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Knowledge level of farmers about sex-sorted semen technology in Thiruvallur district

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Abstract
The use of sexed semen in dairy animals in India is increased. However, high cost and low fertility had limited the use of this tool. The study was conducted to assess the knowledge level of dairy farmers about the sex-sorted semen. A total of 68 farmers were selected randomly in the Thiruvallur district. The primary data was collected through a well-structured pre-tested interview schedule. Data revealed that a cent per cent of the farmers had knowledge of symptoms of heat signs and time of insemination and pregnancy diagnosis. None of the farmers was not willing to rear male calves. One-half of the farmers (47.06%) had knowledge about sex semen and none of them practiced sexed semen technology in their dairy animals.

Keywords: Knowledge level, dairy farmers, sex sorted semen technology

Introduction
The sex-sorted semen technology is of greater significance in the production of healthy female calves which has the intention of eliminating male calves that are unproductive in the future. Flow cytometry is a technique used to sort out sperm that are most healthy and have determined traits. This method is done to determine the sex of future offspring by measuring the DNA content of individual sperm cells. It increases the chances of getting a female calf by 80-90%. If this technology is implemented in small and medium-scale dairy farming it would readily reduce the time period of obtaining a replacement stock. Since this technology is very new to farmers, a study work is carried out in the Thiruvallur district of Tamilnadu in India to assess the knowledge level of farmers and to disseminate need-based technologies.

Research Methodology
The present study was conducted to assess the knowledge level of farmers on sex-sorted semen technology. The primary data were collected from 68 sample farmers in the Thiruvallur district of Tamilnadu by a simple random sampling method. The well-structured pre-tested interview schedule was prepared in consultation with the subject matter specialist and published literature. The data were collected by personal interviews and organized accordingly. The editing, coding, and tabling were done as per standard protocol. The collected data were analyzed using conventional simple frequency and percentage.

Results and Discussion
From Table 1 it is evident that cent percent of farmers had knowledge of heat signs in cows such as bellowing, mounting and vaginal discharge. Gunaseelan *et al.,* (2018) [4] reported that exactly three-fourths and one-third of the farmers had complete and partial knowledge of symptoms of heat, respectively. The choice of breeding of cattle differed from one farmer to another. About 76.00 per cent of farmers preferred artificial insemination over natural mating (23.53%). Ahirwaar Manoj *et al.,* (2016) [3] concluded that the average breeding knowledge level of dairy farmers in peri-urban areas was 13.83±2.37 while that of dairy farmers in rural areas was found 11.32±1.36. This would be ease criteria for implementing sex-sorted semen.
The time of insemination is considered one of the factors for better conception. Surprisingly cent percent of the sample farmers knew to inseminate the animal in the evening if it shows heat signs in the morning or to inseminate the animal in the next day morning if it shows signs in the evening. Selvakumar *et al.,* (2013) [2] opined those farmers who had more than 10 animals had a knowledge index of 97% for the correct time for pregnancy diagnosis, 90% for

calving. interval, and 83% each for drying off period, symptoms of estrous signs and parturition. There are various ways to access artificial insemination. 46.16 percent of farmers practicing artificial insemination were using veterinary institutions such as veterinary dispensaries for breeding. 21.15 and 32.69 percent of farmers practicing

artificial insemination bred their cows with artificial inseminations service provided by Milk co-operative societies and doorstep veterinary services respectively. All the farmers interviewed were practicing pregnancy diagnosis by qualified veterinarians after 45 to 60 days of insemination/ natural mating.

Table 1: Knowledge level of farmers about sex-sorted semen technology in Thiruvallur district of Tamil Nadu N = 68

S. No	Variables	Category	Frequency	Percentage
1	Knowledge of heat signs	Yes	68	100
		No	00	-
2	Choice of breeding	Natural service	16	23.53
		Artificial insemination	52	76.47
3	Knowledge of time of insemination	Yes	68	100
		No	00	-
4	Access to Natural service (n=16)	Own bull	00	-
		Community bull	16	100
5	Access to Artificial insemination (n=52)	Veterinary institution	24	46.16
		Milk cooperatives	11	21.15
		Doorstep veterinary service	17	32.69
		Others	00	-
6	The practice of pregnancy diagnosis	Yes	68	100
		No	00	-
7	Time of pregnancy diagnosis	<45 days of post-AI	00	-
		45-60 days of post-AI	68	100
		>60 days of post-AI	00	-
8	Choice of the calf to be delivered	Male	00	-
		Female	68	100
9	Paying extra for getting a female calf	No	00	-
		Twice	54	79.41
		Thrice	14	20.59
		Still more	00	-
10	Knowledge of sexed semen	Yes	32	47.06
		No	36	52.94
11	The practice of sexed semen	Yes	00	-
		No	68	100
12	Reason for not practice	High cost	00	-
		Unawareness	36	52.94
		Unavailability	32	47.06
		Not interested	00	-

Cent percent of farmers preferred female calves. Because in Indian conditions female calves are more valuable than male calves. Moreover, 79.41% and 20.59% of farmers were even ready to pay the amount twice and thrice than the usual AI expenses for getting a female calf respectively. 47.06 percent of farmers knew sexed semen but none of the farmers used sexed semen for breeding cows due to the unavailability of sexed semen. McCullock *et al.,* (2013) [1] opined that cooperation between technology providers and farm managers could enhance the chance of sexed semen being more profitable than conventional methods.

Conclusion
Sex sorted semen technology is considered one of the welcomed steps in the breeding of cattle by small and marginal farmers. It ensures the reduction of chances of getting a male calf and that promotes the economic status of the farmers. The present study revealed that all the farmers were preferring female calves but one-half of the farmers lack awareness of this technique. Despite farmers being ready to pay more amount than the usual artificial insemination cost, unavailability is the major reason for not practicing this technique. This study insists to create awareness among the farmers and making possible arrangements to increase the availability of sex-sorted semen straws for a wide range of

practices.

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