	7	
	50% Brahman × Holstein Friesian cross	3	
	50% Brahman × Sahiwal cross	3	
	100% Brahman × Indigenous	3	
	100% Brahman × Sahiwal cross	4	
	RCC × Indigenous	6	
	RCC × Holstein Friesian cross	3	
	Indigenous × Indigenous (natural)	3	
Extensive farming system	–	–	–
Total		150	27

National breeding policy was followed by 27% while the rest was found to be not following.

Table 6: Effect of haphazard uses of semen on calf's body weight

Breed	Birth weight		Three-month weight		Six-month weight	
	Male	Female	Male	Female	Male	Female
50% HF × L	19.25±1.20^{ab}	19.00±1.69^{ab}	59.25±1.83^{ab}	58.00±2.59^{ab}	90.25±7.08^{a}	98.00± 10.02^{b}
50% HF × HF	23.33±1.38^{ab}	22.66±1.38^{ab}	69.66±2.12^{ab}	68.66±2.12^{ab}	121.00±8.18^{a}	116.00± 8.18^{b}
75% HF × L	27.00±1.69^{a}	21.00±2.40^{b}	76.00±2.59^{a}	69.00±3.67^{b}	122.00±10.02^{a}	116.00±14.17^{b}
100% HF × HF	26.00±1.38^{a}	24.00±1.69^{b}	77.00±2.12^{a}	72.00±2.59^{b}	133.00±8.18^{a}	123.00±10.02^{b}
100% HF × L	23.50±1.69^{a}	21.50±1.69^{b}	75.00±2.59^{a}	64.50±2.59^{b}	120.00±10.02^{a}	104.00±10.02^{b}
50% SL × L	20.00±1.69^{a}	18.33±1.38^{b}	64.00±2.59^{a}	58.33±2.12^{b}	98.50±10.02^{ab}	96.00± 8.18^{ab}
50% SL × HF	20.00±2.40^{a}	22.00±1.69^{b}	76.00±3.67^{a}	66.50±2.59^{b}	109.00±14.17^{ab}	107.50±10.02^{ab}
50% BRAHMA × L	22.50±1.69^{a}	23.00±1.38^{b}	73.50±2.59^{a}	68.66±2.12^{b}	117.50±10.02^{ab}	116.00± 8.18^{ab}
100% BRAHMA × HF	28.00± 1.69^{a}	23.00±1.38^{b}	72.50±2.59^{ab}	68.66±2.12^{ab}	134.50±10.02^{a}	110.66± 8.18^{b}

Means with different superscript between male and female within the same row differed significantly ($p<0.005$)

Table 7. Limitations in implementing breeding policy (According to farmer's opinion)

Farmer's opinion	Feedback of farmers
1Unavailability of AI technicians	61%
2. Semen cost above 500Tk	63%
3. Repeat breeding after first AI	61%
4. Various diseases	33%
5. Have no technical supports	68%
6. Long distance from farmer's house to insemination center (above 5 KMs)	84%
7. Lack of monitoring by the authorities	83%
8. Have no knowledge and technical skills about scientific breeding	76%
9. Have no credit support	81%
10. Have no market information	72%
11. Unavailability of appropriate breeds	87%

[Total no of farmer surveyed-120]

Effect of the haphazard uses of semen on progeny growth performance

Total 9 exotic blood level of breed with their 42 calves body weight (birth weight, three-month weight and six-month weight) recorded was analyzed in this study. Three breeds (Holstein Friesian, Sahiwal and Brahman) semen with their 9 blood level of exotic breed (50% HF × L; 50% HF × HF; 75% HF × L; 100% HF × HF; 100% HF × L; 50% SL × L; 50% SL × HF; 50% Brahman × L and 100% Brahman × HF) progeny (male and female) growth performance were analyzed. Here, growth rate of 100% Brahman × HF calves (male and female) were comparatively more at birth weight, three month and six month level that was in male 28.00±1.69, 72.50±2.59 and 134.50±10.02 where in female 23.00±1.38, 68.66±2.12 and 110.66±8.18 than 50% Holisten Friesian × Local breed crosses at different significant level ($p<0.005$) (Table 7). Rahman *et al.* (2015) found in their study that the genotypes of 25% Local - 75% Friesian crosses calves average birth, three-month, six-month and weaning weight were 29.33, 64.32, 99.06 and 151.77 kg, respectively that were quite similar in the present study. Although, different non genetic factors could cause variation in this growth traits. Demeke *et al*. (2003) reported that non-genetic factors affect growth traits. Several previous works reported by Mohamed (2004) claims that, growth performance can be influenced by season of birth, age, parity, year and fertility of the dam, breed and sex of the calf.

Farmer's opinion towards the gap

Farmer opinion on impediment for implementing existing breeding policy are tabulated in the Table 7. The highest number (87%) of farmers did not get semen of appropriate breed (in accordance to the breeding policy) followed by huge distance from their home to government artificial insemination center, irregular monitoring etc. Irungu *et al*. (2006) found that in remote rural areas public veterinary services were scarce. Wang *et al*. (2013) indicated that factors such as feed, breed, input cost, animal health management and education, affect the level of efficiency in the production of cattle breeding business. Rahman *et al.* (2014) stated livestock was always underfunded in spite of the importance of the livestock sector in the farming system of Bangladesh. We found 81% farmer from the survey area did not get financial support from the authorities. Within the existing cattle breeding services, farmers have little or no idea of the merit and quality of the semen being offered by the breeding service providers.

Conclusion

Present study tried to identify the farmer's and AI agencies approach towards livestock breeding policy and thus finding out the limitation and constraints of implementing it in Bangladesh. Study revealed that, implementation of breeding policy is still crucial in our country. Government need to focus on arising knowledge about policy, systematic training of farmers, capital, input supply, institutional credit, adequate recommended semen supply, disease control, regular monitoring of private artificial semen companies, creation of profitable market etc. in this regard.

Conflict of Interests

The authors declare that there is no conflict of interests regarding the publication of this paper.

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