KNOWLEDGE ABOUT ARTIFICIAL INSEMINATION IN MILCH ANIMALS AMONGST THE DAIRY FARMERS

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ABSTRACT

India is the world's second largest producer of livestock products. Milk and milk products alone make about two-third of total income from livestock. India has first position in the world by producing about 186 metric million tons of milk per annum but the milking capacity of Indian cattle is very less yielding between 1-2 Kg milk/day and nearly 450-500 Kg milk/ lactation. Reproduction has direct relation with the productivity and it is the basis of production. This yielding potential can be increased by improving the genetic potential of the livestock and maintaining a good animal health, which is possible through only adopting artificial insemination (AI) in dairy farming by the dairy farmers and by doing this; the yield potential of an animal can be boosted up ultimately resulting in increasing living standard of the dairy farmers. The present study indicated that the majority of the farmers belong to midlle age group, illiterate and depended on agriculture as the main source of livelihood and also maintained 4 to 6 livestock. It was found that 34.00 per cent dairy farmers possessed between one to two acres of land, 30.00 per cent possessed above three to four acres of land. Further, majority of dairy farmers had knowledge about various heat detection symptoms like, mucous discharge from valve, bellowing and restlessness, artificial insemination techniques and its benefits.

Keywords: artificial insemination, profile, knowledge and dairy farmers

INTRODUCTION

Dairy farming is one of the important activities and most suitable production system that has enormous potential to improve the socio- economic status of the large percentage of the rural population of our country. India ranks first in the world with annual milk production of 187.75 million tonnes. Most of the milk is produced from the animals reared by small and marginal farmers and landless laborers (Patel *et al.,* 2020). The milk production has increased from 176.3 million tonnes in 2017-18 to 187.7 million tonnes in 2018-19 registering a growth of 6.5 %. The per capita availability has increased from 233gm per day in 2004-05 to 394 gm per day in 2018-19. The largest producer of milk is Uttar Pradesh with 16.3 % of the total milk production, while Gujarat stands as the fifth that produce 7.7 % of the total milk produced in the country (Anony.,2019).

More than 70.00 per cent Indian rural households own livestock and majority of them are with less than 5 dairy animals, particularly cow and buffaloes and derive supplementary income and nutrition by producing milk for self-consumption and for sale in the market. Despite India has the largest cattle and buffalo population in the world and is also the single largest milk producing country but the productivity per animal is amongst the lowest in the world. The average productivity of crossbred cattle, indigenous cattle and buffaloes is 7.95, 3.01 and 4.57 kg of milk per day per animal, respectively. This is much lower as compared to the developed countries. Reasons like poor adoption and diffusion of new/ improved animal husbandry technologies/ practices and poor knowledge level of the dairy farmers were found responsible for lower production than the actual potential (Chander et al., 2010). The probable reasons for lower productivity are poor germplasm for milk production, inadequate feed and fodder resources as well as inadequate healthcare facilities. This yielding potential can be increased by improving the genetic potential of the livestock, which is possible through artificial insemination.

Artificial insemination (AI) is the process of collecting sperm cells from a male animal and manually into the reproductive tract of a female. This has been found to result in a normal offspring. In this process, the semen is inseminated into the female by placing a portion of it either in a collected or diluted form into the cervix or uterus by mechanical methods at the proper time and under most hygienic conditions. To enhance the production potential of our milch animals distributed throughout the length and breadth of our country, introduction of superior

germ-plasm into our indigenous breeds of cattle through artificial insemination (AI), may be the key factor. Artificial insemination technology has several advantages over natural service, viz., it is economic, genetic improvement of animals can be performed in a relatively short duration, semen of proven sires can be utilized in a better way, elimination of non-descript animals in relatively short period and large scale multiplication of characters can be done in a single step.

Despite a number of advantages of artificial insemination the adoption rate is still very less due to a number of reasons, viz., livestock owners misconceptions, superstitions, and doubts regarding artificial insemination, distant location of artificial insemination centre, poor detection of heat by the farmers (Kishor et al.,2013), farmers do not spare time to take their animals to the artificial insemination centre and lack the technical knowledge in the field of artificial insemination (Mohammed Samre et al.,2015) etc. Hence, this study conducted to knows knowledge about artificial insemination in milch animals amongst the dairy farmers of Dahod district.

OBJECTIVES

(1) To know the profile of the dairy farmers

(2) To know the knowledge of the dairy farmers about artificial Insemination

METHODOLOGY

"Ex post facto" research design was applied for this study. Kerlinger, F. (1976) stated that "Ex post facto" design is worthy is apply when the independent variable has already acted upon. The survey was conducted in Dahod district in the state of Gujarat, India. Dahod district is composed eight talukas from which 2 talukas selected purposively, which have maximum number of dairy farmers. From each taluka 5 villages were randomly selected and from each village, 10 dairy farmers were randomly selected. Thus, 100 respondents were made sample for the study. All the respondents were personally interviewed with a well structured pre-tested Gujarati version Interview schedule in light of the objectives.

The questions in the schedule were constructed in a simple manner in order to make it easy for respondents to understand and reply without any difficulty and express their replies free and frankly. For every direct type question were respondents could answer with 'Yes" or 'No' as confirmatory type of question were put in addition to it. The teacher made test was developed to measures the knowledge of dairy farmers about practices of artificial insemination. The answer elicited from the farmers was quantified by assigning one score to correct answer and zero to wrong answer. The collected data were analyzed and interpreted with appropriate statistical tools like percentage, rank, mean and standard deviation.

RESULTS AND DISCUSSION

Profile of the dairy farmers

A brief account of the general background profile of the respondents is presented in the Table 1.

Table 1 : Profile of the dairy farmers (n=100)

Sr. No.	Characteristics of the respondents	Number	Per cent
1	**Age**		
	Young (Upto 25 years)	09	09.00
	Middle (In between 26 to 50 years)	84	84.00
	Old (Above 50 years)	07	07.00
2	**Education level**		
	Illiterate	45	45.00
	Primary (1st to 7th std.)	20	20.00
	Secondary (8th to 10th std.)	10	10.00
	Higher secondary (11th to 12th std.)	24	24.00
	Graduation and above	01	01.00
3	**Experience in Dairy**		
	1 to 5 years of experience	70	70.00
	5.01 to 10 years of experience	29	29.00
	10.o1 to 15 years of experience	00	00.00
	Above 15.00 years of experience	01	01.00
4	**Land holding**		
	Landless	06	06.00
	Marginal (up to 1.0 ha)	15	15.00
	Small (1.1 ha to 2.0 ha)	34	34.00
	Medium (2.1 ha to 4.0 ha)	30	30.00
	Large (above 4.1 ha)	15	15.00
5	**Occupation**		
	Main (Agri)	82	82.00
	Subsidary (Dairy)	15	15.00
	Other (Service etc.)	03	03.00
6	**Herd size /Animal possession (milch) Cow/ Buffaloes**		
	Upto 3 number	18	18.00
	4 to 6 number	63	63.00
	More than 6 number	19	19.00
7	**Annual Income**	00	00
	Up to ₹ 25,000/-	25	25.00
	₹ 25,001/- to 50,000/-	56	56.00
	₹ 50,001/- to 75,000/-	17	17.00
	₹ 75,001/- to 10,0000/-	02	02.00

The variables studied were age, education, occupation, experience in dairy farming, herd size land holding

and annual income. As evident from the table, majority of the respondents were middle aged with poor education. The respondents had medium herd size i.e. 4 to 6 animals and small to medium size of land holdings.

It was observed (Table 1) that majority of the respondents had agriculture as a main occupation (82.00 per cent) and dairying was the secondary occupation(15.00 per cent). Majority of the respondents (70.00 per cent) had upto five years experience in dairy farming and more than half of the respondents (56.00 per cent) had annual income ranging from ₹ 25,001/- to 50,000/-. The results are in agreement with, Vahora, et al.,(2016), Vaidya *et al.,* (2016) and

Shyam Singh *et al.,* (2013).

Knowledge level of dairy farmers about Artificial Insemination (AI)

Knowledge is the cognitive behaviour of an individual. The body knowledge is acquired of learning process. Once the knowledge is acquired, it produces changes in thinking process of an individual, which would lead to further changes in rational decision that is prerequisite for the adoption of any innovation. Knowledge of dairy farmers about Artificial Insemination (AI) practices was measured with teacher made.

Table 2: Knowledge of the dairy farmers about artificial insemination (n=100)

Sr. No	Particulars	Knowledge	
		Number	Per cent
1	Artificial insemination is the process of collecting sperm cells from a male animal and manually into the reproductive tract of a female.	82	82.00
	Advantages of insemination		
2	Increased efficiency of bull usage	79	79.00
3	The progeny testing can be done at an early age.	68	
4	It prevents the spread of certain diseases and sterility due to genital diseases.	70	70.00
5	AI should be performed by skilled and qualified person	86	86.00
6	Estrus cycle of cow is 21 days	29	29.00
7	AI is much more useful in reproductive abnormalities	32	32.00
	Detection of heat done by		
9	Mucous discharge from valve	96	96.00
10	Bellowing and restlessness	82	82.00
12	Mounting on other animals	75	75.00
13	AI should be done after 10 to 12 hr after onset on heat	63	63.00
14	Animals must be check for pregnancy after 3 month of AI	58	39.00
16	Sick animal should not be use for artificial insemination	58	58.00
17	According to breeds all dose (straws) comes in different color	20	20.00
18	For better result AI should be performed in early morning or late evening	45	45.00
19	Animals must be check for pregnancy after 3 month of AI	18	18.00
20	AI having good conception rate	12	12.00

A perusal of data presented in table 2 shows that majority of livestock owners had knowledge about various heat detection symptoms like. mucous discharge from valve (96.00 per cent), bellowing and restlessness (82.00 per cent) and mounting on other animals (75.00 per cent). Majority of the farmers had the knowledge regarding the artificial insemination techniques (82.00 per cent) and benefits of artificial insemination like increased efficiency of bull usage (79.00 per cent) and it prevents the spread of certain diseases and sterility due to genital diseases (70.00 per cent). Mali, K. N et al. (2014) reported that, cent per cent of dairy farmers possessed complete knowledge about right time of Artificial Insemination and symptoms of animals

in heat (Christian, B. M. and Chauhan, N. B., 2015) and Thorat et al. (2018).

More than half of the respondents knew that AI should be done after 10 to 12 hr after onset on heat while 58.00 per cent of the respondents knew that the sick animal should not be use for artificial insemination as well as animals must be check for pregnancy after 3 month of AI and for better result AI should be performed in early morning or late evening (45.00 per cent). Kumawat and Verma (2016) reported that knowledge level of farmers in case of breeding of dairy animals regarding buffalo non-descript/improved was found maximum (88.8 %), Artificial insemination (86.1%), Preganancy diagnosis (66.6%) and castration of the male animals (52.7%).

Very few of the respondents low level of knowledge regarding AI is much more useful in reproductive abnormalities (32.00 per cent), estrus cycle of cow is 21 days (29.00 per cent)and according to breeds all dose (straws) comes in different color (20.00 per cent). A few dairy farmers did not having the knowledge about that animals must be check for pregnancy after 3 month of AI and AI having good conception rate. This results is in line with Singh, Manish Kumar et al (2018).

CONCLUSION

It can be concluded from the above study that majority of dairy farmers were belonged middle to old age group and nearly half of the respondents were illiterate, possessed medium size of land holding and medium level of annual income. Majority of the farmers were having agriculture as the main and dairying was the secondary that among 82.00 per cent of the farmers and dairying was the secondary occupation. So, Government and non government take initiate to create some income generating activities and also to make awareness regarding the higher level of education in particular Dahod district. Effort should be made by organizing medium term training programmes to cover the above said aspects regarding the some practices of Artificial Insemination, so that they can be made able to manage somewhat difficult and high tech modern innovation of dairying.

For awareness and increasing the knowledge of dairy farmers used social media by the farmers. Dairy farmers possessed mobile /land line phone) in hand, so extension functionaries should be used these instruments for dissemination of improved technology. Specific programmes to enhance the knowledge level of farmers are the need of hour. It is suggested that target specific approach should be adopted. The extension agencies should identify the farmers whose knowledge is deficit in different areas and develop knowledge modules for such specific areas like (breeding, etc).

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