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A Study of Some Factors Affecting the Rate of Adoption of Some Improved Animal Husbandry Practices in the Villages Around Anand, Gujarat State

Dr. K. G. Halyal[1] and Dr. A. U. Patel

Department of Extension Education, College of Agriculture, Junagadh Campus, Junagadh-362 001

ABSTRACT

Rate of adoption of artificial insemination as a method of breeding and presenting she-buffaloes for pregnancy diagnosis were studied by analysing statistical data from 100 villages round about Anand (Amul area). Based on the rate of adoption, villages were categorised into villages of high rate of adoption and low rate of adoption. Ten villages of each category were visited to study further the factors associated with rate of adoption. Social participation of artificial insemination workers, small area occupied by villages with smaller buffalo population, where in Patel community stayed in majority with larger area under irrigation with high literacy prcentage were significantly associated with high rate of adoption.

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INTRODUCTION

The increase in return per unit of livestock needs an integrated approach to breeding, feeding and management or scientific lines. Such an approach has been made to raise production from buffaloes in Kheda District of Gujarat State. This has been accomplished by the combined and co-ordinated efforts of the member-farmers of the Primary Coopeative Milk Producers Societies at the village level and the representative federal body at the district level, the Kheda District Cooperative Milk Producer's Union, at Anand. The approach to the problem is through educating the farmers in the operational area of the Union followed by provision of production requisites and necessary services to the farmers. This efforts is coordinated with marketing of milk, which has created conditions to motivate farmers to increase production of milk from buffaloes by the adoption of improved animal husbandry practices.

The study was conducted with the following objectives :

1. To study the rate of adoption of artificial insemination as a method of breeding buffaloes for the years from 1960-61 to 1965-66.
2. To study the rate of adoption of rendering she-buffaloes for pregnancy diagnosis.
3. To study some of the factors affecting the rate of adoption, such as characteristics of artificial insemination work ers, general village conditions and organisational aspects of the co-operatives.

1. Professor of Extension Education.

MATERIALS AND METHODS

There were 213 artificial insemination centres working at the end of the year 1965-66, of which 100 centres were working for more than 3 years. Data were collected from those 100 centres regarding the number of inseminations (first) and the number of buffaloes rendered for pregnancy diagnosis during the last five years. The year wsise and village wise data were available at the Central Insemination Cetnre, at Anand. The year wise rate of adoption of both the practices was determined by applying the following formula:

Rate of adoption of artificial insemination = Number of animals inseminated during the year. / Number of breedable buffalo population of the village.

Rate of adoption of rendering buffaloes for diagnosis = Number of animals examined for pregnancy diagnos is during the year. / Number of breedable buffalo population of the village.

Depending upon the number of years of working of the artificial insemination centre, the average rate of adoption of 100 villages were distributed into four quartiles. Villages in the first quartile wre taken as the villages of low rate of adoption and those in the fourth quartile were taken as the villages of high rate of adoption. Similarly the villages were also distributed into four quartiles as per the average rate of adoption of artificial insemination and rendering buffaloes for pregnancy diagnosis.

For the study of the factors affecting the rate of adoption, 10 villages, which were common for both the practices were selected from the villages of high rate of adoption and 10 villages were selected randomly from the common villages of low rate of adoption. Artificial insemination workers, secretaries and chairmen of the Primary Co-operative Milk Producers' Societies and the veterinary officers from Amul who supervised the artificial insemination work were the respondents for the study. Three interview schedules were prepared, one for the respondents from the artificial insemination workers, secretaries and chairmen of the cooperatives, second, for collection of data regarding village conditions in general and organizational aspects of the co-operatives and the third for the responses from the veterinary officers from Amul. Personal interview method was used for the collection of data. Some general information about the villages was collected from the census reports.

RESULTS SND DISCUSSION

Table 1 reveals that out of the characteristics studied, membership in village organisations was found to be significant statistically at 0.05 level. Following characters wre taken up for study : Age, Eductaion, Training, Length of Service, Previous experience, Residence, Type of families, Marital status, Main occupation, Caste, Positions held in village organisations and organisations outside the village, Land owned, Number of animals kept, Income from pay and sources other than pay, Participation in social activities during the school studies, part taken in common village functions and interest taken in the job by the workers (Table 1).

Membership in village organisations:

Majority of artificial insemination workers (70 per cent at the village of high rate of adoption) were members

TABLE 1

Characteristics of artificial insemination workers related to the rate of adoption.

Characteristics of artificial insemination workers	*Insemination workers*				X^2 *values*
	High rate		*Low rate*		
	No.	*Per cent*	*No.*	*Per cent*	
Membership in village organisation					
(A) Nil	3	30.00	9	90.00	9.00* 2 D.F.
(B) Membership in one organisation	1	10.00	1	10.00	
(C) Membership in more than one organisation	6	60.00	–	–	

*Significant at 0.05 level.

in one or more village organisations. This was significant at 0.05 level and positively related with the high rate of adoption.

Membership of artificial insemination workers in village organisations such as Gram Rakshakdal (Village Volunteer Forces) or Youth Club indicated the extent of social participation. Membership of organisation calls upon the participants certain responsibilities and indicates the tendency of working together and organised activities. Membership imparts training in democratic ways of thinking and leadership. In a study who will serve as youth leaders (1) it was concluded that youths who were ready to serve as youth leaders, apart from other characteristics were highest participators in community organisations. Organisations provides a means of getting one's voice heard, of finding personal identify, of gaining friends and associates, of sharing special interests, of providing special services and of participating in community decision making. Such benefits might not otherwise be available extensively (7). The artificial insemination workers who were members in village organisations were exposed to more contacts and understanding of group influence. So they were in a better position to convince farmers to adopt artificial insemination as a method of breeding than those who were not members. In a study of relationships of certain factors to the success of village level workers, Rahudkar (9) observed that village level workers who participated in social activities were more successful than other. The observations of Salgaonkar (13) supported the observation of Rahudkar in a similar study. Role of artificial insemination workers is more or less like that of the village level workers. They are the change agents at the village level. So the observation in this study that membership in village organisations influenced the work, coinsiders with the observations of Rahudkar and Saigaonkar. Social participation indicates an interest for social service that too to their own village people. It materially increased the influence of such workers in convincing farmers and the rate of adoption in such villages was higher than in the villages where artificial insemination workers were not members in village organisations. All the other characters of artificial insemination work-

ers studied were found to be statistically non-significant.

General village conditions :

Area occupied by the villages, buffalo population of villages, percentages of literate people in villages, the majority caste at the villages, irrigational facilities at the villages, distance of the villages from the taluka places, state high ways, national high ways and Anand, and the distribution of land holdings were the factors taken up for the study.

TABLE 2

General village conditions in relation to the rate of adoption

Sr. No.	*General Village condition*	*Village*						*Means*	
		High rate		*Low rate*		x^2 *Value*	'*t*' *Value*	*High rate*	*Low rate*
		No. ($N=10$)	*Per cent*	*No.* ($N=10$)	*Per cent*				
1.	Area occupied by villages								
	(a) Upto 1000 acres	5	50.00	–	–				
	(b) Upto 1001 to 2500	4	40.00	3	30.00	9.64** 2 D.F.	0.690** 10 D.F.	1236	3228
	(c) Above 2500 acres	1	10.00	7	70.00				
2.	Buffalo populations								
	(a) Below 500	8	80.00	1	10.00				
	(b) 501 to 1000	2	20.00	2	20.00	12.44** 3 D.F.	0.773** 10 D.F.	417	1193
	(c) 1001 to 1500	–	–	5	50.00				
	(d) Above 1500	–	–	2	20.00				
3.	Percentage of literate people in the village								
	(a) Above 40%	9	90.00	4	40.00				
	(b) Below 40%	1	10.00	6	60.00	5.49* 1 D.F.	—	41.84%	35.50%
4.	Majority caste in the village								
	(a) Patel in majority	8	80.00	2	20.00				
	(b) Bariyas in majority	2	20.00	8	80.00	7.20** 1 D.F.	—	—	—
5.	Irrigational facilities at the village								
	(a) More than half of the area	7	70.00	2	20.00				
	(b) Less than half of the area	3	30.00	8	80.00	5.05** 1 D.F.	—	—	—

*Significant at 0.05 level.

**Significant at 0.01 level.

Table 2 reveals that area occupied by the villages, buffalo population of the villages and majority caste at the villages were highly significant at 0.01 level, whereas the percentage of literate people at the villages and irrigational facilities at the villages were significant at 0.05 level.

Area occupied by the village:

Villages of the high rate of adoption were found to occupy smaller area (mean area 1236 acres) and the villages of low rate of adoption were found to occupy a larger area (mean area 3228 acres). Both the means differed significantly 't' value = 00.69 at 00.01 level and chi-square value ($X^2 = 9.64$) was also significantly high at 00.01 level.

Majority of villages of high rate of adoption (80 per cent) had a smaller buffalo population (average 417.50) as compared to the larger number of buffaloes (average 1193.8) at the villages of the low rate of adoption. Both means differed significantly ('t'=0.773). Larger population was significantly (0.01 level) and negatively related with the high rate of adoption. Possible reasons for this relation may be that the present facilities provided by the village cooperatives might be inadequate to cater the need of the larger area and the buffalo population. In the bigger villages, many farmers stayed on their farms and remained isolated. The facilities for propaganda provided by the Union might be quite inadequate to motivate those farmers to adopt artificial insemination as a method of breeding. On the other hand, the Vaghrees, a lower caste people who maintained buffalo bulls for natural service moved with the bull from the farm to farm. So the farmers preferred to get the advantage of natural service at their door rather than taking the buffaloes all the way to the insemination create for artificial insemination. In all the villages the cooperative society provided only one insemination crate irrespective of the buffalo population. The veterinary officer visited every village once in a week for pregnancy diagnosis irrespective of the village being larger or smaller. Therefore, the farmers staying on the farms might not be also able to take the advantage of those visits. One artificial insemidation worker was entrusted with the work of insemination in each village. Perhpas, he might not be able to cater to the needs of the larger buffalo population in the bigger villages. In smaller villages farmers lived in the closer contact, as such facilities provided could be quite adequate for the smaller area and smaller population of buffaloes.

Percentage of literate people in the village:

Majority of villages of the high rate of adoption (90 per cent) had literacy percentage above 40 per cent (average 41.86 per cent) as compared to 40 per cent of villages of the low rate of adoption in the same category. This factor is related positively and significantly (at 0.05 level) with the high rate of adoption.

Many studies revealed that literate farmers adoption index is high. Lionberger (6) reported that literacy and education level are indirectly related with the high rate of adoption. Studies of Fliegel (4) in Brazil supported views held by Lionberger. As the literacy of the whole village population was taken without further categorisation of literacy, the finding needs further probe.

It was observed that there was low per cent of literacy in large villages. This might be due to the fact that in large

villages majority of the people belonged to Baraiya caste in which the literacy was low due to their low socio-economic status. Higher percentage of literacy implies that more farmers were educated and were less traditional minded (12) to new ideas. Literacy makes the farmers to seek information through various sources and this indirectly influences the adoption of new ideas as compared to the villages where literacy is low, hence the positive relation of literacy with the rate of adoption.

Majority caste in the villages:

At the villages of the high rate of adoption (80 per cent) Patel caste was in majority, whereas at the villages of low rate of adoption Bariaya caste was in majority.

The observation of Rajenra (10) in a sutdy of villages in the Western U.P., showed that the adoption index of agricultural caste was high. The finding of this study that the rate of adoption was high, where Patel caste a leading agricultural caste was in majority supports the observation of Rajendra. Mulay and Ray (8) also supported the observation in their study at Khanjawala block near Delhi.

Irrigation facilities:

A rough estimation about the potential area under irrigation was estimated. It was observed that where ever irrigational facilities were more and potential area under irrgation was more, the rate of adoption was high. This factor was significant (0.05 level) with the high rate of adoption.

Increase in irrigation facilities lead to higher yield and double crops, with higher net income. Rogers (11) found that much higher gross income and knowledge of improved methods of agriculture lead to utilise improved methods of animal husbandry which brings additional income for the farmers. So increase in irrigational facilities lead to adoption of new practices ultimately improving soio-economic status of farmers. Adoption of one innovation leads to the adoption of another especially when economic gains are evident (12).

Organisational aspects of co-operatives:

Audit classification of societies, number of years completed by the co-operatives, number of persons trained in artificial insemination work, etc. were some of the factors studied. As none of the factors were found significant statistically, they, have not been included in the findings.

It can be seen from the study that the rate of adoption of animal husbandry practices under the study was higher in smaller villages as compared to larger villages.

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