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Impact Of The Use Of Agricultural Tools And Machinery On Women's Participation In Rice Business In Minasa Te'ne District, Pangkep Regency

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ABSTRACT

This study aims to determine the impact of using agricultural tools and machinery on women's participation in rice farming in Minasa Te'ne District, Pangkep Regency. Respondents in this study were selected directly (purposive sampling) with certain considerations. In this study, the data collected came from interviews with 153 respondents. Respondents are female farmers (Wanita Tani) who cultivate rice. The data collected in this study include primary data and secondary data. Primary data is data obtained through in-depth interviews using a tool in the form of a list of questions or questionnaires in addition to direct observation. Secondary data supports this research obtained from the results of a literature review, reports from various agencies, including the Agriculture Service, Agricultural Extension Center, District Office, Village Office, or other agencies relevant to the research. Obtained were tabulated and processed descriptively, qualitatively and quantitatively. The results showed that women's participation acted as housewives and directly contributed working time to rice farming. Efficiency has been achieved through agricultural mechanization; the revenue obtained is 1.1 times the total costs incurred. Before mechanization, women received wages of Rp. 3,071,548.31, while after mechanization, women received wages of Rp. 1,212,313.22. The difference in wages between before mechanization and after Mechanization is IDR 1,859,235.09.

1. Introduction

The agricultural sector still plays a vital role in national development and supports the nation's economy, considering that Indonesia is an agricultural country where most people's livelihoods work as farmers. In the era of globalization, the challenge in agriculture faced by Indonesia is how to improve the quality of production with a global orientation so that the goal of agricultural development can be realized, namely food self-sufficiency. Therefore, various efforts have been made to achieve food self-sufficiency in Indonesia, including through the mechanization of the agricultural sector.

Agriculture in Indonesia is, on average, in the process and implementation of mechanization to adopt modern environmentally friendly technology to help farmers in farming. Agricultural technology is applied to farmers to help farmers in the maximum production process and fulfil growing human needs. Therefore, technology must be able to increase production, which is greater than manual or human labour, because the technology was created as a substitute for human labour and has been designed to increase maximum agricultural production (eg. plow machine or hand tractor; plowing quality will determine plant growth(paddy); deep plowing will thrive the paddy and

determine the yields. Hand tractors can plow 50 cm of rice fields at the initial plowing compared to a hoe of only ± 20 cm). So that human food needs are fulfilled along with population growth, increasing from year to year (Lambert., 1990)

Human needs will not be fulfilled if it is not accompanied by technological advances that are environmentally friendly, because high population growth results in the conversion of agricultural land on a large scale and will have an impact on the food crisis. According to (Olmtead AL, 2014) mechanization is "…involved the replacement of simple hand tools and human power by more complicated machinery powered by animals, fossil fuels, and electricity". Conceptually, agricultural mechanization is the process of introducing and using mechanical assistance to carry out agricultural operations. In line with this, mechanization in the farming sector, in this case, support for agricultural tools and machinery (alsintan) is urgently needed to achieve food self-sufficiency in Indonesia, including in the province of South Sulawesi.

In South Sulawesi Province, rice production is not only aimed at meeting regional needs but also hoped that this increase can contribute to increasing national rice production. Minasa Te'ne District, Pangkep Regency is one of the national rice granary centers, especially for South Sulawesi Province, located in South Sulawesi. In the farming system, in terms of using existing technology in Pangkep Regency from year to year, it has developed, especially from the use of agricultural tools and machinery (Alsintan), which has become an empowerment program from the government to achieve maximum production. Farming tools and machinery (Alsintan) are essential factors in supporting food production in South Sulawesi Province.

Several studies have shown the benefits of alsintan in farming, one of which is in rice farming. According to (Aldillah Rizma, 2016) the use of agricultural machinery can reduce farming costs and provide benefits for farmers; they can contribute to food self-sufficiency. Meanwhile, another study, (Amrullah Eka, 2016), showed that rice farming using a hand tractor machine could make the working time more efficient, as much as 7.8 hours a day for men. From the cost structure, rice farming with a hand tractor can save costs of Rp. 400,000 per hectare compared to the manual method. The most significant cost difference occurs from the difference in labour use, which reaches 29.30 percent of the total cost of manual farming and 27.05 percent of farming with a hand tractor. So, basically, technology is created for positive purposes that can help increase social and economic development.

Several machine tools technologies are now available but are more popular among the male workforce. This is partly due to social and institutional barriers. In addition, the machines are designed to be operated by men. Even sometimes, the application of technology creates a cultural bias and even reduces the role of human resources, especially the role of women in the economy. The application of technology will benefit mankind if it can be used productively by both men and women human resources (HR).

The choice of a form of technology is a very decisive decision because the decisions that have been taken will influence the entire network of social and economic structures of society, including agricultural machinery technology. Another phenomenon also happening today is the marginalization of women workers due to the introduction of a farming tool. For example, the ani-ani rice harvesting tool, replaced with a serrated sickle, has excluded women and farm workers. From the aspect of productivity, using a serrated sickle is better than the ani-ani, but what must be done next is to find a solution for the displaced female farmworkers. This phenomenon needs to be researched to determine the impact of using agricultural tools and machinery on women's participation in rice farming in Minasa Te'ne District, Pangkep Regency..

2. Method

2.1 Place and Time of Research

This research was carried out in Minasa Te'ne District, Pangkep Regency, South Sulawesi Province, for 3 (three) months, from May 2019 until July 2019.

2.2 Determination of Respondents

Respondents in this study were selected directly (*Purposive Sampling*) with specific considerations.

2.3 Sources of Data

In this study, the data collected came from interviews with 153 respondents. Respondents are women farmers (Wanita Tani) who cultivate rice.

2.4 Types of Data

Data contained in this study include primary data and secondary data, which consist of:

1. Primary data is data obtained through in-depth interviews using a questionnaire or questionnaire in addition to direct observation.
2. Secondary data supports this research obtained from the results of a literature review, reports from various agencies, including the Department of Agriculture, Agricultural Extension Center, District Office, Village Office, or other agencies relevant to the research.

2.5 Data Collection Techniques

In this study, data collection techniques were carried out through the interview method. Interviews with informants were conducted to gain an in-depth understanding (*verstehen*) regarding women's participation in rice farming. Interviews were performed using a list of questions as a guide in the field. The interview technique conducted on female farmer informants involves information about herself (her farming activities and family life, and other information related to the research objectives), information outside of herself: regarding the role of the government, institutions/institutions of technology sources/Agricultural instructors. Field, as well as other institutions.

2.6 Data Analysis

Obtained were tabulated and processed descriptively qualitatively and quantitatively, namely:

1. Problem 1 (one) describes women's participation in rice farming.
2. Problem 2 (two) describes the use of agricultural machinery in rice farming, its types and uses, and efficiency in terms of cost and time.
3. Problem 3 (three) analyzes the impact of using alsintan on the participation of women who are replaced by alsintan, how many Days of Work (HOK) are replaced by alsintan, and how much income/wages are received by women because they are replaced by machines, and working time or women's participation is diverted to other jobs.

Farming revenue is the multiplication between the production obtained and the selling price (Rahim dan Hastuti, 2007). Mathematically formulated as follows:

$$TR = Y. Py \quad \ldots\ldots(1)$$

Description :

TR = total revenue

Y = production obtained from a farm

Py = production price

Income is the difference between revenue and all production costs. Revenue includes gross income (total revenue) and net income. Gross income is the production value of agricultural commodities as a whole before deducting production costs (Rahim dan Hastuti, 2007) Income can be formulated as follows:

$$=TR–TC \quad \ldots\ldots(2)$$

$$=Y . Py – \{(\Sigma Xi . Pxi) – BTT\} \quad \ldots\ldots(3)$$

Note :

= profit / income (Rp)

TR = total revenue (Rp)

TC = total cost (Rp))

Y = total production (units)

Py = unit price of production (Rp)

X = factors of production (units)

Px = factor prices (Rp/unit)

N = number of inputs used

BTT = total fixed costs (Rp)

Economically business said to be profitable or not profitable can be analyzed by comparing total revenue and total costs called Revenue Cost Ratio (R/C). Or :

R/C = (Py . Y) / (FC + VC)……..(4)

R/C = PT / BT…… …….. (5)

Information :

Py = production price

Y =production

FC= fixed cost

VC = variable cost

PT = total production

BT = total cost

There are three criteria in this calculation, namely:

If R/C<1, then farming, which is done economically, is not yet profitable.

2. If R/C>1, then farming is economically profitable.

3. If R/C=1, then the farm is at the breakeven point (Break-Even Point)

3. Results and Discussion

Women's participation in lowland rice farming before and after the application of mechanization can be studied from women's participation in each stage of lowland rice farming activities which include farming capital management, farming planning, processing farming land, nurseries and nurseries, planting, plant maintenance, harvesting, post-harvest, harvest processing, and marketing of produce. Women do not only act as housewives but directly contribute working time to rice farming. Women not only aim to increase family income, but women also participate in the decision-making process.

3.1. Farming Capital Management

According to (Soekartawi, 2002) capital in farming can be seen as a form of wealth, either in money or goods that are used to produce something directly or indirectly in a production process. Capital has the aim of supporting the further capital formation, increasing farm production and income. Women in Minasa Te'ne sub-district participate in capital management because women are also financial managers in the domestic sphere. Women also participate in decision making.

3.2. Farming Planning

Women also participate in farming planning. Farming decision-making results from a compromise or joint decision in the family, between father and mother. This is because the result of the decision is a consequence that will be shared together. Even though the planning is done together, in some cases, the planning of rice farming in Minasa Te'ne District, a husband is more considerable in decision-making because the husband knows more about the rice farming process. In planning, the husband's role is more.

3.3. Farming Land Processing

Women in Minasa Te'ne Sub-district do not really participate in the cultivation of farming land because land cultivation is a strenuous activity. Farming land processing is related to cultivating land using buffalo or cows, or hoeing. For land that is not large, the wife usually helps the husband turn the soil manually. In addition to the heavy burden, land management activities take a long time, so that men typically carry it out.

3.4. Nurseries and Nurseries

Seedling and nursery maintenance is the first step in farming. Both need to be done as well as possible so that later the plant can grow well. Good seeds will produce good plants too. Thus, women participate in nursery and nursery activities.

3.5. Planting

Women's participation in planting activities decreased. Based on Table 8, the participation rate of women before mechanization was 96%, while after mechanization was 40%. This decrease occurred due to the existence of planting tools that can reduce the use of human labour. Women are only in charge of bringing food to the land.

3.6. Plant maintenance

Women's participation in plant maintenance is weeding the grass that grows around the plants and caring for the plants. In addition, sometimes, women also participate in spraying pesticides and applying fertilizer to plants.

3.7. Harvesting

Women are very active in participating in the harvesting process because they help families to earn wages from the farmers who own the fields, using traditional equipment, which is done by 3-5 people per group (men and women), which usually consist of several groups in one field.

3.8. Post-Harvest

Women participate very much in post-harvest activities because women do the drying activities before the rice is milled. In terms of post-harvest handling in Minasa Te'ne Sub-district, the man (husband) only transports the harvested produce from the fields to the house; after that, the drying process is usually done by women because it is generally only done in the yard. Women participate in grain drying activities because drying is done in the yard, and women can still carry out domestic activities, making it easier for husbands who work outside. In addition, women also participate in rice threshing activities.

3.9. Processing of Harvests

Women are very involved in harvest processing activities. Women's participation in product processing is to participate in grinding grain into rice and processing rice into rice flour as cake ingredients. Women participate very much because it is carried out in the domestic sphere, namely providing food for family needs.

3.10. Product Marketing

Women participate in product marketing because it is related to capital management. Women also participate in making decisions to sell grain or rice. If the husband goes to work, it is the woman (wife) who handles the marketing of the produce.

3.11. Use of Agricultural Tools and Machinery (Alsintan) in rice farming in Minasa Te'ne District, Pangkep Regency.

1) Use of Agricultural Tools and Machinery The agricultural

The use of tools and machinery is a necessity for farmers in Minasa Te'ne District, Pangkep Regency. Farmers have been using agricultural machinery for a long time in Minasa Te'ne District, including tractors since 2003, spray equipment since 1994, harvesting cars since 2004, post-harvest equipment since 1990, transportation equipment since 2000, yield processing machines since 2004 Based on the results of interviews with respondents, the use of agricultural tools and machines can simplify the work of farmers, save labour and time. However, according to respondents, the weakness of agricultural tools and machines is that they require additional maintenance costs and high prices, so farmers only rent. The application of mechanization in the rice farming sector in Minasa Te'ne District, Pangkep Regency, stems from the socialization of agricultural extension workers to farmer groups and government assistance in the form of tractors.

The use of machinery in rice farming has differences before and after mechanization. Before the mechanization of agriculture, hoes, machetes and sickles were still used by farmers to manage their farming. Hoes, machetes and sickles are used in every activity, namely land management, nursery, planting, maintenance (weeding, fertilizing, eradicating plant pests), harvesting and post-harvest. The average farming household has two hoes, two machetes, and three sickles. The small number is because the number of workers in the family-owned by farmers is not so much. Meanwhile, the use of machinery for workers outside the family is not prepared by farmers because these workers bring them themselves. After mechanization, the tools used by farmers are hand tractor, hand sprayer, thresher, power tresher and sickle with better production time efficiency than before mechanization.

2) Ownership of agricultural tools and machinery agricultural

Wealthy farmers and entrepreneurs usually control ownership of tools and machinery with large-scale capital. Farmers or farm laborers usually rent agricultural tools and machinery from wealthy farmers or entrepreneurs. The ownership of agricultural tools and machinery at the farmer level is because the farmer is a member of a farmer group. So that farmers can use agricultural tools and machines in turns. Ownership of agricultural tools and machines can be seen in the following table.

Table 1. Ownership of Agricultural Tools and Machinery Agricultural Equipment and Machinery

Equipment and Machinery	Farmers	Farmer Groups	Rich Farmers	Entrepreneur
Tractor Tillage	-	65%	35%	-
Planting Equipment	-	-	50%	50%
Spray Equipment	60%	30%	20%	-
Harvest Cars	-	50%	50%	-
Post-harvest Equipment	-	20%	30%	50%
Transport Equipment	60%	-	30%	10%
Yield Processing Machinery	-		25%	75%

Table 1 shows that the ownership of tillage tractors in Minasa Te'ne District is 65% of the farmer groups because they have received aid from the government and 35% by wealthy farmers. Farmers who join farmer groups will use the tractor in rotation and are charged with maintenance and fuel costs. Rich farmers will also rent out their tractors to farmers in need. Planting tools are used by rich farmers who have large lands, and for modern planting tools, 50% are owned by entrepreneurs. Everyone has a sprayer because the sprayer is a tool that is easily accessible by farmers. Harvest cars are owned by 50% of rich farmers and 50% of farmer groups. Farmer groups get harvest cars from government assistance. Farmers who join farmer groups use harvest cars in rotation and are usually paid in grain or money. In contrast, rich farmers provide rental fees to farmers. Post-harvest tools are in the form of rice mills and power tresher. Most of them are owned by entrepreneurs, namely 50%. Farmers usually bring the grain to the mill to be milled or wait for the rice miller at home. Entrepreneurs own rice millers who visit homes by car. The means of transportation are 60% owned by farmers because most farmers have their own means of transportation in the form of motorbikes

that have been designed to transport grain from paddy fields to homes or roadsides so that buyers or collectors can easily transport them. Rich farmers and businessmen own transport cars. Ownership of processing machines, 75% belongs to entrepreneurs while 25% belongs to wealthy

farmers. Usually, farmers process rice into flour by visiting businessmen who sell them at the market.

3) Efficiency

Based on the analysis results, production efficiency based on cost and time experienced significant changes before and after mechanization. Before mechanization, the efficiency was 0.8, which indicates that the use of labour-intensive farming is inefficient. The revenue obtained is 0.8 times the total costs incurred. This means that the payment has not been able to cover the expenses incurred. This is different from after agricultural mechanization; the efficiency obtained is 1.1 (see Table 2). This shows that agrarian mechanization has achieved efficiency, where the revenue received is 1.1 times the total costs incurred. This means that the payment has been able to cover the expenses incurred.

Table 2. Efficiency before Mechanization and after Mechanization

Description	Average number	
	Before Mechanization	After Mechanization
Alsintan		
Hoe	2	0
Chopper	2	0
Handtractor	0	1
hand sprayer	0	1
thresher tool	0	1
power tresher	0	1
Sickle	3	3
Carharvest	0	0
Efficiency	0.8	1.1

3.12. Impact of the use of Alsintan on women's participation in rice farming

1) The Impact

Mechanization has an impact on women's participation. Based on Table 3, before mechanization, the participation rate of women was 86.4%. After mechanization, the women's participation rate was 60.9%. The rate of change of women's participation rate is -25.5%. This shows that there is a decrease in women's participation in rice farming. Before mechanization, women participated in all rice farming activities: capital management, farming planning, farming land processing, nurseries and nurseries, planting, plant maintenance, harvesting, post-harvest, harvest processing, and marketing. After mechanization, women no longer participate in farming land processing activities because these activities have a heavy burden, and there is already mechanization that can replace human labour. In addition, a decrease in participation occurred in farming planning, nurseries and nurseries, planting, plant maintenance, harvesting, post-harvest, and marketing of produce. However, two activities have not changed, namely the management of farming capital and post-harvest processing. Both activities are closely related to women's habits in the domestic sphere, namely being managers in household matters and cooking.

Table 3. Rate of Change in Women's Participation Rate

Description of Rice Farming Activities	Before Mechanization (%)	After Mechanization (%)	Rate of Change Participation Rate (%)	Description
Farming Capital Management	98	98	0	No Change
Farming Planning	75	60	-15	Decrease in Participation
Farming Cultivation	20	0	-20	Decrease in Participation
Seeding and Nursery	93	81	-12	Decrease in Participation
Planting	96	40	-56	Decrease in Participation
Plant Maintenance	98	50	-48	Decrease in Participation
Harvesting	98	30	-68	Decrease in Participation

Post Harvest	93	60	-33	Decrease in Participation
Harvest Processing	98	98	0	No Change
Harvest marketing	95	92	-3	Decrease in Participation
Average	86.4	60.9	-25.5	Decrease in Participation

Table 3 above shows that rice farming activities with the most significant rate of change in the participation rate are harvesting activities of 68%. This is due to the existence of a rice harvesting machine that can reduce the absorption of human labour. In contrast to the current condition after mechanization, women's participation has decreased drastically because rice farmers who want the harvesting process to be effective and efficient prefer to use a combined harvester. This is because farmers choose to use labour, but it takes a long time; as a result, pests (cows and buffaloes) threaten if they are not harvested immediately. However, women are still participating in harvesting activities because they cannot use the harvesting car if the land is narrow. Hence, the wife continues to help her husband when harvesting.

Planting activities have a rate of change in the second participation rate after harvesting, namely 56%. This is due to a planting tool that facilitates the planting process, so it does not require much labour. These activities have a huge role in women's participation because women are paid in these activities, so women's involvement in other activities decreases.

The level of women's participation in plant maintenance activities also decreased by 33% because maintenance activities were heavy, especially when spraying pesticides. The spraying is very dangerous for women because of the use of pesticides that contain chemical substances. Women also rarely participate in grain drying activities because it requires energy to lift the grain. Most farmers sell the grain directly to traders.

The decrease in participation also occurs in farming planning because machines have replaced many female workers. So that in farming planning, men are more dominant. In nursery and nursery activities, women's participation decreased due to reduced husband's activities in the rice farming process due to agricultural mechanization; automatically, women have also included in the activity "rembo bine" or pulling seeds in the nursery to help their husbands, now it is rarely done by women.

In product marketing activities, the rate of change in women's participation is only 3%. Women are still dominant because women are always at home while men are often outside to work, so women mostly do marketing. In addition, some farmers sell rice or unhulled rice if they need funds.

3.13. Working People's Day (HOK), which was replaced byAlsintan

Mechanizedwhich was implemented in Minasa Te'ne Subdistrict, Pangkep Regency, impacted the average number of HOK, which was 40% replaced by mechanization. The results of the analysis in table 4 show that the most significant changes in working days are harvesting (96%), planting (92%), and land processing (72%). The difference between working time before mechanization and after mechanization was 2.7 HOK. This shows that mechanization has an impact on decreasing the outpouring of working time. There is no processing activity for the results of HOK changes because the processing of the results is not for commercial purposes, only for personal consumption

Table 4. HOK replaced by Alsintan

Description	Before Mechanization	After Mechanization	Changes in HOK	Changes in HOK(%)	Description
	HOK	HOK			
Land preparation	14.34	3.96	10.38	72%	Replaced by
Nurseries	2.90	2.72	0.18	6%	Replaced by
Planting	3.13	0.26	2.87	92%	Replaced by
Maintenance	3.43	3.24	0.18	5%	Replaced by
Harvest	5.12	0.20	4.91	96%	Replaced by
Post-harvest	4.45	3.96	0.49	11%	Replaced by
Processing	0.00	0.00	0.00	0%	
Total	33.36	14.35	19.02		

Average	4.77	2.05	2.72	40%	Replaced by

Agricultural tools and machinery can save time, such as tillage tractors, spray equipment, harvest cars, post-harvest tools, transportation equipment and harvest processing machines. Before mechanization, the time needed to cultivate the soil was 7-10 days. However, after mechanization, it can save up to 3 days. Before using tractor machines, farmers used the help of animals such as buffalo and cows to pull harrows or, even simpler, just using a hoe. This makes tillage takes a long time. The use of harvesting cars is only a matter of hours and does not thresh rice while using human labour it can take 2-3 days. Machines for processing crops can take minutes to process kg, while the transportation of goods depends on the distance and road conditions

3.14. Income/Wages Received by Women After Mechanization

The income/wages received by women decreased after mechanization because machines replaced the female workforce. Women's working time or participation decreased. This is shown by the results of the analysis in Table 5; three activities experienced huge changes in wages, namely harvesting (96%), planting (92%), and land processing (72%). If seen from Table 5, the wages given to the three activities increased after the mechanization. However, HOK decreased so that the wages received by female workers decreased. The wages received by women are also the same as the wages received by men in rice farming activities. The woman received an average wage before mechanization, Rp. 3,071,548.31, while women received Rp after mechanization. 1,212,313.22. The wage difference between before mechanization and after mechanization is Rp. 1,859,235.09. There is a decrease in wages for women. The application of mechanization can reduce production costs but impacts the income level of women who help their husbands in meeting family needs. So women try to find work other than rice farming and switch to other jobs. The work done by women is to become female workers abroad, such as in Malaysia and Arabia, open businesses such as grocery stalls, prefer to work as cashew peelers, and open businesses such as selling cakes and chips.

Table 5. Total income/wages received by women

Description	Before Mechanization			After Mechanization			% Change in wages	Description
	HOK	Wages	Value	HOK	Wages	Value	Change in wages	
Land Preparation	14.34	Rp 97,385.62	Rp 1,396,398.15	3.96	Rp 100,000.00	Rp 395,923.57	Rp (1,000,474.58)	72%	Decrease
Nurseries	2.90	Rp 86,601.31	Rp 251,529.91	2.72	Rp 85,555.56	Rp 232,798.30	Rp (18,731.61)	7%	Decrease
Planting	3.13	Rp 97,770.70	Rp 305,891.52	0.26	Rp 100,000.00	Rp 25,859.87	Rp (280,031.64)	92%	Decrease
Maintenance (weeding, fertilizing, HPt)	3.43	Rp 59,313.73	Rp 203,328.96	3.24	Rp 52,124.18	Rp 169,121.39	Rp (34,207.57)	17%	Decrease
Harvest	5.12	Rp 98,692.81	Rp 504,904.87	0.20	Rp 102,547.77	Rp 20,966.77	Rp (483,938.10)	96%	Decrease
Post-harvest	4.45	Rp 92,054.26	Rp 409,494.89	3.96	Rp 92,857.14	Rp 367,643.31	Rp (41,851.58)	10%	Decrease
Processing	0.00	Rp -	Rp -	-	Rp -	Rp -	Rp -	0%	Decrease
Total	33.36	Rp 531,818.43	Rp 3,071,548.31	14.35	Rp 533,084.65	Rp 1,212,313.22	Rp (1,859,235.09)		Decrease
Average	4.77	Rp 75,974.06	Rp 438,792.62	2.05	Rp 76,154.95	Rp 173,187.60	Rp (265,605.01)	42%	Decrease

4. Conclusion

Women's participation in rice farming in Minasa Te'ne District is seen from the participation of women in every stage of activities in rice farming, including farming capital management, farming planning, farming land processing, nurseries and nurseries, planting, plant maintenance, harvesting, post-harvest, processing crops, to marketing the results. Women do not only act as housewives but directly contribute working time to rice farming. Women not only aim to increase family income, but women also participate in the decision-making process.

Production efficiency based on cost and time experienced significant changes before and after mechanization. Before mechanization, the efficiency was 0.8; this indicates the inefficient use of labour-intensive farming. The revenue obtained is 0.8 times the total costs incurred. This means that the payment has not been able to cover the expenses incurred. This is different from after agricultural mechanization; the efficiency obtained is 1.1. This shows that efficiency has been achieved through the use of agricultural mechanization; the revenue obtained is 1.1 times the total costs incurred. This means that the payment has been able to cover the costs incurred.

The income/wages received by women decreased after mechanization because machines replaced women's labour. Activities that experienced very large changes in wages were harvesting (96%), planting (92%), and land processing (72%). The woman received an average wage before mechanization, Rp. 3,071,548.31, while women received Rp after mechanization. 1,212,313.22. The difference in wages between before mechanization and after mechanization is 1,859,235.09.

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