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A report on comparison between the DLS and brac AI performance in sylhet region, Bangladesh

Abstract

AI (Artificial insemination) is one of the most important assisted reproductive technologies. The three cornerstones for its application are: it is simple, economical and successful. This review aims at capturing the comparisons the performance of AI between DLS (Directorate of Livestock Services, Bangladesh) and BRAC (Bangladesh Rural Advancement Committee). It predicts what the new horizon looks like and the role that AI will play in the overall reproductive technologies landscape. In this review the cows (no: 2700) are randomly selected for AI. Each cow received 0.25ml frozen semen from DLS and BRAC AI technician. Cows were inseminated upon observed estrus. Pregnancy was determined at or more than 35 days after artificial insemination. Then the number of AI (DLS and BRAC), conception percentage (for DLS average 60.00% and BRAC average 80.00%), and calving percentage (for DLS average 55.00% and BRAC average 75.00%) is compare to study the performance of AI program between the DLS and BRAC. The result found that the conception percentage for BRAC (80.00%) is higher than the DLS (60.00%) and also the calving percentage for BRAC (75.00%) is higher than the DLS (55.00%). So we can conclude that the AI performance at BRAC is better than the AI performance of the DLS. It is applied in the district of Sylhet region from the year 2008 – 2015 and also evaluated the performance of AI from January 2015 to September 2015.

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Introduction

Bangladesh is an agricultural country. In agricultural sector livestock plays very important role for development of economical condition where livestock is playing crucial role in the traditional subsistence farming system of our country. Now a day millions of people in the world are suffering from starvation or malnutrition and the number will increase with the inevitable rise in the world population. The livestock products such as milk, meat are the main source of protein. By increasing the livestock production we can be solved this deficiency. The livestock production of our country is not satisfactory. So, now the development of the livestock sector is the greatest challenge. AI (artificial insemination) is the best way to develop this sector by which we can increase the milk and meat production. Also, AI sector is simple and easy technique which can be applied in the field .Now a day's farmers take this technique with great advantage. Our Government takes all necessary steps to develop this sector. So, AI sector is the most valuable sector to develop the economical condition of our country. Cattle play an important role in our economy. In 2014/2015, contribution of livestock sub sector in total GDP is 1.72 % (Fiscal year, 2015, DLS). AI is the most important single technique devised for the genetic improvement of animals. The frozen semen was first used in the SSR in 1972-74, the overall conception rate with frozen semen were 87.0, 87.1and 95.6 % respectively.[1] This is possible because a few highly selected males produce enough spermatozoa to inseminate thousands of females per year, whereas only relatively few progeny per selected female can be produced. AI in cows has become widely used all over Bangladesh like other countries of the world. The number of cross bred is increased day by day with the spread of AI practices throughout the country.[2] In fact, whatever the avenue of genetic improvement is used; measuring the fertility status of cow in the existing AI services for satisfactory reproductive performance is a prerequisite. Moreover in Bangladesh, very little comprehensive work has been done regarding the fertility of cattle in AI services. Artificial insemination is not merely a novel method of bringing about impregnation in female instead, it is a powerful tool mostly employed for livestock improvement. In artificial insemination the germplasm of the bull of superior quality can be effectively utilized with the least regard for their location in faraway places. By adoption of artificial insemination, there would be considerable reduction in both genital and non genital disease in the farm stock. This report writing has given the current status and comprising the performance of AI between The DLS and BRAC. By evaluating this report we can know, what steps should be taken near future to upgrading the technique, to increase conception rate, to increase the bull efficiency and its utilization, supply of huge amount semen in the field, to inseminate a large population of cattle, to increase calving of superior calves and overall to increases the milk and meat production. I studied this report writing about following objectives:

i. To study the comparative performance of AI program between the DLS and BRAC in the study area (Sylhet district) and
ii. To study the present status of AI in study area.

Materials and methods

Study area

To study the comparison of artificial insemination performance between DLS and BRAC, data were collected from district and Upazilla Livestock Office, Sylhet, AI Center, Khadimnagor, Sylhet and BRAC HR Enterprise, Sylhet Figure 1.

Study time

The data was collected from the record of AI in DLS record book and the record book of BRAC HR enterprise, Sylhet from 2008-2015. There is also the data from the January 2015 to September 2015.

Study population

The regular breeding cattle including breeds like- cross of Holstein Friesian, cross bred of jersey, Cross bred of red Sindhi, cross bred of Sahiwal and Deshi cross breds animals population. The age of the

animal is from 2 years to 5 years. Regular cyclic cow evaluated for this study.

Study parameter

For prospective study

- Number of AI performed.
- Conception rate.
- Calves production.
- Calves production rate
- No: of pregnant cow

Figure 1 Map of Sylhet district.

Results and discussion

AI program by DLS

The AI programs that are performed by DLS in the country through skillful AI technician. They provides the semen of holstien Friesian, Sahiwal, red sindhi etc at a price of TK-50. Most of this semen collected from the AI centre, Savar and also from the substation spread the country. The data of AI program from the 2008 -2015 is shown that the DLS performed 9734 total insemination in the Sylhet region where the total conception rate 60% and calves production rate55.54%. In these data the total pregnant cows are 5848 and the no of calves production are 5422. The highest insemination is shown in 2014-15, then the total no: of AI is 1800 with the total no: of pregnant animals is 1134 with a conception rate is 63%. This year the total no: of calves production is 1053 with a calves production rate 58.49%. The lowest AI is performed in the season 2012-13, then the total no: of AI is 1080. The lowest no: of pregnant cow found in the year 2011-12. Then the total no: of pregnant cows is 623 with conception rate is 55% and the total calves production rate is 49.65%. That is given in Table 1. There is also a data from the January 2015 to September 2025. Here shown that the total no: of insemination cows are 838 where the total pregnant cow are501 with a conception rate 60%. The total no: of calves production 470 with the calves' production rate is 56%. The highest insemination is shown in September 2015, then the total no: of AI is-115 with the total no: of pregnant animals is-66 with a conception rate is-57%. This year the total no: of calves production is-65 with a calves production rate-56.89%. The lowest AI is performed in the May 2015, then the total no: of AI is -75. The lowest no: of pregnant cow found in February, April and May. Then the total no: of pregnant cows is-47. The lowest conception rate is 55% in July. The lowest total no: calves production is-41 in May. And the total calves production rate is 49.65% in July. That is given in Table 2.

AI program by BRAC

BRAC operating nationwide AI services through 89 points outside the government coverage. The cost for single dose of home to home BRAC semen such as sahiwal Tk 145, Frisian Tk 140, red Chittagong Tk 140. They have efficient AI technician who are performed the AI the whole country through their recognized outlet. They collected this semen from the Myminsingh their recognized AI centre. There is a data collected from the BRAC AI centre, Sylhet. The data showed that the data from 2008- 2014, the total no: of AI performed is 5026 with a conception rate 80%, the total no: pregnant animals are 844, the total no of calves production are 773 with a calves production rate is 75.57%. Here also showed that the total no: of AI is higher in 2013-14. Then the total no: of pregnant animals were 891 with a conception rate is 84%, the total no: of calves production is 838 with a conception rate 79%. The highest conception rate found in 2012-13 is 85%. The highest calves production rate is 79%. Whereas the lowest AI is 475 in 2008-09 with lowest no: of pregnant cows is 380. The lowest conception rate is found in 2010-11 is 75%. The lowest calves production in 2008-09 is 361 where the lowest calves production rate is 73% in 2009-10 Table 3.

Table 1 Annual report 2008-2015, DLS, Bangladesh[3]

Year	DLS No: of AI	No: of pregnant cow	Conception rate (%)	No: Calves production	Calves production rate (%)
2008-09	1350	810	60	753	55.77
2009-10	1420	881	62	820	57.74
2010-11	1452	843	58	780	53.72
2011-12	1132	623	55	562	49.65
2012-13	1080	702	65	617	57.12
2013-14	1500	855	57	845	56.32
2014-15	1800	1134	63	1053	58.49
Total	9734	5848	60	5422	55.54

AI Program of DLS from January 2015 to September 2015

Citation: Rahman MM. A report on comparison between the DLS and brac AI performance in sylhet region, Bangladesh. *J Dairy Vet Anim Res.* 2019;8(1):65–69. DOI: 10.15406/jdvar.2019.08.00244

AI Program of BRAC from January 2015 to September 2015

The data given in Table 4 is showed that the total no: of AI performed is 7082, the total no: of pregnant cow is 5731 with a conception rate is 80%. The total no: of calves production is 5575 with a calves production rate is 75%. The highest no: of total AI performed is 1070 with highest no: of pregnant cows are 877 in May 2015. The highest no: of conception rate is 85% and highest calves production rate in June 2015. The lowest AI performed in 490 with a lowest no: of pregnant cows are 378 in September 2015. The lowest conception rate is 75% with lowest calves production no: 408 and a lowest calves production rate 73% in March 2015.

Table 2 Upazilla AI centre, Khademnagor and Upazilla livestock office, Sylhet[5,6]

Name of Month	No: of AI	No: of pregnant cow	Conception rate (%)	No: of calves production	Calves production rate (%)
January	95	62	65	56	58.49
February	90	47	60	52	57.12
March	105	63	57	60	56.32
April	80	47	58	45	55.56
May	75	47	63	41	53.72
June	93	58	62	54	57.74
July	88	49	55	42	49.65
August	97	62	63	55	57.32
September	115	66	57	65	56.89
Total	838	501	60	470	56

Table 3 Annual reports 2008 -2015. BRAC HR Enterprise[4]

Year	No: of AI	No: of pregnant cow	Conception rate (%)	No: of calves production	Calves production rate (%)
2008-09	475	380	80	361	76
2009-10	500	380	76	365	73
2010-11	575	432	76	437	75
2011-12	650	500	77	481	74
2012-13	750	638	85	563	75
2013-14	1060	891	84	838	79
2014-15	1016	844	83	773	76
Total	5026	4065	80	3818	75. 57

Table 4 Annual reports 2008 -2015. BRAC HR Enterprise

Name of Month	No: of AI	No: of pregnant cow	Conception rate (%)	No: of calves production	Calves production rate (%)
January	646	504	78	491	76
February	1017	857	80	773	76
March	560	420	75	408	73
April	888	675	76	658	74
May	1070	877	82	802	75
June	726	612	85	574	79
July	912	766	84	693	76
August	773	642	83	596	77
September	490	378	77	580	75
Total	7082	5731	80	5575	75

Comparative study of data between the DLS and BRAC

In the comparative study from Figure 2 and Figure 3 showed that in 2008-09 the DLS conception rate is 60% where the BRAC conception rate is 80%, and the DLS calves production rate is 55.77%,the BRAC calves production rate 76%. In 2009-10 the DLS conception rate is 62% where the BRAC conception rate is 76%, and the DLS calves production rate is 57.74%, the BRAC calves production rate 73%. In 2010-11 the DLS conception rate is 58% where the BRAC conception

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rate is 76%, and the DLS calves production rate is 53.72%, the BRAC calves production rate 75%. In 2011-12 the DLS conception rate is 55% where the BRAC conception rate is 77%, and the DLS calves production rate is 49.65%, the BRAC calves production rate 74%. In 2012-13 the DLS conception rate is 65% where the BRAC conception rate is 85%, and the DLS calves production rate is 57.12%, the BRAC calves production rate 75%. In 2013-14 the DLS conception rate is 57% where the BRAC conception rate is 84%, and the DLS calves production rate is 56.32%, the BRAC calves production rate 79%. In 2014-15 the DLS conception rate is 63% where the BRAC conception rate is 83%, and the DLS calves production rate is 58.49%, the BRAC calves production rate 76%. In Figure 4 and Figure 5**,** in January the DLS conception rate is 65% where the BRAC conception rate is 78%, and the DLS calves production rate is 58.49%, the BRAC calves production rate 76%. In February the DLS conception rate is 60% where the BRAC conception rate is 80%, and the DLS calves production rate is 57.12%, the BRAC calves production rate 76%. In March the DLS conception rate is 57% where the BRAC conception rate is 75%, and the DLS calves production rate is 56.32%, the BRAC calves production rate 73%. In April the DLS conception rate is 58% where the BRAC conception rate is 76%, and the DLS calves production rate is 55.56%, the BRAC calves production rate 74%. In May the DLS conception rate is 63% where the BRAC conception rate is 82%, and the DLS calves production rate is 53.72%, the BRAC calves production rate 75%. In June the DLS conception rate is 62% where the BRAC conception rate is 85%, and the DLS calves production rate is 57.74%, the BRAC calves production rate 79%. In July the DLS conception rate is 55% where the BRAC conception rate is 84%, and the DLS calves production rate is 49.65%, the BRAC calves production rate 76%. In august the DLS conception rate is 63% where the BRAC conception rate is 83%, and the DLS calves production rate is 57.32%, the BRAC calves production rate 77%. In September the DLS conception rate is 65% where the BRAC conception rate is 77%, and the DLS calves production rate is 56.89%, the BRAC calves production rate 75%.

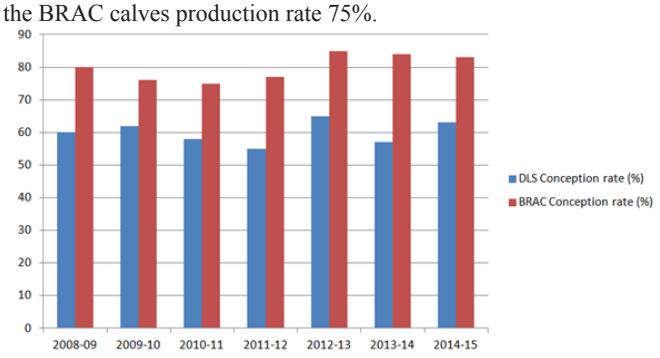

Figure 2

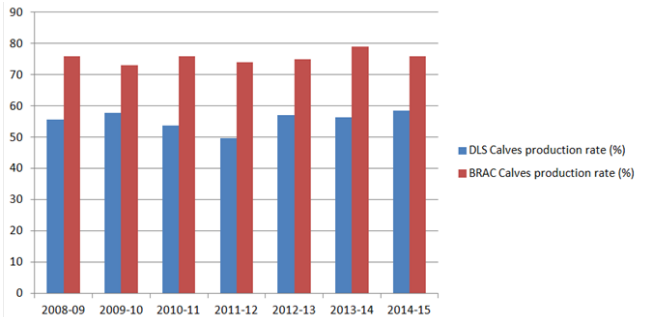

Figure 3

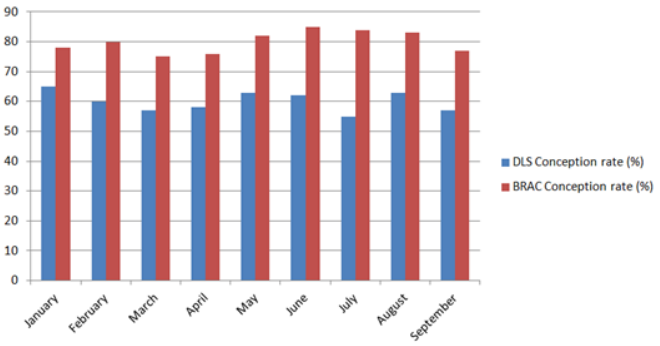

Figure 4

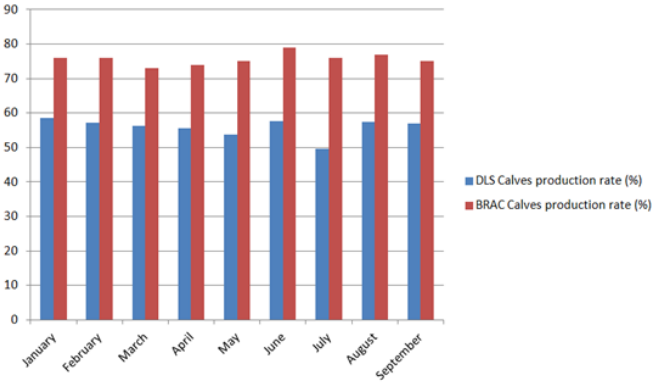

Figure 5

Conclusion

In Bangladesh the A.I technique has been used near about fifty years and every year this program is extended. At present the number of cross bred cattle is increasing day by day with the spread of A.I. Using of A.I the productive and reproductive performances of our cattle population is improved day by day. As a result the farmers are benefited in different aspects and moreover the economy related with livestock sector is also gain up. Besides of this, rate of success of A.I is not satisfactory in our country. The desired number of cross-bred cattle has yet not been achieved. With this view keeping in mind the present study was attempt to find out the success and failure of artificial insemination in Bangladesh. In conclusion, the number of AI (DLS and BRAC), conception percentage (for DLS average 60.00% and BRAC average 80.00%), calving percentage (for DLS average 55.00% and BRAC average 75.00%) is compare to study the performance of AI program between the DLS and BRAC. The result found that the conception percentage for BRAC (80.00%) is higher than the DLS (60.00%) and also the calving percentage for BRAC (75.00%) is higher than the DLS (55.00%). So we can conclude that the AI performance at BRAC is better than the AI performance of the DLS.

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Conflicts of interest

The author declares that there are no conflicts of interest.

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