

*Original Research***Assessment of Socio-Economic Status of Contract and Non-Contract Goat Farmers of Odisha: A Comparative Study****Chinmaya Kumar Sahoo¹, Rupasi Tiwari² and Rakesh Roy^{3*}**¹Department of Fisheries and Animal Resources Development, Govt. of Odisha, Odisha, INDIA²ICAR-Indian Veterinary Research Institute, Izatnagar-243122, Bareilly, Uttar Pradesh, INDIA³Darjeeling KVK, Uttar Banga Krishi Viswavidyalaya, Kalimpong-734301, West Bengal, INDIA*Corresponding author: rakeshvetext@gmail.com

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Abstract

The contract farming in goat, which is completely informal in nature without any stringent written agreement, has come into existence in rural India. This study was conducted with an objective to assess socio-economic status of contract and non-contract goat farmers. Data were collected through personal interview from 60 contract and 60 non-contract goat farmers in Odisha. The study revealed that in spite of little difference in age, the involvement of youth was more in contract goat farming compared to non-contract goat farming. Participation of female was low in contract goat farming in comparison to non-contract farming. Higher percentage of schedule tribe farmers had taken up contract goat farming as an occupation. Mean family size of the contract goat farmers was higher in comparison to the non-contract goat farmers. Mean education level and family education status of contract goat farmers were significantly lower to that of non-contract goat farmers. Contract goat farmers had a significantly lower land holding than non-contract goat farmers. Average flock and herd size of the contract goat farmers was lower than non-contract goat farmers. Average farming experience among contract and non-contract goat farmers was 9.37 and 13.57 years respectively. Majority of the contract goat farmers were labor followed agriculture as their primary occupation. Social participation and assets possessed by the contract goat farmers was significantly low in comparison to the non-contract goat farmers. A significant difference was found regarding annual gross income of the contract and non-contract farmers i.e. ₹ 35485 and ₹ 56080 respectively whereas no significant difference was there regarding income from goat rearing i.e. ₹ 14861 and ₹ 15133 respectively.

Key words: Annual Income, Contract Goat Farming, Odisha, Socio-Economic Status

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Introduction

Contract farming is essentially an agreement between unequal parties, companies, Government bodies or individual entrepreneurs on the one hand and economically weaker farmers on the other (Anand and Kumar, 2007; Eaton and Shepherd, 2001). In India, outside the contracts within cooperatives, the emerging contracts involve processing companies who engage in a formal contract with an intermediary (collector) in the supply of fresh milk, while the intermediary engages in informal contracts with farmers, mostly smallholders. In livestock sector the contract farming has been successfully implemented in poultry, dairy and hog farming. In contrast, goat is the species of domestic animal for which no such contract farming model has evolved yet. Demand for goat meat and mutton will rise to 12.72 million tons in 2020 against 3.8 million tons this year according to the National Centre for Agricultural Economics and Policy Research, Delhi (Shrivastava, 2011). The demand projections of goat meat pose excellent business opportunities for the farmers and also traders. Goatery is a highly preferred option among marginal and small farmers (those having less than one hectare of land) and even landless farmers as because goats depend on common grazing and forest lands for fodder (Dixit and Shukla, 1995). Hence, in this context necessary steps should be taken to build up a strategy for promoting the commercial goat rearing in India in form of contract farming keeping in view the inclusion of small and marginal farmers which can uplift their socio-economic status too.

Besides, the existing pattern of goat rearing where the farmers purchased goats by utilizing their own capital, another model of goat farming was seen in Odisha which was a contract basis rearing of goats (Sahoo *et al.*, 2016). The farmers involved in this sort of contract farming rear their own flock of goat (if any) along with the goats provided through contract. Hence, a need was felt to assess the socio-economic status of the contract and non-contract goat farmers in Odisha.

Materials and Methods

The study was conducted with an objective to assess socio-economic status of contract and non-contract goat farmers. This study was purposively conducted in the western part of Odisha which is a rainfed area where about half of the total land area is covered under forest and people were highly engaged in animal husbandry. The study was conducted during December, 2013 to March 2014. Contract farming in livestock especially goat has been evolved in the area for quite sometimes. Balangir district was randomly selected among top 5 districts in goat population from western part of Odisha. Again, 5 blocks namely Titilagarh, Turakela, Saintala, Muribahal and Bangomunda were randomly selected for data collection. In all, 60 contract goat farmers and 60 non-contract goat farmers were randomly selected from five blocks (@12 respondents each per block engaged in contract goat farming and non-contract goat farming) and interviewed with open ended questions to gather information on their socio-economic aspects. Suitable

statistical tools using Statistical Package for the Social Sciences (SPSS) 20 were used to have a proper comparison between the two types of goat farmers.

Result and Discussion

The contract goat farming in this area was popularly known as “Adhuadi” which was completely informal in nature without any stringent written agreement between the parties i.e. the contractor and the contract goat farmer and the whole business runs on the mutual trust upon each other (Sahoo *et al.*, 2016). The comparative socio-personal and socio-economic status between the contract and non-contract goat farmer were as follows.

Socio-Personal Profile

Age and Gender

The study shows no significant difference in average age between contract and non-contract goat farmers i.e. 44.02 and 45.97 respectively. However, the participation of youth (18-35) was higher (30%) in contract goat farming than non-contract goat farming (20%). The modal age of contract goat farmers (35 years) was less than that of non-contract goat farmers. The study further reveals no significant difference between contract and non-contract farmers with respect to gender (Table 1). Male had higher involvement in contract farming (93.33) than contract farming (86.66). Participation of female was less in contract goat farming (6.66%) in comparison to non-contract goat farming (13.3%). Similar findings were reported in respect to age among goat farmers (Roy and Tiwari, 2016) and buffalo farmers (Sachan *et al.*, 2018) about gender participation on contract broiler farming (Gopala *et al.*, 2017) and in contract dairy farming (Kolekar, 2011).

Religion and Caste

The study revealed that cent percent the goat farmers were Hindu. The study further revealed highly significant difference between the contract and non-contract goat farmers with respect to caste. Contract goat farming as an occupation had been highly adopted by majority of the Schedule Tribe (40%) whereas farmers belonging to other backward class (55%) were involved in non-contract farming (Table 1). Mohan *et al.* (2012) reported that about 60% belongs to other backward classes followed by scheduled caste (21%), minorities (13%) and general (4%).

Family Size and Type

The study revealed no significant difference between contract and non-contract goat farmers in respect to family size. Average family size of contract and non-contract farmers was 5.42 and 5.07 respectively. Majority of the contract (65%) and non-contract (53.3%) goat farmers had medium family size (5-7 members). The study furthers shows that the basic patterns of family were nuclear type. The chi-square test revealed no significant difference between contract and non-contract goat farmers with respect to family

type (Table 1). Similar types of findings were reported in family type and size among goat farmers (Roy and Tiwari, 2016; Rashmi, 2010).

Table 1: Distribution of the goat farmers according to socio-personal characteristics

Variable	Category	Contract farmer (n=60)	Non-contract farmer(n=60)	Total (N=120)	Remarks
Age	Youth (18-35)	18 (30.00)	12 (20.00)	30 (25.00)	t-test value (0.967)
	Middle (35-58)	34 (56.66)	37 (61.66)	71 (59.16)	
	Old (>58)	08 (13.33)	11 (18.33)	19 (15.83)	
	Mean ± S.D	44.02 ±11.44	45.97±10.63	44.99±11.04	
Gender	Male	56 (93.33)	52 (86.66)	108 (90.00)	Chi-square value 1.481
	Female	04 (06.66)	08 (13.33)	12 (10.00)	
Religion	Hindu	60 (100.00)	60 (100.00)	120 (100.00)	
Caste	General	01 (01.66)	04 (06.66)	05 (04.16)	Chi-square value 14.344**
	Other Backward Caste	20 (33.33)	33 (55.00)	53 (44.16)	
	Schedule Caste	15 (25.00)	16 (26.66)	31 (25.83)	
	Schedule Tribe	24 (40.00)	07 (11.66)	31 (25.83)	
Family Size	Small (2-4)	16 (26.66)	24 (40.00)	40 (33.33)	t-test value (1.088)
	Medium (5-7)	39 (65.00)	32 (53.33)	71 (59.16)	
	Large (8-10)	05 (08.33)	04 (06.66)	09 (07.50)	
	Mean ± S.D	5.42 ±1.88	5.07±1.62	5.24±1.76	
Family type	Nuclear	37 (61.66)	41 (66.66)	78 (65.00)	Chi-square value 0.586
	Joint	23 (38.33)	19 (33.33)	42 (35.00)	
Education	Illiterate	44 (73.33)	31(51.66)	75 (62.50)	t-test value (2.463*)
	Primary	13 (21.66)	19(31.66)	32(26.66)	
	Medium	01 (01.66)	05(08.33)	06(05.00)	
	Higher	01 (01.66)	02(03.33)	03(02.50)	
	Intermediate	01 (01.66)	02(03.33)	03(02.50)	
	Graduation	0 (0.00)	01(01.66)	01(0.83)	
Family Education status	Low (0-2.16)	27 (45.00)	22 (36.66)	49 (40.83)	t-test value (2.829**)
	Medium (2.17-4.33)	33 (55.00)	37 (61.66)	70 (58.33)	
	High (4.34-6.5)	0 (0.00)	01 (01.66)	01 (0.83)	
	Mean ± S.D	2.01±0.92	2.58±1.24	2.29±1.12	
Social participation	No participation	54 (90.00)	48 (80.00)	102 (85.00)	t-test value (2.081*)
	Member in one org.	06 (10.00)	8 (13.33)	14 (11.66)	
	Member in >2 Org.	0 (0.00)	01 (01.66)	01 (0.83)	
	Office bearer of Org	0 (0.00)	03 (05.00)	03 (02.50)	
	Mean ± S.D	0.10±.30	0.32±.74	0.21±.57	

Figures in parenthesis indicate percentage; **p<0.01, *p<0.05

Education

Table 1 indicates that contract goat farmers were having significantly (p<0.05) lower education as compared to the non-contract goat farmers. Mean education level of contract and non-contract goat farmers were 1.37 and 1.80 respectively. Majority (73.33%) of the contract goat farmers were illiterate which was quite higher than that of non-contract goat farmers (51.66%).

Family Education Status

Mean family education status among contract goat farmers (2.014) was significantly ($p < 0.01$) lower than non-contract goat farmers (2.581). Majority (55%) of the contract goat farmers were having medium family education status, which is lower than that of non-contract goat farmers (61.66%) was having medium family education status (Table 1). Mean family education status for goat farmers was about 2.03 in WB (Roy and Tiwari, 2016).

Social Participation

Social participation of the contract farmers was significantly ($p < 0.05$) low in comparison to the non-contract farmers. Social participation of contract and non-contract farmers was 0.10 and 0.32 respectively. Social participation of the goat farmers were low (Roy and Tiwari, 2016; Kumar, 2012).

Socio-Economic Profile

Land Holding

Table 2 revealed that the average land holding of the contract goat farmers (1.24 acres) was significantly ($p < 0.05$) lower to that of non-contract goat farmers (2.65 acres) although majority of the contract (58.33%) and non-contract (55%) goat farmers had marginal land holding. Higher percentage of contract goat farmers were landless than non-contract farmers. About 87% goat farmers belong to landless and marginal categories indicate that majority of goats are reared by farmers who have no or little land (Mohan *et al.*, 2012).

Flock and Herd Size

Table 2 revealed no significant difference between contract and non-contract goat farmers according to flock size. Average flock sizes of the contract and non-contract goat farmers were 10.07 and 11.25 respectively. Majority (46.66%) of non-contract goat farmers had small flock size whereas majority (43.33%) of the contract goat farmers had very small flock size. The average size of goat holding worked out around 5 goats per farmer (Mohan *et al.*, 2012).

The study further revealed that there was significant ($p < 0.05$) difference between the contract and non-contract goat farmers with respect to herd size (no. of large animals). Average herd size of the contract and non-contract goat farmers was 1.18 and 2.27 respectively. Majority (53.33%) of the contract goat farmers were having without any large animals. Majority (76%) of the goat farmers had small herd size of 1-2 animals and 44 percent did not have any large animal with them.

Assets Possessed

Study revealed that 46.66 percent of the contract goat farmers had bicycles whereas about 70 percent of non-contract goat farmers own a bicycle. Only 1.66 percent of the contract goat farmers had motorbike

whereas 13.33 percent of the non-contract goat farmers had motorbike. Radio and television were possessed by 15 percent and 11.66 percent of the contract goat farmer and 18.33 percent and 26.66 percent of non-contract goat farmers. Mobile phone users in case of contract and non-contract goat farmers were 70 percent and 85 percent respectively. Electricity connectivity in case of contract and non-contract goat farmers were 55 percent and 70 percent respectively. None of the contract farmers had refrigerator and LPG connection whereas non-contract farmers having LPG and refrigerator were 5 percent and 3.33 percent respectively. It clearly depicted lower economic status of the contract goat farmers in comparison to that of the non-contract goat farmers.

Experience in Goat Rearing

The study shows that there was a significant ($p < 0.05$) difference among the contract and non-contract goat farmers with respect to experience in goat rearing. Average farming experience in case of contract and non-contract goat farmers was 9.37 and 13.57 years. Majority of the contract goat farmers (63.33%) had lower experience in goat rearing. Roy and Tiwari (2016) reported that average farming experience in goat rearing was 13.54 and 17.17 years in West Bengal and Uttar Pradesh respectively. Contract farmers in broiler farming had mean experience of 5.28 years and non-contract farmers in broiler farming had mean experience of 5.93 years in Karnataka (Gopala *et al.*, 2017). Farm experience of the livestock farmers in had low farm experiences (Belakeri *et al.*, 2017). It might be due the fact that about half of the contract farmers had started goat rearing with the goats supplied through contract. It is evident from the study that goat farming is an integral part of the rural farmers. Large number of farmers without ancestral experience in goat rearing had also adopted it as subsidiary livelihood.

Occupation

The study shows significant ($p < 0.05$) difference between contract and non-contract goat farmers in respect to primary and secondary occupation. Majority of the contract farmers (33.33%) had labour as their primary occupation followed by agriculture (33.33%). Contract goat farming as a primary occupation had been taken up by 16.66 percent of the contract farmers. But in case of non-contract farmers, 38.33 percent of the respondents had agriculture as primary occupation followed by goatery (23.33%) followed by labour (11.66%). In case of contract farmers, 41.66 percent had taken up contract goat farming as a secondary occupation followed by animal husbandry (30%), labour (11.66%) and agriculture. In case of non-contract farmers, 38.33 percent of the respondents had adopted animal husbandry was secondary occupation followed by agriculture (33.33%), goatery (15%) and labour (8.33%).

Table 2: Distribution of the goat farmers according to socio-economic characteristics

Variables	Category	Contract farmer (n=60)	Non-contract farmer(n=60)	Total (N=120)	Remarks
Land Holding (in acres)	Landless (0)	18 (30)	07 (11.66)	25 (20.83)	t-test value (2.482*)
	Marginal (upto 2.5)	35 (58.33)	33 (55.00)	68 (56.66)	
	Small (2.5-5)	7 (11.66)	12 (20.00)	19 (15.83)	
	Semi Medium (5-10)	0 (0.00)	06 (10.00)	06 (5.00)	
	Medium to Large (>10)	0 (0.00)	02 (03.33)	02 (1.66)	
	Mean ± S.D	1.24±1.18	2.65±4.24	1.94±3.18	
Flock size	Very small (3-6)	26 (43.33)	14 (23.33)	40 (33.33)	t-test value (0.783)
	Small (7-10)	16 (26.66)	18 (46.66)	44 (36.66)	
	Medium (11-14)	06 (10.00)	09 (15.00)	15 (12.50)	
	Large (15-18)	05 (08.33)	02 (03.33)	07 (05.83)	
	Very large (>19)	07 (11.66)	07 (11.66)	14 (11.66)	
	Mean ± S.D	10.07±7.71	11.25±8.87	10.66±8.26	
Herd Size	No animal (0)	32 (53.33)	14 (23.33)	46 (38.33)	t-test value (93.566**)
	Small (1-3)	24 (40.00)	33 (55.00)	57 (47.50)	
	Medium (4-6)	04 (06.66)	11 (18.33)	15 (12.50)	
	Large (>6)	0 (0.00)	02 (03.33)	02 (01.66)	
	Mean ± S.D	1.18±1.490	2.27±1.821	1.73±1.744	
Experience in goatery (in years)	Low (< 5 yrs)	38 (63.33)	18 (30.00)	56 (46.66)	t-test value (2.251*)
	Moderate (6-10 yrs)	08 (13.33)	17 (28.33)	25 (20.83)	
	High (11-20 yrs)	05 (08.33)	14 (23.33)	19 (15.83)	
	Very High (> 20 yrs)	09 (15.00)	11 (18.33)	20 (16.66)	
	Mean ± S.D	9.37±9.21	13.53±10.98	11.45±10.30	
Occupation (1 ^o)	Agriculture	20(33.33)	23 (38.33)	43 (35.83)	Chi-square value 14.219*
	Animal Husbandry	05 (08.33)	09 (15.00)	14 (11.66)	
	Service	0 (0.00)	03 (05.00)	03 (02.50)	
	Self-employed	02 (03.33)	04 (06.66)	06 (05.00)	
	Labour	23 (38.33)	07 (11.66)	30 (25.00)	
	Contract goat farming/Goatery	10 (16.66)	14 (23.33)	24 (20.00)	
Occupation (2 ^o)	Agriculture	06 (10.00)	20 (33.33)	26 (21.66)	Chi-square value+A14:F3 5e 19.959**
	Animal Husbandry	18 (30.00)	23 (38.33)	41 (34.16)	
	Service	01 (01.66)	0 (0.00)	01 (0.83)	
	Self-employed	0 (0.00)	03 (05.00)	03 (02.50)	
	Labour	07 (11.66)	05 (08.33)	12 (10.00)	
	Contract goat farming/Goatery	28 (46.66)	09 (15.00)	37 (30.83)	

Figures in parenthesis indicate percentage; **p<0.01, *p<0.05

Annual Income

Mean gross annual income of the contract goat farmers was low (₹35485) whereas that of non-contract goat farmers was medium (₹56080). Majority (43.33%) of the contract goat farmers had low income followed by very low (36.66%) whereas majority (40%) of the non-contract goat farmers had low income followed

by medium (23.33%). The t-test analysis reveals that annual income of non-contract farmers was significantly higher in comparison to that of the contract goat farmers (Table 2).

Annual Income from Goat Rearing

Study revealed that average income from goat rearing for contract farmers and non-contract farmers were ₹14861 and ₹15133 respectively. Contribution of goatery to the annual income of contract and non-contract goat farmers was 43.28 percent and 33.08 percent respectively. Annual income from goat farming was about ₹16000 (Roy and Tiwari, 2016). Sahoo *et al.* (2017) reported that the contract goat farming was highly sustainable as per the perception of both the contract farmers and the contractors.

Table 3: Distribution of the goat farmers according to annual income

Variables	Category	Contract farmer (n=60)	Non-contract farmer(n=60)	Total (N=120)	Remarks
Annual gross income	Very Low (< 25000)	22 (36.66)	12 (20.00)	34 (28.33)	t-test value 2.715**
	Low (25001-50000)	26 (43.33)	24 (40.00)	50 (41.66)	
	Medium (50001-75000)	10 (16.66)	14 (23.33)	24 (20.00)	
	High (75001-100000)	02 (3.33)	03 (5.00)	05 (4.16)	
	Very High (> 100000)	0 (0.00)	07 (11.66)	07 (5.83)	
	Mean Income (₹)		35485	56080	
Annual income from Goatery	Very Low (< 5000)	10 (16.66)	02 (3.33)	12 (10.00)	t-test value 0.144
	Low (5001-10000)	10 (16.66)	14(23.33)	24 (20.00)	
	Medium (10001-15000)	16 (26.66)	26 (43.33)	42 (35.00)	
	High (15001-25000)	18 (30.00)	15 (25.00)	33 (27.50)	
	Very High (>25000)	6 (10.00)	3 (5.00)	09 (7.50)	
	Mean Income (₹)		14861	15133.33	
Percentage to Annual Income		43.28%	33.08%	38.18%	

Figures in parenthesis indicate percentage; ** $p < 0.01$, * $p < 0.05$

Conclusion

Contract goat farming was mostly adopted by the landless and marginal tribal farmers of lower socio-economic conditions. It is like any of the traditional pattern of goatery done in the villages by resource poor villagers all over the world. Contract goat farming had encouraged resource poor people to adopted goat farming whose ancestors had not reared goat. Contract goat farming gives higher share of income and employment to the resource poor than the non-contract goat farming. Hence, there is a need to aware the farmers about the advantages of contact goat farming where benefit can be maximized and risk can be minimized for the resource poor goat farmers.

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