

Livestock Holding and Its Association of Different Variables of Sonadi Sheep in its Native Tracts

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Paper Received on September 29, 2017, Accepted on November 28, 2017 and Published Online on December 22, 2017

ABSTRACT

A study was conducted in four districts i.e. Udaipur, Chittorgarh, Rajsamand and Bhilwara from breeding tract of Sonadi sheep. The data on flock statistics of 6979 registered Sonadi sheep maintained by 147 shepherds of eight tehsils from four districts of Sonadi breeding tract were recorded. The buffalo, cattle, Sonadi sheep, total sheep and large ruminant holding was significantly higher for shepherds of OBC castes as compared to other castes. The overall literacy rate had significant effect on all the parameters of land holding as well as total livestock holding. Total livestock holding increases as literacy rate increases from 0 to 30 per cent, the above parameters of livestock holding reduced as compared to literacy rate group of 21-30 per cent. The positive and significant association was observed between age of family head and total cattle, total other than Sonadi sheep and large ruminant population. The positive and significant association was observed between goat holding with total and cultivated land holding. The population of other than Sonadi sheep breeds had also positive and significant association with total and uncultivated land holding.

Key words: Livestock holding; Literacy; Age; Sheep; Native tract;

Livestock sector is an important source of income for small farmers' families who are generally constrained due to non-availability of surplus land cultivation. Moreover, livestock provide economic security and social status to the family. Large ruminant are less preferred by some of the community as well as landless and marginal farmers as it demands relatively large investment and higher maintenance cost. The role of small ruminants is more pronounced in the arid and semi-arid zone of country, where the risk and uncertainty of crop failure is high due to low availability of water and frequent natural vagaries like drought. Sheep rearing is an important source of income and occupation of small and marginal farmers in arid and semi arid region of Rajasthan. Sonadi breed of sheep is known for triple purpose i.e. milk, meat and wool. The area under grazing is reducing day by day due to deforestation and urbanization which resulted decrease reproductive performance of sheep because sheep is being reared on zero input system. The information with respect to

livestock holding and different variable of Sonadi sheep reared in their breeding tract is scanty. Keeping in view the above facts present study was planned to collect the information on livestock holding and its association with their variables in Sonadi sheep reared in their breeding tract.

METHODOLOGY

The major tract of Sonadi breed consists of Udaipur, Chittorgarh, Rajsamand and Dungarpur districts of Rajasthan, while the minor breeding tract consists of Bhilwara district of Rajasthan and part of north Gujarat (Acharya, 1982). The present study was conducted in four districts i.e. three districts namely Udaipur, Chittorgarh, Rajsamand from major and one Bhilwara from minor breeding tract of Sonadi sheep. The data on demographical and geographical distribution as well as livestock holding and its association with their variables were recorded on 6979 registered Sonadi sheep maintained by 147 shepherds of Sonadi breeding tract

in the ad-hoc project entitled "Performance evaluation and characterization of Sonadi sheep in their native tract". Appropriate statistical methods were used to analyse the data (*Snedecor and Cochran, 1997*).

RESULTS AND DISCUSSION

The average number of buffalo, cow, large ruminant, sheep, goat, small ruminant and total livestock holding differed significantly over districts. The average number of total livestock maintained was 53.1 units, out of which 49.3 units (92.8%) were of small ruminants and 3.8 units (7.2% of large ruminants. The effect of age of family head on land and livestock holding was found to be non-significant except for cattle holding which was significant (Table 1). It was observed that young family head kept significantly lower cattle holding as compared to old family head.

Caste-wise land and livestock holding result is depicted (Table 2) the effect of caste was found to be significant on buffalo, cattle, Sonadi sheep, total sheep and large ruminant holding while its effect on other parameters was non-significant. The buffalo, cattle, Sonadi sheep, total sheep and large ruminant holding was significantly higher for shepherds of OBC castes as compared to other castes because they were totally dependent on livestock rearing.

The overall literacy rate had significant effect on all the parameters of land holding as well as buffalo, goat, total sheep, large ruminant, and small ruminant and total livestock holding. The land holding increases as literacy rate increases (Table 3). The livestock holding parameters increases as literacy rate increases from 0 to 30 percent. Beyond 30 per cent literacy rate, the above parameters of livestock holding reduced as compared to literacy rate group of 21-30 per cent. The result of land holding and literacy rate indicated that the farmers with higher land holding resulted better economic condition which finally improved the literacy rate. The reduction in livestock holding above literacy rate of 30 per cent might be due to better understanding about economic returns. The shepherds having higher education tend to keep economic unit as per their available resources. This finding was in conformity with the reports of *Chaturvedi et al. (2002)* and *Chaturvedi et al. (2008)*.

The positive and significant association was observed between age of family head and total cattle, total other than Sonadi sheep and large ruminant population. The results indicated (Table 4) that older shepherds were interested to rear cattle for production of bullock for cultivation while liking of Sonadi sheep reduced in the area as evident from increasing population of sheep of other breeds. The correlation of literacy rate with buffalo, goat, large ruminant and total livestock was found to be positive and significant, indicating that literate farmers are shifting from cattle to buffalo and sheep to goat because these are more economical than cattle and sheep.

The land holding in terms of total cultivated and uncultivated was positive and significantly associated with large ruminant and total livestock population. The results indicated that with increase in land holding both cultivated and uncultivated, the number of large ruminant and total livestock also increased. It may be due to the nutritional demand of large ruminant i.e. dry and green fodder is met out from the agriculture by product and males of cattle are used for draft purpose in agricultural by products and males of cattle are used for draft purpose in agricultural operations. Similar findings were reported by *Saran et al. (2000)* and *Chaturvedi et al. (2002)*.

The positive and significant association was observed between goat holding with total and cultivated land holding (Table 4). The population of other than Sonadi sheep breeds had also positive and significant association with total and uncultivated land holding. The association of Sonadi sheep holding with variable included in the study suggested that population of Sonadi sheep decreases over the period due to cross breeding. Further the opinion of the shepherds in the breeding tract that wool of Sonadi sheep was poor in quality and lower in quantity than Khari breed of sheep.

The regression coefficients of different variables with parameters of livestock holding are shown in Table 5. The positive and significant regression coefficient was observed between goat holding with total and cultivated land holding (Table 5). The population of other than Sonadi sheep breeds had also positive and significant regression coefficient with total and uncultivated land holding.

Table 1. Land and livestock holding across different age groups of family head

Parameters	Total land	Unclutiva	Cultivated	Total buffalo	Total cattle	Total goat	Total sonadi	other sheep	Total sheep	Large ruminants	Small ruminants	Total livestock
Age group	NS	NS	NS	NS	*	NS	NS	NS	NS	NS	NS	NS
<30 yrs.	7.71 ±1.54	1.92 ±0.66	5.79 ±1.06	1.37 ±0.27	2.08 ^b ±0.31	9.76 ±2.06	18.37 ±3.94	23.32 ±3.52	41.68 ±5.04	3.45 ±0.47	51.45 ^a ±5.41	54.89 ±5.65
31-40 yrs	7.29 ±1.07	2.04 ±0.47	5.27 ±0.77	1.58 ±0.15	1.81 ^a ±0.18	9.10 ±1.01	16.41 ±1.50	20.76 ±1.29	37.17 ±1.52	3.39 ±0.27	46.27 ±1.80	49.66 ±1.85
41-50 yrs	7.79 ±0.83	2.33 ±0.33	5.48 ±0.66	1.81 ±0.16	2.06 ^b ±0.15	8.18 ±0.91	15.80 ±1.53	25.50 ±1.55	41.30 ±2.07	3.87 ±0.24	49.48 ±2.44	53.35 ±2.51
51-60 yrs	9.03 ±2.51	2.85 ±1.11	6.18 ±1.08	1.60 ±0.30	2.63 ^{bc} ±0.29	8.06 ±1.08	14.91 ±2.40	27.01 ±2.78	41.92 ±3.60	4.24 ±0.51	49.99 ±3.94	54.23 ±4.05
>60 yrs	9.88 ±2.01	3.63 ±0.94	6.25 ±1.24	2.00 ±0.56	2.87 ^c ±0.45	4.57 ±1.18	23.40 ±4.57	28.47 ±4.21	51.87 ±5.08	4.87 ±0.79	56.43 ±5.34	61.30 ±5.52
Total	8.03 ±0.65	2.40 ±0.31	5.64 ±0.41	1.67 ±0.10	2.16 ±0.11	8.33 ±0.52	16.53 ±0.96	24.36 ±0.97	40.89 ±1.25	3.83 ±0.17	49.22 ±1.40	53.05 ±1.44

NS= Non significant, *=P<0.05, a,b,c: Means with different superscripts differed significantly

Table 2. Caste-wise land and Livestock holding of house hold surveyed

Parameters	Total land	Unclutiva	Cultivated	Total buffalo	Total cattle	Total goat	Total sonadi	other sheep	Total sheep	Large ruminants	Small ruminants	Total livestock
Caste	NS	NS	NS	**	**	NS	*	NS	*	**	NS	NS
SC	5.73 ±0.89	1.47 ±0.34	4.26 ±0.76	0.57 ^a ±0.20	1.20 ^a ±0.25	10.57 ±2.43	13.03 ^b ±2.27	26.89 ±2.44	39.91 ^b ±3.54	1.77 ^a ±0.37	50.49 ±4.58	52.26 ±4.65
ST	7.26 ±1.27	2.21 ±0.94	5.12 ±0.71	1.03 ^b ±0.30	1.79 ^a ±0.30	9.44 ±2.02	13.03 ^b ±5.33	18.21 ±1.99	31.24 ^a ±5.94	2.82 ^b ±0.41	40.68 ±6.23	43.50 ±6.41
OBC	8.04 ±0.72	2.52 ±0.37	5.52 ±0.41	1.87 ^c ±0.12	2.32 ^b ±0.12	7.80 ±0.55	17.77 ^c ±1.05	24.78 ±1.15	42.54 ^b ±1.38	4.20 ^c ±0.20	50.34 ±1.55	54.54 ±1.60
Gen	13.13 ±6.22	2.20 ±1.08	10.93 ±5.23	1.05 ^b ±0.30	1.50 ^a ±0.41	12.15 ±3.46	6.50 ^a ±1.37	22.85 ±3.28	29.35 ^a ±3.48	2.55 ^b ±0.55	41.50 ±5.01	44.05 ±5.34
Total	8.03 ±0.65	2.40 ±0.31	5.64 ±0.41	1.67 ±0.10	2.16 ±0.11	8.33 ±0.52	16.53 ±0.96	24.36 ±0.97	40.89 ±1.25	3.83 ±0.17	49.22 ±1.40	53.05 ±1.44

NS= Non significant, *=P<0.05, ** = P<0.01 a,b,c, =Means with different superscripts differed significantly.

Table 3. Land and Livestock holding across literacy rate of house hold surveyed

Parameters	Total land	Unclutiva	Cultivated	Total buffalo	Total cattle	Total goat	Total sonadi	other sheep	Total sheep	Large ruminants	Small ruminants	Total livestock
Literacy	NS	NS	NS	**	**	NS	*	NS	*	**	NS	NS
Upto 0	5.39 ^a ±0.32	1.46 ^a ±0.20	3.94 ^a ±0.20	1.16 ^a ±0.14	1.75 ±0.18	6.80 ^a ±0.72	14.45 ±1.40	21.23 ±1.66	35.68 ^a ±1.92	2.91 ^a ±0.28	42.48 ^a ±2.07	45.39 ^a ±2.12
1-20	7.25 ^b ±0.62	1.85 ^b ±0.30	5.42 ^b ±0.50	1.86 ^a ±0.19	2.33 ±0.18	8.71 ^a ±0.87	17.00 ±1.69	26.16 ±2.19	43.16 ^b ±2.55	4.20 ^b ±0.27	51.87 ^a ±2.86	56.07 ^b ±2.95
21-30	8.19 ^b ±1.08	2.24 ^b ±0.59	5.95 ^b ±0.71	1.94 ^{ab} ±0.27	2.16 ±0.31	10.29 ^b ±2.06	18.68 ±2.93	28.50 ±2.71	47.18 ^b ±3.73	4.10 ^b ±0.48	57.47 ^b ±4.63	61.56 ^b ±4.67
31-40	9.57 ^b ±2.96	3.54 ^c ±1.58	6.08 ^b ±1.44	1.61 ^a ±0.37	2.45 ±0.35	6.45 ^a ±0.78	14.52 ±2.19	22.96 ±1.94	37.48 ^a ±2.36	4.06 ^b ±0.62	43.93 ^a ±2.55	47.99 ^a ±2.65
>40	12.76 ^c ±2.57	4.21 ^d ±0.90	8.55 ^c ±1.98	2.11 ^b ±0.26	2.32 ±0.25	10.71 ^b ±1.87	19.76 ±3.51	24.58 ±2.22	44.33 ^b ±3.96	4.42 ^b ±0.37	55.05 ^b ±4.15	59.47 ^b ±4.32
Total	8.03	2.40	5.64	1.67	2.16	8.33	16.53	24.36	40.89	3.83	49.22	53.05

NS= Non significant, *=P<0.05, ** = P<0.01 a,b,c, =Means with different superscripts differed significantly.

Table 4. Correlation coefficients of different variables with livestock holding parameters

Parameters	Total buffalo	Total cattle	Total goat	Total sonadi	other sheep	Total sheep	Large ruminants	Small ruminants	Total livestock
Age	0.044	0.125**	-0.108	0.004	0.108*	0.087	0.105*	0.037	0.048
Literacy rate	0.105*	0.060	0.112*	0.052	0.022	0.057	0.102*	0.093	0.102*
Total land	0.464**	0.367**	0.098*	-0.029	0.100*	0.005	0.514**	0.085	0.143**
Uncultivated land	0.461**	0.373**	-0.015	-0.045	0.116*	0.055	0.516**	0.044	0.103*
Cultivated land	0.388**	0.300**	0.167**	-0.012	0.071	0.046	0.426**	0.103*	0.150**

*=P<0.05, ** = P<0.01

Table 5. Regression coefficient of different variables with livestock holding parameters

Parameters	Total buffalo	Total cattle	Total goat	Total sonadi	other sheep	Total sheep	Large ruminants	Small ruminants	Total livestock
Age	0.008	0.25**	-0.106*	0.008	0.196*	0.204	0.033*	0.097	0.131
Literacy rate	0.012*	0.007	0.065*	0.54	0.023	0.078	0.019*	0.143	0.162*
Total land	0.074**	0.060**	0.079*	-0.043	0.148*	0.105	0.134**	0.184	0.319**
Uncultivated land	0.157**	0.129**	-0.026	-0.139	0.365*	0.226	0.286**	0.200	0.486**
Cultivated land	0.098**	0.077**	0.212**	-0.028	0.166	0.138	0.175**	0.350*	0.525**

*=P<0.05, ** = P<0.01

CONCLUSION

It can be concluded from the results that young family head kept significantly lower cattle holding as compared to old family head. The correlation of literacy rate with buffalo, goat, large ruminant and total livestock was found to be positive and significant, indicating that literate farmers are shifting from cattle to buffalo and

sheep to goat because these species are more economical than cattle and sheep. The land holding in terms of total cultivated and uncultivated was positive and significantly associated with large ruminant and total livestock population. The results of land holding and literacy rate indicated that the farmers with higher land holding resulted in better economic condition.

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