Research Article

Peasant Women Contribution in Adegen Beef Cattle Farming Partnership

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Abstract | Well-being issues faced by farmer households cause farmers to try various ways to meet their family's needs. One way is to involve family members, especially wives, in economic activities. We conduct this research as a prior study about women's inclusion in forest-dependent communities that highlight women's productivity and the contribution of women's income to beef cattle farmers in Karangtekok, Baluran National Park, Situbondo, East Java. The scope of this research is limited to women registered as residents of Karangtekok and involved in the management or raising activities of beef cattle with the *adegen* scheme. Karangtekok Hamlet, Situbondo, Indonesia, was deliberately chosen as the research site, considering the sociocultural characteristics representing a household-scale farming community. Karangtekok, which occupies the buffer area of Baluran National Park, carried out cattle farming traditionally but involved profit-sharing cooperation on a household scale. We obtained 50 peasant women involved in *adegen* beef cattle farming as respondents in this study through Quota Sampling. We analyze the data by descriptive qualitative analysis. The results show that wives are productive in households, including on-farm, off-farm, and non-farm sectors. The contribution of wives who perform productive roles is essential. It is at 29.06%, with an outpouring labor of as much as 78,128 man-days/year and a productivity level of 112,515 IDR per man-day.

Keywords | Gender Role, Livestock, Workforce, Rural Communities, Social Inclusion

Received | January 30, 2023; **Accepted** | February 20, 2023; **Published** | March 25, 2023
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Citation | Azizah S, Latifah SI, Djunaidi IH, Wati AM, Rachmawati A, Hamidah S (2023). Peasant women contribution in adegen beef cattle farming partnership. Anim. Vet. Sci. 11(5): 725-731.
DOI | http://dx.doi.org/10.17582/journal.aavs/2023/11.5.725.731
ISSN (Online) | 2307-8316

INTRODUCTION

Most people who live and depend on the forest for their livelihood are still in the poor category. Based on BPS 2021 data, 36.7% of the 25,863 villages located around forest areas are categorized as poor. In addition, a portrait of critical land in Java shows that 472 thousand ha of the 2.1 million ha of critical land is located in forest areas (PPID Kementerian Lingkungan Hidup dan Kehutanan, 2022). Other data also shows that of the 1,728 villages with a social forestry program, most are developing category villages, namely 1,286 villages, 276 villages in the disadvantaged category and only 86 villages in the independent category. The remaining 80 villages have no village development index (BPS, 2020a). It is particularly concerning in Java Island because it has contributed to 52% of the national poverty population. Based on these data, the government's forest management policies must be right on target without harming the people living around the forest. Every function of a forest in a place affects the procedures or models of forest management that affect the pattern of use for the surrounding communities. In determining forest use policies, the government must consider the people who depend on the forest for a place to live and

their necessities of life.

The livestock business is one of Indonesia's agricultural sectors, which is still an option for improving the household economy for people in rural areas. According to the 2018 Inter-Census Agricultural Survey (BPS, 2020b), the number of livestock households in Indonesia reached 13.56 million. The participation of labor absorbed in the livestock sector is dominated by domestic workers, meaning that a farmer involves several family members in raising livestock. Smallholder farmers who practice hereditary and yet-to-be commercially oriented maintenance systems dominate Indonesia's beef cattle farming business. The lack of information related to labor absorption in the livestock sub-sector is an obstacle to projecting the welfare of the agricultural community. In fact, according to Fajri et al. (2016), the scale of the business determines the amount of labor used. However, family labor allocation still needs to be more effective because the main focus is on other jobs as the primary source of income for farmers, so they reduce the time allocation for raising beef cattle.

Family labor is a source of family labor in agriculture, which includes all human, animal, and machine labor (Abdi et al., 2014). The decision to work or not is related to Adam Smith's work allocation theory. Working will generate wages, increasing income that can buy consumer goods that provide satisfaction and vice versa. This statement is reinforced by Ehrenberg and Smith in Budiantari and Rustariyuni (2013), stating that the decision to work must take into account activities that others cannot replace, such as the allocation of time for eating, sleeping, and others. Scope based on neoclassical labor theory assumes that an individual maximizes utility by selecting farm hours, off-farm labor, and leisure time such that, at the optimal level, the marginal utility of these hours is equal (Donnellan and Hennessy, 2012). Individual maximizes utilization by adhering to budgetary and time constraints. The total time available to farmers consists of agricultural, off-farm, and leisure time.

Many of the time restraints women encounter result from social and cultural expectations regarding the right ways for various individuals to spend their time (Pierotti et al., 2022). Evaluating changes to reallocate labor concerning the social logic of driving time utilization and labor allocation is vital. Intrahousehold labor discussions are about maximizing efficiency or productivity and preserving social hierarchies, duties, and responsibilities.

The *adegen* beef cattle farming for the people of Situbondo has become a tradition. Especially in Karangtekok, the community does this activity as a side business on a household scale which involves 1 - 4 workers. Located in the west of Baluran National Park as a buffer area, the pattern of livestock rearing by the Karangtekok community is semi-extensive by utilizing the Jungle Zone of Baluran National Park for grazing (wild grazing). Residents' livelihoods are farmers, fishermen, traditional farmers, crafter workers, traders, civil servants, and retirees (Siswanto, 2010). The types of plants cultivated by residents on agricultural land in villages around the area are rice, corn, and spices.

The male population in Sumberwaru Village is 4,531 people and 4,728 women, with a sex ratio of 95.83 (BPS, 2020). Although the number of women is higher than men's, the quality of life of women is estimated to be lower than that of men. The quantitative potential of women's human resources has yet to be balanced with the qualitative potential proportionally. Although several Indonesian women have shown that they can compete and make an equally enormous contribution in various fields, the Indonesian women who have been unable to show their potential and identity optimally are many more because of structural, cultural, and natural limitations.

The concept of gender differences is often equated with the concept of gender as social construction by people's understanding. The existence of women in the domestic space makes the perception of women as the second human, especially in married life. It is due to the assumption that women's abilities and reasoning are less than perfect than men's. In comparison, domestic space is only a role, routine activity that anyone can do or replace, so it is not a woman's nature (Ar, 2015). Even in a household business, the decision to determine the types of productive activities carried out by women cannot be separated from the decisions of men. It is to Fitriyah and Tridakusumah (2020) that most women in rural areas have jobs in the agricultural sector because they follow their husbands. It causes the differentiation of roles, functions, and responsibilities of men and women in the social context, both in the public sphere and even in the domestic sphere in the family (Mulyadi, 2014). Researchers have well documented the socio-economic factors related to traditional cattle farming, while aspects of women's inclusion and gender perspectives on the *adegen* households are poorly understood. We conduct this research as a prior study about women's inclusion in forest-dependent communities that highlight women's productivity and the contribution of women's income to beef cattle farmers in Karangtekok, Baluran National Park, Situbondo, East Java. The scope of this research is limited to women registered as residents of Karangtekok and involved in the management or raising activities of beef cattle with the *adegen* scheme, either as financiers or farmers. This system was included as a criterion for the study population because it has become a tradition in Karangte-

kok Hamlet. Generally, the practice is similar inside the community. We expect the study results to be a part of reviewing gender aspects at the research site and become a reference for the development plan for the quality of the workforce in the community.

MATERIALS AND METHODS

The study was a descriptive quantitative survey investigating economic contribution and the productive role of wives to beef cattle farmer households in Karangtekok, Baluran National Park, Situbondo, East Java. We conduct the research in Karangtekok, Banyuputih District, Situbondo Regency. The research location was chosen purposively by considering the high number of beef cattle farmer households and the involvement of women in domestic business. The subjects in this study were women registered as residents of Karangtekok and involved in managing or raising *adegen* beef cattle. No recent secondary data was found or related to the study population, namely peasant women of *adegen* farming. In order to capture a comprehensive description, we purposely selected qualified respondents found at the research location (Quota Sampling), so we found fifty peasant women.

Adegen, in this study, is defined as a farming partnership pattern involving two or more parties, namely the investor and the trustee, with a profit-sharing system, *Maro*. It involves an unwritten contract agreed upon by the stakeholders in a simple agreement. *Maro* refers to a profit-sharing system in which the allocation of proceeds from the sale of livestock is the same between each party (50:50). The distribution is done indirectly with the method of calf ownership resulting from the crossbreed divided in a relay between farmers and investors. Women's contribution to selling decisions is made through discussions with husbands or male family members who communicate directly with investors. The profit generated will usually be managed directly by the peasant woman after deducting some of the expenses from managing and selling cattle. Men only ask for a small share for daily transportation, buying cigarettes and socializing at local stalls with fellow male residents.

Data were analyzed descriptively and using simple tabulation. The formula is necessary to calculate household income, income contribution, labor outpouring, and economic productivity. According to BPS in Juliani and Fatmasari (2021), household income is the earnings received by the household concerned, both from the head of the household and the household members. Household income can come from remuneration for labor production factors (wages and salaries, profits, bonuses), capital remuneration (interest, profit sharing), and the income derived from gifts from other parties (transfers).

Household income received by cattle rancher households from their livestock business and outside the cattle farm. The formula for household income, according to Rahim and Hastuti (2008), is as follows:

Prt = P1 + P2 + P3 + P4

Where:

Prt = Household income (IDR)
P1 = Livestock business income (IDR)
P2 = Farming income (IDR)
P3 = Off farm income (IDR)
P4 = Non-farm income (IDR)

According to Worldbank.org (2022), the World Bank classifies the world's economies into four income categories: poor, lower-middle, upper-middle, and high-income. The classifications are based on the preceding year's GNI per capita (2021). Utilizing the Atlas method's conversion factors, GNI measures are given in United States dollars (USD). The four groups of income per capita converted to IDR according to the latest exchange rate are as follows:

- High-income group if the average annual per capita income exceeds IDR 195,939,751.50.
- Upper-middle income group is when the average annual per capita income is between IDR 63,155,848.00 and IDR 195,939,751.50.
- The lower-middle income category is characterized by an annual per capita income between IDR 16,113,416.40 and IDR 63,133,137.00.
- If the annual per capita income is less than IDR 16,098,579.00, then the group has a low income.

The contribution of household income to the beef cattle business is calculated by the formula proposed by Fajri (2020):

$$Y = \frac{\text{Beef cattle business income (IDR)}}{\text{Total household income (IDR)}} \times 100\ \%$$

The contribution of beef cattle business income to household income is analyzed by the criteria from the opinion of Pratiwi and Haryastuti (2016) are used as follows:

- If the income contribution is 25%, the total income of the beef cattle business is small
- If the income contribution is >25–49%, the total income from the beef cattle business is moderate
- If the income contribution is >49–75%, the total income from the beef cattle business is large
- If the income contribution is >75%, the total income of the beef cattle business is huge

Meanwhile, the contribution of women's income to household income is calculated by the formula proposed by Mesra (2019):

$$\text{Wives income contribution} = \frac{\text{Wives' Income (IDR)}}{\text{Total household income (IDR)}} \times 100\%$$

- If the contribution is 50%, the contribution is small
- If the contribution is > 50%, the contribution is large

The equivalent measure of a male working day using a conversion factor according to Aisyah and Wisaptiningsih (2019) is 0.75 man-day for 8 hours of work for adult women workers over 15 years old. So that the calculation of the outpouring of women workers in this study is as follows:

$$\text{Outpouring of women workers} = \frac{\text{Working time allocation (hour)}}{\text{8 hours}} \times 0{,}75$$

Labor productivity is the ratio of resources used (inputs) and the number of goods and services produced (outputs). Measurement of productivity is carried out economically using the formula proposed by Tatipikalawan (2012).

$$\text{Economic productivity of labor} = \frac{\text{Beef cattle business income (IDR)}}{\text{Labor outpouring (man-day)}}$$

RESULTS AND DISCUSSION

Farmers have a productive age, an average of 44 years, with an age range of 25-39 years by 48%. The education level of farmers is still low; as many as 64% of farmers are elementary school graduates. It is due to the common understanding of education's importance and the high poverty level in the past. As many as 82% of farmers have several household dependents, as many as 1-2 people. The livestock business experience of farmers is 30%, which is between 10-20 years which shows that many farmers have experience cultivating beef cattle business. Most farmers have carried out cattle maintenance in relatively large numbers. On average, breeders keep beef cattle from as much as 0.25 UT (equivalent to a calf) to 6 UT (equivalent to 6 adult cows) which is about 54%.

Adegen, apart from being a source of livelihood, has become a tradition and forms social identities inside the Karangtekok community. Such a "maro" profit-sharing system (50:50) is considered beneficial for both parties and has been accepted by the community in the same proportions from generation to generation. They save their assigned calf from becoming a mature cow, considered an asset. They believe that "cows are what we eat," which means that farming revenue is the main source of income for buying necessities and that they are their most important saving for building houses and other needs. The greater number of livestock managed by individuals or families will affect their social status regarding trustworthiness. In contrast, those who cannot manage them can be considered outcasts in the neighborhood.

The people of Karangtekok Hamlet consider women religiously sacred objects that must be looked after. When women are married, they are only at home doing household chores; if they are working, women are only active inside the hamlet or familiar environment. Farm workers have limited job offers in the dry season. *Adegen* is important in providing housewives and unemployed peasant women with productive activity inside their own homes.

The beef cattle business consists of nine activities: taking fodder forage, grazing, maintaining cages, feeding, drinking, controlling disease, caring for livestock, breeding cattle, and marketing. All respondent farmers use labor in the family to carry out beef cattle business activities. Based on the study's results, the average beef production for profit-sharing cattle farmers in Karangtekok is 682.5 kg live weight per year, with an average selling price of 23,076.92 IDR per kg, divided proportionally 50:50 between the owner and the raiser so that the average income of respondent farmers is 7,875,000 per year. Although the revenue is insignificant, farmers minimize the costs incurred by beef cattle farmers in Karangtekok through the feed. Farmers only use forage types of food in agricultural waste, legumes, and grasses that grow in rice fields and forests. In addition, the need for feed in the semi-extensive rearing pattern is met mainly by wild grazing in the Jungle Zone of Baluran National Park. Raising livestock in Karangtekok is generally breeding, where the products marketed are weaning calves. Farmers prefer Ongole crossbred cattle in selecting livestock breeds because they believe it to be more adaptive to the environment and resistant to heat stress.

All family members collect household income from the head of the family, the wife, children, and other family members. Farmer household income comes from the income on the farm (livestock and farming), off-farm, and non-farm. The income of cattle farmers is not limited to livestock businesses only. Edy and Tatang (2009) state that income from dry land farming, among others, is obtained from food crop farming, horticulture, and perennial/annual crops and livestock. Off-farm income comes as working wage as farm laborers, renting out land, renting livestock, or renting agricultural equipment. Meanwhile, family obtains non-farm income from outside the agricultural sector, such as construction workers, home industry businesses, trading, et cetera.

Income other than the sale of beef cattle but still within the scope of agriculture obtained by respondent farmers is as a rice field farmer and poultry business with an income of 3,066,000 IDR per year. Farm workers who rent out their land or livestock have off-farm income. The income from the off-farm is 4,362,000 IDR per year. Respondents earn non-farm income from working as traders, forest product crafters, civil servants, retirees, private employees,

Table 1: Household income of *adegen* beef cattle farmers

No	Description	Income (IDR/Year)	Sector contribution (%)	Labor contribution (%)
1	Husband			70.94
	Cattle business	3,084,600	7.44	
	On farm	2,040,00	4.92	
	Off farm	819,000	1.97	
	Non-farm	17,997,600	43.40	
	Total	41,471,700		
2	Wife			29.06
	Cattle business	4,790,400	28.19	
	On farm	966,000	5.69	
	Off farm	3,543,000	20.85	
	Non-farm	7,692,000	45.27	
	Total	16,991,400		
3	Child	0		
Total Average Income/Year		58,463,100		
Total Average Income/Month		4,871,925		

Table 2: Economic productivity of women workers

Description	Total income per year (IDR)	Labor outpouring per year (man-day)	Economic productivity (IDR/man-day)
Beef cattle	4,790,400	78.13	61,315
On farm	966,000	9.58	100,825
Off farm	3,543,000	16.15	219,367
Non-farm	7,692,000	47.56	161,718
Total	16,991,400	151.01	112.515

domestic workers, woodmen, fishermen, construction workers, motorcycle taxi drivers, and traveling sellers, with an income of 25,689,600 IDR per year. Table 1 presents farmer household income.

Income from the livestock business has a small contribution of 13.47 percent. It causes respondent farmers to make cattle businesses a livelihood in meeting family needs. It happens because the profit-sharing system implemented by most farmer households reduces income value. However, this system only requires a little financing because investors have provided livestock seeds. Farmers minimize feed expenditures by utilizing the potential fodder forages available in agricultural wastes and natural grasslands. It follows Isyanto (2017), although fattening beef cattle is a side business for farm workers, they need to devote a lot of working time.

Table 1 shows that the average household income of respondent farmers is 4,871,925 IDR per month, with details of the husband's income of 3,455,975 IDR per month while the wife's income is 1,415,950 IDR per month. Based on the classification of income levels by Rakasiwi (2021), the income of men is identified as the high-income group, while women's income classifies as the low-income group. It is because most farmers do work that depends on the physical condition of the workforce and natural conditions, and some types of work are seasonal and have a fluctuating demand for labor. For example, agricultural laborers, wood seekers, and construction workers.

Based on Table 1, we can also see that the husband's income dominates the household's income. Meanwhile, wives only contributed 29.06%. The contribution of wives in this study is small because it is below 50%. The wage received, or the income received by wives in this household is less than the husband's income, which causes the contribution of wives in this household to be low. However, the results of this study were higher than those of Puspitasari et al. (2013), which showed the contribution of wives to family income of 11.30%, and the research of Fitriyah and Tridakusumah (2020), which shows the contribution of wives to family income of 17.38%.

The economic limitations felt by farming households make wives work and contribute to household income. In beef cattle business activities, wives contribute in the form of time and energy to help their husbands raise livestock. In addition, wives contribute to family income obtained from farming, work as farm laborers or other off-farm jobs, and work other than agriculture. Labor productivity can be measured economically by comparing the amount of income received (IDR) with the number of existing workers (man-day). Table 2 shows the average economic productivity of women workers in Karangtekok.

Karangtekok Hamlet, which accompanies the buffer area of Baluran National Park, causes the community to be inseparable from the tourism sector. Therefore, it is essential to know how the *gaduhan* business contributes to women's income compared to the tourism sector. Women are primarily involved in informal tourism as food vendors and small grocery owners. It is in line with Vukovic et al. (2021) finding that women's entrepreneurial activities in less advanced rural areas are concentrated on subsistence informality, associated with small-scale entrepreneurship, mainly food and handicrafts small-scale production.

With differences in the number of livestock managed, women's income from the *gaduhan* businesses varies between 6,750,000 IDR - 13,125,000 IDR per year in the medium category, 375,000 IDR - 6,749,999 IDR in the low category and 13,125,001 IDR - 19,500,000 IDR in the high category. This fact shows that, generally, the income from the *gaduhan* business is smaller when compared to the income contributed by the tourism sector, namely 25,550,000 IDR - 91,250,000 IDR annually. It is explained by the theory written by Overbeek (2003) that the difference between women in agriculture and tourism is related to individualization. Women's assets and earnings are higher in tourism because of some aspects: the start of a business differs, and women barely attain the same professional status as men in agriculture. In tourism, more women exploit their business employment opportunities and are rewarded for doing so.

Based on Table 2, the average women's labor productivity in Karangtekok is 112,515 IDR per man-day, with an average working time of 151.01 man-days per year or 30.89 hours/week. The number of working hours for women in Karangtekok is less than the regular hours determined by the Central Statistics Agency, which is 35 hours/per week. The productivity of women workers in various sectors, namely beef cattle, on-farm, off-farm, and non-farm, varies but has the highest value of 219,367 IDR per man-day in the off-farm the lowest value of 61,315 IDR per man-day in the beef cattle business sector. The time spent in the beef cattle business is 78.13 man-days per year or 15.98 hours/week, while the time spent in the off-farm sector is 16.15 man-days per year or 3.22 hours/week. It shows inequality in productivity between the beef cattle business and the off-farm sectors. With much more working time allocation, the wages received are relatively less. However, in practice, the beef cattle sub-sector contributes 28.9% of income for women in Karangtekok, and job offers are available round the clock. This continuous availability of job offers causes women to choose the beef cattle business in their spare time to increase household income. There is still potential for expanding the business sub-sector for women by considering the level of productivity and available time options, especially leisure time.

CONCLUSIONS

This study concludes that women in Karangtekok have a moderate contribution to income, which comes from the beef cattle sub-sector, farming, off-farm activities, and other non-farm activities. Women contribute 78.128 man-days/year of labor, contributing to household income by 29.06%. There is a productivity gap between the beef cattle business and the off-farm sectors. However, for women, the beef cattle business sub-sector remains a business choice because of the availability of steady job offers and the use of spare time while increasing household income.

ACKNOWLEDGEMENTS

Performing field research and writing this article can only be done with the help and support of others. Our profound gratitude directs to the Karangtekok farmers, who patiently bore all our interruptions and questions. Directorate General of Higher Education of the Ministry of Education and Culture - the Republic of Indonesia fully covers the cost of this study through Doctoral Grant 2022 projects.

CONFLICT OF INTEREST

The authors declare that there is no conflict of interests regarding the publication of this article.

NOVELTY STATEMENT

The novelty of this project consists in an integrated approach between a gender study and a traditional livestock partnership named Adegen in Baluran National Park's buffer area which has unique socio-economic condition.

AUTHORS CONTRIBUTIONS

Siti Azizah is the project leader and also acted as an au-

thor. Salsa I Lathifah served as a enumerator and an author. Irfan H Djunaidi managed team members' role in the project. Anif M Wati, Achadiah Rachmawati, and Siti Hamidah contributed in the extension program who deliver materials to the community.

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