Original Research Article

LIVESTOCK HOLDING AND TIME SPENT BY FARM WOMEN IN DAIRYING ACTIVITIES IN ANDHRA PRADESH

ABSTRACT

A study was conducted to investigate the involvement of women in dairying activities in Krishna district of Andhra Pradesh. The study involved a total of 225 respondents covering 75 villages. The result revealed that small farm women possessed significantly (P≤0.05) more graded Murrah buffaloes (3.68±0.28), whereas women under medium farm category possessed significantly (P≤0.05) more number of local cows (0.28±0.07), Murrah buffaloes (0.45±0.21) as well as more (P≤0.01) buffalo heifers (1.22±0.14). The milk production (litres per day) (13.25±0.80), consumption (1.48±0.06) and milk consumption by women (0.16±0.07) was observed to be high in medium women dairy farmers in the study area. Milk sale per day was observed to be significantly (P≤0.05) high in small farmers (14.20±1.90). Small farm women (587.00±81.70) obtained more income (rupees/day) through dairying followed by medium (516.34±54.35) and landless (385.66±32.39) farm women. It was observed that women are spending more time on dairy activities in the study area compared to men. The time spent was more on feeding activities.

Key words: farm women, livestock holding, milk production, income, dairying, time spent

INTRODUCTION

Indian economy is primarily agrarian with 68% of its population residing in rural areas and depending directly or indirectly on agriculture for their livelihood. Dairying as an occupation is subsidiary to agriculture and is an important source of livelihood for small

and marginal farmers and landless laborers. Livestock in general and dairying in particular play a vital role in the Indian economy and has the highest potential of generating the income and employment through augmenting productivity of milch animals (Mishra *et al.* 2017). Further besides being a source of income for rural households and rural women, it also ensures nutritional security of the family addressing issues like malnutrition. Rural women often manage complex households and pursue multiple livelihood strategies. Despite the fact women in India do most of the work in animal husbandry yet their contribution has largely been ignored and inadequately acknowledged (Krishna *et al*. 2020). Hence there is a need to document their contribution to dairying. The present study focused on the livestock holding, milk production, gross income of farm women through dairying and time spent by women on different dairy farm activities in Krishna district of Andhra Pradesh.

MATERIALS AND METHODS:

Krishna district of Andhra Pradesh has five animal husbandry divisions. Three mandals were selected from each animal husbandry division and 5 villages from each mandal were selected randomly. Three women dairy farmers were selected from each village based on their land holding capacity (landless-0 acres, small farmer- up to 5 acres, medium farmer - 5-10 acres) resulting in a total of 225 respondents. The data was collected from the women dairy farmers on livestock holding, milk production, consumption, sale of milk, gross income through dairying, and time spent by women on different dairy farm activities. The data was analyzed following the statistical methods according to Snedecor and Cochran (1994). The information obtained was analyzed and interpreted.

RESULTS AND DISCUSSION

The results of the present study shown in Table 1 revealed that the mean livestock holding is more in small women farmers. The farmers in the study area had significantly

(P≤0.01) more graded Murrah buffaloes (3.23±0.13) compared to other livestock. Small farmers possessed significantly (P≤0.05) more graded Murrah buffaloes (3.68±0.28) and more (P≤0.01) buffalo heifers (1.25±0.06), whereas medium farmers possessed significantly (P≤0.05) more number of local cows (0.28±0.07) and Murrah buffaloes (0.45±0.21). The results revealed that small farm women considered dairying as the major subsidiary occupation to agricultural farming. They are also maintaining more graded Murrah buffaloes compared to local animals indicating they are aware of the production potential of superior germplasm. Ongole cattle breed is native of Andhra Pradesh (Vinoo *et al*. 2005, Dharma Rao *et al*. 2021). The major breeding tract and patronage of Ongole cattle includes Ongole, Krishna, Nellore, Godavari and Guntur districts of Andhra Pradesh state (Reddy *et al*.2021). The medium farm women had more passion in maintaining local breed of Ongole cows as well as purchasing pure Murrah buffaloes from their native tract. The findings of the study were similar to Bhati and Upadhyay (2017) who reported that most of the dairy women in Rajasthan reared local breed of cows (Rathi) and buffaloes (Murrah).

The milk production (lt/day) was reported as 10.75, 15.33 and 13.25 in landless, small and medium category, respectively in the present study, where as Sharma *et al*. (2020) reported lower values of 4.27, 5.87 and 7.54 in landless, small and medium category of farmers, respectively in Punjab. It was observed that overall milk production (litres) (13.25±0.80) and consumption (1.48±0.06) was high in medium women dairy farmers (Table 2). Similarly Aparna *et al*. (2016) reported that most of the farm women in Karnataka produced 10-20 litres of milk per day where as Bhati and Upadhyay (2017) reported a higher value of 25-30 litres per day in Rajasthan. The overall average milk consumption (lt/day) was observed to be 1.31 in the present study which was similar to the average value of 1.78 reported by More *et al*.(2020) in Latur district of Maharashtra. In

the present study the milk consumption by women per day (0.16±0.07) was observed to be more in medium farm women. The study revealed that the milk consumption by women was low compared to other family members as well as recommended standards. Hence there is a need to educate the women to improve their milk consumption to combat malnutrition. The overall average milk sale (lt/day) was observed to be 12.19 in the present study which was similar to the average value of 10.59 reported by More *et al*. (2020) in Latur district of Maharashtra. Milk sale per day was observed to be significantly (P≤0.05) high in small farm women (14.20±1.90), followed by medium (12.74±1.13) and landless (9.65±0.81) category. As the small farmers are selling more milk they obtained more income through dairying. The overall, average sale price of milk per litre was observed to be 40.78±0.36 rupees in the study area. The value was higher in landless (41.20±0.69) compared to small and medium farmer category.

The results from the Table 3 revealed that small farmers obtained high (P<0.05) income (620.03±83.88 Rs/day) through dairying, followed by medium (588.75±82.68 Rs/day) farmers and landless (409.15±37.82 Rs/day) in the study area. This might be because small farmers maintained more number of dairy animals, thus attained more income. The farmers of the present study were getting more income through sale of milk than that reported by Bhati and Upadhyay (2017) in Rajasthan. The Overall gross income through sale of manure per day was observed to be 7.77±0.49 rupees in the study area. The gross income through sale of manure per day was observed to be 6.92±0.54, 8.29±0.91and 8.08±1.03 rupees in landless, small and medium farmers, respectively. The Overall gross income through sale of animals per day was observed to be 10.64±1.24 rupees. Medium farmers (15.29±3.03) are getting more (P≤0.01) income followed by landless (9.80±1.47) and small (6.82±1.50) farmers through sale of animals. The Overall gross income through dairying per day in the study area is 539.31±41.51 rupees where as

Sivaji *et al*. (2018) reported a lower value of 206.12 in Guntur and Prakasam districts of Andhra Pradesh The gross income per day was observed to be 409.15±37.82, 620.03±83.88 and 588.75±82.68 rupees in landless, small and medium farmers, respectively.

The study revealed that small farm women category are spending significantly (P≤0.01) more time (hrs/day) in breeding activities (1.66±0.10), housing management (0.86±0.07), milking management (0.78±0.04), processing and marketing management of milk (0.78±0.04) compared to landless and medium category, whereas landless farm women are spending significantly (P≤0.01) more time in feeding activities (2.86±0.21), manure management (0.21±0.01), health care management (0.97±0.07) and more (P≤0.05) time in management of economic aspects (0.92±0.03) when compared to small and medium farmers (Table 4). Whereas men from medium farmer category are spending more time (hrs/day) on majority of the dairy activities compared to landless and small category (Table 5). The time spent was significantly (P<0.01) more in breeding management (1.00±0.07), housing management (0.58±0.06) and calf management (0.16±0.02).

Table 6 revealed that women were spending more time (hrs/day) on dairy animal breeding (1.19±0.06), housing (0.70±0.03), calf rearing (0.31±0.01), milking management (0.67±0.02), and milk processing and marketing of milk (0.67±0.02) than men. Similarly Punam and Indu (2009) reported that women in Haryana were spending more time in milking and milk management. Men were spending more time on feeding (2.76±0.14), manure (0.26±0.00), health care management (1.02±0.04) and economic activities (0.86±0.02) of dairy farm than women in the study area. In contrast Punam and Indu (2009) reported that women were spending more time in feeding and manure management. Overall, it was observed that women are spending more time on dairy

activities in the study area. The above findings are similar to the reports of Yadav *et al*.(2018), in which time spent (man hours per annum) by women and men was observed to be 1530 and 878, respectively. The time spent on feeding activities was more compared to any other activity. Similar trend was observed in all the categories of women and men in the study area.

CONCLUSION

Small farmers possessed significantly (P≤0.05) more graded Murrah buffaloes (3.68±0.28), whereas medium farmers possessed significantly (P≤0.05) more number of local cows (0.28±0.07), Murrah buffaloes (0.45±0.21) as well as more (P≤0.01) buffalo heifers (1.22±0.14).The milk production (13.25±0.80), consumption (1.48±0.06) and milk consumption by women per day (0.16±0.07) was observed to be high in medium women dairy farmers in the study area. Milk sale per day was observed to be significantly (P≤0.05) high in small farmers (14.20±1.90).Small farmers obtained high income (620.03±83.88 Rs/day) through dairying, followed by medium (588.75±82.68 Rs/day) and landless (409.15±37.82 Rs/day) farmers in the study area. It was observed that women are spending more time on dairy activities in the study area compared to men. The time spent was more on feeding activities.

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Table. 1 Livestock holding of women dairy farmers in Krishna district

Particulars		N	Mean± Std. Error	Std. Deviation	F ratio
MURRAH	LANDLESS	75	0.05±0.03[b]	0.32	3.49*
	SMALL	75	0.02±0.02[c]	0.23	
	MEDIUM	75	0.45±0.21[a]	1.87	
	Total	225	0.17±0.07	1.11	
GRADED MURRAH	LANDLESS	75	2.85±0.17[b]	1.48	3.05*
	SMALL	75	3.68±0.28[a]	2.48	
	MEDIUM	75	3.17±0.24[ab]	2.10	
	Total	225	3.23±0.13	2.08	
BUFFALO HEIFERS	LANDLESS	75	0.72±0.10[b]	0.90	4.60**
	SMALL	75	1.25±0.16[a]	1.42	
	MEDIUM	75	1.22±0.14[a]	1.24	
	Total	225	1.06±0.08	1.23	
YOUNG ONES	LANDLESS	75	1.60±0.11	1.01	0.74
	SMALL	75	1.89±0.21	1.88	
	MEDIUM	75	1.70±0.16	1.44	
	Total	225	1.73±0.09	1.49	
BULLOCK	LANDLESS	75	0.00±0.00	0.00	0.93
	SMALL	75	0.06±0.05	0.47	
	MEDIUM	75	0.09±0.06	0.57	
	Total	225	0.05±0.02	0.42	
CB COWS	LANDLESS	75	0.17±0.08	0.70	0.24
	SMALL	75	0.28±0.14	1.23	
	MEDIUM	75	0.25±0.10	0.91	
	Total	225	0.23±0.06	0.97	
LOCAL COWS	LANDLESS	75	0.12±0.05[ab]	0.43	3.95*
	SMALL	75	0.08±0.03[b]	0.27	

	MEDIUM	75	0.28±0.07[a]	0.62	
	Total	225	0.16±0.03	0.47	
HEIFERS	LANDLESS	75	0.00±0.00	0.00	1.53
	SMALL	75	0.05±0.03	0.27	
	MEDIUM	75	0.02±0.01	0.16	
	Total	225	0.02±0.01	0.18	
YOUNG ONES	LANDLESS	75	0.22±0.06	0.58	0.06
	SMALL	75	0.24±0.09	0.80	
	MEDIUM	75	0.26±0.07	0.68	
	Total	225	0.24±0.04	0.69	

N= No. of women dairy farmer**;** * Significant at ($p \leq 0.05$); ** Significant at ($p \leq 0.01$)

Table 2: Milk production, consumption and sale (litres per day) in Krishna district

Particulars		N	Mean	Std. Deviation
Milk production	LANDLESS	75	10.75±0.82	7.18
	SMALL	75	15.33±1.92	16.71
	MEDIUM	75	13.25±1.14	9.92
	Total	225	13.11±0.80	12.05
Milk consumption	LANDLESS	75	1.13±0.05^{b}	0.44
	SMALL	75	1.31±0.06^{ab}	0.55
	MEDIUM	75	1.48±0.06^{a}	0.53
	Total	225	1.31±0.03	0.52
Milk consumption by women	LANDLESS	75	0.04±0.01	0.09
	SMALL	75	0.08±0.02	0.24
	MEDIUM	75	0.16±0.07	0.69
	Total	225	0.10±0.02	0.42
Milk sale	LANDLESS	75	9.65±0.81^{c}	7.02
	SMALL	75	14.20±1.90^{a}	16.52
	MEDIUM	75	12.74±1.13^{b}	9.80
	Total	225	12.19±0.79	11.91
Sale price of milk per litre in rupees	LANDLESS	75	41.20±0.69	6.05
	SMALL	75	40.58±0.59	5.15
	MEDIUM	75	40.57±0.62	5.42
	Total	225	40.78±0.36	5.54

Means with different superscripts in a row differ significantly (P<0.01)

Table 3. Gross income through dairying in Krishna district

Particulars		N	Mean	Std. Deviation	F ratio
Total income through dairying/day in rupees	LANDLESS	75	409.15±37.82	327.54	2.53
	SMALL	75	620.03±83.88	726.45	
	MEDIUM	75	588.75±82.68	716.05	
	Total	225	539.31±41.51	622.77	
Income through sale of milk/day in rupees	LANDLESS	75	385.66±32.39^{b}	280.56	2.93*
	SMALL	75	587.00±81.70^{a}	707.56	
	MEDIUM	75	516.34±54.35^{ab}	470.76	
	Total	225	496.33±34.74	521.15	
Income through sale of manure/day in rupees	LANDLESS	75	6.92±0.54	4.72	0.73
	SMALL	75	8.29±0.91	7.94	
	MEDIUM	75	8.08±1.03	9.00	
	Total	225	7.77±0.49	7.43	
Income through sale of animals/day in rupees	LANDLESS	75	9.80±1.47^{ab}	12.79	4.06**
	SMALL	75	6.82±1.50^{b}	12.99	
	MEDIUM	75	15.29±3.03^{a}	26.26	
	Total	225	10.64±1.24	18.71	

Means with different superscripts in a row differ significantly

* Significant at ($p \leq 0.05$); ** Significant at ($p \leq 0.01$)

Table 4: Time spent(hrs/day) by women on different dairy activities in Krishna district (Mean±S.E)

		N	Mean±S.E	Std. Deviation	F ratio
Time spent by women in breeding activities	LANDLESS	75	0.78±0.47^{c}	56.49	16.55**
	SMALL	75	1.66±0.10^{a}	57.11	
	MEDIUM	75	1.14±0.14^{b}	76.38	
Time spent by women in feeding activities	LANDLESS	75	2.86±0.21^{a}	109.28	6.83**
	SMALL	75	2.78±0.21^{b}	112.06	
	MEDIUM	75	1.88±0.19^{c}	103.53	
Time spent by women in housing management	LANDLESS	75	0.78±0.04^{b}	24.89	12.79**
	SMALL	75	0.86±0.07^{a}	36.38	
	MEDIUM	75	0.47±0.05^{c}	26.99	
Time spent by women in manure management	LANDLESS	75	0.21±0.01^{a}	8.30	9.97**
	SMALL	75	0.18±0.01^{b}	6.90	
	MEDIUM	75	0.12±0.01^{c}	7.41	
Time spent by women in calf management	LANDLESS	75	0.34±0.01^{b}	8.92	7.65**
	SMALL	75	0.34±0.01^{a}	9.84	
	MEDIUM	75	0.24±0.02^{a}	12.88	
Time spent by women in milking management	LANDLESS	75	0.72±0.03^{b}	16.05	13.07**
	SMALL	75	0.78±0.04^{a}	25.71	
	MEDIUM	75	0.53±0.02^{c}	12.09	
Time spent by women in health care management	LANDLESS	75	0.97±0.07^{a}	38.44	2.36**
	SMALL	75	0.81±0.05^{b}	29.01	
	MEDIUM	75	0..49±0..05^{c}	26.16	
Time spent by women in processing and marketing of milk	LANDLESS	75	0.72±0.03^{b}	16.05	13.65**
	SMALL	75	0.78±0.04^{a}	25.71	
	MEDIUM	75	0.52±0.02^{c}	12.09	
Time spent by women in economic aspects of dairy farming	LANDLESS	75	0.52±0.05^{b}	28.68	2.93*
	SMALL	75	0.64±0.14^{a}	73.53	
	MARGINAL	75	0.32±0.05^{c}	28.59	

Means with different superscripts in a row differ significantly

* Significant at ($p \leq 0.05$); ** Significant at ($p \leq 0.01$)

Table 5: Time spent (hrs/day) by men on different dairy activities

		N	Mean±S.E	Std. Deviation	F ratio
Time spent by men in breeding acitivities	LANDLESS	75	0.32±0.04^{c}	77.66479	25.11**
	SMALL	75	0.84±0.08^{b}	42.32031	
	MEDIUM	75	1.00±0.07^{a}	39.65198	
Time spent by men in feeding acitivities	LANDLESS	75	2.33±0.24	127.81807	2.21
	SMALL	75	2.91±0.25	132.09071	
	MEDIUM	75	3.05±0.26	138.61438	
Time spent by men in housing activities	LANDLESS	75	0.32±0.04^{b}	25.65801	5.23**
	SMALL	75	0.42±0.05^{ab}	29.20987	
	MEDIUM	75	0.58±0.06^{b}	34.51726	
Time spent by men in manure management	LANDLESS	75	0.25±0.01	5.89549	1.00
	SMALL	75	0.27±0.00	4.82045	
	MEDIUM	75	0.27±0.00	4.64642	
Time spent by men in calf management	LANDLESS	75	0.04±0.01^{c}	5.99775	14.58**
	SMALL	75	0.05±0.01^{b}	7.94674	
	MEDIUM	75	0.16±0.02^{a}	11.37010	
Time spent by men in milking management	LANDLESS	75	0.28±0.05	26.11478	2.36
	SMALL	75	0.30±0.04	25.77624	
	MEDIUM	75	0.42±0.04	25.61003	
Time spent by men in health care management	LANDLESS	75	1.06±0.06	35.92121	0.69
	SMALL	75	0.96±0.06	34.58532	
	MEDIUM	75	1.05±0.07	37.79532	
Time spent by men in processing and marketing	LANDLESS	75	0.28±0.05	26.11478	2.12
	SMALL	75	0.30±0.04	25.77624	
	MEDIUM	75	0.42±0.04	25.61003	
Time spent by men in economic aspects of dairy farming	LANDLESS	75	0.92±0.03	20.10042	2.65
	SMALL	75	0.85±0.03	17.83634	
	MARGINAL	75	0.81±0.03	14.78616	

Means with different superscripts in a row differ significantly

* Significant at ($p \leq 0.05$); ** Significant at ($p \leq 0.01$)

Table 6: Time spent (hrs/day) by women and men on dairy activities

Particulars		N	Mean±SE	Std. Deviation
Time spent on breeding activities	WOMEN	75	1.95±0.06	65.00
	MEN	75	0.72±0.04	55.97
Time spent on feeding activities	WOMEN	75	2.51±0.12	111.14
	MEN	75	2.76±0.14	133.63
Time spent on housing management	WOMEN	75	0.70±0.03	31.37
	MEN	75	0.44±0.03	30.57
Time spent on manure management	WOMEN	75	0.17±0.00	7.85
	MEN	75	0.26±0.00	5.16
Time spent on calf management	WOMEN	75	0.31±0.01	10.99
	MEN	75	0.08±0.01	9.23
Time spent on milking management	WOMEN	75	0.67±0.02	19.83
	MEN	75	0.34±0.03	25.99
Time spent on health care management	WOMEN	75	0.76±0.03	36.07
	MEN	75	1.02±0.04	35.82
Time spent on processing and marketing of milk	WOMEN	75	0.67±0.02	25.99
	MEN	75	0.33±0.02	25.20
Time spent on economic aspects of dairy farming	WOMEN	75	0.49±0.05	17.81
	MEN	75	0.86±0.02	38.32

N= No. of women dairy farmer