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Investment and Resource Use Pattern followed by Dairy Farmers in Haryana

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ABSTRACT

Dairy sector plays a critical role in growth of rural India by providing livelihood opportunities to millions of people. The present study was conducted in Zone-I and Zone II of the Haryana state. District Kaithal and Karnal were selected from Zone I whereas Sirsa and Hisar districts represented Zone II to study the investment and resource use pattern followed by the dairy farmers. To achieve the objective the primary data from the 200 sampled dairy farms (divided into three categories i.e. small, medium and large herd size of milch animals) were collected through survey method. The study revealed that the total investment per milch animal per day in small, medium and large herd size group was Rs.175.50, 178.40 and 181.80, respectively, in Zone-I and Rs.170.08, 174.30 and 175.86, respectively, in Zone-II. From total investment, major proportion was covered by investment on feed and fodder, followed by concentrates and labours in both the Zones. It may be suggested that providing feed concentrates and high yielding seeds of green fodder crops at cheaper rates and credit facility should be strengthened.

INTRODUCTION

Livestock farming is important for sustenance and to supplement the income of the farmer. India ranks first with 22 percent of the total world milk during 2018-19 with 198.4 million tonnes of milk (Basic Animal Husbandry Statistics, DAHD&F, G.O.I Report, 2019). The government and different agencies needed to work in coordination with each other for proper and timely supply of technologies, services and facilities to farmer which ultimately helps in proper utilization of scarce resources (Dixit et al., 2018). Dairy farming helps in reducing risk for farmers through diversification as livestock and dairy complements each other and it improves the financial and social well-being of farmers (Sen et al., 2018).

Haryana state possesses a high milk production potential due to its favourable resource's endowments and receptive farming community. Haryana is having higher per capita availability of milk i.e. 930g as compared to our whole country. Basically, milk productivity depends on four dimensions of animal husbandry practices i.e. breeding, feeding, health-care and management practices. There should be harmonious relationship between demand and delivery of veterinary services with prospects of monitoring and supervisory support to improve the potential of dairy farming (Kumar & Meena, 2021). Farm training significantly contributes in knowledge and positively influenced the adoption and income of dairy farmers by improving their knowledge and skills (Khode et al., 2021). The expenditure on fodder and concentrates formed the major part in total cost of buffalo milk production (Deoghare & Bhattacharyya, 1994). In all the herd size groups, feed constituted the most important item accounting for about 53 to 74 per cent followed by labor with nearly 10 to 25 per cent of the total cost in the different season (Jha et al., 1983). The expenditure sustained on fodders and concentrates constituted about 60 per cent followed by the cost of labour (26%), depreciation and interest charges (12%) and (2%) of veterinary expenses (Rao 1985). The per litre cost of buffalo milk production was highest (Rs. 7.95) in small herd size

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milk producers followed by medium and large producers (Hymajyothi et al., 2003). The concentrates leads more more productivity in milk yield (Grover and Sankhayan, 1992). Majority (51%) of farmers belonged to medium (14.27-70.66 l) milk producers, followed by 36 per cent and 13 per cent had small (<14.27 l) and large (above 70.66 l) milk producers' day/household, respectively (Birader et al., 2013). The fodder and feed accounted for 67.76 and 12.23 per cent followed by labour charges with 14.21 per cent (Pathania and Sharma, 2015). The total Feed and fodder cost was accounted for 83.84 per cent out of the total variable cost. The major part of investment is for the feed and fodder for the dairy (Kashish et al., 2016). The cost of labour was highest for all the groups of the dairy farmers followed by the cost of concentrates. The net revenue realized by all the three types of dairy units varied positively with herd size (Shoba and Venkatraman, 2020). Feed and fodder form the major part of investment i.e. 68.62 per cent followed by labour and veterinary and artificial insemination (Singh et al., 2012).

METHODOLOGY

The Haryana state was divided into two agro-climatic regions i.e. eastern region and western region. The eastern region is comparatively wet with the annual rainfall of about 600-1100 mm as compared to western region which is dry with annual rainfall of about 300-450 mm. The dry and wet regions were denoted as Zone-I and Zone-II respectively, in this study. From Zone-I districts of Kaithal and Karnal whereas from Zone-II Sirsa and Hisar districts were selected. Two blocks from each district were selected namely: Hisar (Adampur, Hisar), Sirsa (Dabwali, Sirsa), Karnal (Karnal, Nilokheri), Kaithal (Kaithal, Kalayat) for the present study. Twenty-five farmers practicing dairy farming were selected randomly from each block as respondents for the study making a total of 200 dairy farmers. To achieve the specific objectives, the primary data from the sample dairy farms were collected through survey method on pre-structured schedules designed for the purpose. The data were collected to work out the investment and resource use pattern in dairy production. A multi-stage stratified random sampling was designed to collect relevant information from the dairy farmers. The relevant data were collected with the help of well-structured and pre-tested schedule by personal interview method for the year 2019-20 to achieve the stipulated objectives. The data on various aspects of socio-economic status of dairy owners and investment on animals, machinery and equipment, cattle sheds and stores and building, etc. were collected from all the 200 selected respondents in both the zones. The information was also recorded on the various inputs like quantity and expenditure on green fodder, dry fodder and concentrates, mineral mixture, veterinary expenses, labour employed in different dairy operations and farming, electricity, water charges and other miscellaneous items.

RESULT AND DISCUSSION

Investment pattern in dairy farms

The investment pattern on different categories of dairy farms of zone I is presented in Table 1. The investment on an average dairy farm in Zone-I was Rs. 591131 per herd and an average investment per milch animal was Rs. 65176 and an average investment per milch animal per day was Rs. 178.56. Out of total average investment, milch animal alone accounted for about 84 per cent. Majority of the dairy farmers had 'Murrah' and 'Sureti' breeds of buffaloes. The proportionate investment on cattle sheds and stores, machinery and equipments was found to be 8 and 1 per cent, respectively. It was also observed that the proportion of investment on milch animals increased with the increase in size of dairy farm. The overall investment on an average dairy farm on cattle sheds and stores was Rs. 46581, while investment on cattle sheds and stores was Rs. 37161 in small herd followed by Rs. 43084

Table 1. Investment Pattern in Dairy Farms in Zone-I and Zone-II of Haryana (Rs.)

S.No.	Particulars	Zone I				Zone II			
		Small	Medium	Large	Overall	Small	Medium	Large	Overall
A.	Animals								
1.	Milch animals	348259	508682	635396	496669	279798	396130	539768	378408
		(82.75)	(84.18)	(84.81)	(84.02)	(81.65)	(84.83)	(81.07)	(82.69)
2.	Young stocks and heifers	21000	24473	25123	24059	17853	18118	24562	19494
		(4.99)	(4.05)	(3.35)	(4.07)	(5.21)	(3.88)	(3.69)	(4.26)
3.	Bulls	6186	10151	10862	9044	4728	5323	8520	5766
		(1.47)	(1.68)	(1.45)	(1.53)	(1.38)	(1.14)	(1.28)	(1.26)
4.	Draft animals	3072	10756	10814	7448	2227	5230	11382	5171
		(0.73)	(1.78)	(1.44)	(1.26)	(0.65)	(1.12)	(1.71)	(1.13)
5.	Total (1+4)	378517	554062	682195	537220	304606	424801	584232	408839
		(89.94)	(91.69)	(91.06)	(90.88)	(88.89)	(90.97)	(87.76)	(89.34)
B.	Cattle shed and stores	37161	43084	57311	46581	35467	36750	69026	43153
		(8.83)	(7.13)	(7.65)	(7.88)	(10.35)	(7.87)	(10.37)	(9.43)
C.	Machinery & equipments	5176	7130	9664	7330	2604	5416	12380	5628
		(1.23)	(1.18)	(1.29)	(1.24)	(0.76)	(1.16)	(1.86)	(1.23)
	Total investment (A+B+C)	420854	604276	749170	591131	342677	466967	665638	457620
		(100)	(100)	(100)	(100)	(100)	(100)	(100)	(100)
Total capital investment per milch animal		64057	65116	66357	65176	62079	63619	64188	63294
Total capital investment per milch animal per day		175.50	178.40	181.80	178.56	170.08	174.30	175.86	173.41

Figures in parentheses indicate percentage to total capital investment.

and 57311 in medium and large herd size, respectively. It was clearly revealed that the investment on cattle sheds and stores increased with the increase in herd size in different proportions. Same pattern was followed in case of investment on machinery and equipments as more animals required more buildings and sheds. The investment on machinery and equipments was Rs. 5176 in small herd followed by Rs. 7130 and 9664 in medium and large herd size, respectively. Average investment on an average herd size was Rs. 7330 in Zone-I. The total investment on a dairy farm varied from Rs. 420854 on a small farm to Rs. 604276 on a medium and Rs. 749170 on a large dairy farm. It can also be concluded that the cost involved in the purchase of milch animals was the important component of the total fixed capital investment. We also revealed that total fixed cost was increasing with increase in herd size in Zone-I of Haryana. These findings were supported by (Kashish et al., 2016). During her study in Amritsar district in Punjab it was concluded that total fixed cost was increasing with increase in herd size it was found to be highest in small dairy farms followed by medium and large dairy farms.

As per Table 1 it can be revealed that the investment on an average dairy farm in Zone-II was Rs. 457620 per herd and an average investment per milch animal was Rs. 63294 and average investment per milch animal per day was Rs.173.41. Out of total, an average investment milch animal alone accounted for about 89 per cent. The proportionate investment on cattle sheds & stores, machinery and equipment was found to be 9 and 1 per cent, respectively. It was also observed that the proportion of investment on milch animals increased with the increase in size of dairy farm. The investment on an average dairy farm on cattle sheds and stores was Rs. 43153, while investment on cattle sheds and stores was Rs. 35467 in small herd followed by Rs. 36750 and 69026 in medium and large herd size, respectively. It can also be concluded that investment on cattle sheds and stores increased with the increase in herd size in different proportions. Same pattern was followed in case of investment on machinery and equipment. The investment on machinery and equipment was Rs. 2604 in small herd followed by Rs. 5416 and 12380 in medium and large herd size, respectively. An average investment on an average herd size was Rs. 5628 in Zone-II. The total investment on a dairy farm varied from Rs. 342677 on a small farm to Rs. 466967 on a medium and Rs. 665638 on a large dairy farm. From Table 1, we can conclude that the cost involved in the purchase of milch animals was the important component of the total fixed capital investment, as now a day's cost of milch animals is very high. We also revealed that total fixed cost was increasing with increase in herd size in Zone-II of Haryana. These findings were supported by (Kashish et al., 2016). The study in Amritsar district of Punjab concluded that total fixed cost was increasing with increase in herd size it was found to be highest in small dairy farms followed by medium and large dairy farms.

Resource utilization pattern

The income on a dairy farm depends primarily on the entities of various factors of production used in the production process and the output (level of milk production). The pattern of use of major factors of production such as feed and fodder, labour, water & electricity, medicines and transportation cost have been analyzed and discussed in this section as follows:

From Table 2, it can be concluded that the overall cost of all the resources was Rs. 115.57 per milch animal per day, among all the investments major proportion was covered by cost of feed and fodder as now-a-days land for fodder is decreasing day by day which leads to high prices of green and dry fodders. The proportion of investment for green fodder was 28 per cent followed by cost of concentrates and dry fodder 30 and 26 per cent, respectively. Labour cost was 11 per cent followed by transportation cost i.e. 1 per cent. Along with this, cost of medicines, water and electricity also covered less proportion of investment. Cost of medicines, cost of water and electricity accounted for 1 per cent each in Zone-I of Haryana. We can conclude that maximum proportion of cost was covered by feed and fodder followed by cost of human labour, water & electricity, transportation cost and medicines cost in Zone-I of Haryana. Similar finding were revealed in the study that in all the herd size groups, feed constituted the most important item of cost accounting for about 53 to 74 per cent of the total cost. Labour accounted for nearly 10 to 25 per cent of the total cost (Jha 1982) and the feed and fodder accounted for major share i.e. 59.52 percent followed by labour cost i.e. 33.95 percent of total cost (Kumawat et al., 2014).

From Table 3, it can be revealed that the overall cost of all the resources was Rs.128.62 per milch animal per day, among all the investments, major proportion was covered by cost of feed and fodder. The proportion of investment for concentrates was 46 per cent followed by cost of green fodder and dry fodder 24 and 23 per cent, respectively. The average labour cost was 13 per cent followed by transportation cost i.e. 2 per cent. Along with this cost of medicines, water and electricity cost also covered less proportion of investment. The average cost of water and electricity was 2 per cent and medicines were 1 per cent of the total cost of all the resources in Zone-II of Haryana. We can conclude that maximum proportion of cost was covered by feed and fodder

Table 2. Resource Utilization Pattern in Dairy Farms in Zone-I of Haryana (Rs./Milch animal/day)

S.No.	Particulars		Small	Medium	Large	Overall
1.	Raw material	Green fodder	36.29(29.08)	33.11(28.67)	32.95(29.76)	32.80(28.38)
2.		Dry fodder	32.70(26.20)	28.95(25.07)	30.22(27.29)	30.62(26.49)
3.		Concentrates	36.55(29.28)	36.61(31.73)	32.76(29.58)	35.30(30.54)
4.	Human labour		13.81(11.10)	12.41(10.76)	10.76(9.73)	12.23(10.58)
5.	Water & electricity		1.80(1.44)	1.60(1.38)	1.20(1.08)	1.53(1.33)
6.	Medicines		1.75(1.40)	1.65(1.42)	1.15(1.03)	1.51(1.32)
7.	Transportation		1.88(1.50)	1.12(0.97)	1.69(1.53)	1.58(1.36)
	Total		124.78(100)	115.45(100)	110.73(100)	115.57(100)

Figures in parentheses indicate percentage to total cost of all resources.

Table 3. Resource Utilization Pattern in Dairy Farms in Zone-II of Haryana (Rs./milch animal/day)

S.No.	Particulars		Small	Medium	Large	Overall
1.	Rawmaterial	Green fodder	33.75(25.26)	32.51(25.40)	24.90(20.24)	30.41(23.64)
2.		Dry fodder	24.32(18.18)	28.25(22.07)	35.07(28.51)	29.50(22.93)
3.		Concentrates	50.00(37.38)	43.42(33.92)	43.03(34.98)	45.57(35.42)
4.	Human labour		18.97(14.18)	17.48(13.65)	14.38(11.69)	16.94(13.18)
5.	Water & electricity		2.25(1.68)	2.55(1.99)	2.68(2.17)	2.49(1.96)
6.	Medicines		1.94(1.46)	1.65(1.28)	1.04(0.85)	1.54(1.19)
7.	Transportation		2.50(1.86)	2.12(1.65)	1.90(1.56)	2.17(1.68)
	Total	133.73(100)	127.98(100)	123.00(100)	128.62(100)	

Figures in parentheses indicate percentage to total cost of all resources.

because now-a-days cost of green as well as dry fodder are very high, followed by cost of human labour, water & electricity, transportation cost and medicines cost in Zone-II of Haryana. Similar finding were supported by the study that in all the herd size groups, feed constituted the most important item of cost accounting for about 53 to 74 per cent of the total cost. Labour accounted for nearly 10 to 25 per cent of the total cost (Jha, 1982) and feed and fodder accounted for major share followed by labour (Kumawat et al., 2014).

CONCLUSION

The Indian dairy farmers in recent years have shown encouraging signs of changing from traditional to improved one. It is recognized that, if progress has to be achieved in dairy farmers, they are to be modernized in knowledge, adoption and other personal, social and economic characteristics. It is revealed that from total investment, major proportion was covered by investment on feed and fodder, followed by concentrates in both the Zones of Haryana. Proportion of investment on milch animals increased with increase in herd size in both zones. The major part of income is invested in feed and fodder followed by concentrates and human labour in both Zone I and Zone II. On the basis of our results we can suggest to provide feed concentrates and high yielding seeds of green fodder crops at cheaper rates which may reduce the feeding cost of milch animals. It also helps in decreasing the maintenance cost and improve the milk quality and productivity. The proper training for dairy farming should be organised by government and other agencies.

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