RESEARCH PAPER

Study on knowledge level of dairy farmers for scientific livestock rearing practices in Bhagwanpur block area of District Haridwar

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Abstract : The study was conducted in dry land Bhagwanpur Block of district Haridwar, Uttarakhand during the year 2012-2013. The major observation was taken on socio- economic condition and elementary knowledge of the livestock owners in context to the use of scientific livestock rearing practices. the study revealed that 49.17 per cent livestock owner belongs to the middle age group, 35.00 per cent had marginal land holdings, 42.50 per cent lying with primary education group and 80.83 per cent had information sources as news paper. All the study respondent had no irrigation facility for their agricultural crops. 37.00 per cent were engaged with different village level social and agricultural organizations. 52.50 per cent dairy farmers had large family size and 49.17 per cent dairy farmers had two worth generate member in the family system. 67.50 percent were associated with integrated crops and animal husbandry practices in addition to service or business work, while 35.83 per cent solely with dairy farming. Majority (35.83 %) were preferred to reared six milch animals. Green fodder production area was higher (29.00 %) with medium-big land holding farmers. Large number of tractors was engaged in transportation, in newely developed industrial area. On an average 42.81, 35.00 and 22.19 per cent had high, medium and low level of knowledge regarding calves and heifers rearing with their breeding, feeding, ,housing and health management practices of livestock. Thus it was concluded that the dairy owners of dry land Bhagwanpur block of the district Haridwar possess high to medium level of knowledge regarding improved animal husbandry practices.

Key Words : Enterprises, Dairy farming, Calves, Crop residues

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INTRODUCTION

Livestock form an integral part of dairy farming is the main component of the agriculture production system of the Haridwar district of Uttarakhand. Haridwar District is comprises of six blocks ie Narson, Lakhsar, Khanpur, Bahadrabad, Bhagwanpur and Roorkee. Based on water conditions and availability sources all blocks are different to each other in agricultural nature. Bhagwanpur block is mainly known for the lacking of irrigation facilities for agricultural crops because of stony surface. Bhagwanpur block is comprises of 88 villages and as per livestock census 2007, the population of cattle 26794 and buffaloes,50406 of different breeds. There are 3565 milk Societies with members 135601 of Anchal Dairy cooperatives. Inspite of large livestock population with cooperative infrastructure average productivity of livestock is quite low, may be lack of scientific farming knowledge level and, fluctuated green fodder availability for milch animals round the year because majority of the farmers are reared livestock mainly through the utilization of crop residue during

such period. It is a known fact that the large quantity of milk is handled by those small and large holding farmers who are unfortunately unaware about economic aspect of milk production. Therefore, there is an urgent need of poverty alteration through adoption of dairying as commercial enterprises. However, majority of rural dairy farmers who rearing dairy animals don't follow the recommended package of practices of livestock management on the scientific line. Hence, it was felt that there is a need to sensitize the dairy farmers about the improved scientific technologies and production interventions required in dairy production in order to get maximum daily profit through enhancement in milk societies from dairy cooperatives. So in present situations the study was undertaken with the objectives to study the elementary knowledge and socio- economic status of dairy farmers in adoption of scientifically improved animal rearing practices in commercial line.

MATERIAL AND METHODS

The present study was conducted in 12 dry land villages of Bhagwanpur block of district Haridwar, Uttarakhand. The dairy farmers rearing livestock in different numbers and types were randomly selected from the selected villages. For survey purpose, a comprehensive list of different parameters for dairy farmers was prepared and information was collected with cooperation of RAWE personals. Thus a total dairy farmer's sample size of 120 respondents was taken for the present investigation.

The elementary knowledge of a research innovation is prerequisite for technology adoption. To observe the knowledge level in context of scientific dairy farming practices knowledge scale was developed. On the basis of observations collected for this purpose dairy farmers were classified into three groups *i.e.* high, medium and low leveled. The data were collected through personal interview to get first hand information and classified in the form of average, frequency and percentage.

RESULTS AND DISCUSSION

The various parameters about dairy farmers revealed that Table 1. It shows that majority 49.17 per cent of livestock farmers belongs to the middle age group followed by young age group 31.67 pe rcent and old aged group 19.16 per cent. This was due to the young aged group people or farmers are comparatively less interested to opted dairy farming as their main occupation. These findings are in agreement with reported by Toppo (2005), Bhatt (2006) and Sharma *et al.* (2002).

Education:

It was found that 42.50 per cent dairy farmers had obtained primary education whereas 31.67 per cent had secondary level followed by 15.00 per cent graduation level of education. It was inferred that 74.17 per cent of dairy farmers were having primary and secondary level of education. The probable reason might be due to available facility at village level. Similar findings have been reported by Gour (2002), Bhatt (2006), Sen (2007) and Sharma *et al.* (2012)in various part of the country.

Family use of information sourses and land holdings:

Majority of respondent using Television, News Paper and Radio in the village level as source of information about improved agricultural practices including animal rearing. Furthermore, it was observed that 35.00 per cent marginal, 25.00 per cent medium, 13.33 per cent medium-big, 12.50 per cent big and 14.17 per cent were the landless farmers. Therefore it can be concluded that majority 6.00 per cent of dairy farmers had 0-2 hectare of land holding. This might be fast development of nucleus family preferences system. Industrialization and urbanization also play an important role in reduction of per capita land availability. These results were in support of study conducted by Bhatt (2006), Sen (2007) and Sharma *et al.* (2002).

Crop irrigation and occupation:

All the respondent had no irrigation facility for their field crops which is totally depends upon monsoon rainfall. Occupation refers to generally an engagement of livestock farmers in different activities as a source of income for their livelihood. It was found that 53.33 per cent of dairy farmers were engaged in agriculture and animal rearing practices only. The person solely having animal rearing or thrive on animal husbandry only were 32.50 per cent. Engaged with agriculture, animal husbandry and government services or private company employee were 7.50 per cent and 6.67 per cent were engaged in business along with agriculture and animal husbandry. Hence, it can be concluded that 85.83 per cent farmers were found to be dependent on agriculture and dairy farming alone. This finding was in agreement with Gour (2002), Sen (2007) and Sharma *et al.* (2002).

Social participation approach:

Social participation approach denotes that a person is actively involved in the transfer of technology from different sources to their community level. It was observed that only 11.67 per cent of the respondents were actively participated in district level agricultural technology transfer programme organized by different agriculture based departments including animal husbandry and having membership of various organizations like- Anchal milk cooperative societies, gram panchayat ,village cooperative societies and FACs while 30.83 per cent were actively participated in village level programmes. These findings are contradictory to those reported by Khokhar (2008) and Sharma *et al.* (2002), while similar to those reported by Bhatt (2006).

Table 1 : Dairy farmers distribution based on their delicate and socio-economic distinctiveness

Sr. No.	Characteristics	Frequency	Percentage
1.	**Age**		
	Young age group (18-38 years)	38	31.67
	Middle age group(39-58 years)	59	49.17
	Old age group(Above 58 years)	23	19.16
2.	**Education**		
	Illiterate group	13	10.83
	Primary education group	51	42.50
	Secondary education group	38	31.67
	Graduate	18	15.00
3.	**Information sources used**		
	News paper	97	80.83
	Radio	61	50.83
	Television	114	95.00
	Magazines/ charts	04	3.33
4.	**Land holdings**		
	Landless	17	14.17
	Marginal farmers (Av. 1.0 hac. land)	42	35.00
	Medium holdings (Av. 2.0 hac. land)	30	25.00
	Medium –big holdings (Av. 3.0 hac. land)	16	13.33
	Big holdings (Av. 4.0 hac. Or more land)	15	12.50
5.	**Crop irrigation system**		
	No irrigation facility	120	100.00
	Tube well and canal	-	-
	Canal	-	-
	Tube well	-	-
6.	**Social participation approach**		
	Village level	37	30.83
	District level	14	11.67
	State level	-	-
7.	**Family size**		
	Small family (Up to 06 Person)	57	47.50
	Big size (More then 06)	63	52.50
8.	**Worth generator person in family**		
	One member	40	33.33
	Two member	59	49.17
	More than two member	21	17.50
9.	**Occupation**		
	Agriculture and animal husbandry	64	53.33
	Dairy farming alone	39	32.50
	Agriculture, dairy and services	09	7.50
	Agriculture, dairy and business	08	6.67
10.	**No. of animals**		
	Two milch animal	09	7.50
	Four milch animal	17	14.17
	Six milch animal	43	35.83
	Eight milch animal	26	21.67
	Ten milch animals	16	13.33
	More than ten milch animals	09	7.50
11.	**Type of animals in herd**		
	Only cows	18	15.00
	Only buffalo	36	30.00
	Both buffalo and cows	66	55.00
12.	**Linkages with animal husbandry officials**		
	Veterinary officers	63	52.50
	LEOs	34	28.33
	Para vets	120	100.00
	KVK scientists	93	77.50
	Officers of dairy cooperatives	71	59.17
	ITK specialist	19	15.83
	Other extension workers	68	56.67

Family size and worth generator:

This is fact that family size plays an important and significant role in decision taking to adopt a new technology in agriculture production system. It was observed that 52.50 per cent of dairy farmers had big family with more than six members and 47.50 per cent of dairy farmers had small family size with less than six members. It was observed that 49.17 per cent families were two worth generator person. 33.33 per cent with one worth generator person and 17.50 per cent families were there with more than two worth generator persons within the family. These findings are in view of family size similar to Sharma *et al.* (2002) while contradictory with the same reports, in view with of worth generating person within the family system.

Herd size and type of animals:

Herd size refers to the total number of livestock reared by a farmer at their doorsteps. It was observed that 35.83 per cent dairy farmers had six milch animals followed by 21.67, 14.17, 13.33, 7.50 and 7.50 per cents rearing eight, four, ten, more than ten , and two dairy animals, respectively. Majority of dairy farmers (55.00 %) rearing both cattle and buffaloes and 30.00 and 15.00 per cent rearing only buffaloes and cattle respectively. These findings were contradictory of Gour (2002) while in agreement to Sharma *et al.* (2002).

Linkages with extension agencies:

It was observed that majority of dairy farmers were found to have contact with the paravates available at village level generally only knowing about AI techniques, officers of dairy cooperatives, livestock extension officers and K.V.K scientists for obtaining information regarding animal husbandry practices. K.V.K system is comparatively new in district

Haridwar. Similar findings were reported by Gour (2002), Bhatt (2006) and Sharma *et al.* (2002).

Land distribution:

Majority of dairy farmers of all groups as sown in Table 2, were grown crops mainly grain, pulses and oilseed (40.0-45.5 %) in their agriculture field. Second preference was given to sugarcane (25.8-37.0 %) .They were using sugarcane top (residue) for their livestock feeding purpose during November to April month of the Year. The present study sown that area under sugarcane was decrease (37.0-25.8 %) with the increase of land holding size. The land area under grain pulse and oilseed crops was higher (45.5 %) in cash of big farmers. Medium-Big farmers was kept more area (29.0 %) under fodder crops to their livestock, which may reflects that medium-big and big farmer group were more interested to do dairy farming as viable business.

Mechanization

During the survey data on the farm implements have been collected to assess the present status of mechanization in the area Table 3. According to survey the area is saturated in tractor population if agriculture is concerned, however the mechanization (or tractorization) should not be viewed as displacement of man-power, in-reality its opened up new avenues for human employment (Verma,2005). Worth notable that this particular area is being developed as industrial area in newly formed state Uttarakhand and hence huge numbers of tractors are engaged in transportation. however low populations of seed sowing machine were found. The reason may be the increasing trend of growing plywood tress like poplar (Populus deltoides) for better remunerative. This restricted the use of seed drill type machinery. Large number

Table 2 : Land distribution under different agricultural activities

Sr. No.	Characteristics	Average area distribution (Hac.)							
		Marginal farmer		Medium farmer		Med–big farmer		Big farmer	
		Frequency	%	Frequency	%	Frequency	%	Frequency	%
1.	Cash crops	0.37	37.0	0.70	35.0	0.88	29.3	1.03	25.8
2.	Grain/Pulse/Oilseed	0.43	43.0	0.82	41.0	1.33	41.7	1.82	45.5
3.	Fodder crops	0.20	20.0	0.48	24.0	0.87	29.0	1.15	28.8

Table 3 : Mechanization of agriculture production system

Sr. No.	Farm implements	Average area distribution (Hac.)							
		Marginal farmer (< 1 ha)		Medium farmer (1-2 ha)		Med–big farmer (2-3 ha)		Big farmer (> 3 ha)	
		Frequency	%	Frequency	%	Frequency	%	Frequency	%
1.	Tractor	27	45.8	23	76.7	15	100	16	100
2.	Harrow/Cultivator	30	50.8	25	83.3	15	100	16	100
3.	Seed sowing machine	nil	-	01	3.3	03	20	03	18.8
4.	Sugarcane ridger	10	16.9	12	40	06	40	09	56.3
5.	Rotavator	05	8.5	09	30	07	46.7	07	43.8
	Spray machine	35	59.3	30	100	15	100	16	100
6.	Pumpset	32	54.2	27	90	15	100	16	100

of spray machines (Table 3) indicates that most of the farmers are engaged in vegetable production. However ground water is the major source of irrigation and hence every farmers having their own pump set.

Performance of dairy animals:

The result sown in Table 4 inferred that almost one third 48.33 per cent of crossbreed cattle and 75.83 per cent of buffaloes was diestress with long calving interval problem, which might be biggest reason affecting milk production and adoption of commercial dairy farming as business. 25.83 per

Table 4 : Performance of milk producing animals

Sr. No.	Parameters	Local cows		CB cows		Buffaloes	
		Frequency	%	Frequency	%	Frequency	%
1.	**Calving interval (in months)**						
	12-15 months	19	15.83	26	21.67	11	09.17
	16-19 months	36	30.00	36	30.00	40	33.33
	20-23 months	16	13.33	07	05.83	36	30.00
	More then 23 months	04	03.33	15	12.50	15	12.50
2.	**Age at first calving (in years)**						
	1.5-3.0 years	07	5.83	30	25.00	51	42.50
	3.0-4.0 years	23	19.17	41	34.17	30	25.00
	4.0-5.0 years	09	07.50	09	7.50	16	13.33
	5.0-6.0 years	03	02.50	04	3.33	05	04.17
	More then 6.0 years	-	-	-	-		
3.	**Lactation length**						
	140-180 days	17	14.17	16	13.33	08	06.67
	181-220 days	30	25.00	41	34.17	45	37.50
	221-260 days	21	17.50	25	20.83	32	26.67
	261-300 days	07	05.83	02	01.67	17	14.17
4.	**Parity order**						
	One	20	16.67	19	15.83	12	10.00
	Two	26	21.67	23	19.17	18	15.00
	Three	11	09.17	20	16.67	39	32.50
	Four	10	08.33	15	12.50	18	15.00
	More then four	08	06.67	07	05.83	15	12.50
5.	**Average milk production (lit./day/animal)**						
	Up to 04 ltr.	24	20.00	06	05.00	08	06.67
	4.1 to 06 ltr	31	25.83	11	09.17	20	16.67
	6.1 to 8.0 ltr	20	16.67	16	13.33	27	22.50
	8.1 to 12 ltr	-	-	31	25.83	24	20.00
	More then 12 ltr.	-	-	20	16.67	23	19.17

Table 5 : Distribution of dairy farmer on the basis of scientific dairy farming knowledge

Sr. No.	Characteristics	Knowledge					
		High		Medium		Low	
		Frequency	%	Frequency	%	Frequency	%
1.	Calf management	42	35.00	41	34.17	37	30.83
2.	Heifers management	60	50.00	38	31.67	22	18.33
3.	Breeding management	50	41.67	48	40.00	22	18.33
4.	Feeding management	53	44.17	49	40.83	18	15.00
5.	Water management	29	24.17	63	52.50	28	23.33
6.	Cattle shed management	32	26.67	57	47.50	31	25.83
7.	Health management	41	34.17	43	35.83	36	30.00
8.	Clean milk production	29	24.17	72	60.00	19	15.83

cent dairy farmers had local cows with 6.0-8.0 liter per day and 20.00 per cent had animals up to 4.0-6.0 liter per day. Similarly, one fourth dairy farmers had cross breed producing milk 8.0-12.0 liter per day, while 16.67 per cent had cross breed cows producing milk more than 12.0 liter per day. On the other hand 22.50 per cent farmers were keeping buffaloes with 6.0-8.0 liter per day followed by 20.00 and 19.17 per cent with 8.0 to 12.0 liter and more than 12.0 liter per day ,respectively.16.67 per cent respondent having buffaloes producing 4.0-6.0 liter milk per day. So there was mixed producing animal population in the study area.

It was reveled from the data (Table 5) that the knowledge level of all the respondent farmers was high to medium in term of recommended package and practices for viable commercial dairy farming. So that all the areas specially calf and heifers rearing related to recommended package and practices were required special attention to give for dairy farming in better ways. Singh, 2001 and Singh, 2006 worked on the mechanization and agricultural productivity.

Conclusion:

Nearly two-third of respondent farmers belongs to middle age group acquired primary education were moderately active member of rural social organization using news paper, television and radio as a source of information of important animal husbandry and agricultural practices. Most of the farmers were marginal to medium land holders depends upon monsoon rainfall due to non aviability of irrigation facielites, large family size and have member more then six and have one or two earning member in the family system with high to medium knowledge regarding improved agricultural practices including animal rearing.

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