

A preliminary study on performance of Artificial Insemination (AI) and perception of dairy farmers on present AI service in Kegalle district

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1. Introduction

Livestock makes a significant contribution to the economic livelihood of Sri Lanka. Dairying is the major component of the livestock industry and is acceptable to all communities and has no significant religious or social constraints. Dairy provides regular cash income throughout the year to the small scale farmers and hence it has a significant impact on the pattern of the livelihood of rural farmers, resulting in improved nutrition in both availability of milk and enhancement of dairy income (Banerjee, 2018). Thus, livestock development should focus primarily on dairy development and improvement of the productivity of dairy cattle since it is one of the key parameters in that process. The majority of dairy cattle in the country have a poor productivity leading to a stagnant milk production in the last few years. Artificial Insemination (AI) is a scientifically advanced technique in which semen is collected from a superior sire, processed, stored, and artificially inserted into the female reproductive tract. The development of the smallholder dairy sector in the rural areas will depend on the improvement of the productivity of the local cows by upgrading them by cross breeding with superior sires using AI. The total national production of cow milk in 2019 was 374,015,943 Liters (DAPH, 2020) and the main objective of all the dairy development programs is to increase the national milk production towards self-sufficiency. Genetic upgrading of local cattle can be used to achieve this. Therefore, measures should be taken in this regard to genetically upgrade the existing dairy herds in the country to obtain higher milk yield improving the AI service to dairy farms throughout the country. In order to take measures for improvement of the AI service, it is vital to analyze the existing situation of the service. The total cattle population in Kegalle district has been recorded as 17724 with 30% Indian and crosses, 55% European and Crosses, 15% local breeds in 2019. Having the average temperature around 25.7 °C, annual rainfall of 2306 mm, and relative humidity around 85% and land area of 1,693 km², Kegalle district, located in low country wet zone is identified as one of the potential areas to improve dairy farming. Therefore, a survey was conducted to study and evaluate the present situation and performance of the existing AI service in the district and perception of dairy farmers on present AI service in Kegalle district.

2. Materials and Methods

The study was carried out to appraise the performance of AI and farmer perception regarding AI in the Kegalle District using secondary data and farmer interview from twelve government veterinary ranges in the Kegalle District in 2019. The number of artificial inseminations in each government veterinary range, the number of pregnancy diagnosis and the number of calves born are the criteria used in data collection. Comments and suggestions were taken on the present AI service, potentials and constraints faced by farmers from twenty dairy farmers selected through Government veterinary offices. Collected data were analyzed using an Excel worksheet.

3. Results and Discussion

Indigenous breeds, crosses of European and Indian breeds and European breeds are the common cattle breeds available in Kegalle District. It was found that 98% of the dairy farmers in the district were well aware about the advantages of using AI technique for breeding animals. The total number of AIs performed in the district in 2019 was 3566, covering 82.5% of the annual target (4325). The breeding targets and actual performances in Kegalle district are given in Figure 1.

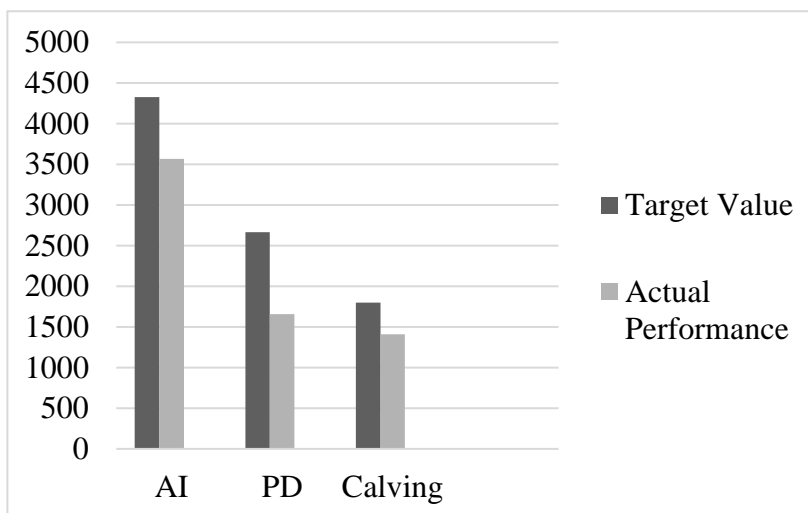


Figure 6. Annual Breeding Target and Performance in Kegalle in 2019 (AI- Artificial Insemination, PD- Pregnancy Diagnosis)

Eighty-five percent of the AIs have been done by governmental AI technicians and the rest by private technicians. Government AI service was higher in Galigamuwa and lower in Daraniyagala veterinary ranges during 2019. Out of the AI s performed, 1909 (53%) had to be repeated for the second time and 247 (15%) for the third time. A total number of 1657 pregnancy diagnosis examinations (PD) was done from inseminated cows during the year, covering 62.1% of the annual target (2667). The number of AI calves born in 2019 was 1410, out of the target of 1800, covering 78.3% of the annual target. Out of the twelve veterinary ranges in Kegalle district Warakapola VS range had the highest AI coverage while Rambukkana VS range had the lowest AI coverage in 2019. The pregnancy diagnosis (PD) performance was the highest in Warakapola VS range whereas Galigamuwa VS range had the lowest PD performance. The calving performance was also the highest in Warakapola VS range and it was the lowest in Rambukkana VS range. The AI, PD and calving performances in each VS range in Kegalle district are given in Table 1.

Table 01. AI, PD and calving performances in each VS range in Kegalle district

No	Name of the Veterinary Office	AI		PD		Calving	
		Target	performance	Target	Performance	Target	Performance
1	Aranayaka	259	239	173	101	142	92
2	Bulathkohupitiya	268	146	156	96	109	65
3	Daraniyagala	60	51	36	30	24	19

4	Dehiowita	150	128	90	91	51	33
5	Galigamuwa	852	844	492	162	384	390
6	Kegalle	360	341	257	173	141	121
7	Mawanella	550	555	330	238	249	196
8	Rambukkana	800	342	473	212	306	125
9	Ruwanwella	300	172	180	94	88	53
10	Warakapola	416	465	239	266	192	213
11	Yatinyanthota	160	127	139	84	64	49
12	Undugoda	150	156	102	110	50	54

Out of the interviewed farmers, thirty-five percent were not satisfied with the AI service provided by the government veterinary office. The main complaint was the unavailability of AI technicians at the proper time to perform AI. Difficulty in communication was also mentioned as a common problem. Twenty percent of the farmers complained about the higher price charged per AI by the technician. Thirty percent of the farmers were unhappy about the higher repeat breeding incidents subsequently to AI; thus, they have returned to obtain stud bull service.

4. Conclusions

Acceptable AI performance was seen in a few VS ranges in Kegalle district but it can be concluded that the AI service in the district requires a meticulous review and monitoring process in order to improve it to a satisfactory level. Semen quality, evaluation of semen used in AIs in the district and continues professional development activities for AI technicians are recommended to minimize the high return rate of cows after AI. Management systems adopted for pregnant animals also should be thoroughly investigated in order to improve the poor calving performances. Necessary steps have to be taken immediately to provide an effective and more suitable AI service for medium and small scale dairy farmers. Availability of AI technicians as well as ease of access to them should be increased. A proper and expedient charging system for AI has to be implemented.

5. References

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