

GENDER AND EMPLOYMENT IN TRADITIONAL CATTLE PRODUCTION SYSTEM IN UPLAND AND LOWLAND OF EAST JAVA

Edi Basuno and Muhammad Sabrani¹

ABSTRACT

Within the framework of the ACIAR nutrition reproduction studies on cattle in East Java, socio-economic section conducted a survey on gender and employment. The locations were grouped into lowland and upland areas. Sixty farmer's households in each location were selected and women were interviewed. The results showed that economically active women population was 47,06% and 48,80% from the total population in lowland and upland respectively. A great variation was noticed in women's participation across work types in cattle production but the dominant involvement was in feeding, feed collection, cleaning and herb medicine preparation. By age group this participation rate was highest for 13-35 years old group and lowest among >55 years old. By income group the trend of participation increased from low asset to high asset, especially in lowland. The great variation in the rate of participation of women in village cattle reproduction showed flexibility in women's labour use across work types. This should be interpreted that women's labour is related to teamwork of the whole family.

Key words: Gender, Employment, Traditional system.

INTRODUCTION

In the traditional farm economy, land and livestock are the major farm assets. In this context, cattle play a very important role in village farm production because of its synergistic interaction in the farming system to sustain small farm enterprise (Mulyadi, *et al*, 1995). To support this activity, labours mostly are supplied by the farm family (Mulyadi, 1984).

The direct involvement of women in cattle production was prominent in some aspects of the work. The options however, was appropriate with the nature of work and socio-economic condition of the community (Anonymous, 1994). Therefore to understand better gender issues is very important to increase participation and productive employment in cattle production.

This study is a part of the nutrition and reproduction research on cattle of collaborative ACIAR project and it has the objective to give a comprehensive perspective on gender issues and employment in village cattle production.

MATERIALS AND METHODS

This research was carried out in groups of villages, the upland and lowland. The locations were Tongas and Dadapan as lowland area and Wajak village as upland area of East Java. These villages were selected because the biological research of the nutrition and reproduction studies of ACIAR was in progress.

A survey technique on women was followed by which all information about women involvement in cattle production was collected from village women. Repeated discussion in small groups and individually was conducted.

A sample size of 60 farm house holds in lowland and another 60 in upland areas were allocated for the survey.

RESULTS AND DISCUSSION

The report of results is grouped into 4 parts. The family labour supply, women's participation in cattle production, women's

¹ Research Institute for Animal Production, Ciawi, PO Box 221, Bogor, Indonesia

Table 1. Family size

Asset group	Sample (N)	Total population	Family size (head)
Upland			
Low asset	43	172	4.00 (1.38)
Middle asset	11	47	4.27 (1.38)
High asset	6	27	4.50 (1.38)
Average	60	246	4.1
Lowland			
Low asset	43	150	3.39 (1.12)
Middle asset	13	56	4.31 (1.27)
High asset	4	13	3.25 (1.25)
Average	60	219	3.65

Note: Figures in bracket is standard deviation

participation by age group and women's

1. The family labour supply

In village cattle production, labour mostly supplied by family member to perform activities in forage cutting, carrying, feeding, watering, herb medicine preparation and others. Table 1 and 2 present the average family size and labour force ratio. The average family size was 4.1 persons in upland and 3.65 persons in lowland. In term of available labour as showed by labour force ratio (ratio between economically active and the total family member), upland area showed higher labour force ratio (84.96%) as compared to lowland (77.63%). The economically active member is all members of 13 years old and above.

The labour force ratio in both areas indicates an increasing trend as it moves from low asset to high asset group. In upland it increases from 81.98% to 100% while in lowland it moves from 76.67% to 90.91%. In relation to women labour force ratio, it increases from low asset to high asset group in upland, but it declines in lowland.

Based on population data in each location, the number of women 48.80% of the total sample household population in upland and 47.06% in lowland.

2. Women's participation in cattle production

If population between 13 and 65 years old is considered as economically active in cattle production, the potential labour forces of women was 48.80% in upland and 47.06% in lowland from total sample population.

Table 3 and 4 summarize percentage of male and female involvement in each kind of activities. The data shows percentage of sample that was actively involved in each work. The labour consists of husband, wife, and other male and female family member.

Great variations were noticed among family labour involvement across types of work. Wife involvement across work types varied from 10.17% (buy or sell cattle) to 83.17% for feeding cattle in lowland. While in upland it varied from 1.79% (toe trimming) to 51.79% for feeding cattle. However, the rate of involvement of other female family member was relatively lower. The data indicates that the dominant involvement of women was in feeding cattle, feed collection, cleaning and herb medicine preparation. In lowland area, women involvement was high in heat detection.

Although gender division and responsibility was observed those work and responsibility are carried out for the entire family member. Therefore, mutual understanding in family labour use in cattle

Table 2. Sample labour force ratio in village cattle production.

	Family member sample		Labour force ratio (%)
	Total	Economically active	
Upland area			
Low asset			
Male	88	75	85.23
Female	84	66	78.57
Sub total	172	141	81.98
Middle asset			
Male	20	19	95.00
Female	27	22	81.48
Sub total	47	41	87.23
High asset			
Male	13	13	100.00
Female	14	14	100.00
Sub total	27	27	100.00
Total	246	209	84.96
Lowland area			
Low asset			
Male	78	60	76.92
Female	72	55	76.39
Sub total	150	115	76.67
Middle asset			
Male	31	24	77.42
Female	25	21	84.00
Sub total	56	45	80.36
High asset			
Male	6	6	100.00
Female	7	4	57.14
Sub total	11	10	90.91
Total	219	170	77.63

production is the core of the problems in understanding the degree of women involvement. Both male and female members of a family should know how they might gain or lose individually and collectively from farming activities. Thus, the participation of women should be observed in the framework of a team rather than as individual. This fact was proved by the great variability of involvement across work types. A striking difference of female work participation across work types showed an ever-changing labour use pattern in teamwork. The variation

also showed flexibility in women's participation.

In some types of work, women involvement was very high which meant that it could improve efficiency because they appropriately fit with the nature of female labour requirement.

3. Women's participation by age group

Data in Table 5 and 6 indicate that 13-35 years old group had high work involvement rate while group of greater than 55 years old was the lowest. Again, great variation occurred across work types.

Table 3. Rate of male and female involvement in village cattle production in lowland area.

Activities	Husband	Wife	Other farm member	
			Male	Female
Feed collection	98.31	66.10	20.45	16.13
Feeding	96.61	83.05	25.00	22.38
Bathing	93.22	27.12	20.45	6.45
Cleaning barn	83.05	74.58	20.45	29.03
Health care	89.83	16.95	20.45	-
Parturition	96.61	38.98	15.91	3.23
Mating	93.32	13.56	18.18	-
Heat detection	94.92	49.15	18.18	-
Toe trimming	49.15	11.86	15.91	-
Herb preparation	69.49	71.19	13.64	6.45
Buy or sell	91.13	10.17	11.36	-
Call for Inseminator	71.19	10.17	15.91	-

These findings also teach us that in any introduction of new technologies or extension program, this active age group should be given a special attention. Low participation rate in certain work types such as heat detection, mating of cow and cow parturition to increase cow reproductivity need to be improved.

4. Women's participation by asset group

In this part of analysis, sample farmers were group into low, middle and high asset group. A clear trend was observed in lowland area

that the rate of participation of women increased as asset moved from low to high. In contrast, that in upland area the opposite occurred. These differences however, could be differences in socio-traditional condition and ethnic differences between Madurese (lowland) and Javanese in upland. Women in high asset group had low involvement in cattle production as compared to low asset group in upland area (Table 7 and 8). In relation to this, the structure of overall employment should be studied carefully.

Table 4. Rate of male and female involvement in village cattle production in upland area

Activities	Husband	Wife	Other family member	
			Male	Female
Feed collection	100	46.43	64.29	8.57
Feeding	96.55	51.79	47.62	22.86
Bathing	96.55	7.14	50.00	8.57
Cleaning barn	84.48	41.07	50.00	17.14
Health care	55.17	10.71	30.95	2.86
Parturition	81.03	8.93	40.48	2.86
Mating	89.66	3.57	38.10	5.71
Heat detection	74.14	7.14	30.95	5.71
Toe trimming	39.66	1.79	23.81	2.86
Herb preparation	68.97	35.71	30.95	5.71
Buy or sell	62.07	3.57	26.19	2.86
Call for inseminator	51.72	3.57	23.81	2.86

Table 5. Female involvement in cattle production by age group in lowland area

Activities	Age group (year)			Total (%)
	13 - 35	35 - 55	>55	
Feed collection	40.68	25.42	-	66.10
Feeding	47.46	32.20	3.39	83.05
Bathing	18.65	8.47	-	27.12
Cleaning barn	38.99	32.21	3.38	74.58
Health care	10.17	6.78	-	16.95
Parturition	27.12	11.86	-	38.98
Mating	6.78	6.78	-	13.56
Heat detection	28.81	18.64	1.70	49.15
Toe trimming	8.47	3.39	-	11.86
Herb preparation	42.38	27.12	1.69	71.19
Buy or sell	6.78	3.39	-	10.17
Call for inseminator	5.09	5.08	-	10.17

5. Family labour allocation

Table 9 presents family labour allocation for crops, livestock and other activities at two research locations. Livestock component absorbed the highest man-days compared to crops and other components. This is due to the nature of livestock component which is a routine daily activities. The fact shows that male is dominant in agricultural labour allocation. For livestock component it was 136.10 man-days for male, 88.06 man-days for female and 20.15 man-days for children in lowland area. In upland it was 120.62, 75.05 and 33.05 man-days

respectively for male, female and children. Livestock component provided employment more for male and children if compared to crops and others.

If labour productivity is calculated, labour productivity in livestock activity was lower than crops. It was Rp. 211,500/244.31 = Rp. 865.70/ man-day in lowland and Rp. 853.93/man-day in upland. These figures were lower compared to crop productivity i.e. Rp. 14,197.53/ man-day in lowland and Rp. 5,802.72/ man-day in upland. Data on income is presented in Table 10.

Table 6. Female involvement in cattle production by age group in upland area

Activities	Age group (year)			Total (%)
	13 - 35	35 - 55	>55	
Feed collection	25.00	19.64	1.79	46.43
Feeding	21.43	28.57	1.79	51.79
Bathing	1.79	5.36	-	7.14
Cleaning barn	17.86	19.64	3.57	41.07
Health care	3.57	7.14	-	10.71
Parturition	5.36	3.57	-	8.93
Mating	-	3.57	-	3.57
Heat detection	3.57	3.57	-	7.14
Toe trimming	-	1.79	-	1.79
Herb preparation	21.43	10.71	3.57	35.71
Buy or sell	1.79	1.78	-	3.57
Call for inseminator	-	1.79	1.78	3.57

Table 7. Rate of female involvement in lowland village cattle production by asset group

Activities	Asset group					
	Low		Middle		High	
	A	B	A	B	A	B
Feed collection	65.91	13.64	54.55	-	75.00	66.67
Feeding	79.55	18.18	81.82	16.67	100.00	66.67
Bathing	27.27	4.55	9.09	-	50.00	23.33
Cleaning barn	70.45	-	81.82	-	100.00	66.67
Health care	22.73	-	18.18	-	-	-
Parturition	38.64	-	-	-	75.00	33.33
Mating	13.64	-	9.09	-	25.00	-
Heat detection	47.73	-	27.27	-	75.00	-
Toe trimming	15.91	-	9.09	-	-	-
Herb prep.	68.18	4.55	63.64	-	75.00	33.33
Buy or sell	11.36	-	-	-	25.00	-
Call for inseminator	11.36	-	-	-	25.00	-

Note: A = wife; B = other female

The overall labour productivity was Rp. 3,747.47/ man-day in lowland and Rp. 2,291.09/ man-day in upland. This productivity is lower than wages in non agricultural sector.

CONCLUSION

Most work in village cattle production system is self-generating employment. Various roles of men and women, however are involved as a team work in this kind of self generating

Table 8. Rate of female involvement in upland village cattle production by asset group

Activities	Asset group					
	Low		Middle		High	
	A	B	A	B	A	B
Feed collection	55.81	5.00	18.18	10.00	-	16.67
Feeding	53.49	20.00	36.36	30.00	33.33	16.67
Bathing	9.30	5.00	-	10.00	-	16.67
Cleaning barn	48.84	20.00	18.18	10.00	16.67	16.67
Health care	11.63	-	-	10.00	-	-
Parturition	11.63	-	-	10.00	-	-
Mating	4.65	5.00	-	10.00	-	-
Heat detection	6.98	5.00	9.09	10.00	-	-
Toe trimming	2.33	-	-	10.00	-	-
Herb prep.	41.86	-	18.18	10.00	-	16.67
Buy or sell	4.65	-	-	10.00	-	-
Call for inseminator	-	-	9.09	10.00	-	-

Note: A = wife; B = other female

Table 9. Family labour allocation per year (man-days)

Description	Male	Female	Children	Total
Low land				
Crops	56.80	15.10	4.30	76.20
Livestock	136.10	88.06	0.15	244.31
Others	21.75	12.10	-	33.85
Total	214.65	115.26	24.45	354.36
Up land				
Crops	112.65	48.10	1.90	162.65
Livestock	120.62	75.05	33.05	228.72
Others	39.20	5.21	-	44.41
Total	272.47	128.36	34.95	435.78

employment. To understand the degree of involvement is important for the introduction of new technologies

Base on high percentage of female labour, the improved women's role in cattle production and marketing can be considered as family dynamics which is important in increasing family asset. This fact is shown by higher rate of women's participation as asset

moves from low to high asset groups in low land area. The family dynamics is higher in lowland as compared to upland. This is due to different ethnic group where in lowland Javanese dominates by Madurese and in upland. Therefore, if gender issue is taken into development consideration, the difference in ethnic response to employment should be given a special attention.

Table 10. Average family income and expenditure (Rp)

Descriptions	Low land	Up land
I. Receipts		
Food crops	819,352 (61.70)	648,300 (55.28)
Tree crops	262,500 (19.77)	295,513 (25.19)
Livestock	211,500 (15.93)	195,312 (16.65)
Others	34,600 (2.60)	33,600 (2.88)
Sub total	1,327,952 (100)	1,172,725 (100)
II. Expenditures		
Crops	142,700	86,512
Livestock	21,300	7,560
Household:		
- Food	675,300	621,800
- Housing	45,100	23,900
- Education	46,700	14,600
- Health	35,310	26,100
- Others	191,900	124,300
Sub total	1,158,310	904,772
III. Surplus	169,642	267,953

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