International Journal of Multidisciplinary Approach and Studies

ISSN NO:: 2348 – 537X

Socio-Economic Profile of Dairy Farmers in Punjab: A Case Study of Amritsar District

Kashish* & Vikrant Dhawan**

**Research Scholar, Department of Economics and Sociology, Punjab Agricultural University, Ludhiana, India*

*** Research Fellow- Department of Agronomy, Punjab Agricultural University, Ludhiana, India*

ABSTRACT

The present study analyzed socio-economic profile of small holder dairy farmers in Punjab. For this Amritsar district was selected purposively because the average milk production was quiet high in the district than state average and has well developed milk cooperative societies. A sample of 80 dairy farmers consisting of 20 dairy farmers each from landless (LL), marginal (MR), small (SM) and other (OT) categories were selected from two blocks and four villages of Amritsar district. The major findings of the study that 33.75 per cent respondents lies in the family size up to 4 members and 43.75 per cent members lie between family size of 5-6 members. As far as age of head of family was concerned 35.00 per cent respondents were up to 35 years, 27.50 per cent under age between 35-45 years and remaining 37.50 per cent were above 45 years. Most of farmers (17.50 %) having experience more than 40 years. In overall situation, operational holding size was found to be 1.82 hectare with 1.72 hectare as owned land and 0.10 hectare as leased in land. The total number of animals on landless, marginal, small and other sized dairy farmers came out to be 6.35, 7.70, 9.40 and 10.05 respectively. On overall basis the number of animals came out to be 8.40. The total fixed investment by different dairy farm size categories viz. landless, marginal, small and other dairy farmers was accounted to be Rs. 346760, Rs. 398680, Rs. 453725 and Rs. 491870.These figures show the capital intensive nature of dairy enterprise.

Keywords: Dairy farmers, socio-economic profile and milk production

INTRODUCTION

Livestock sector has been playing an important role in Indian economy and is an important sub sector of Indian agriculture. The contribution of livestock sector in AgGDP was 13.88 per cent in 1980-81 and increased to 23.80 per cent during 2010-11 (Anonymous, 2014). Dairying is the most important segment of India's livestock economy and is an integral part of the total farming system. It plays an important role in improving the socio and economic profile of smallholder dairy farmers. Dairying is a secure path and future of our rural development and became a commercial enterprise (Gangasagare and karanjkar, 2009). Majority of milk producers are smallholders and contribute more than 70 per cent to total milk production in India (Dries *et al* 2004, Minten *et al* 2007 and Maertens *et al* 2007). Delgado *et al* (1999) made a prediction that the demand for milk will double with the increasing income and expanding urbanization are likely to boost the demand for more formally processed milk products in 2020, which the traditional markets generally do not cater for. The demand of milk was worked 114.93 million tonnes in 2011 and will increase to

181.95 million tonnes in 2030 at a growth rate of 7 per cent (Sekhon *et al* 2012). However, recent research has brought in another side of the argument by suggesting that the emergence of modern food supply chains has improved linkages between the buyers and poor farmers in developing countries, which have turned out to be beneficial for the smallholders (Brithal *et al* 2008).

Milk production on regular scale provides flow of income throughout the year to the farmers. A crop production is seasonal income generating activity, dairying helps the farmers to meet the daily cash needs of their families. At the same time farm yard manure which is by-product of animals helps improve the fertility of the soil. Income from dairying contributes nearly one third of the rural households gross income, and in the case of landless wage earning households, it is nearly half (Patel, 2004). The dairy enterprise provides more employment opportunities to the farmers. It helps the farmers to engage the semi-employed family labour more efficiently during slack period of crop production. Additionally it generates employment for landless labourers also. It also The moot question here is whether the small holder dairy farmers which constitute more than 70 per cent of their production have any impact on dairying for improving the socio as well as economic conditions of small holder dairy farmers.

METHODOLOGY

The study is based on primary data collected from dairy farmers in the year 2013-14. For the selection of sample households multistage random sampling technique was followed. Amritsar district was selected at the first stage of sampling having higher milk productivity than the state average and well established milk cooperative structure. In the second and third stage of sampling two blocks and two villages from each block were randomly selected. In the fourth stage of sampling, a list of all the dairy farm households from all the four villages were prepared and farmers were categorized in to landless farmers (having no land), marginal farmers (< 1 ha), small farmers (1-2 ha) and other dairy farmers (> 2 ha). At the last stage of sampling five dairy farm households from each category were selected from each selected villages. Thus a sample of 20 dairy farmers of each size category of landless, marginal, small and other was selected making a sample of 80 dairy farm households from the selected categories. Secondary data was also collected from various issues of statistical abstracts of Punjab.

ANALYTICAL TECHNIQUES

Averages and percentages were used to examine the socio-economic profile of different categories of dairy farmers.

The growth rates at two points of time were also calculated to data related to milk production and per capita availability of milk in Punjab state.

$r = \text{Antilog } (Y^{x}-1)*100$

B = Current year

$B = A\ (1+r)^{t}$

$B/A= (1+r)^{t}$

$\text{Log } B/A = \text{Log } (1+r)^{t}$

$\text{Log } B- \text{Log } A = t* \text{Log } (1+r)$

t* Log (1+r) = Log B- Log A
Log (1+r) = (Log B- Log A)/t {(Log B- Log A)/t= Y^x}
(1+r) = Antilog Y^x
r = (Antilog Y^x)-1
(Growth rate) r = (Antilog Y^x)-1*100

RESULTS AND DISCUSSIONS

Milk production in Punjab

Before discussing the socio-economic profile of dairy farmers it is important to know the status of milk production in Punjab. Milk production is a very important part of the agricultural economy in the state of Punjab. Punjab is one of the smallest state occupy 1.5 per cent area. Dairy farming is an old age subsidiary profession in the rural area of Punjab. It is fourth largest milk producing state in India. The production of milk increased from 3221 million tonnes in 1980-81 to 9724 million tonnes during 2012-13 and per capita availability of milk was 541 gms/day during 1980-81 but now it has been increased to 961 gms/day during 2012-13 and it is quite above It is quiet above the national average of 290 gm/day and minimum recommendation of ICMR of 250 gm/day.

Table.1 Milk production in Punjab

Sr No.	Year	Milk Production (000'tonnes)	Per capita availability (gms/day)
1.	1980-81	3221	541
2.	1990-91	5142	682
3.	2000-01	7774	870
4.	2010-11	9412	931
5.	2011-12	9551	944
6.	2012-13	9714	961
Growth rate (%age)		**3.51**	**1.81**

Source: indiastat.com

Socio economic characteristics of sample households

This section deals with various socio economic characteristics such as family size, age, education status, dairy experience, operational size of holding, area under fodder crop, dairy herd structure and investment pattern followed on their farms, etc.

Family size

The family size of sample household has been shown in Table 3. It shows that most of the sample respondents came in family size of 5-6 members category, it was highest for the small farm categories (60.00%) followed by other farm category (55.00%), landless category (35.00%) and marginal (25.00%) category. On overall basis 33.75 per cent respondents lies in the family size up to 4 members, 43.75 per cent members lie between family size of 5-6 members and 22.5 per cent fall in the size of above 6 members.

Table 3: Distribution of households according to family size

Family size (no.)	Landless	Marginal	Small	Others	Overall
Up to 4	7 (35.00)	8 (40.00)	6 (30.00)	6 (30.00)	27 (33.75)
5 to 6	7 (35.00)	5 (25.00)	12 (60.00)	11 (55.00)	35 (43.75)
Above 6	6 (30.00)	7 (35.00)	2 (10.00)	3 (15.00)	18 (22.5)
Total	20 (100.00)	20(100.00)	20 (100.00)	20 (100.00)	80 (100.00)

Figures in parentheses indicate the percentage to the respective total

Age of head of family

The age of head of family was depicted in Table 4. It revealed that 50.00 per cent households of marginal category were under age up to 35 years and 35.00 per cent of other dairy farmers lie in the age of up to 35 years. The age above 55 was highest in small farm category (30.00%) followed by other farms (25.00%), landless (10.00%) and marginal (5.00%). The overall situation shows that 35.00 per cent respondents were up to 35 years, 27.50 per cent under age between 35-45 years and remaining 37.50 per cent were above 45 years.

Table 4: Distribution of households according to age of head of family

Age (Years)	Landless	Marginal	Small	Others	Overall
Up to 35	5 (25.00)	10 (50.00)	6 (30.00)	7 (35.00)	28 (35.00)
35-45	8 (40.00)	3 (15.00)	6 (30.00)	5 (25.00)	22 (27.50)
45-55	5 (25.00)	6 (30.00)	2 (10.00)	3 (15.00)	16 (20.00)
Above 55	2 (10.00)	1 (5.00)	6 (30.00)	5 (25.00)	14 (17.50)
Total	20 (100.00)	20 (100.00)	20 (100.00)	20 (100.00)	80 (100.00)

Figures in parentheses indicate the percentage to the respective total

Educational status of head of family

The education status of head of family was depicted in Table 5. The educational status of a person plays an important role in adoption of latest farm technologies and innovative dairy practices. The educational status of head of family member brought out that illiteracy level was highest in landless farm groups (25.00%). The education level of head of family of graduates and above was highest in marginal farms (20.00%) followed by small farms and landless farms (15.00%). The overall situation shows that 18.75 per cent respondents were illiterate, 47.50 per cent respondents were up to metric, 18.75 per cent respondents were senior secondary and only 15.00 per cent respondents were graduates and above.

Table 5: Distribution of households according to educational status of head of family

Education	Landless	Marginal	Small	Others	Overall
Illiterate	5 (25.00)	3 (15.00)	3 (15.00)	4 (20.00)	15 (18.75)
Up to Matric	9 (45.00)	8 (40.00)	12 (60.00)	9 (45.00)	38 (47.50)
Sr.Scondary	3 (15.00)	5 (25.00)	2 (10.00)	5 (25.00)	15 (18.75)
Graduate and above	3 (15.00)	4 (20.00)	3 (15.00)	2 (10.00)	12 (15.00)
Total	20 (100.00)	20 (100.00)	20 (100.00)	20 (100.00)	80 (100.00)

Figures in parentheses indicate the percentage to the respective total

Dairy experience of head of family

The dairy experience of head of family was depicted in Table 6. The experience of 21-40 years was highest for landless farmers (75.00%) followed by small farmers (70.00%), marginal farmers (50.00%) and other farmers (45.00%). The overall situation is 60.00 per cent households having experience between 21-40 years, 13.75 per cent households having experience between 11-20 years and 17.50 per cent households having experience above 40 years and only 8.75 per cent respondents having experience up to 10 years.

Table 6: Distribution of households according to dairy experience of head of family

Experience in dairy (years)	Landless	Marginal	Small	Others	Overall
Up to 10	1(5.00)	3 (15.00)	0 (0.00)	3 (15.00)	7 (8.75)
11-20	0 (0.00)	5 (25.00)	2 (10.00)	4 (20.00)	11 (13.75)
21-40	15 (75.00)	10 (50.00)	14 (70.00)	9 (45.00)	48 (60.00)
Above 40	4 (20.00)	2 (10.00)	4 (20.00)	4 (20.00)	14 (17.50)
Total	20(100.00)	20 (100.00)	20 (100.00)	20 (100.00)	80 (100.00)

Figures in parentheses indicate the percentage to the respective total

Operational size of holding

The operational size of holding of sample respondents was depicted in Table 7. The average operational holding was found to be highest in other farm (2.94 ha) followed by to 1.59 hectare for small farm categories and 0.64 hectare for marginal farm categories. On an average, leased in land was 0.14 hectare in for other farm categories while 0.16 hectare for small farm categories and 0.01 hectare for marginal farm categories. The respondents were not giving their land on lease out for all categories of dairy farmers. In overall situation, operational holding size was 1.82 hectare with 1.72 hectare as owned land and 0.10 hectare as leased in land.

Table 7: Operational size of holding of sample households in Punjab, 2013-1 (hectares)

Sr No.	Particulars	Landless	Marginal	Small	Others	Overall
1.	Owned land	-	0.64	1.59	2.94	1.72
2.	Land leased in	-	0.01	0.16	0.14	0.10
3.	Land leased out	-	-	-	-	-
4.	Total operational holding	-	0.65	1.75	3.08	1.82

Area under fodder crop

Area under fodder crop for sample households was shown in Table 8. Out of total operational area of sample households 16.28 percent area under *kharif* fodder and 18.26 per cent area under *rabi* fodder for marginal dairy farmers. Out of 1.75 hectare operational area, 23.43 per cent area under *kharif* fodder and 24.00 per cent area under *rabi* fodder for

small dairy farmers. For other dairy farmers only 10.71 per cent area under *kharif* fodder and 9.41 per cent area under *rabi* fodder. Area under fodder crops for other dairy farmers was less because they use most of the area for cultivation of paddy, wheat, vegetables and pulses.

Table 8: Area under fodder crop of sample households in Punjab, 2013-14 (hectare/farm)

Sr. No.	Particular	Marginal	Small	Others
1.	Total operational area	0.657	1.75	3.08
2.	Kharif fodder	0.107 (16.28)	0.41 (23.43)	0.33 (10.71)
3.	Rabi fodder	0.12 (18.26)	0.42 (24.00)	0.29 (9.41)

Figure in parentheses indicates the percentage to total operational area

Dairy herd structure

Dairy herd structure represents the average number dairy animals per household. The detail regarding composition of dairy animals on sample households were given in Table 9. It was concluded that the proportion of milch animals for landless, marginal, small and others was 63.77, 66.24, 65.43 and 63.68 per cent respectively. The proportion of milch animals was comparatively higher for marginal farmer as compared to landless, small and other dairy farmers. The proportion of young stock (male up to 2 years and female up to 2 years) was relatively higher on landless dairy farmers as compared to other, small and marginal dairy farmers. Thus the total number of animals on landless, marginal, small and other sized dairy farmers came out to be 6.35, 7.70, 9.40 and 10.05 respectively. On overall basis the number of animals came out to be 8.40.

Table 9: Composition of dairy animals among sample households in Punjab, 2013-14 (number/farm)

Sr No.	Particulars	Landless	Marginal	Small	Others	Overall
1.	Milch animals	4.05 (63.77)	5.10 (66.24)	6.15 (65.43)	6.40 (63.68)	5.40 (64.28)
2.	Draft animals	-	-	-	0.15 (1.49)	0.06 (0.71)
3.	Young Stocks	2.30 (36.23)	2.60 (33.76)	3.25 (34.57)	3.50 (34.82)	2.94 (35.01)
4.	Herd size	6.35 (100.00)	7.70 (100.00)	9.40 (100.00)	10.05 (100.00)	8.40 (100.00)

Figures in parentheses indicate the percentages to the herd size

Investment Pattern

The fixed investment in dairying was in form of milch animals, cattle shed, store for feed and fodder, chaff cutter (manual and power drive) and milk cans etc. The pattern of fixed investment in dairy for different size categories of dairy farmers was given in Table 10. The investment on milch animals on landless, marginal, small and other sized dairy farmers was 56.01, 58.46, 60.21 and 57.90 per cent respectively of total fixed investment, which is indicating that small dairy farmers have more invested on milch animals. On an average out of the total fixed investment 58.22 per cent was invested on milch animals. The investment on cattle shed was Rs. 86250, Rs. 92500, Rs. 100250 and Rs. 116000 on landless, marginal, small and other dairy farmers respectively. The percentage of investment on cattleshed was relatively higher for landless dairy farmers (24.87%) as compared to marginal (23.20%),

small (22.09%) and other (23.58%) dairy farmers. On an average the investment on cattle shed was Rs. 97250. This was accounted for 22.99 per cent of total fixed investment. The investment on store for feed and fodder in the case of total sample was to the tune of 15.62 per cent.

Table 10: Investment pattern on different size categories of dairy farmers in Punjab, 2013-14 (Rs/annum)

Items	Landless	Marginal	Small	Others	Overall
Milch animals	194250 (56.01)	233050 (58.46)	273200 (60.21)	284800 (57.90)	246325 (58.22)
Cattle shed	86250 (24.87)	92500 (23.20)	100250 (22.09)	116000 (23.58)	97250 (22.99)
Store for feed and fodder	55250 (15.93)	61050 (15.31)	67250 (14.82)	74750 (15.20)	66075 (15.62)
Chaff cutter	9900 (2.86)	10875 (2.73)	11200 (2.47)	13025 (2.65)	11550 (2.73)
Milk cans	1110 (0.33)	1205 (0.30)	1825 (0.41)	3295 (0.67)	1893.75 (0.44)
Total fixed Investment	346760 (100.00)	398680 (100.00)	453725 (100.00)	491870 (100.00)	423093.75 (100.00)

Figures in parentheses indicate the percentage to the total fixed investment

The equipments like fodder cutting machine either manual or power drive, buckets, milk cans and chains were usually kept by every dairy farmer. On an average it is accounted for 2.73 per cent of total fixed investment. The total fixed investment by different dairy farm size categories viz. landless, marginal, small and other dairy farmers was accounted to be Rs. 346760, Rs. 398680, Rs. 453725 and Rs. 491870.

FINDINGS

i) The analysis of socio economic profile of sample households showed that majority of farmers had family size of 5-6 members. About 34 per cent were having family size up to 4 members and 22.5 per cent farmers having family size above 6 members.

ii) As far as age of head of family was concerned it was found that on average 35.00 per cent farmers having age up to 35 years. Majority of farmers (60.00%) having dairy experience for 21-40 years.

iii) Education level of sample households showed that one fourth of landless farmers and one fifth of other farmers were illiterate. The graduates and above varied between 10 to 20 per cent among all the categories.

iv) The average number of animals on landless, marginal, small and other sized dairy farmers was 6.35, 7.70, 9.40 and 10.05 respectively.

v) Dairy is capital intensive as well as labour intensive enterprise. In view of the fast increasing prices of high yield buffaloes and cows huge initial investment is needed for purchasing and maintaining the precious milch animals. The percentage of investment on cattle shed was relatively higher for landless dairy farmers as compared to marginal, small and other dairy farmers. The average capital investment including dairy animals, store for feed and fodder, cattle shed and chaff cutter was found to be Rs. 423093.75 per household.

CONCLUSION

The results of the study revealed that majority of milk comes from smallholder dairy farmers contribute more than 70 percent to total milk production in India. Dairying plays an important role in alleviating poverty and increasing family income. It has also main role in generating employment to family labour as well as hired labour. Additionally it generates employment for landless labourers also. Though, the dairy income is a capital intensive enterprise, but it fetches good returns. It also reduces the income inequality among sample households.

REFERENCES

i Anonymous (2014) www.indiastat.com.
ii Brithal, P S (2008) Linking smallholder livestock producers to market: issues and approaches. *Indian Journal of Agricultural Economics* **63**:19-37.
iii Delgado C, Rosegrant M, Steinfeld H, Ehui S and Courbois C (1999) Livestock to 2020 – The Next Food Revolution: Food, Agriculture and the Environment Discussion Paper 28. IFPRI/FAO/ILRI.
iv Dries L, Reardon T and Swinnen J (2004) The rapid rise of supermarkets in central and eastern Europe: Implications for the agrifood sector and rural development. *Development policy Review* **22** (5):525-56.
v Gangasagare and karanjkar (2009) status of milk production and economic profile of dairy farmers in the marathwada region of Maharashtra *veterinary world* **2**:317-20.
vi Maertens B, Swwinnen J (2007) Trade, standards and poverty: Evidence from Sengal, LICOS Discussion Paper no.177, Leuven: LICOS.
vii Minten B, Randrianarison L and Swwinnen J (2007) Global retail chains and poor farmers: Evidence from Madagascar. LICOS Discussion Paper no.164, Leuven: LICOS.
viii Patel A (2004) Improving milk quality. *The Hindu* Survey of Indian Agriculture: 107.
ix Sekhon M K, Dhaliwal T K and Kaur M (2012) Present consumption level and demand projections for livestock products in India. . *Indian Journal of Agricultural Marketing* **26** (1): 116-22.