RESEARCH PAPER

Comparative study on scientific livestock rearing knowledge of dairy farmers of Lakhsar block of district Haridwar

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Abstract : The study was conducted in Lakhsar Block of district Haridwar, Uttarakhand during the year 2012-2013. The major observation was taken on socio- economic condition and elementary knowledge of the dairy farmers in context to the use of scientific livestock rearing practices. The study revealed that 47.50 per cent livestock owner belonged to the middle age group, 31.67 per cent had medium holding, 44.17 per cent were with secondary education group and 86.67 per cent had information sources as newspaper. 88.33 per cent were depending on tube well for irrigation facilities. 57.50 per cent were engaged with district level social and agricultural organizations. 60.83 per cent dairy farmers had small family and 49.17 per cent dairy farmers had one worth generate member in the family system. 68.33 per cent were engaged with integrated crops and animal husbandry practices with additional services or business ,while 17.5 per cent solely depended on dairy farming. Majority (33.33 %) were generally preferred to rear four milch animals. Plantation of trees was increased with the increase of owners land holdings size. Green fodder production area was higher (11.5 %) with medium land holding farmers. There was high population of tractors and pump set in the area. On an average 22.56, 38.85 and 38.59 per cent had high, medium and low level of knowledge regarding calf and heifers, breeding, feeding, water, housing and health management practices of livestock. Thus it was concluded that the dairy owners of water logged Lakhsar block of the district Haridwar possessed medium to low level of knowledge regarding improved animal rearing practices.

Key Words : Scientific livestock rearing, Knowledge, Socio-economic conditions, Dairy farming

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INTRODUCTION

Large number of rural families in India are earning part of their livelihood from animal husbandry. The species selection depend on the land holding and socio-economics status of the farming communities. Low share in Uttarakhand employment is because livestock rearing in area is taken up as subsidiary to crop production and mostly practiced as supporting backyard enterprises, where as dairy farming is the main component of the agriculture production system of Haridwar district of Uttarakhand. Haridwar district is comprises of six blocks *i.e.* Narson, Lakhsar, Khanpur, Bahadrabad, Bhagwanpur and Roorkee. Based on water conditions all blocks are different to each other in agricultural nature. Lakhsar block is mainly known for the water flood prone due to Ganga river during rainy season. Lakhsar block is comprises of 118 villages and as per livestock census year 2007, there are 17746 cattle and 55790 buffaloes population of different breeds. There are 3565 dairy co-operative societies with members 135601 of Anchal dairy co-operatives. Inspite of large livestock

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population with co-operative infrastructure average productivity of livestock is quite low, may be because of scientific farming knowledge level and, fluctuated green fodder availability for milch animals round the year are reared mainly through the utilization of crop residue. 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 co-operatives. 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.

MATERIAL AND METHODS

The present study was conducted in 12 villages of Lakhsar 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 co-operation 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 results obtained during the investigation regarding various parameters in Table 1 shows that 47.5 per cent of livestock farmers belonged to the middle age group followed by young age group 28.33 per cent and old aged group 24.17 per cent. This was due to the young aged group people or farmers are comparatively less interested to taken up dairy farming as their main occupation.

These findings are in agreement with the report by Toppo (2005), Bhatt (2006) and Sharma *et al.* (2012).

Education :

It was found that 44.17 per cent dairy farmers had obtained secondary education whereas 33.33 per cent had primary level followed by 19.17 per cent graduation level of education. It was inferred that 77.50 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).

Family use of information sources and land holdings :

Majority of population using television, news paper and radio in the village level as source of information about improved animal husbandry practices. Furthermore, it was observed that 31.67 per cent medium, 30 per cent marginal, 22.50 per cent medium-big, 5.83 per cent big and 10 per cent were the landless farmers. Therefore, it can be concluded that majority 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 are in support of the study conducted by Bhatt (2006), Sen (2007) and Sharma *et al.* (2012).

Crop irrigation and occupation :

Majority of farmers (88.33 %) were having crop irrigation facility with tube wells, although 11.67 per cent were in the category of no crop irrigation facility including landless farmers. Occupation refers to generally an engagement of livestock farmers in different activities as a source of income for their livelihood. It was found that 68.33 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 17.5 per cent. Engaged with agriculture, animal husbandry and government services or private company employee were 8.33 per cent and 5.83 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 are in agreement with Gour (2002), Sen (2007) and Sharma *et al.* (2012).

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 57.50 per cent of the respondents were actively participated in district level agricultural technology transfer programmes organized by different agriculture based departments including animal husbandry and having membership of various organizations like- Anchal milk co-operative societies, Gram Panchayat, Village Co-operative societies and FACs. These findings are similar to those reported by Khokher (2008) and

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)	34	28.33
	Middle age group (39-58 years)	57	47.50
	Old age group (Above 58 years)	29	24.17
2.	**Education**		
	Illiterate group	04	03.33
	Primary education group	40	33.33
	Secondary education group	53	44.17
	Graduate	23	19.17
3.	**Information sources used**		
	News paper	104	86.67
	Radio	68	56.67
	Television	117	97.50
	Magazines/ Charts	31	25.83
4.	**Land holdings**		
	Landless	12	10.00
	Marginal farmers (Below Av. 1.0 hac. Land)	36	30.00
	Medium holdings (Av. 1.0 -2.0 hac. Land)	38	31.67
	Medium –big holdings (Av. 2.0-3.0 hac. Land)	27	22.50
	Big holdings (More than Av. 3.0 hac.)	07	05.83
5.	**Crop irrigation system**		
	No irrigation facility	14	11.67
	Tube well and canal	-	-
	Canal	-	-
	Tube well	106	88.33
6.	**Social participation approach**		
	Village level	44	36.67
	District level	69	57.50
	State level	09	07.50
7.	**Family size**		
	Small family (Up to 06 Person)	73	60.83
	Big size (More than 06)	47	39.17
8.	**Worth generator person in family**		
	One member	59	49.17
	Two member	38	31.67
	More then two member	23	19.17
9.	**Occupation**		
	Agriculture and animal husbandry	82	68.33
	Dairy farming alone	21	17.50
	Agriculture, dairy and services	10	08.33
	Agriculture, dairy and business	07	05.83

Table 1 contd...

Contd... Table 1

Sr. No.	Characteristics	Frequency	Percentage
10.	**No. of animals**		
	Two milch animal	34	28.33
	Four milch animal	40	33.33
	Six milch animal	14	11.67
	Eight milch animal	23	19.17
	Ten milch animals	06	05.00
	More than ten milch animals	03	02.50
11.	**Type of animals in herd**		
	Only cows	19	15.83
	Only buffalo	27	22.50
	Both buffalo and cows	74	61.67
12.	**Linkages with animal husbandry officials**		
	Veterinary officers	17	14.17
	LEOs	36	30.00
	Para vets	93	77.50
	KVK Scientists	72	60.00
	Officers of dairy cooperatives	39	32.50
	ITK Specialist	13	10.83
	Other Extension Workers	29	24.17

Sharma *et al.* (2012) which contradictory to those reported by Bhatt (2006).

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 60.83 per cent of dairy farmers had small family with less than six members and 39.17 per cent of dairy farmers had large family size with more than six members. It was observed that 49.17 per cent families were one worth generator person. 31.67 per cent with two worth generator person and only 19.17 per cent families were with more than two worth generator persons within the family. These findings are in view of family size contradictory to Sharma *et al.* (2012) while in agreement 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 33.33 per cent dairy farmers had four milch animals followed by 28.33, 19.17, 11.67, 5.00 and 2.50 per cents rearing two, eight, six, ten and more than ten animals, respectively. Majority of dairy farmers (61.67 %) rearing both cattle and buffaloes and , 22.50 and 15.83 per cent rearing only buffaloes and cattle, respectively. These findings are in agreement with Gour (2002) while contradictory to Sharma *et al.* (2012).

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 co-operatives, 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.* (2012).

Land distribution :

Majority of dairy farmers of all groups as shown in Table 2, grew cash crops mainly sugarcane (42-48.5 %) in their agriculture field. They were using sugarcane top (residue) for their livestock feeding purpose during November to April month of the year. The present study shows that area under sugarcane was higher (48.0-48.5 %) in cash of marginal and medium farmers although the land area under plantation mainly popular was increased with the increase of land area per farmer. The land area remained more or less constant (10.0-20.0 %) in which deference in grown area probably depends upon family size or grain need of family person for feeding purpose round the year. Marginal and medium farmers kept more area (11.5 to 12.0 %) under fodder crops to their livestock, which may reflect that marginal and medium farmer group were more interested to do dairy farming as viable business.

Mechanization :

The result shown in Table 3 inferred that the tractor population was found very high even 73 per cent marginal farmers had their own tractors. It was surprisingly that 3 farmers out of 12 landless farmers were having own tractors. During the questionnaire it was found that farmers run their tractor on custom hire basis at brick kiln and transportation of raw construction material, green fodder and agricultural produce in the area. This ultimately helps them to generate their own employment. Verma (2005) concluded in his study that tractorisation displayed mainly bullock power upto 60 per cent in some situation; however, its impact on man-power was much less, the displacement being less than 15%. He extent that mechanization should not be viewed as displacement of man-power, in-reality its opened up new avenues for human employment. Overall in the area, the populations of tractors are more than the required. However, the farmer's interaction towards new implements like seed sowing device and rotavator are gradually increasing. The reason may be the subsidies provided by the government. It is worth notable that exploitation of ground water and water from ponds and small reservoirs in rural areas for irrigation are the highest priority to increase agricultural productivity (Singh, 2001; Singh and Chancellor, 1974). During the survey it was found that maximum numbers of farmers are having their private pumpsets (Table 3). It is worth notable here that there is no canal irrigation in the area and farmers fully depend on ground water. Supporting finding was made by Grewal and Kahlon (1972).

Performance of dairy animals :

The result shown in Table 4 inferred that almost half 58.30 per cent of crossbreed cattle and two-third 82.50 per cent of buffaloes were in distress with long calving interval problem, which might be biggest reason affecting milk production and adoption of commercial dairy farming as

Table 2 : Land distribution under different agricultural activities

| Sr. No. | Characteristics | Average area distribution (ha) | | | | | | | |
| | | Marginal farmer | | Medium farmer | | Med–big farmer | | Big farmer | |
		Frequency	%	Frequency	%	Frequency	%	Frequency	%
1.	Cash crops	0.48	48.0	0.97	48.5	1.32	44.0	1.68	42.0
2.	Grain and pulse	0.20	20.0	0.20	10.0	0.40	13.3	0.48	12.0
3.	Plantation	0.10	10.0	0.60	30.0	1.10	36.7	1.50	37.5
4.	Fodder crops	0.12	12.0	0.23	11.5	0.18	06.0	0.34	08.5
5.	Vegetable	0.10	10.0	-	-	-	-	-	-

Table 3 : Mechanization of agriculture production system

| Sr. No. | Farm implements | Land size (ha) | | | | | | | |
| | | 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	35	73	36	94.7	27	100	07	100
2.	Harrow/Cultivator	20	41.6	32	84.2	27	100	07	100
3.	Seed sowing machine	–	–	–	–	04	14.8	03	42.8
4.	Sugarcane ridger	15	31.3	30	78.9	25	92.6	07	100
5.	Rotavator	01	2.1	05	13.2	10	37	06	85.7
	Spray machine	25	52.1	29	76.3	27	100	07	100
6.	Pumpset	34	70.8	38	100	27	100	07	100

* Landless farmers are also included in the category of marginal framer

business. Twenty per cent dairy farmers had local cows with 4.0-6.0 l per day, 11.67 per cent had animals up to 6.0-8.0 l per day. Similarly 25.00 per cent had cross breed producing more then 12.0 l per day while 21.70 per cent had cross breed cows producing milk 8.0-12.0 l per day. On the other hand 31.67 per cent farmers were keeping buffaloes with 6.0-8.0 l milk per day

followed by 22.50 with 4.0 -6.0 l per day and 7.50 per cent more than 12.0 l per day production of milk.

It is revealed from Table 5 that the knowledge level of all the respondent farmers was medium to low in term of recommended package and practices for viable commercial dairy farming. So that all the areas, related to recommended

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	18	15.0	23	19.2	02	01.7
	16-19 months	21	17.5	13	10.8	09	07.5
	20-23 months	13	10.8	35	29.2	57	47.5
	More than 23 months	07	05.8	22	18.3	33	27.5
2.	**Age at first calving (in years)**						
	1.5-3.0 years	03	02.5	29	24.2	02	01.7
	3.0-4.0 years	01	00.8	20	16.7	23	19.2
	4.0-5.0 years	-	-	20	16.7	36	30.0
	5.0-6.0 years	-	-	03	02.1	32	26.7
	More than 6.0 years	-	-	-		08	06.7
3.	**Lactation length**						
	140-180 days	06	05.0	34	28.3	10	08.3
	181-220 days	23	19.2	24	20.0	43	35.8
	221-260 days	21	17.5	16	13.3	35	29.2
	261-300 days	09	10.8	19	15.8	13	10.8
4.	**Parity order**						
	One	13	10.8	17	14.2	13	10.8
	Two	19	15.8	35	29.2	26	21.7
	Three	14	11.7	27	22.5	40	33.3
	Four	04	03.3	10	08.3	20	16.7
	More then four	09	07.5	04	03.3	02	01.7
5.	**Average milk production (lit./day/animal)**						
	Up to 04 ltr.	21	17.5	07	05.8	08	06.7
	4.1 to 06 ltr.	24	20.0	14	11.7	27	22.5
	6.1 to 8.0 ltr.	14	11.7	16	13.3	38	31.7
	8.1 to 12 ltr.	-	-	26	21.7	19	15.8
	More Than 12 ltr.	-	-	30	25.0	09	07.5

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	29	24.67	39	32.50	52	43.33
2.	Heifers management	20	16.67	32	26.67	68	56.67
3.	Breeding management	35	29.17	28	23.33	57	47.50
4.	Feeding management	31	25.83	47	39.16	42	35.00
5.	Water management	21	17.50	71	59.17	28	23.33
6.	Cattle shed management	33	27.50	48	40.00	39	32.50
7.	Health management	19	15.83	63	52.50	38	31.67
8.	Clean milk production	28	23.33	45	37.50	47	39.17

package and practices required to give special attention.

Conclusion :

From the present study it can be concluded that fifty seven per cent dairy farmers belonged to middle age group acquired secondary education were 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 equipped with tube well irrigation facility, small family size and have member less than six and have one earning member in the family system with average knowledge regarding improved animal husbandry practices.

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