

CHAPTER 5

A COMPARATIVE ANALYSIS OF SOCIO-ECONOMIC CHARACTERISTICS AMONG CONTRACT AND NON-CONTRACT FARMERS

Since the contract farming firms selects the farmers with certain pre-conditions, which distinguish the farmers into two categories, one who participate in contract farming and other, who does not participate in contract farming and may or may not grow the same contracted crop. The chapter aims at finding whether contract farming firms distinguish between the farmers while selecting them based on various socio-economic characteristics such as land, level of education, ownership of farm machinery, etc.

5.1 PepsiCo

5.1.1 Land size

The contract farmers had an average land ownership of 13.8 acres as compared to 11.9 acres among non-contract farmers. Land ownership among medium and large non-contract farmers was found to be higher than that among contract farmers. The reason is that the company preferred to assign a contract for potato crop to the farmer with 10 acres under the crop as it helps the company to build long-term relation with large number of farmers. Secondly, the chances are more that the farmers growing potato on large number of acres mix production or seed with the open market varieties to earn more profit. In order to avoid such situation, company mainly preferred the medium category farmers for contract instead of large farmers. The average size of operational land holdings among contract farmers was 38.44 acres as compared to 22.2 acres among non-contract farmers. The average size of operational land holding in each farmer category in case of contract farmers was 10 acres among semi-medium, 18.5 acres among medium and 49.48 acres among large farmers; while it was 4.6 acres among small, 9.1 acres among semi-medium, 19.1 acres among medium and 46.8 acres among large farmers in case of non-contract farmers. Even the average size of operational holding in each farmer category was turned out to be higher among contract farmers as compared to non-contract farmers except in the case of medium non-contract farmers, where average size of operational holding was slightly higher than that among the contract farmers.

Farmers in both contract and non-contract categories resorted to the practice of leasing-in the land for cultivation. The proportion of leased-in land in operated area was around 64 per cent among contract farmers as compared to 46 per cent among non-contract farmers. The proportion of leased-in land in operational holding was 18.3 per cent among semi-medium contract farmers as compared to 30.4 per cent and 26.4 per cent in case of small and semi-medium non-contract farmers respectively, about 48 per cent in medium contract farmers compared to 40 per cent in non-contract farmers and about 67 per cent in large contract farmers as against 53 per cent in case of large non-contract farmers (Table 5.1). It is evident from the above analysis that leased-in area has increased with the increase in operational land holding.

Apparently, the large contract farmers tried to lease-in more land to increase their operational land holding for gaining the economies of scale. Another study has also revealed that the percentage of leased-in land in operational holding was higher among contract farmers (43 per cent) than that among non-contract farmers (29 per cent) (Kumar, 2006). However, leasing-out practice was found to be negligible among both contract and non-contract farmers. Only 0.22 per cent of land was leased-out by the large contract farmers. Under contract farming, only 6 per cent farmers belonged to semi-medium category as compared to 40 per cent in small and semi-medium categories among non-contract farmers. About 66 per cent of the farmers under contract were large, while the proportion of large farmers was only 28 per cent among non-contract farmers (Table 5.2). Thus, there was not even a single small or marginal farmer under contract with the company. Even the semi-medium farmers under the contract had about 10 acres of operational holding. Most of the farmers in the study area leased-in land as around 82 per cent contract and 80 per cent non-contract farmers had taken land on lease. There was almost negligible trend among farmers to lease-out their land. The study area had large number of NRI families. They lease-out their entire land for cultivation to other farmers. These results were also corroborated by Witsoe (2006) which showed that most of the leased-in land in Jalandhar district was from NRIs.

Table 5.1

Category-wise Land Holding Details of Contract and Non-contract Farmers (in acres)

Category	Land owned	Leased-in land	Leased-out land	Operated land	Leased-in land as %age of operated area	Leased-out land as %age of operated area
Contract farmers						
Semi-medium	8.17	1.83	-	10	18.3	-
Medium	9.5	9	-	18.5	48.6	-
Large	16.14	33.45	0.11	49.48	67.6	0.22
All	13.8	24.71	0.07	38.44	64.3	0.2
Non-contract farmers						
Small	3.2	1.4	-	4.6	30.4	-
Semi-medium	6.7	2.4	-	9.1	26.4	-
Medium	11.4	7.7	-	19.1	40.3	-
Large	21.7	25.1	-	46.8	53.6	-
All	11.9	10.3	-	22.2	46.4	-

Table 5.2

Category-wise Distribution of Contract and Non-contract Farmers by Leasing-in and Leasing-out Activities

Category	No. of farmers	No. of farmers leasing-in land	No. of farmers leasing-out land
Contract farmers			
Semi-medium	3 [6]	1 (33.3)	-
Medium	14 [28]	12 (85.7)	-
Large	33 [66]	28 (84.8)	1 (3.03)
All	50 [100]	41 (82)	1 (2)
Non-contract farmers			
Small	7 [14]	4 (57.1)	-
Semi-medium	13 [26]	8 (61.5)	-
Medium	16 [32]	15 (93.7)	-
Large	14 [28]	13 (92.8)	-
All	50 [100]	40 (80)	-

Note: Figures in () indicate percentage to total in each farmer category; [] indicate percentage to total contract and non-contract farmers' category.

Further, area under contract production was more than 9 acres in each farmer category. As the company generally preferred to work with farmers who could put about 9-10 acres of the land under contract production, the semi-medium farmers were growing the contract crop on all their operational land holding during the 'zaid' season, whereas 50 per cent of operated land was under contract crop in case of medium farmers and only 27 per cent in case of large farmers (Table 5.3).

All the operated area under different farmer categories was irrigated. Among contract farmers, about 83 per cent area under cultivation was tubewell irrigated while 17 per cent area was under canal irrigation. Further, on about 2 per cent area, farmers also installed drip irrigation system. However, about 73 per cent area under cultivation was tubewell irrigated in case of non-contract farmers, while 27 per cent area was under canal irrigation. The irrigation pattern among non-contract farmers was almost similar to the irrigation pattern at Punjab level. In Punjab, about 72 per cent of the net irrigated area was under tubewell irrigation and remaining 28 per cent was under canal irrigation during 2013-14 (GoP, 2015). The reason for comparatively lesser area under canal irrigation among contract farmers was that the company preferred to work with the farmers having assured irrigation facility, which was also mentioned in their contractual agreement.

Table 5.3
Category-wise Area under Contract Crop (acres)

Category	Area under contract	Contract land as %age of operated area
Semi-medium	10	100
Medium	9.29	50.2
Large	13.82	27.9
All	12.32	32

Under contractual arrangement, firms sign their contract for production on owned land or controlled by the farmers as the firms want that farmers should follow their cultivation roles in return for credit, inputs and marketing (Baumann, 2000; Prowse, 2012). Among large farmers, about 36 per cent used owned land, while 33 per cent used only leased-in land and about 30 per cent were found to use both

leased-in and owned land for the contract crop cultivation. Among medium farmers, about 42 per cent used owned land, 35 per cent used only leased-in land, while 21 per cent grew contract crop on both owned and leased-in land. For two-third of the semi-medium farmers, the land under contract was owned, while remaining used both leased-in and owned land for contract crop. Thus, 40 per cent of the contract farmers cultivated contract crop on owned land, 32 per cent on leased-in land and remaining 28 per cent did so on both leased-in and owned land. The average owned land under contract crop cultivation was 81 per cent among semi-medium, 56 per cent among medium and 43 per cent among large farmers, while remaining 18 per cent land under contract in case of semi-medium; about 43 per cent in case of medium and 56 per cent in case of large farmers was leased-in land (Table 5.4). Thus, with increase in land size, proportionate share of owned area under contract crop declined while leased-in area increased. The large farmers comparatively put more leased-in land under contract crop cultivation. It is also evident from the proportionate share of leased-in land in cultivated area which was also higher among large farmers than other farmer categories.

Table 5.4
Category-wise Distribution of Contract Farmers by the Type of Land under Contract

Farmer category	No. of farmer			Average area (in acre)		
	Owned	Leased	Both	Owned	Leased	Total
Semi-medium	2 [66.67]	-	1 [33.33]	8.17 (81.7)	1.83 (18.3)	10 (100)
Medium	6 [42.86]	5 [35.71]	3 [21.43]	5.21 (56.1)	4.07 (43.8)	9.29 (100)
Large	12 [36.36]	11 [33.33]	10 [30.30]	6 (43.4)	7.81 (56.5)	13.82 (100)
All	20 [40]	16 [32]	14 [28]	5.91 (47.9)	6.41 (52.1)	12.32 (100)

Note: Figures in [] indicate percentage to total farmer in each category; () indicate percentage to total area in each category.

5.1.2 Education

The proportion of illiterates was 12 per cent in case of non-contract farmers, while no one was illiterate in the case of contract farmers. Even the primary and middle level literate farmers were slightly higher among non-contract farmers (16 per cent) than that among contract farmers (12 per cent). The proportion of graduates was same among both contract and non-contract farmers. But, no one was post-graduate in case of contract farmers as compared to 4 per cent post-graduates among non-contract farmers. Further, the proportion of higher secondary farmers was higher among contract farmers (34 per cent) than that among non-contract farmers (28 per cent). The matric holders were also turned out to be higher in case of contract farmers (42 per cent) as compared to non-contract farmers (28 per cent). Apparently, the contract farmers were better in terms of literacy level than the non-contract farmers (Table 5.5). Another study by Dhillon and Singh (2006) also revealed that education level and the adoption of contract farming in Punjab were highly and positively related to each other. Further, as revealed in Table 5.6, contract farmers on an average attended the school for 10-11 years, while non-contract farmers were found to attend the school for relatively less number of years than the contract farmers. On an average, non-contract farmers attended the school for about nine years.

Table 5.5

Category-wise Distribution of Contract and Non-contract Farmers by Literacy level

Literacy level/ Category	Illiterate	Primary (up to 5 th standard)	Middle (6 th - 8 th)	Matric	Higher secondary	Graduate	Post- graduate
Contract farmers							
Semi-medium	-	-	-	2 (66.67)	1 (33.33)	-	-
Medium	-	-	1 (7.14)	7 (50)	4 (28.57)	2 (14.28)	-
Large	-	1 (3.03)	4 (12.12)	12 (36.36)	12 (36.36)	4 (12.12)	-
All	-	1 (2)	5 (10)	21 (42)	17 (34)	6 (12)	-
Non-contract farmers							
Small	1 (14.3)	-	-	3 (42.8)	2 (28.6)	1 (14.3)	-
Semi-medium	1 (7.7)	2 (15.4)	2 (15.4)	2 (15.4)	4 (30.8)	1 (7.7)	1 (7.7)
Medium	1 (6.3)	3 (18.7)	-	7 (43.7)	4 (25)	1 (6.3)	-
Large	3 (21.4)	1 (7.1)	-	2 (14.3)	4 (28.6)	3 (21.4)	1 (7.1)
All	6 (12)	6 (12)	2 (4)	14 (28)	14 (28)	6 (12)	2 (4)

Note: Figures in parentheses indicate percentage to total in each category.

Table 5.6

Category-wise Average Number of Education Years among Contract and Non-contract Farmers

Category	Contract farmers	Non-contract farmers
Small	-	9.6
Semi-medium	10.33	9.3
Medium	10.93	9.0
Large	10.76	9.4

5.1.3 Age, household size and farm family workers

Age of the farmer can be associated with the accretion of skills in one activity that leads to specialization in fewer crops (Minot *et al.*, 2006). The medium and large contract farmers were relatively younger as compared to the non-contract farmers. However, semi-medium non-contract farmers were much younger than the semi-medium contract farmers. Thus, on an average, age of contract farmers was about 41 years as against 43.6 years among non-contract farmers. Family size also plays an important role in farming particularly in labour intensive vegetable crops. Generally, larger family size implies more farm family workers resulting in positive land allocation to vegetables (BIRTHAL *et al.*, 2007). The family size among both contract and non-contract farmers was turned out to be 5.8 and 6.1, respectively. The average family size of contract farmers was 2.6 in case of semi-medium farmers, 4.5 in case of medium farmers and 6.7 in case of large farmers as compared to 4.7, 5.3, 6.1 and 7.6 in case of small, semi-medium, medium and large farmers, respectively among non-contract farmers. Thus, family size of non-contract farmers was found to be higher as compared to the contract farmers. The proportion of farm family worker was highest among medium contract farmers (51.9) as compared to all other categories of both contract and non-contract farmers. Overall, the proportion of farm family worker was similar among both contract and non-contract farmers (Table 5.7).

Table 5.7

Category-wise Average Family Structure of Contract and Non-contract Farmers

Family details/ Category	Average age of farmer (years)	Adult		Children	Average family size	Farm workers	%age of farm workers in family
		Male	Female				
Contract farmers							
Semi-medium	57	1.33	1.33	-	2.67	1.33	51.9
Medium	38.30	2.14	1.64	0.71	4.5	1.21	26.8
Large	40.82	2.9	2.75	1	6.69	1.70	25.4
All	41.08	2.62	2.36	0.86	5.84	1.54	26.4
Non-contract farmers							
Small	43.8	2.1	2	0.6	4.7	1.3	27.6
Semi-medium	37.3	2.5	2.1	0.8	5.3	1.7	32.1
Medium	45	3	2.6	0.5	6.1	1.6	26.2
Large	47.8	3.4	3	1.1	7.6	2.2	28.9
All	43.6	2.9	2.5	0.8	6.1	1.7	27.9

5.1.4 Allied farm and non-farm income

The income from allied farm and non-farm sources helps the farmers to bear the risk from the cultivation of the crops as such. The average income from allied farm and non-farm activities was turned out to be higher among non-contract farmers (₹ 11,163/month) as compared to contract farmers (₹ 9,052/month). However, income from non-farm sector was higher in case of contract farmers (₹ 6660/month) as compared to non-contract farmers (₹ 4500/month), while income from allied farm activities was higher among non-contract farmers (₹ 6663/month) as compared to the contract farmers (₹ 2391/month). The non-contract small farmers earned ₹ 14571.4 per month from dairying alone (Table 5.8). Among all categories of contract and non-contract farmers, the proportionate share of income from dairying was much higher than other farm allied activities. Furthermore, income from dairying was also higher among non-contract farmers (₹ 5380/month)

as compared to only ₹ 1850/month among contract farmers. Hence, it can be concluded that contract farmers not only had higher income from non-farm activities as compared to their counterparts, but the proportion in earning such income was also higher among contract farmers (26 per cent) than the non-contract farmers (18 per cent).

5.1.5 Farmer's association with contract firm

The long association between the farmers and the firms indicates the mutual trust that they are able to build with each other. The semi-medium farmers were found to supply potato to PepsiCo for the past six years (Table 5.9). As earlier the company's contract acreage condition was of at-least 5 acres under the potato crop. The medium and large farmers were involved in contract farming for about five years. The proportion of farmers supplied to contract firm between two to less than five years were highest among semi-medium farmers (66.7 per cent) followed by medium (42.8 per cent) and large farmers (36.3 per cent). About 21 per cent of medium and 30 per cent of large farmers were linked to the contracting firm for last two years. Overall 26 per cent were involved in contract for last two years, 40 per cent farmers from two to five years, 18 per cent for more than five to eight years, while 16 per cent farmers supplied for more than eight years to the same firm. However, among those who supplied for more than eight years, 75 per cent were large farmers.

Table 5.8

Category-wise Income of Contract and Non-contract Farmers from Allied Farm and Non-farm Activities (₹/month)

Farmer category	Allied farm income					Non-farm income	Total
	Dairying	Hiring-out farm machinery	Renting out cold store	Rent from leased out land	Total		
Contract farmers							
Semi-medium	-	-	-	-	-	20000 [100]	20000
Medium	1035.7 (68.5)	476.2 (31.5)	-	-	1511.9 [32.9]	3071.4 [67.1]	4583.3
Large	2363.6 (79.2)	265.2 (8.9)	-	353.5 (11.9)	2982.3 [30.0]	6969.7 [70.0]	9952
All	1850 (77.3)	308.3 (12.9)	-	233.33 (9.8)	2391.6 [26.4]	6660 [73.6]	9051.6
Non-contract farmers							
Small	14571.4 (100)	-	-	-	14571.4 [69.4]	6428.6 [30.6]	21000
Semi-medium	3000 (88.6)	384.6 (11.4)	-	-	3384.6 [63.8]	1923.1 [36.2]	5307.7
Medium	1250 (63.2)	729.2 (36.8)	-	-	1979.2 [26.1]	5625 [73.9]	7604.2
Large	7714.3 (62.7)	1369.0 (11.1)	1785.6 (14.5)	1428.6 (11.6)	12297.5 [72.6]	4642.8 [27.4]	16940.3
All	5380 (80.7)	716.7 (10.8)	66.67 (1.0)	500 (7.5)	6663.4 [59.7]	4500 [40.3]	11163.4

Note: Figures in [] are percentages to total allied farm and non-farm income in each category; () are percentages to total allied farm income in each category.

Table 5.9

Category-wise Distribution of Contract Farmers by the Number of Years under Contract

Years of linkage/ Farmer category	Upto two year	>2 - ≤5 year	>5 - ≤8 year	> 8 year	Average number of years of association with the company
Semi-medium	-	2 (66.67)	-	1 (33.33)	6
Medium	3 (21.43)	6 (42.86)	4 (28.57)	1 (7.14)	4.64
Large	10 (30.30)	12 (36.36)	5 (15.15)	6 (18.18)	4.85
All	13 (26)	20 (40)	9 (18)	8 (16)	4.86

Note: Figures in parentheses indicate per cent to total in each category.

5.1.6 Farm machinery

The possession of farm machinery was considered as one of the vital selection criteria for the farmers as explained by the company officials during discussion. Information was collected from the sampled farmers for the possession of agricultural implements. Table 5.10 shows that the possession of farm machinery was in general, higher among the contract farmers than that among non-contract farmers. Tractor was owned by all the contract and non-contract farmers. Since, the farmers had contracted the potato crop with the firm, the possession of potato planter and digger was essential. 98 per cent of contract farmers owned potato planter as compared to 90 per cent among non-contract farmers. Potato digger was possessed by 96 per cent among contract farmers as compared to 88 per cent in case of non-contract farmers. No one among non-contract farmers possessed the irrigation generator, but in case of contract farmers, 66 per cent owned generator.

Table 5.10

Category-wise Distribution of Contract and Non-contract Farmers by Ownership of Farm Machinery

Farm Machinery/ Farmer category	Tractor	Trolley	Rotavator	Potato planter	Potato digger	Harrow	Cultivator	Irrigation generator
Contract farmers								
Semi-medium	3 (100)	2 (66.6)	1 (33.33)	2 (66.6)	3 (100)	1 (33.3)	2 (66.6)	-
Medium	14 (100)	13 (92.8)	6 (42.8)	14 (100)	13 (92.8)	10 (71.4)	11 (78.6)	10 (71.4)
Large	33 (100)	32 (97)	21 (63.6)	33 (100)	32 (97)	28 (84.8)	25 (75.7)	23 (70)
All	50 (100)	47 (94)	28 (56)	49 (98)	48 (96)	39 (78)	38 (76)	33 (66)
Non-contract farmers								
Small	7 (100)	7 (100)	-	7 (100)	6 (85.7)	3 (42.8)	1 (14.3)	-
Semi-medium	13 (100)	12 (92.3)	1 (16.6)	9 (50)	10 (83.3)	1 (33.3)	-	-
Medium	16 (100)	16 (100)	2 (7.7)	15 (93.7)	15 (93.7)	2 (12.5)	4 (25)	-
Large	14 (100)	14 (100)	10 (71.4)	14 (100)	13 (92.8)	3 (21.4)	5 (35.7)	-
All	50 (100)	49 (98)	13 (26)	45 (90)	44 (88)	9 (18)	10 (20)	-

Note: Figures in parentheses indicate the percentage to the total in each category.

Further, it can also be inferred that semi-medium contract farmers possessed more farm machinery with an average number of 7.33 than non-contract farmers, who on an average possessed 3.9 farm implements. Similarly, medium contract farmers possessed on an average 9.80 farm implements, while medium non-contract farmers possessed 4.6 farm implements. Furthermore, large contract farmers possessed on an average 12.70 farm implements as against 5.8 farm implements possessed by large non-contract farmers (Table 5.11). Thus, it can be concluded that contract farmers were richer in the ownership of farm machinery as compared to non-contract farmers. Ownership of farm machinery increased with increase in average size of operational holding among both contract and non-contract farmers.

Table 5.11
Category-wise Average Number of Farm Implements possessed by Contract and Non-contract Farmers

Category of farmer	Contract farmers	Non-contract farmers
Small	-	4.4
Semi-medium	7.33	3.9
Medium	9.80	4.6
Large	12.70	5.8
All	11.56	4.7

5.2 Rana Sugars Limited

5.2.1 Land size

The average operational land holding size was much higher in case of contract farmers (24.36 acres) as compared to 11.9 acres in case of non-contract farmers. Although both contract and non-contract farmers used to take land on lease, but leasing-in practice was much higher among contract farmers than that among non-contract farmers. The share of leased-in land in operational holding was about 54 per cent among contract farmers as against only about 29 per cent among non-contract farmers. Furthermore, share of leased-in land in operational holding in each farmer category was also found to be higher among contract farmers as compared to non-contract farmers. In case of contract farmers, share of leased-in land in operational land holding was highest among large farmers (65.6 per cent)

followed by 43.7 per cent among medium, 41.7 per cent among small and 26.1 per cent among semi-medium farmers. However, in case of non-contract farmers, proportion of leased-in land within operational holding was highest in case of large farmers (36.6 per cent) followed by medium farmers (31.9 per cent), semi-medium (22.7 per cent), marginal (13 per cent) and small farmers (9.3 per cent). However, the proportion of leased-out land was just 1.9 per cent among contract farmers (Table 5.12).

The average size of land holding was higher among contract farmers (11.61 acres) than that among non-contract farmers (8.5 acres). Average area owned by small contract farmers was smaller than that owned by small non-contract farmers. Furthermore, for large farmers, average area owned was also smaller among contract farmers (21.68 acres) than that among non-contract farmers (24 acres). Contrary to this, average size of operated land was much higher among large contract farmers (59.3 acres) than that among non-contract farmers (37.7 acres). Similar were the results for the medium farmers. Thus, the analysis reveals that on an average, the contract farmers leased-in more land than their counterparts. Therefore, the contract farmers were able to increase their farm size by leasing-in land.

The farmer category-wise analysis shows that 54 per cent of the medium farmers worked with contract firm followed by 22 per cent large farmers and 18 per cent semi-medium farmers. However, only 6 per cent small farmers were involved in sugarbeet contract crop. Furthermore, not even a single farmer from marginal land holding size category was involved in contract farming. However, 36 per cent of the non-contract farmers in the vicinity of contract farmers belonged to semi-medium category followed by 28 per cent in medium, 20 per cent in small and 8 per cent each to small and large farmer categories. The practice of leased-in land existed among both contract and non-contract farmers. But, 78 per cent of the contract farmers had leased-in land as against 54 per cent non-contract farmers. Around 91 per cent of the large contract farmers were practitioners of leased-in activity, while it was also done by 81.5 per cent medium, 66.7 per cent small and 55.5 per cent semi-medium farmers. Only 4 per cent of the contract farmers

leased-out their land. Surprisingly, among non-contract farmers not even a single farmer leased-out their land.

On the other side, among non-contract farmers, all large farmers had leased-in land as compared to that among medium (78.6 per cent), semi-medium (50 per cent), small (20 per cent) and marginal farmers (12.5 per cent) (Table 5.13). The proportion of small and marginal farmers was only 6 per cent among contract farmers compared to 28 per cent among non-contract farmers (8 per cent marginal and 20 per cent small farmers) and 35 per cent in Amritsar and Tarn Taran district during 2010-11. The large farmers among contract farmers were 22 per cent as compared to 8 per cent among non-contract farmers and around 4 per cent in Amritsar and Tarn Taran districts (Table 3.2). Thus, the above analysis clearly indicates that a contract firm mainly preferred to work with medium and large farmers. All the operated area among contract and non-contract farmers was irrigated. Further, about 89 per cent of the irrigated area was under groundwater irrigation among contract farmers and about 11 per cent was under canal irrigation. However, in case of non-contract farmers, 65.84 per cent of the cultivated area was under groundwater irrigation and around 34 per cent was under canal irrigation.

Table 5.12

Category-wise Land Holding Details of Contract and Non-contract Farmers (in acres)

Category	Land owned	Leased-in land	Leased-out	Operated land	Leased-in land as %age of operated area	Leased-out land as %age of operated area
Contract farmers						
Small	2.33	1.67	-	4	41.7	-
Semi-medium	5.9	2.1	-	8.05	26.1	-
Medium	10.4	7.78	0.37	17.8	43.7	2.1
Large	21.68	38.9	1.27	59.3	65.6	2.1
All	11.61	13.24	0.48	24.36	54.4	1.9
Non-contract farmers						
Marginal	2	0.3	-	2.3	13.0	-
Small	3.8	0.4	-	4.3	9.3	-
Semi-medium	6.8	2	-	8.8	22.7	-
Medium	11.5	5.4	-	16.9	31.9	-
Large	24	13.8	-	37.7	36.6	-
All	8.5	3.4	-	11.9	28.6	-

Table 5.13

Category-wise Distribution of Contract and Non-contract Farmers by Leasing-in and Leasing-out Activities

Category	No. of farmers	Farmers leasing-in land	Farmers leasing- out land
Contract farmers			
Small	3 [6]	2 (66.7)	-
Semi-medium	9 [18]	5 (55.5)	-
Medium	27 [54]	22 (81.5)	1 (2)
Large	11 [22]	10 (90.9)	1 (2)
All	50 [100]	39 (78)	2 (4)
Non-contract farmers			
Marginal	4 [8]	1 (12.5)	-
Small	10 [20]	2 (20)	-
Semi-medium	18 [36]	9 (50)	-
Medium	14 [28]	11 (78.6)	-
Large	4 [8]	4 (100)	-
All	50 [100]	27 (54)	-

Note: Figures in () indicate percentage to total in each farmer category; [] indicate percentage to total contract and non-contract farmers' category.

As per Table 5.14, the proportion of contracted land in operated area was highest among small farmer category (50 per cent) followed by semi-medium farmers (37.3 per cent), medium (30.9 per cent) and large farmers (12.8 per cent). On an average, small farmers put 2 acres of land under contract, while 3 acres by semi-medium farmers, 5.5 acres by medium and 7.6 acres by large farmers.

Table 5.14
Category-wise Area under Contract Crop (acres)

Category	Area under contract	Contract land as %age of operated area
Small	2	50
Semi-medium	3	37.3
Medium	5.5	30.9
Large	7.6	12.8
All	5.3	21.8

Further, the small farmers had grown the contract crop on owned land only. While 77 per cent semi-medium farmers used owned land and 22 per cent used leased-in land for the cultivation of contract crop. About 66.67 per cent medium farmers used owned land, 22.22 per cent used leased-in and 11.11 per cent grew it on both owned and leased-in land. In case of large farmers, 54.54 per cent grew contract crop on owned land, 36.36 per cent on leased-in land and 9.1 per cent on both owned and leased-in land. The proportion of owned land under contract crop cultivation was highest among small farmers (100 per cent) followed by semi-medium (76.67 per cent), medium (63.27 per cent) and large farmers (46.64 per cent) (Table 5.15). On the whole, the farmers used about 60 per cent owned land for the cultivation of sugarbeet and remaining crop was grown on leased-in land. The reason to grow the crop on owned land was that during harvesting of crop the leaves of sugarbeet were usually left in the field which acts as green manure for next crop.

Table 5.15

Category-wise Distribution of Contract Farmers by the Type of Land under Contract

Type of land	No. of farmer			Average area (Acre)		
	Owned	Leased	Both	Owned	Leased	Total
Small	3 [100]	-	-	2 (100)	-	2 (100)
Semi-medium	7 [77.78]	2 [22.22]	-	2.3 (76.67)	0.7 (23.33)	3 (100)
Medium	18 [66.67]	6 [22.22]	3 [11.11]	3.48 (63.27)	2.02 (36.73)	5.5 (100)
Large	6 [54.54]	4 [36.36]	1 [9.1]	3.54 (46.64)	4.04 (53.23)	7.59 (100)
All	34 [68]	12 [24]	4 [8]	3.2 (60.38)	2.1 (39.62)	5.3 (100)

Note: Figures in [] indicate percentage to total farmer in each category; () indicate percentage to total area in each category.

5.2.2 Education

Education contributes to agricultural production by improving the decision making ability of a farmer (Pudasaini, 1983). Table 5.16 shows that only 2 per cent of the contract farmers were illiterate as against 10 per cent among non-contract farmers. Thus, the illiteracy level was more among non-contract farmers as compared to contract farmers. The proportion of contract farmers with education up to 5th standard was just 2 per cent, while it was 10 per cent among non-contract farmers. Further, contract farmers with middle and secondary level of education were 10 per cent and 32 per cent respectively against 12 per cent and 42 per cent respectively in case of non-contract farmers. On the other hand, higher secondary education was more prevalent among contract farmers (32 per cent) than their counterparts (20 per cent). The proportion of graduates and post-graduates was also higher in case of contract farmers (22 per cent) than that in case of non-contract farmers was just 6 per cent.

Table 5.16

Category-wise Distribution of Contract and Non-contract Farmers by the Literacy level

Literacy level/ Category	Illiterate	Primary (upto 5 th standard)	Middle (6 th - 8 th)	Matric (9 th - 10 th)	Higher secondary	Graduate	Post- graduate
Contract farmers							
Small	-	-	-	3 (100)	-	-	-
Semi- medium	1 (11.11)	-	-	4 (44.44)	3 (33.33)	-	1 (11.11)
Medium	-	1 (3.7)	2 (7.41)	8 (29.63)	8 (29.63)	6 (22.22)	2 (7.41)
Large	-	-	3 (27.27)	1 (9.09)	5 (45.45)	2 (18.18)	-
All	1 (2)	1 (2)	5 (10)	16 (32)	16 (32)	8 (16)	3 (6)
Non-contract farmers							
Marginal	2 (50)	-	-	1 (25)	1 (25)	-	-
Small	1 (10)	3 (30)	-	6 (60)	-	-	-
Semi- medium	-	1 (5.6)	3 (16.7)	7 (38.9)	6 (33.3)	1 (5.5)	-
Medium	1 (7.1)	1 (7.1)	3 (21.4)	5 (35.7)	3 (21.4)	1 (7.1)	-
Large	1 (25)	-	-	2 (50)	-	1 (25)	-
All	5 (10)	5 (10)	6 (12)	21 (42)	10 (20)	3 (6)	-

Note: Figures in parentheses are percentages to total in each category.

The average number of years on schooling also points out that contract farmers were better in education in comparison with non-contract farmers. Further, average number of education years for the contract farmers increased with increase in farm size. Thus, large contract farmers placed larger emphasis on education than the other farmer categories. The numbers of education years were higher for small contract farmers (10) than the small non-contract farmers (7.4). Furthermore, among all the categories of contract farmers, the number of education years was higher than the non-contract farmers (Table 5.17). Evidently, the above analysis shows that the contract farmers were better in terms of education level than their counterparts.

Table 5.17
Category-wise Average Number of Education Years among Contract and Non-contract Farmers

Category	Contract farmers	Non-contract farmers
Marginal	-	5.5
Small	10	7.4
Semi-medium	10.22	10.12
Medium	11.78	9.14
Large	11.88	8.75

5.2.3 Age, household size and farm family workers

The contract farmers were slightly younger in age in comparison with the non-contract farmers. The average age of contract farmers was about 43 years, while it was 45 years for non-contract farmers. The marginal and small non-contract farmers were elder in comparison with small contract farmers. Therefore, the contract farmers were mainly in young and middle age group showing the least participation from the old age farmers. Even the contract firms have one of the aims to promote it to attract young people in the farming sector. Another study corroborates the finding that contract farming in Punjab is mainly opted by young and middle age farmers (Dhillon and Singh, 2006).

The average household size among contract farmers was largest in case of large farmers (5.9) followed by medium (5.6), semi-medium and small farmers (4.6

each). Therefore, in case of contract farmers, family size increased with increase in land size. However, in case of non-contract farmers, marginal and small farmers had to support more number of members in their households (7.5 and 7.8 respectively). Among non-contract farmers, the average household size was 6 in large, 5.2 in medium and 4.9 in semi-medium farmers. Overall, there was not much difference among all contract and non-contract farmers with respect to their household size.

Among contract farmers, average number of family members working on the farm was highest in case of large and medium farmers (1.4 each) followed by small (1.3) and semi-medium farmers (1.2). Accordingly, the proportion of farm workers among the contract farmer families was highest among small farmers (28.3 per cent) followed by semi-medium (26.1 per cent), medium (25 per cent) and large farmers (23.7 per cent). Among non-contract farmers, on the other hand, the proportion of farm workers from the family was highest in case of marginal farmers (33.3 per cent) followed by semi-medium (30.2 per cent), small and medium (around 28 per cent each) and large farmers (20 per cent). Thus, the general inference drawn from the analysis is that small and marginal farmers relatively depend more upon family labour as compared to large farmers, who hire more workers for the field work (Table 5.18).

Table 5.18

Category-wise Average Family Size of Contract and Non-contract Farmers

Family details/ Category	Average age of farmer (yrs.)	Adult		Children	Average family size	Farm workers	%age of farm workers in family
		Male	Female				
Contract farmers							
Small	34.3	2.3	1.3	1	4.6	1.3	28.3
Semi-medium	44.2	1.7	2	0.9	4.6	1.2	26.1
Medium	43.5	2.4	2.2	1.0	5.6	1.4	25.0
Large	42.5	2.6	2.5	0.8	5.9	1.4	23.7
All	42.9	2.3	2.2	0.9	5.4	1.4	25.9
Non-contract farmers							
Marginal	55.7	3.7	3	0.7	7.5	2	33.3
Small	52.9	3.7	2.3	1.8	7.8	1.9	28.4
Semi-medium	40.6	2.2	2	0.7	4.9	1.4	30.2
Medium	40.9	2.3	2.1	0.8	5.2	1.4	28.3
Large	48.5	2.5	2.5	1	6	1.3	20
All	45	2.7	2.2	1	5.9	1.6	27.1

5.2.4 Allied farm and non-farm income

The average income from allied farm activities was higher among contract farmers (₹ 6,157/month) than non-contract farmers (₹ 5,480/month). Furthermore, non-farm income was also substantially higher among contract farmers (₹ 10,080/month) than non-contract farmers (₹ 5,240/month). The small, marginal and large farmers among both contract and non-contract farmers earned relatively more income from non-farm activities as compared to farm allied activities. The dairying had highest proportion in the income from allied farm activities among all contract farmers followed by rent from leased-out land and custom hiring of farm machinery. On the other hand, income from custom hiring of farm machinery was the largest contributor in income from allied farm activities followed by income from dairying (₹ 2720/month) among non-contract farmers (Table 5.19).

5.2.5 Farmer's association with contract firm

The average number of years under contract with the firm were turned out to be highest among large contract farmers (3.4 years) followed by medium (2.8 years), semi-medium and small farmers (2.7 years each). Thus, the proportion of farmers who supplied sugarbeet to contract firm for more than three years were highest among large farmers (54.5 per cent) followed by medium (14.8 per cent) and semi-medium farmers (11.1 per cent). Surprisingly, not even a single small farmer supplied to firm for more than 3 years. 66.7 per cent of small, 55.6 per cent each of semi-medium and medium farmers and 27.3 per cent of large farmers supplied to firm for more than two years to up to three years. Only 11.1 per cent of semi-medium and 7.4 per cent of medium farmers started supplying during last one year only. The majority of the contract farmers were associated for more than two to three years. Therefore, it is evident from the analysis that association of the large farmers was relatively older with the contract firm as compared to all other categories of the contract farmers (Table 5.20).

Table 5.19

Category-wise Income of Contract and Non-contract Farmers from Allied Farm and Non-farm Activities (₹/month)

Farmer category	Allied Farm income				Non-farm income	Total
	Dairying	Hiring-out farm machinery	Rent from leased out land	Total		
Contract farmers						
Small	-	-	-	-	11666.7 [100]	11666.7
Semi-medium	3333.3 (78.9)	888.9 (21.1)	-	4222.2 [32.48]	8777.8 [67.52]	13000
Medium	4814.8 (78.2)	259.3 (4.2)	1080.2 (17.6)	6154.3 [40.12]	9185.2 [59.88]	15339.5
Large	5636.4 (59.8)	-	3787.9 (40.2)	9424.3 [42.80]	12909.1 [57.80]	22333.4
All	4440 (72.1)	300 (4.9)	1416.7 (23.0)	6156.7 [37.92]	10080 [62.08]	16236.7
Non-contract farmers						
Marginal	4250 (100)	-	-	4250 [13.18]	28000 [86.82]	32250
Small	1000 (100)	-	-	1000 [12.5]	7000 [87.5]	8000
Semi-medium	1555.6 (20.3)	6111.1 (79.7)	-	7666.7 [84.66]	1388.9 [15.34]	9055.5
Medium	4071.4 (67.1)	2000 (32.9)	-	6071.4 [89.47]	714.3 [10.53]	6785.7
Large	6000 (100)	-	-	6000 [34.78]	11250 [65.22]	17250
All	2720 (49.6)	2760 (50.4)	-	5480 [51.12]	5240 [48.88]	10720

Note: Figures in [] are percentages to total allied farm and non-farm income in each category; () are percentages to total allied farm income in each category.

Table 5.20

Category-wise Distribution of Contract farmers by the Number of Years under Contract

Years of linkage/ Farmer category	Upto one year	>1 - ≤ 2 year	>2 - ≤ 3 year	>3 - ≤ 4 year	Average year under contract
Small	-	1 (33.3)	2 (66.7)	-	2.7
Semi-medium	1 (11.1)	2 (22.2)	5 (55.6)	1 (11.1)	2.7
Medium	2 (7.4)	6 (22.2)	15 (55.6)	4 (14.8)	2.8
Large	-	2 (18.2)	3 (27.3)	6 (54.5)	3.4
All	3 (6)	11 (22)	25 (50)	11 (22)	2.9

Note: Figures in parentheses indicate per cent to total in each category.

5.2.6 Farm machinery

The ownership of all types of farm machinery was comparatively higher among contract farmers as compared to their counterparts. 98 per cent of the contract farmers possessed tractors as compared to 90 per cent non-contract farmers. Similarly, trolley ownership was also higher among contract farmers (90 per cent) as compared to non-contract farmers (80 per cent). Even among contract farmers, 8 per cent farmers had two tractors, while 6 per cent had double trolleys. Further, ownership of rotavator was found to be higher among large contract farmers (54.5 per cent) as compared to large non-contract farmers (25 per cent). This revealed superiority of the contract farmers in terms of ownership of farm machinery. Furthermore, 66 per cent of the contract farmers also possessed harrow as compared to 34 per cent among non-contract farmers. Similarly, cultivator ownership was also higher among contract farmers (66 per cent) as compared to non-contract farmers (46 per cent) (Table 5.21).

Table 5.21

Category-wise Distribution of Contract and Non-contract Farmers by Ownership of Farm Machinery

Farm Machinery/ Farmer category	Tractor	Trolley	Rotavator	Peas planter	Potato digger	Harrow	Cultivator	Irrigation generator
Contract farmers								
Small	3 (100)	2 (66.7)	-	-	-	-	1 (33.3)	-
Semi-medium	8 (88.9)	7 (77.8)	1 (11.1)	-	-	3 (33.3)	4 (44.4)	-
Medium	27 (100)	25 (95.6)	4 (14.8)	2 (7.4)	1 (3.7)	19 (70.37)	21 (77.8)	2 (7.4)
Large	11 (100)	11 (100)	6 (54.5)	1 (9.1)	2 (18.2)	11 (100)	7 (63.6)	4 (36.4)
All	49 (98)	45 (90)	11 (22)	3 (6)	3 (6)	33 (66)	33 (66)	6 (12)
Non-contract farmers								
Marginal	1 (25)	1 (25)	-	-	-	-	1 (25)	-
Small	8 (80)	5 (50)	-	1 (10)	-	1 (10)	2 (20)	1 (10)
Semi-medium	18 (100)	16 (88.9)	-	1 (5.6)	-	6 (33.3)	8 (44.4)	-
Medium	14 (100)	14 (100)	1 (7.1)	-	-	7 (50)	11 (78.6)	1 (7.1)
Large	4 (100)	4 (100)	1 (25)	1 (25)	-	3 (75)	1 (25)	2 (50)
All	45 (90)	40 (80)	2 (4)	3 (6)	-	17 (34)	23 (46)	4 (4)

Note: Figures in parentheses indicates the percentage to the total in each category.

The same was also evident from the average number of farm implements possessed by the contract and non-contract farmers. The average number of farm implements was 3.7 in contract farmers, while it was only 2.6 in non-contract farmers. Further, all the categories of contract farmers possessed more agricultural machinery as compared to non-contract farmers except the semi-medium farmers, as semi-medium contract and non-contract farmers possessed almost similar number of agricultural implements. The large contract farmers, on an average, possessed higher farm implements (5.1) than their counterparts (4.0). The above discussion clearly reveals that the company preferred to work with farmers who owned better farm machinery (Table 5.22).

Table 5.22

Category-wise Average Number of Farm Implements Possessed by Contract and Non-contract Farmers

Category of farmer	Contract farmers	Non-contract farmers
Marginal	-	0.75
Small	2	1.8
Semi-medium	2.6	2.7
Medium	3.7	3.4
Large	5.1	4
All	3.7	2.6

5.3 Paras Spices Pvt. Ltd.

5.3.1 Land size

The land ownership pattern indicates that contract farmers possessed slightly higher land (8.1 acres) than the land owned by non-contract farmers (7.8 acres). Surprisingly, the company was found to work with only semi-medium, medium and large farmers excluding small and marginal farmers. Further, land owned by these three categories was 4.1 acres, 7.3 acres and 10.1 acres respectively, which was lower than that among non-contract farmers (5.4, 12.6 and 17.8 acres respectively). Furthermore, average operational land holdings among semi-medium and medium contract farmers were lower than that among non-contract farmers. However, average size of operational holdings was higher among large contract farmers (42.8 acres) compared to that among large non-contract farmers

(39 acres). The average size of operational land holdings in case of contract farmers was found to be 25.7 acres compared to smaller land holdings in case of non-contract farmers (12.3 acres). The contract farmers did not have any marginal and small farmers compared to 32 per cent in case of non-contract farmers. Therefore, in terms of operational holdings, on an average contract farmers were large farmers, while non-contract farmers were medium farmers.

The practice of leasing-in land was found to be much higher among contract farmers than the non-contract farmers. The proportion of leased-in land in operational holding among contract farmers was about 41 per cent in case of semi-medium, about 56 per cent in medium, 76 per cent in case of large farmers as compared to 36.9 per cent, 33.7 per cent and 54 per cent respectively in case of non-contract farmers. Overall, the proportion of leased-in land in operational holdings among contract farmers was around 68 per cent, which was higher than non-contract farmers (39 per cent). Thus, the contract farmers leased-in large proportion of land to increase their operational holdings in order to improve their economies of scale (Table 5.23).

The bigger size of the operational holdings among contract farmers can also be found from the fact that the proportion of large farmers was 38 per cent among contract farmers as compared to only 10 per cent among non-contract farmers. Similarly, the proportion of medium farmers was double among contract farmers (52 per cent) in comparison with non-contract farmers (26 per cent). No one from the marginal and small farmers' category was indulged in chicory contract farming (Table 5.24). Therefore, it may be concluded that small and marginal farmers were excluded from contractual arrangement. Further, the proportion of marginal and small operators among non-contract farmers was 14 per cent and 18 per cent respectively as compared with the proportion of marginal holders (17 per cent) and small holders (20 per cent) in Moga district (Table 3.2). About 92 per cent of the cultivated area was irrigated through groundwater and the remaining 8 per cent area was under canal irrigation among contract farmers. On the other hand, in case of non-contract farmers, about 88 per cent of the operated area was under groundwater irrigation, while 12 per cent was under canal irrigation.

Table 5.23

Category-wise Land Holding Details of Contract and Non-contract Farmers (acres)

Category	Land owned	Leased in land	Leased out	Operated land	Leased-in land as %age of operated area	Leased-out land as %age of operated area
Contract farmers						
Semi-medium	4.1	2.9	-	7	41.4	-
Medium	7.3	9.4	-	16.7	56.3	-
Large	10.1	32.7	-	42.8	76.4	-
All	8.1	17.6	-	25.7	68.5	-
Non-contract farmers						
Marginal	1.8	-	-	1.8	-	-
Small	3.8	0.6	-	4.4	13.6	-
Semi-medium	5.4	3.1	0.1	8.4	36.9	1.2
Medium	12.6	6.1	0.6	18.1	33.7	3.3
Large	17.8	21.2	-	39	54.4	-
All	7.8	4.8	0.3	12.3	39.0	2.4

Table 5.24

Category-wise Distribution of Contract and Non-contract Farmers by Leasing-in and Leasing-out Activities

Category	No. of farmers	No. of farmers leasing-in land	No. of farmers leasing-out land
Contract farmers			
Semi-medium	5 [10]	4 (80)	-
Medium	26 [52]	25 (96.2)	-
Large	19 [38]	19 (100)	-
All	50 [100]	48 (96)	-
Non-contract farmers			
Marginal	7 [14]	-	-
Small	9 [18]	2 (22.2)	-
Semi-medium	16 [32]	9 (56.2)	1 (6.25)
Medium	13 [26]	8 (61.5)	1 (7.69)
Large	5 [10]	4 (80)	-
All	50 [100]	23 (46)	2 (4)

Note: Figures in () indicate percentage to total in each farmer category; [] indicate percentage to total contract and non-contract farmers' category.

Table 5.25 indicates the proportion of contracted area under chicory in operational holdings. It was turned out to be highest among semi-medium farmers (38.6 per cent) followed by medium (25.1 per cent) and large farmers (11.7 per cent). Thus, with increase in the size of operational land holding, the proportionate share of contract area declines. Overall contract farmers put only 17.1 per cent of their operational land holdings under contract. The development of agribusiness normalization observed in the area does not persuade confidence among farmers. The chances of output rejection by the private firm inhibit the farmers to bring large area under contract farming.

Table 5.25
Category-wise Area under Contract Crop (acres)

Category	Area under contract	Contract land as %age of operated area
Semi-medium	2.7	38.6
Medium	4.2	25.1
Large	5.0	11.7
All	4.4	17.1

Table 5.26 shows type of land used for the cultivation of chicory under contract. Most of the contract farmers used owned land for the cultivation of chicory. The semi-medium farmers used 80 per cent of their owned land, while 20 per cent used both leased-in and owned land for the contract crop. While about 69 per cent of the medium farmers grew contract crop on owned land and 26 per cent used leased-in land and remaining around 4 per cent used both owned and leased-in land. Among large farmers, 58 per cent used owned land and 42 per cent used leased-in land for growing chicory. The average owned land under contract crop cultivation was about 77 per cent each among semi-medium and medium farmers and 54 per cent among large farmers, while 22 per cent area in case of semi-medium, about 23 per cent in case of medium and 46 per cent in case of large farmers was leased-in land. Thus, all the farmers used higher share of owned land as compared to leased-in land in cultivation of contract crop. During field survey, few farmers admitted that chicory leaves were used as green manure in the field

which is beneficial for next crop grown in the plot. Therefore, they preferred to cultivate the crop on the owned land rather than leased-in land.

Table 5.26

Category-wise Distribution of Contract Farmers by Type of Land under Contract

Type of land	No. of farmer			Average area (Acre)		
	Owned	Leased	Both	Owned	Leased	Total
Semi-medium	4 [80]	-	1 [20]	2.1 (77.8)	0.6 (22.2)	2.7 (100)
Medium	18 [69.2]	7 [26.9]	1 [3.8]	3.2 (76.2)	1.0 (23.8)	4.2 (100)
Large	11 [57.9]	8 [42.1]	-	2.7 (54)	2.3 (46)	5.0 (100)
All	33 [66]	15 [30]	2 [4]	2.9 (65.9)	1.5 (34.1)	4.4 (100)

Note: Figures in [] indicate percentage to total farmer in each category; () indicate percentage to total area in each category.

5.3.2 Education

Table 5.27 describes education level of both contract and non-contract farmers. 14 per cent of farmers in both the categories were illiterate. The proportion of graduates and post-graduates was also found to be similar among contract and non-contract farmers (6 per cent each). The percentage of secondary and higher secondary certificate holders was also same in both categories of the farmers (28 per cent and 18 per cent each, respectively). Whereas the proportion of middle level of education was found to be higher for non-contract farmers (30 per cent) as compared to the contract farmers (18 per cent). However, average numbers of years in the schooling presents a slightly different picture. The medium and large non-contract farmers were slightly better in terms of average number of years in schooling (Table 5.28).

Table 5.27

Category-wise Distribution of Contract and Non-contract Farmers by Literacy Level

Literacy level/ Category	Illiterate	Primary (upto 5 th standard)	Middle (6 th - 8 th)	Matric (9 th - 10 th)	Higher secondary	Graduate	Post- graduate
Contract farmers							
Semi-medium	-	-	4 (80)	1 (20)	-	-	-
Medium	5 (19.2)	4 (15.4)	2 (7.7)	8 (30.8)	6 (23.1)	1 (3.8)	-
Large	2 (10.5)	4 (21.1)	3 (15.8)	5 (26.3)	3 (15.8)	2 (10.5)	-
All	7 (14)	8 (16)	9 (18)	14 (28)	9 (18)	3 (6)	-
Non-contract farmers							
Marginal	1 (14.3)	1 (14.3)	2 (28.6)	2 (28.6)	1 (14.3)	-	-
Small	1 (11.1)	-	2 (22.2)	4 (44.4)	2 (22.2)	-	-
Semi-medium	3 (18.7)	1 (6.2)	6 (37.5)	4 (25)	2 (12.5)	-	-
Medium	2 (15.4)	-	3 (23.1)	2 (15.4)	3 (23.1)	1 (7.6)	2 (15.4)
Large	-	-	2 (40)	2 (40)	1 (20)	-	-
All	7 (14)	2 (4)	15 (30)	14 (28)	9 (18)	1 (2)	2 (4)

Note: Figures in parentheses are percentage to total farmer in each category.

Table 5.28

Category-wise Average Number of Education Years among Contract and Non-contract Farmers

Category	Contract farmers	Non-contract farmers
Marginal	-	7.6
Small	-	8.5
Semi-medium	7.6	7.1
Medium	7.4	9.6
Large	8.1	9.4

5.3.3 Age, household size and farm family workers

The average age of grower in each farmer category was turned out to be slightly higher among non-contract farmers than contract farmers. The average age of contract farmers was 49.8 years in case of semi-medium, 47.5 years in case of medium and 45.9 years in case of large farmers as compared to 51.6 years among semi-medium, about 48 years each among medium and large non-contract farmers. The average household size was turned out to be almost similar in case of contract farmers (5.7) and non-contract farmers (5.4). Further, average household size of contract farmers was 4 in case of semi-medium farmers, 5.5 in case of medium and 6.4 in case of large farmers as compared to the respective figures of 4.7, 5.2 and 9.6 among non-contract farmers. Large farmers had more number of members in their family. Thus, household size increased with increase in land size. The proportion of farm workers from family declined with the increase in land size among contract farmers. Further, the proportion of farm family workers was similar among contract and non-contract farmers (28 per cent each). Furthermore, the results also reveal that no significant difference in the family size exists between contract and non-contract farmers except for the large non-contract farmers, who had higher number of household members (9.6) than the large contract farmers (6.4). Therefore, it can be concluded that the family size for the contract farmers as compared to non-contract farmers holds no different pattern.

Table 5.29

Category-wise Average Family Size of Contract and Non-contract Farmers

Family details/ Category	Average age of farmer (yrs.)	Adult		Children	Average family size	Farm workers	%age of farm workers in family
		Male	Female				
Contract farmers							
Semi-medium	49.8	2.2	1.6	0.2	4	1.8	45
Medium	47.5	2.5	2.3	0.7	5.5	1.5	27.3
Large	45.9	2.7	2.4	1.3	6.4	1.5	23.4
All	47.1	2.5	2.3	0.9	5.7	1.6	28.1
Non-contract farmers							
Marginal	49.8	2	2	0.6	4.6	1.3	28.3
Small	42.1	2.1	1.7	1.4	5.2	1.6	30.8
Semi-medium	51.6	2.4	1.9	0.4	4.7	1.3	27.6
Medium	48.4	2.6	2.2	0.4	5.2	1.5	28.8
Large	48.8	3.8	4	1.8	9.6	2.2	22.9
All	48.5	2.5	2.2	0.7	5.4	1.5	27.8

5.3.4 Allied farm and non-farm income

The proportion of income from allied farm activities was higher among contract farmers (₹ 8,140/month) than the non-contract farmers (₹ 3,450/month). The average income from dairy among contract farmers was highest among semi-medium farmers (₹ 5000/month) followed by medium farmers (₹ 4461/month) and large farmers (₹ 789/month). However, average income from dairy among non-contract farmers was ₹ 428/month in case of marginal, ₹ 4166/month in case of small, ₹ 1718/month in case of semi-medium, ₹ 1884/month in case of medium and only ₹ 400/month in case of large farmers. Thus, all other categories of farmers had more income from dairy as compared to large farmers. Overall, average income from allied farm and non-farm activities was also higher among all categories of contract farmers (₹ 5000/month in case of semi-medium, ₹

13,884/month in case of medium and ₹ 13368/month in case of large farmers) than that of non-contract farmers (₹ 2968/month among semi-medium, ₹ 8192/month among medium and ₹ 8800/month among large farmers) (Table 5.30). This points out that the contract farmers were not only involved in contract farming, but also had higher income from the allied farm and non-farm activities.

5.3.5 Farmer's association with contract firms

Table 5.31 shows duration of association of the contract farmers with the company. Most of the farmers under contract were found to be associated for more than four years. There was not much difference among various farmer categories for average years of the association with the contract firm. 40 per cent semi-medium farmers were associated for more than two to five years, while another 40 per cent were found to be associated for more than five to eight years and remaining 20 per cent were associated during the past two years. Only about 10 per cent of the large farmers were involved in contract farming from more than eight years. These were associated with the company since the beginning of the operations for chicory contract farming in the Moga district. Overall, 26 per cent farmers grew chicory for the firm for the last two years, while another 34 per cent did so for more than two to five years and 36 per cent for more than five to up to eight years.

Table 5.30

Category-wise Income of Contract and Non-contract Farmers from Allied Farm and Non-farm Activities (₹/month)

Farmer category	Allied farm income					Non-farm income	Total
	Dairying	Hiring-out farm machinery	Sheller Rent	Seed/labour	Total		
Contract farmers							
Semi-medium	5000 (100)	-	-	-	5000 [100]	-	5000
Medium	4461.5 (45.3)	5384.6 (54.7)	-	-	9846.1 [70.9]	4038.5 [29.1]	13884.6
Large	789.5 (12.0)	4526.3 (68.2)	-	1315.8 (19.8)	6631.6 [49.6]	6736.8 [50.4]	13368.4
All	3120 (38.3)	4520 (55.5)	-	500 (6.1)	8140 [63.6]	4660 [36.4]	12800
Non-contract farmers							
Marginal	428.6 (15.8)	-	1428.6 (52.6)	857.1 (31.6)	2714.3 [32.5]	5642.8 [67.5]	8357.1
Small	4166.7 (100)	-	-	-	4166.7 [100]	-	4166.7
Semi-medium	1718.7 (100)	-	-	-	1718.7 [57.9]	1250 [42.1]	2968.7
Medium	1884.6 (36.8)	2307.7 (45.1)	923.1 (18.1)	-	5115.4 [62.4]	3076.9 [37.6]	8192.3
Large	400 (9.1)	4000 (90.9)	-	-	4400 [50.0]	4400 [50.0]	8800
All	1890 (54.8)	1000 (29.0)	440 (12.7)	120 (3.5)	3450 [58.7]	2430 [41.3]	5880

Note: Figures in [] are percentages to total allied farm and non-farm income in each category; () are percentages to total allied farm income in each category.

Table 5.31

Category-wise Distribution of Contract Farm by the Number of Years under Contract

Years of linkage/ Farmer category	Upto two year	>2 - ≤5 year	>5 - ≤8 year	> 8 year	Average year under contract
Semi-medium	1 (20)	2 (40)	2 (40)	-	4.6
Medium	6 (23.1)	8 (30.8)	12 (46.1)	-	4.9
Large	6 (31.6)	7 (36.8)	4 (21.1)	2 (10.5)	4.5
All	13 (26)	17 (34)	18 (36)	2 (4)	4.7

Note: Figures in parentheses indicate percentage to total farmers in each category.

5.3.6 Farm machinery

All the contract farmers possessed tractor-trolley, while 80 per cent non-contract farmers had tractor and 76 per cent had an ownership of trolley. Further, contract farmers with rotavator were 26 per cent as against only 6 per cent among non-contract farmers. The possession of irrigation generator was also higher among contract farmers (50 per cent) than that among non-contract farmers (12 per cent). The analysis revealed that chicory grown farmers were richer in the ownership of farm implements as compared to the traditional wheat grown farmers. Further, reaper was possessed by 26 per cent of the contract farmers as compared to 6 per cent non-contract farmers. 6 per cent of the contract farmers also had an ownership of combine (Table 5.32). Furthermore, average number of farm implements was also worked out to be higher among contract farmers than non-contract farmers (Table 5.33). Thus, possession of farm implements was higher among contract farmers in all the categories of machinery. It was also reflected in the higher income earned by the contract farmers from custom hiring of the farm machinery.

Table 5.32

Category-wise Distribution of Contract and Non-contract Farmers by Ownership of Farm Machinery

Farm Machinery/ Farmer category	Tractor	Trolley	Rotavator	Reaper	Combine	Harrow	Cultivator	Irrigation generator
Contract farmers								
Semi-medium	5 (100)	5 (100)	-	-	-	2 (40)	3 (60)	2 (40)
Medium	26 (100)	26 (100)	5 (19.2)	6 (23.1)	1 (3.8)	8 (30.8)	25 (96.1)	11 (42.3)
Large	19 (100)	19 (100)	8 (42.1)	7 (36.8)	2 (10.5)	9 (47.4)	12 (63.1)	12 (63.1)
All	50 (100)	50 (100)	13 (26)	13 (26)	3 (6)	19 (38)	40 (80)	25 (50)
Non-contract farmers								
Marginal	1 (14.3)	1 (14.3)	-	-	-	-	1 (14.3)	-
Small	6 (66.7)	6 (66.7)	-	-	-	1 (11.1)	6 (66.7)	-
Semi-medium	15 (93.7)	13 (81.2)	-	-	-	11 (68.7)	12 (75)	-
Medium	13 (100)	13 (100)	2 (15.4)	1 (7.7)	1 (7.7)	7 (53.8)	8 (61.5)	3 (23.1)
Large	5 (100)	5 (100)	1 (20)	2 (40)	-	2 (40)	3 (60)	3 (60)
All	40 (80)	38 (76)	3 (6)	3 (6)	1 (2)	21 (42)	30 (60)	6 (12)

Note: Figures in parentheses indicates percentage to the total farmers in each category

Table 5.33

Category-wise Average Number of Farm Implements Possessed by Contract and Non-contract Farmers

Category of farmer	Contract farmers	Non-contract farmers
Marginal	-	0.6
Small	-	2.1
Semi-medium	3.4	3.2
Medium	4.4	4.1
Large	5.8	5.4
All	4.8	3.1

5.4 Summary

The above analysis of the contract vis-à-vis non-contract farmers in Punjab reveals that there exists heterogeneity among farmers with respect to various socio-economic factors like age, operated land, farm machinery and income from farm and non-farm allied activities. The companies were observed to be biased in the selection of farmers. Small farmers were excluded from the contractual arrangements. Hence, the hypothesis framed that contracting firms exclude small and marginal farmers and work with the large farmers due to the diseconomies of scale associated with the small and marginal farmers was found to be true. Simultaneously, second hypothesis i.e. contract farming creates socio-economic differentiation among farmers as the companies select farmers with certain pre-conditions, was also accepted.