CarakaTani
Journal of Sustainable Agriculture
ISSN 2613-9456 (Print) 2599-2570 (Online)

Caraka Tani: Journal of Sustainable Agriculture, 36(2), 238-248, 2021
URL: https://jurnal.uns.ac.id/carakatani/article/view/43729
DOI: http://dx.doi.org/10.20961/carakatani.v36i2.43729

The Relations of Internal and External Factors with Women Farmers' Participation in Rice Farming Activities

Dita Pratiwi*, Lukman Mohammad Baga and Yusalina

Department of Agribusiness, Faculty of Economics and Management,
Bogor Agricultural University, Bogor, Indonesia

*Corresponding author: ditaliu93@gmail.com

Abstract

The participation of women in the agricultural sector has increased in the last two years, attributed to the population growth and household economy. Therefore, this research examined the internal and external factors to the women farmers' participation. This research was conducted in Situ Gede Village, West Bogor Sub-district, Bogor City and involved women farmer group consisting of 36 members. The primary data were gathered by interviewing respondents using a questionnaire, while the secondary data were obtained from literature review and various related institutional sources. The data were examined using the Pearson's Product-Moment Correlation analysis to investigate the relations between the internal and external factors to women farmers' participation. The results of this study have revealed the internal factors related to women farmers' participation, such as age, farm experience and decision making**.** Meanwhile, the external factor related to the participation of women farmers is the access to counseling, meaning that some of these aspects need to receive the government's attention, especially in terms of access to education related to the counseling method, time and substance of counseling.

Keywords: household; participation; women farmers

Cite this as: Pratiwi, D., Baga, L. M., & Yusalina. (2021). The Relations of Internal and External Factors with Women Farmers' Participation in Rice Farming Activities. *Caraka Tani: Journal of Sustainable Agriculture*, *36*(2), 238-248. doi: http://dx.doi.org/10.20961/carakatani.v36i2.43729

INTRODUCTION

The number of farmers in Indonesia has continued to decrease over the last ten years, from 44 million in 2009 into 33 million in 2018 (BPS-Statistics Indonesia, 2018). The shifting of occupation from farmers to other sectors, particularly the industrial sector, happens because of farmers' low monthly income, only 1.5 million to 1.7 million Rupiahs. The changes in the demographic structure are also influential in decreasing the number of farmers due to increasing number of old farmers (more than 55 years) and the decreasing number of young farmers (Susilowati, 2016).

Another problem in the agricultural sector in Indonesia is the reduction in rice field area. The rice field area decreased from 7.75 million hectares in 2017 into 7.1 million hectares in 2018 (BPS-Statistics Indonesia, 2018). This is a significant problem in Indonesia, considering that the society depends on rice consumption. However, there is a unique phenomenon in the number of workers, particularly in the agricultural sector. BPS data (2018) recorded that the number of women farmers in 2017 was 7.2 million, which has then increased into 8 million today. According to Nurahman et al. (2017), the role of women in the public sector is related to the effort to meet the necessities

* *Received for publication August 14, 2020*
Accepted after corrections April 15, 2021

of life, such as clothing, food, shelter, education and health.

The research by Unu et al. (2018) showed that the role of women in agricultural sector especially in rice farming activities is more dominant than men. The average women farmers' working time allocation is 6.15 hour day^{-1} (Alam et al., 2016). Women provide more labor than men in seedling removal, transplanting and pest and disease control and that they are less involved in irrigation and fertilization (Twyman et al., 2015). Their role in agricultural sector is vital, because many women contribute to the agricultural sector, but their existence is sometimes not counted (Ishaq and Memon, 2016). Though women's participation in rice farming activities is more dominant than men, gaps still exist in the economic gender participation (Averret et al., 2018). In terms of payment, women farmers tend to receive lower wage than men farmers. Meanwhile, the allocation of their working activities are seen in almost all rice farming activities. Women farmers allocate the majority of their earnings for family needs and only spend the money on themselves when having extra income. Women employed covert strategies to mitigate their relative disadvantage (Carter et al., 2017).

The issue of gender equality is one of the top three issues in the world. According to Galiè et al. (2013) there is gender inequality when women in the village play an important role in agriculture and have a fairly strong role in agricultural management. One of the Sustainable Development Goals (SDGs) is gender equality and women's rights. There are four gender myths in this world: such as (1) 70% of the world's poor are women; 2) women produce 60 to 80% of the world's diet; 3) women own 1% of the world's land and 4) women are better stewards of the environment (Doss et al., 2018). The Ministry of Agriculture in the Republic of Indonesia has made various efforts to resolve gender equality issues in the agricultural sector in Indonesia, one of which is by running the Gender Mainstreaming Program.

The empowerment of women in the agricultural sector becomes one of the determining factors in the efficiency and success of farming. This is in line with Mulema et al. (2019) research, which signifies that empowering women farmers to participate in agricultural is a key strategy for sustainable agricultural development. Women's participation facilitates income growth, which has the propensity to contribute towards poverty alleviation, is consistent with the first goal of SDGs (Rasheed et al., 2020). Eliminating gender gaps in agriculture by ensuring female farmers' adequate and equitable access to agricultural finance, while also reducing investment risks, is paramount to achieving the SDGs (Akter et al., 2016).

The BPS data (2018) in Table 1 show that the number of farmers in West Java is generally ranked third, but almost 24% of farmers are women, indicating the highest women's participation percentage.

Table 1. Number of farmers by province and gender by 2018

The province	Gender		Total number (People)	Percentage (%)
	Male (People)	Woman (People)		
1. East Java	4,830,535	1,459,572	6,290,107	23
2. Central Java	4,113,514	1,150,750	5,264,264	21
3. West Java	2,869,448	952,155	3,821,603	24
4. South Sumatra	1,015,105	283,783	1,298,888	21
5. Lampung	1,293,751	284,068	1,577,819	18

Source: BPS (2018)

The number of women farmers in West Java is dominant; however, it is not in line with the availability of agricultural land, especially rice fields in urban areas. The conversion of agricultural land in urban areas, especially paddy fields, is mostly used as housing and shops and thus contributing to food inavailability and loss of the land function (Hidayati et al., 2017). This condition has triggers the City Government of Bogor to make an effort to optimize the remaining paddy farming land of 150 hectares in the area of West Bogor and South Bogor. Proven at the end of 2018, Bogor City received the third best city award in the Improvement of the Area of Planted Addition (APA) Performance in West Java Province (Bogor City Government, 2018).

Empowerment of farmer groups is deemed necessary because in agricultural development,

farmer groups are major development resources and subjects in developing their agricultural efforts (Desiana and Aprianingsih, 2017). According to Wiig (2013), women living in communities participated in 70.2% of the household decisions. This research aimed to analyze the internal and external factors associated with the participation of women farmers. Although agricultural development policies are focusing on improving women's engagement in agriculture, there is limited literature on internal and external factors in relation to improve women farmer's participation in agricultural sector, especially in rice farming activities in urban areas.

MATERIALS AND METHOD

Research location and time

This research was conducted from December to August 2020 in Situ Gede Urban Village, Bogor City, West Java. The selection of the research location was carried out purposively, considering that the research area is the remaining rice field optimized by the Bogor City Government to fulfill the consumption of rice in Bogor City. This area is managed by the Dalima Women Farmer Group. This group has 36 members, who participated as the research samples.

Materials, tools and observations

This research employed primary and secondary data. Primary data were taken by interviewing respondents using a questionnaire and secondary data were obtained using a literature review and related institutional sources. The respondents were determined by purposive sampling with survey method. Census method was performed to gain data from Dalima Women Farmer Group. Women farmers joining Dalima Women Farmer are 36 people. According to Arikunto (2002), if the sample is less than 100, it should be taken entirely. The relatively homogeneous population will be distributed close to normal according to central limit theory with 30 samples size as minimum. According to Cooper and Emory (1996), the average sample will be distributed around the average population close to the normal distribution.

Data analysis

The data were analyzed using Pearson's Product-Moment analysis to scrutinize the relationship between the internal and external factors to women farmers' participation.

Pearson's product moment correlation analysis

The participation of women farmers consisted of various stages in rice farming activities. These activities were land clearing, planting, fertilization, pest control, harvesting, post-harvesting, entrepreneurship and bookkeeping. All these activities were connected with the internal and external factors of women farmers. The internal factors include age, educational level, the number of families, farming experiences, motivation, aspiration and decision making. Meanwhile, the external factors cover culture, the availability of labor, counseling, business climate and market opportunity. The data analysis to determine the relationship between variables and to answer the purpose of this research was performed using the Product Pearson's correlation test with the formula by Manoppo (2009):

$$r_{xy} = \frac{\sum xy}{\sqrt{(\sum x^2)(\sum y^2)}}$$

Notes:

r_{xy} = Correlation between variables x and y
X = $(X_1–X)$
Y = $(Y_1–Y)$

Data analysis was carried out using correlation test with analysis tools of SPSS (Statistical Package for Social Sciences) software program. Each variable was previously assigned into particular category, including low (score 1), medium (score 2) and high (score 3).

RESULTS AND DISCUSSION

Internal factors related to the participation of women farmers in rice farming activities

The determinants of women farmers' participation in rice farming activities used in this research were the internal and external factors. The internal factors consist of age, education level, the number of families, farming experience, farming motivation, aspirations and decision making. These characteristics have their respective categories. According to the results presented in Table 2, the internal factors correlating to women farmers' participation include age, farming experience and decision making.

Table 2. Correlation of internal factors to women farmers' participation in rice farming activities

Participation	Internal factor													
	Age		Education		Number of family member		Farm experience		Motivation		Aspirations		Decision making	
	CCV	P	CCV	P	CCV	P	CCV	P	CCV	P	CCV	P	CCV	P
Land clearing	0.31*	0.03	0.01	0.94	0.20	0.24	0.34*	0.03	0.01	0.95	0.04	0.77	0.55**	0.00
Planting	0.34*	0.04	-0.04	0.81	0.27	0.10	0.41*	0.01	-0.04	0.81	-0.00	0.98	0.50**	0.00
Fertilization	0.40*	0.01	0.12	0.47	0.30	0.07	0.42*	0.01	0.12	0.47	0.08	0.62	0.42	0.01
Pest control	0.12	0.45	0.16	0.34	0,09	0.60	0.24	0.14	0.16	0.34	0.20	0.22	0.49*	0.00
Harvest	-0.11	0.50	-0.15	0.35	0.01	0.94	0.44**	0.00	-0.15	0.35	-0.02	0.87	0.29	0.07
Harvest marketing	0.11	0.50	0.01	0.93	0.28	0.08	0.10	0.55	0.01	0.93	-0.17	0.92	0.45**	0.00
Entrepreneurship	-0.11	0.50	-0.05	0.74	-0.00	0.99	-0.05	0.75	-0.05	0.74	-0.82	0.63	0.21	0.20
Farm bookkeeping	0.44**	0.00	0.02	0.89	0.38*	0.02	0.33*	0.04	0.02	0.89	0.04	0.79	0.43**	0.00
Total participations	0.37**	0.02	0.04	0.78	0.31	0.06	0.42*	0.01	0.06	0.72	-0.11	0.49	0.65**	0.00

Notes: p = significance; ** = significantly related to $\alpha = 0.01$; * = significantly related to $\alpha = 0.05$*

The correlation of age is at the real level 0.01. Age also affects time allocation, which determines women farmers' participation (Laksono et al., 2018). This factor has a significant relationship with the level of women farmers' participation at the planning stage. The younger the respondent's age is, the higher the level of awareness and activeness to participate will be (Aji et al., 2015). Based on the results of analysis, the women farmers in this study are aged between 32 and 62 years old with an average age of 46.11 years old. Most of them are still in productive age. According to Ochago (2017), women who participate in farming activities are mostly older (> 35 years) because they do not have small children and according to BPS (2018), the productive age category ranges from 15 to 64 years old. Women belonging to this category are still capable of doing activities, particularly farming activities. This research is in line with the other research from Imtihana and Gunawan (2018), which reported that young women farmers participate in land clearing activities, while old women farmers do other simpler activities, such as planting and maintaining plants.

Another internal factor is farming experience, which reaches 0.05. This happens because the longer experience of women farmers in farming activities is, the greater participation would be. The farming experience of women farmers in Situ Gede Village, Bogor City, is included in the medium category with the range of 2-30 years and the average farming experience is 12.06 years. Based on the theory, women farmers with a longer farming experience usually tend to be more selective in choosing and using various input factors to make them more efficient (Manoppo, 2009). This research is in accordance with the research by Herawati and Pulungan (2006), which concluded that the longer the experience of farming is, the higher participation will be. Women farmers with longer experience get used to work socially in the community and receive higher appreciation and thus, they actively participate. The longer the experience of farming is also in line with the better ability and more information obtained, thus motivating farmers to participate more in farming activities (Barau and Oladeji, 2017).

Decision making is also significantly related to the participation of women farmers in rice farming activities on the real level of 0.01.

Women farmers are mostly involved in all stages of rice farming activities. Decision making can enhance the women access and engagement in better farming activities (Achandi et al., 2018). This suits the research by Puspitaningsih et al. (2018), which concluded that decision making will improve the farmer participation. Women farmers make decision to participate in almost all farming activities to save costs, especially the labor costs. The participation of women farmers in decision making is suitable with the research of Grasty (2013), which found that one of the keys to gender equality is women's participation in decision making. Johnson et al. (2016) assert that the ownership of women's assets, especially land or productive resources, greatly influences decision making and reduces poverty levels. In developing countries such as Ghana and Uganda, 31% of household was reported to be headed by women, as well as in South America, the Caribbean and Asia, where as many as 17% and 14% of women head the households (Grasty, 2013). In Kenya, women's empowerment leads to increase maize productivity, with the greatest gains derived from the increase in women's participation in decision-making on agricultural production (Diiro et al., 2018). In Southeast Asia, decisions are commonly made for large expenses such as input for rice farming (including the cost of labor, seed, fertilizer, pesticide and machinery) children's education, daily household needs, food and transportation (Akter et al., 2017).

The decision making can relate to the process of negotiations to determine what kind of work should be done by men and women farmers. It is because women farmers have other roles in family. According to the research by Hanani and Sari (2018), women should divide their time for household chores and farming so they have dual roles in their family. The time negotiation is significant for the survival of women farmer households. Based on the observation, there are three kinds of negotiations practiced by women farmers in Situ Gede Village, Bogor City. They are also categorized into three types based on land ownership. They are cultivators, labor and landowners.

Random time negotiations

It was found that women farmers negotiate for random time working, where they work depending on other farmers that need their labor and service, meaning that they work only in particular days as requested. This type of negotiation was found in this study. The landowners employ women farmers since they are highly skilled and work carefully. This is suitable with the research of Hanani and Sari (2018) that women farmers work at any time based on the presence or absence of landowners who want to use their services.

Time negotiation and job sharing based on capability

Negotiation also take place in terms of time and job sharing based in farmers' capability. The results of observation have revealed that women farmers and their family negotiate the types of work they need to perform at capability basis. According to Gebre et al. (2019), gender difference influences the agricultural technology adoption in various ways, often determined by culturally defined gender roles and labor divisions. Women farmers and their husbands negotiate whether the works are hard or simple. If the works are too hard, such as land clearing, watering and fertilizing, their husbands will take the responsibility. Win-win solutions may occur at this time negotiation because there is an agreement between the two parties to make all activities run well. This kind of negotiation commonly occurs among women farmers who are landowners and their husbands.

Systematic time negotiation

The results of observation have shown that some women farmers performed their duties systematically or planned. Women farmers making systematic time negotiation usually work for four hours in the morning and two hours in the afternoon. They are commonly responsible for controlling the land or watering plants. This negotiation type is generally practiced by women farmers who are cultivators.

Internal factors that are not significantly related to the participation of women farmers

Some internal factors that do not have significant relations with women farmers' participation are the level of education, the number of family members, motivation and aspirations. The level of education with a correlation coefficient of 0.046 is proven not significantly related to the participation of women farmers. Farmers with all levels of education can do all activities without exception.

Education level significantly increases income of cultivated land (Panda, 2015). Education and training programs need to be paired with investments generating off-farm employment opportunities to effectively increase women's bargaining power in the household (Maligalig et al., 2019). This is suitable with the research of Imtihana and Gunawan (2018) which states that the participation of women farmers in terms of services, material, moral and financial is not influenced by their level of education. Meanwhile, according to Nurahman et al. (2017), the level of education does not have partial relationship so that education is not a limitation for rice farmers to participate in rice farming activities. According to Hidayati et al. (2017), the personal characteristic of women farmers are strong in maturity and motivation but weak in formal and non-formal education.

Moreover, a large number of family members do not have vital relations with the participation of women farmers in farming activities. This variable has a correlation coefficient of 0.317. A large number of family members is only significantly related to farming bookkeeping activities. The results of this research are in accordance with the finding of the study by Roy et al. (2017) that women's participation is negatively related to family size. This is so for family members, particularly children with higher education levels, can help women farmers to record and calculate the production cost and profits derived from rice farming. Thus, women farmers can figure out the advantages and disadvantages of using production factors in their farming. Other internal factors that are not significantly related to the participation of women farmers are motivation and aspirations. Motivation does not have a significant relation with the participation of women farmers in rice farming activities. This is because the motivation for being involved in farming activities is mostly categorized moderate at 69% and only a small proportion of those who have high motivation at 14%. Most of the women farmers in Situ Gede Village, Bogor City work as farming labor and only a small proportion of them are landowners. The high motivation is found when the women farmers have their own land as the main source of income and contributes greatly to their family earnings. Also, aspiration is not related to the participation of women farmers in rice farming activities. Women farmers aspire to get a high income to fulfill household needs. This aspiration is supported by the price of rice in the market to keep it stable. It can help the sustainability of rice farming in urban area, especially Bogor City.

External factors significantly related to the participation of women farmers

External factors consist of culture, availability of labor, counseling, business climate and market opportunity. The culture or value system described in this study include the rules, values and ideas that apply in Situ Gede Village. Another factor analyzed in this study is the availability of labor. The availability of labor in rice farming usually comes from within the family and outside the family. Women farmers participate in rice farming activities to reduce labor costs. The factor that is considered capable of increasing women farmers' participation is counseling. Counseling can motivate the community to actively participate in particular farming activities. Market segmentation is also an important factor to increase the participation. Business climate and market opportunities entail the selling price, the demand for rice in the market, the availability of production facilities and the stabilization of price in the market. All external factors are in the medium category with the counseling as the most influence factor to increase the women farmers' participation.

Table 3 demonstrates external factors that correlate with the participation of women farmers is counseling. Counseling has an important relationship with the participation of women farmers in rice farming activities with a correlation coefficient of 0.356 and is significantly related to $\alpha = 0.05$. Counseling activities carried out one a month are in conjunction with routine meetings of women farmers. This motivates them to apply the theories provided by counseling. Besides, the counselors directly apply these activities in the fields, making the women farmers more motivated to try new technologies and sciences trained. The results of this research are in line with the research by Adwiyana et al. (2018), which concluded that the higher the level of non-formal education of farmers due to the more extension activities that are followed, the more farmers will gain more knowledge and experience in carrying out farming activities. According to Mulema et al. (2019), counseling access is

Table 3. Correlation of external factors with the participation of women farmers in rice farming activities

External factors	External factors									
	Culture		Availability of labor		Counseling		Business climate		Market opportunity	
	CCV	P	CCV	P	CCV	P	CCV	P	CCV	P
Land clearing	0.099	0.565	0.132	0.443	0.255	0.134	-0.067	0.696	-0.233	0.172
Planting	-0.070	0.684	-0.052	0.763	0.197	0.250	-0.033	0.847	0.271	0.110
Fertilization	-0.077	0.653	0.048	0.780	0.209	0.221	0.096	0.578	-0.248	0.145
Pest control	0.147	0.393	0.170	0.321	0.284	0.094	-0.038	0.827	-0.306	0.070
Harvest	0.108	0.529	0.062	0.720	0.268	0.114	-0.111	0.521	-0.295	0.080
Marketing	-0.242	0.155	-0.160	0.351	0.361*	0.031	0.296	0.080	-0.217	0.203
Entrepreneurship	0.097	0.572	0.039	0.822	0.273	0.107	-0.046	0.788	0.087	0.613
Farm bookkeeping	-0.160	0.352	-0.043	0.802	0.204	0.233	0.133	0.439	-0.084	0.625
Total participation	-0.016	0.927	0.040	0.808	0.356*	0.033	0.056	0.745	-0.259	0.127

Note: p = significance; ** = significantly related to $\alpha = 0.01$; * = significantly related to $\alpha = 0.05$

closely related to improve women farmers' participation. Imtihana and Gunawan (2018) also reported that counseling activities can also increase the participation of women farmers in all fields of services, material, moral and financial.

Women farmers in Situ Gede Village, Bogor City, expected an access to more frequent and scheduled counseling activities to obtain knowledge and insight to be more encouraged to increase their participation in farming activities. Their participation can be improved by paying attention to the intensity of counseling time, counseling methods and substances. Their knowledge can be improved through coaching and scheduled training. Training and coaching are more focused on improving appropriate and innovative technology so that women farmers will be more interested to develop their abilities in farming.

External factors that are not significantly related to the participation of women farmer

External factors that are not significantly related to the participation of women farmers include culture, the availability of labor, business climate and market opportunities. Activities both in the public and domestic sectors are inseparable from the culture and customs in the area. Women farmers are important part of cultural heritage when dealing with other cultures as one of the effects of globalization (Rosa, 2017). Every year during the last month in the calculation of the Sundanese calendar, there is a tradition of "*seren taun*" which is a Thanksgiving ceremony for Sundanese people after the rice harvesting period. People hand over some parts of rice to the customary leader to be stored in a granary, which is often called "*Leuit Seren Taun*". This event begins with taking water from a sacred source. The water is then splashed on everyone when picking up rice. After this procession is finished, residents perform colossal performances, such as *the Buyung Dance*, *Angklung Baduy* and *Angklung Beans*. The closing ceremony of this event is praying together. Table 3 that the external factor (culture) does not have a vital relation with the participation of women farmers in rice farming activities with a correlation coefficient of -0.016. This is because rice farming activities are not contradictory with the local culture in the Situ Gede Village, Bogor City. The findings are in accordance with

the conclusion of the research by Manoppo (2009), that the culture in Donggala supports the rice farming activities by women farmers.

Table 3 exhibits that another external factor that is not significantly related to the participation of women farmers is the availability of labor. The correlation coefficient value was 0.808, signifying that the availability of labor is not linked to the participation of women farmers because not all activities in rice farming use the labor outside the family. They use labor outside family only for land clearing and pest control activities. These results are in line with the outcomes of the research by Azwar et al. (2016), that labor availability cannot increase farmers' participation because they do not depend on labor outside the family in order to save costs. The other external factors are the business climate and market opportunities. Business climate is any form of external factor that supports the activities of rice farming, such as price information, availability of production facilities, the safety of farming and farming location.

Table 3 demonstrates that the business climate does not have a significant relation with the participation of women farmers. This is because the information received by women farmers only comes from the counselors and the production facilities are easy to access by farmers and sometimes farmers receive some helps, such as seeds from the government. Therefore, the business climate is not a determining factor of the level of farmers' participation. Furthermore, market opportunities do not significantly affect the participation of women farmers. The correlation coefficient was only 0.029, which happens since the market opportunities of rice farming are hampered by production costs, especially labor costs. In rice farming, the largest cost structure is the cost of labor. According to Manoppo (2009), market opportunities are associated with the level of suitability of market prices. Even though the price of rice reaches IDR 10,000 kg^{-1}, the production costs, such as the price of seeds, fertilizer and high labor costs, hinder farmers to obtain the benefits as expected.

CONCLUSIONS

The internal factors related to the participation of women farmers in rice farming activities are age, farming experience and decision making. The participation of women farmers linking to external factors is counseling. The women farmer group enables them to obtain additional opportunities to equip them with farming knowledge through such extension activities as the access to information sources is easier. The participation of women farmers can be increased by paying attention to the intensity of counseling time, counseling methods and substance of counseling. This effort can improve the knowledge of farmers if the training is more frequent and scheduled.

ACKNOWLEDGEMENT

The authors would like to express the deepest gratitude to the field agricultural counselor staff of Bogor City Agriculture Department and Dalima Women Farmer Group Members for their information, permission to researchers and the opportunity to conduct research at Women Farmer Group.

REFERENCES

Achandi, E. L., Mujawamariya, G., Agboh-Noameshie, A. R., Gebremariam, S., Rahalivavololona, N., & Rodenburg, J. (2018). Women's access to agricultural technologies in rice production and processing hubs: A comparative analysis of Ethiopia, Madagascar and Tanzania. *Journal of Rural Studies*, *60*, 188–198. https://doi.org/10.1016/j.jrurstud.2018.03.011

Adwiyana, S. K., Wibowo, A., & Wijianto, A. (2018). Hubungan karakteristik sosial ekonomi dengan partisipasi petani dalam Gerakan Penerapan Pengelolaan Tanaman Terpadu (GP-PTT) kedelai di Kecamatan Kedawung Kabupaten Sragen. *Caraka Tani: Journal of Sustainable Agriculture*, *31*(2), 71–78. https://doi.org/10.20961/carakatani.v31i2.11948

Aji, Y. P., Anantanyu, S., & Ani, S. W. (2015). Partisipasi wanita tani dalam kegiatan percepatan penganekaragaman konsumsi pangan (P2KP) melalui Program Kawasan Rumah Pangan Lestari (KRPL) di Kabupaten Purworejo. *Agrista*, *3*(1), 13–24. Retrieved from https://media.neliti.com/media/publications/183097-ID-partisipasi-wanita-tani-dalam-kegiatan-p.pdf

Akter, S., Krupnik, T. J., Rossi, F., & Khanam, F. (2016). The influence of gender and product design on farmers' preferences for weather-indexed crop insurance. *Global Environmental Change*, *38*, 217–229. https://doi.org/10.1016/j.gloenvcha.2016.03.010

Akter, S., Rutsaert, P., Luis, J., Htwe, N. M., San, S. S., Raharjo, B., & Pustika, A. (2017). Women's empowerment and gender equity in agriculture: A different perspective from Southeast Asia. *Food Policy*, *69*, 270–279. https://doi.org/10.1016/j.foodpol.2017.05.003

Alam, A. M. K., Amrawaty, A. A., & Sirajuddin, S. N. (2016). Peran perempuan pada usaha persuteraan alam di Desa Pising Kecamatan Donri-Donri Kabupaten Soppeng. *Jurnal Ilmu dan Industri Peternakan*, *3*(2), 77–81. Retrieved from http://journal.uin-alauddin.ac.id/index.php/jiip/article/view/3914/3568

Arikunto, S. (2002). *Research procedure A practice approach*. Jakarta: Rineka Cipta. Retrieved from https://scholar.google.co.id/scholar?cluster=24923406964149423 8&hl=id&as_sdt=2005&sciodt=0,5

Averret, S., Argys, L., & Hoffman, S. (2018). *The Oxford handbook of women and the economy*. New York: Oxford University Press. Retrieved from https://scholar.google.co.id/scholar?cites=17866515949711092822&as_sdt=2005&sciodt=0,5&hl=id

Azwar, A., Muljono, P., & Herawati, T. (2016). Persepsi dan partisipasi petani dalam pelaksanaan rehabilitasi tanaman kakao di Kabupaten Sigi Provinsi Sulawesi Tengah. *Jurnal Penyuluhan*, *12*(2), 157–167. https://doi.org/10.25015/penyuluhan.v12i2.13466

BPS – Statistics Indonesia. (2018). *Inter-census agriculture survey*. Jakarta (ID): BPS. Retrieved from https://www.bps.go.id/publication/2019/01/02/c7cb1c0a1db444e2cc726708/hasil-survei-pertanian-antar-sensus--sutas--2018.html

BPS – Statistics Indonesia. (2018). *Production value and production cost per planting season per hectare of cultivation of paddy, paddy field, corn, and soybean.* Jakarta (ID): BPS. Retrieved from https://www.bps.go.id/statictable/2019/04/10/2055/nilai-produksi-dan-biaya-produksi-per-musim-tanam-per-hektar-budidaya-tanaman-padi-sawah-padi-ladang-jagung-dan-kedelai-2017.html

Barau, A. A., & Oladeji, D. O. (2017). Participation of urban women in agricultural production activities in the Sokoto Metropolis, Nigeria. *Journal of Natural Resources and Development*, *7*, 84–90. https://doi.org/10.5027/jnrd.v7i0.10

Carter, N. A., Humphries, S., Grace, D., Ouma, E. A., & Dewey, C. E. (2017). Men and women farmers' perceptions of adopting improved diets for pigs in Uganda: Decision-making, income allocation, and intra-household strategies that mitigate relative disadvantage. *Agriculture & Food Security*, *6*(1), 18. https://doi.org/10.1186/s40066-017-0095-7

Cooper, D., & Emory, W. (1996). *Business research methods* (translate). Edition Fifth. Jakarta: Erlangga.

Desiana, N., & Aprianingsih, A. (2017). Improving income through farmers' group empowerment strategy. *The Asian Journal of Technology Management (AJTM)*, *10*(1), 41–47. https://doi.org/10.12695/ajtm.2017.10.1.5

Diiro, G. M., Seymour, G., Kassie, M., Muricho, G., & Muriithi, B. W. (2018). Women's empowerment in agriculture and agricultural productivity: Evidence from rural maize farmer households in western Kenya. *PLOS ONE*, *13*(5), e0197995. https://doi.org/10.1371/journal.pone.0197995

Doss, C., Meinzen-Dick, R., Quisumbing, A., & Theis, S. (2018). Women in agriculture: Four myths. *Global Food Security*, *16*, 69–74. https://doi.org/10.1016/j.gfs.2017.10.001

Galiè, A., Jiggins, J., & Struik, P. C. (2013). Women's identity as farmers: A case study from ten households in Syria. *NJAS - Wageningen Journal of Life Sciences*, *64–65*, 25–33. https://doi.org/10.1016/j.njas.2012.10.001

Gebre, G. G., Isoda, H., Rahut, D. B., Amekawa, Y., & Nomura, H. (2019). Gender differences in the adoption of agricultural technology: The case of improved maize varieties in southern Ethiopia. *Women's Studies International*

Forum, *76*, 102264. https://doi.org/10.1016/j.wsif.2019.102264

Grasty, J. (2013). *Empowering women farmers in agricultural value chain*. United Kingdom: UK National Committee for UN Women. Retrieved from https://scholar.google.co.id/scholar?q=Empowering+women+farmers+in+agricultural+value+chain&hl=id

Hanani, S., & Sari, S. R. (2018). Negosiasi waktu dan pekerjaan rumah tangga dalam masyarakat petani di Koto Baru Kecamatan X Koto Tanah Datar. *Jurnal Socius: Journal of Sociology Research and Education*, *5*(1), 21–31. https://doi.org/10.24036/scs.v5i1.86

Herawati, & Pulungan, I. (2006). Faktor-faktor yang berhubungan dengan partisipasi kontaktani dalam perencanaan program penyuluhan pertanian (Kasus WKUPP Nyalindung, Kabupaten Sukabumi). *Jurnal Penyuluhan*, *2*(2), 107–114. https://doi.org/10.25015/penyuluhan.v2i2.2188

Hidayati, O., Siregar, H., & Falatehan, A. F. (2017). Konversi lahan sawah di Kota Bogor dan strategi anggaran dalam mengendalikannya. *Journal of Regional and Rural Development Planning*, *1*(2), 217–220. https://doi.org/10.29244/jp2wd.2017.1.2.217-230

Imtihana, K., & Gunawan. (2018). Hubungan faktor-faktor internal dan eksternal dengan tingkat partisipasi wanita tani dalam pengembangan Kawasan Rumah Pangan Lestari (KRPL) Swadaya di Desa Jatisari, Kecamatan Purwodadi, Kabupaten Pasuruan. *Prosiding Seminar Nasional Membangun Kemandirian Korporasi Petani Indonesia Menuju Kedaulatan Pangan Berkelanjutan.* Retrieved from https://jurnal.polbangtanmalang.ac.id/index.php/Prosiding/article/view/49

Ishaq, W., & Memon, S. Q. (2016). Roles of women in agriculture: A case study of rural Lahore, Pakistan. *Journal of Rural Development and Agricultural*, *1*(1), 1–11. Retrieved from https://jpaa.aiou.edu.pk/ojs/files/journals/1/articles/33/public/33-65-1-PB.pdf

Johnson, N. L., Kovarik, C., Meinzen-Dick, R., Njuki, J., & Quisumbing, A. (2016). Gender, Assets, and Agricultural Development: Lessons from Eight Projects. *World Development*, *83*, 295–311. https://doi.org/10.1016/j.worlddev.2016.01.009

Laksono, N. B., Eddy, B. T., & Mardiningsih, D. (2018). Analisis pengaruh faktor-faktor sosial ekonomi terhadap curahan waktu kerja wanita tani kopi robusta di Kecamatan Jumo Kabupaten Temanggung. *Jurnal Agroland*, *25*(2), 112–120. http://jurnal.untad.ac.id/jurnal/index.php/AGROLAND/article/view/10884

Manoppo, C. (2009). *Factors related to the participation of farming women in rice farming activities (Case in Palolo District, Donggala Regency, Central Sulawesi). [Master thesis]*. Bogor: Postgraduate Program, Bogor Agricultural University. Retrieved from https://repository.ipb.ac.id/handle/123456789/41506

Maligalig, R., Demont, M., Umberger, W. J., & Peralta, A. (2019). Off-farm employment increases women's empowerment: Evidence from rice farms in the Philippines. *Journal of Rural Studies*, *71*, 62–72. https://doi.org/10.1016/j.jrurstud.2019.09.002

Mulema, A. A., Jogo, W., Damtew, E., Mekonnen, K., & Thorne, P. (2019). Women farmers' participation in the agricultural research process: Implications for agricultural sustainability in Ethiopia. *International Journal of Agricultural Sustainability*, *17*(2), 127–145. https://doi.org/10.1080/14735903.2019.1569578

Nurahman, I. S., Rusman, Y., & Noormansyah, Z. (2017). Hubungan faktor sosial ekonomi petani dengan partisipasi anggota Kelompok Wanita Tani (Kwt) Melati. *Jurnal Ilmiah Mahasiswa Agroinfo Galuh*, *3*(2), 73. https://doi.org/10.25157/jimag.v3i2.212

Ochago, R. (2017). Barriers to women's participation in coffee pest management learning groups in Mt Elgon Region, Uganda. *Cogent Food & Agriculture*, *3*(1), 1358338. https://doi.org/10.1080/23311932.2017.1358338

Panda, S. (2015). Farmer education and household agricultural income in rural India. *International Journal of Social Economics*, *42*(6), 514–529. https://doi.org/10.1108/IJSE-12-2013-0278

Bogor City Government (Pemerintah Kota Bogor). (2018). *Distani Kota Bogor Raih Penghargaan Kinerja LTT Padi*. Retrieved from https://kotabogor.go.id/index.php/show_post/detail/11203.

Puspitaningsih, O. S., Utami, B. W., & Wijianto, A. (2018). Partisipasi kelompok tani dalam mendukung program-program pertanian berkelanjutan di Kecamatan Puring, Kabupaten Kebumen (Studi komparasi kelompok tani kelas lanjut dan pemula). *Caraka Tani: Journal of Sustainable Agriculture*, *31*(2), 79–85. https://doi.org/10.20961/carakatani.v31i2.11950

Rasheed, A., Mwalupaso, G. E., Abbas, Q., Tian, X., & Waseem, R. (2020). Women participation: A productivity strategy in rice production. *Sustainability*, *12*(7), 2870. https://doi.org/10.3390/su12072870

Rosa, D. V. (2017). Ruang negosiasi perempuan di balik revolusi kopi using. *Jurnal Sosiologi Pendidikan Humanis*, *2*(2), 63–73. Retrieved from http://journal2.um.ac.id/index.php/jsph/article/view/3397/2040

Roy, P., Haque, S., Jannat, A., & Ali, M. (2017). Contribution of women to household income and decision making in some selected areas of Mymensingh in Bangladesh. *Journal Progressive Agricultural*, *28*(2), 120–129. https://doi.org/10.3329/pa.v28i2.33473

Susilowati, S. H. (2016). Fenomena penuaan petani dan berkurangnya tenaga kerja muda serta implikasinya bagi kebijakan pembangunan pertanian. *Forum penelitian Agro Ekonomi*, *34*(1), 35–55. https://doi.org/10.21082/fae.v34n1.2016.35-55

Twyman, J., Muriel, J., & García, M. A. (2015). Identifying women farmers: Informal gender norms as institutional barriers to recognizing women's contributions to agriculture. *Journal of Gender, Agriculture and Food Security (Agri-Gender)*, *1*(2), 1–17. http://dx.doi.org/10.22004/ag.econ.246047

Unu, A., Sendow, M. M., & Wangke, W. M. (2018). Curahan waktu kerja wanita dalam kegiatan usahatani padi sawah di desa rasi satu kecamatan ratahan kabupaten minahasa tenggara. *Agri-sosioekonomi*, *14*(3), 105–110. https://doi.org/10.35791/agrsosek.14.3.2018.21540

Wiig, H. (2013). Joint titling in Rural Peru: Impact on women's participation in household decision-making. *World Development*, *52*, 104–119. https://doi.org/10.1016/j.worlddev.2013.06.005