

Optimization of Land Use in Kuripan Village, Ciseeng District, Bogor Regency

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Abstract

Farmers in Kuripan Village cultivate cassava plants. Some farmers plant to get the tubers and others grow to harvest the leaves (*oyek*). The harvest obtained has not contributed significantly to the income of the farmer's household. For cassava tubers it takes 7 months to harvest while *oyek* takes a month to harvest. Low prices and market opportunities through middlemen have prevented farmers from relying on their land optimally. As a village assisted by the University of Muhammadiyah Jakarta, the Community Service team provides training to optimized land use by diversifying and regulating cropping patterns to cassava farmers. The targets and outcomes, first, increase the knowledge and skills of farmers to choosing the right plants according to the physical conditions to diversification. Through crop diversification, it will minimize crop failure because more than one type of plant is planted. Second, farmers have skills to design appropriate cropping patterns so the farmers have income continuity throughout the year and loss of soil nutrients at harvest can be minimized so that soil fertility can be save.

Keywords: diversification of plants; cropping patterns; increased revenue

Abstrak

Petani di Desa Kuripan membudidayakan tanaman singkong. Beberapa petani menanam untuk mendapatkan umbinya dan yang lainnya menanam untuk memanen daunnya (*oyek*). Hasil panen yang diperoleh belum memberikan kontribusi yang berarti terhadap pendapatan rumah tangga petani. Umbi singkong butuh waktu 7 bulan untuk panen, sedangkan *oyek* membutuhkan waktu sebulan untuk panen. Harga yang murah dan peluang pasar melalui tengkulak membuat petani tidak dapat mengandalkan lahannya secara optimal. Sebagai desa binaan Universitas Muhammadiyah Jakarta, tim Pengabdian Kepada Masyarakat memberikan pelatihan optimalisasi pemanfaatan lahan dengan melakukan diversifikasi dan pengaturan pola tanam kepada petani singkong. Target dan luarannya, pertama, meningkatkan pengetahuan dan keterampilan petani dalam memilih tanaman yang tepat sesuai kondisi fisik hingga diversifikasi. Melalui diversifikasi tanaman, akan meminimalisir gagal panen karena menanam lebih dari satu jenis tanaman. Kedua, petani memiliki keterampilan merancang pola tanam yang tepat sehingga petani memiliki kelangsungan pendapatan sepanjang tahun dan kehilangan unsur hara tanah saat panen dapat diminimalkan sehingga kesuburan tanah dapat terjaga.

Kata Kunci: diversifikasi tanaman; pola tanam; peningkatan pendapatan

A. INTRODUCTION

Kuripan Village in Ciseeng District, Bogor Regency is one of the villages that faces problems in the agricultural sector. The villagers used to be farmers but along with global developments, there have been many changes in people's lives, mainly due to the location of the village in Bogor Regency which is the buffer of the capital city of Jakarta. The development of the city of Jakarta as a megapolitan city also has an impact on the people living in its buffer zones.

There are not many farmers who still survive to cultivate land, from the available data it is known that only 17% of the population still maintains agriculture as a source of livelihood. Among these farmers, there are 100 farmers and 59 farm laborers. However, the survey results show that in fact, among those who claim to be not farmers because they work as laborers or employees, in fact some are still cultivating agricultural land outside of their main job (farming is a side job). So if this population is also categorized as farmers, then there are 30% of farmers or people who manage farming. According to Law No. 19 of 2013, farmers are individual Indonesian citizens and/or their families who carry out Farming Business in the fields of food crops, horticulture, plantations, and/or animal husbandry (*Undang-Undang Republik Indonesia Nomor 19 Tahun 2013 tentang Perlindungan dan Pemberdayaan Petani*).

Kuripan village farmers mostly plant types of tubers such as cassava, sweet potatoes and baby potatoes. However, the most cultivated crop is cassava. Some farmers also grow corn, cucumber suri, peanuts. Some are working on ornamental plants, raising ornamental fish, cultivating catfish, raising chickens and goats. However, most of the farming is carried out in monoculture and is carried out on a small scale.

In the past, farmers were still doing lowland rice farming, but the water discharge from the water source used for rice fields was no longer sufficient so that the water flow no

longer reached Kuripan Village. Since 2012 the rice fields have long disappeared. Paddy fields become dry land which is currently filled with cassava plants.

The area of land cultivated as cassava is less than 0.3 Ha. Farming on a small scale is due to the fact that most of the farmers in Kuripan Village have lost their arable land which was purchased by the companies when they were pressed by social and economic needs. Even though the land is no longer owned by the farmers, they still cultivate the former land as long as it has not been used by the company. The use of this land is not subject to rent by the company. This is in line with (Soekarwati et al., 1986) who explained that from an economic point of view, a very important characteristic of small farmers is the limited basic resources where they cultivate. In general they only control a small plot of land, sometimes accompanied by uncertainty in its management.

Cassava farmers in Kuripan Village are divided into farmers who cultivate cassava to harvest its tubers and farmers who cultivate cassava to harvest its leaves, which the community calls *oyek*. The farmers are known as *oyek* farmers. Both cassava farmers and *oyek* farmers experience problems in the form of low selling prices when harvesting.

Cassava plants are harvested after 7 months of age, while *oyek* are harvested after one month. The average selling price of cassava tubers to middlemen (village collectors) is IDR 800/kg. While the price of motorbikes is Rp. 10,000/bundle (± 1 kg). The cassava tubers will then be sold for Rp. 2000-Rp. 5,000/kg, while *oyek* is sold for Rp. 15,000-20,000/kg. Farmers in Kuripan Village do not have a strong bargaining position in determining prices because their harvests are usually bought up by middlemen (collectors of traders). Moreover, the prices given by middlemen are usually uniform, even if there is a price difference of only Rp. 500/kg. Farmers have the freedom to sell to the traders they choose. However, even though there is a slight price difference, some

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farmers still sell to middlemen who are their customers.

Middlemen buy cassava tubers and *oyek* directly from farmers. Bulbs are sold by farmers only once at harvest, usually directly purchased by middlemen. The large number of harvests caused the price of cassava tubers to fall. According to (Ginting, 2008), The abundance of cassava yields at the time of the main harvest causes the selling price of cassava to decline so that it is often detrimental to producer farmers. In addition, the short shelf life of fresh cassava causes farmers to be unable to delay any longer by not selling their harvests even at relatively low prices.

Farmers in Kuripan Village harvest all at once, walthough they can harvest in stages, but delaying the harvest will result in a decrease in the quality of the tubers. In contrast to cassava leaves (*oyek*) which are planted a month and immediately harvested. The large number of ojek production in Kuripan Village allows farmers to take turns harvesting every day. The short growing time allows farmers to set the planting time so that they can harvest continuously. As a center for motorcycle taxi production, 3 (three) small cars are transported by middlemen to be marketed outside the village every day. Both cassava tubers and *oyek* collected by middlemen are sold to the Kramat Jati main market, from there they will be distributed to other markets. In addition, some are also sold to the Tangerang market, although in smaller quantities.

The low income of cassava farmers and *oyek* farmers is certainly not sufficient for the living needs of farming households. As a solution to farmers' problems, the UMJ Community Service team conducts training and mentoring to optimize land use through diversification and regulation of cropping patterns to cassava farmers, both those that produce tubers and shoots. The targets and outcomes to be achieved from this training are, first, to increase the knowledge and skills of farmers in choosing the right plants according to the physical conditions of the

land to be planted with cassava or *oyek* (diversification). Through crop diversification, it will minimize crop failure because more than one type of plant is planted. Second, farmers have skills in designing appropriate cropping patterns so that farmers can get income continuity throughout the year and loss of soil nutrients at harvest can be minimized so that soil fertility can be maintained.

B. IMPLEMENTATION AND METHODS

The implementation of this community service is carried out for one month, from 1-31 December 2021. The methods used are first, providing counseling and assistance to cassava farmers and motorcycle taxi farmers in diversifying crops with appropriate intercropping. Second, designing the right cropping pattern so that farmers can increase their income and obtain continuity of income throughout the year.

C. RESULTS AND DISCUSSION

This community service began with a visit to Kuripan Village. As a village assisted by the University of Muhammadiyah in the PHP2D Program. Kuripan Village has established a good relationship as a partner with the Muhammadiyah Jakarta University team so that the identification of partner needs has been carried out previously, but before continuing with Community Service activities, FGDs were carried out with partners, namely village officials and local RW heads.

After the FGD the team conducted a survey to the cassava plantations and saw how the farming was carried out. On average, farmers do monoculture farming, which is only planting cassava, not intercropping. The results of this visit revealed that cassava plants were planted in RW 2 for the tubers and in RW 4 and 5 for the leaves. It takes 7 months from planting preparation to harvesting tubers while harvesting *oyek* takes a month.

The crops, both cassava tubers and *oyek* tubers, are all bought by middlemen (Village

collectors). There are three kinds of purchasing system. First, middlemen buy directly all the produce of farmers and pay in cash. Second, middlemen lend money to farmers to plant objects which will then be taken into account when buying farmers' crops. Third, middlemen take tubers or *oyek* from farmers when harvesting and pay to farmers after the bulbs or *oyek* are purchased and paid for by traders at the main market.

In *oyek* farming, because the process is only a month from planting to harvest, farmers who carry out monoculture planting will earn income only once a month at harvest time. If there is a time off to rest their land, the farmer will not get income every month. With a cheap motorcycle price of Rp. 10,000 per large bunch (± 1 kg), and once harvesting can get 120-150 bunches, farmers only get Rp. 1,200,000 - Rp. 1,500,000 gross receipts per harvest or per month. Meanwhile, for cassava tubers that are harvested once every 7 months, lower income will be obtained. For 0.2 ha of cassava land, which produces an average of 8 tons, the gross revenue will be Rp. 6,400,000 per harvest or only around Rp. 900,000 per month. Due to the low price of cassava, farmers prefer to plant to harvest the leaves which provide higher and more frequent income throughout the year. Some farmers do have an additional source of income, usually farmers, their wives and children work to contribute to household income. Some have kiosks or work as factory employees or laborers in the surrounding area (generally in Bogor, Depok and Serpong)

From the description of the condition of cassava farmers in Kuripan Village, the UMJ Community Service team tried to provide solutions to farmers so that from the available land, farmers could earn bigger and more continuous incomes. Because of that, training and mentoring were carried out for farmers who did cassava farming. Team coaching and mentoring cassava farmers and *oyek* farmers in diversifying crops with the right intercropping. Second, the team assists farmers in designing appropriate cropping patterns according to farmers' land conditions.

Diversified agriculture means growing more than one type of crop, one type of livestock, or one type of fish. Diversification according to the area of farming branches is divided into diversification in the narrow sense and diversification in the broad sense. Diversification in a narrow sense is cultivating between types of plants or between types of livestock, while diversification in a broad sense is cultivating between types of plants, livestock, and fisheries (Damanhuri et al., 2017).

The importance of diversification in increasing farmers' income is shown in the research results of (Rusastra et al., 2016) that farming using alternative cropping patterns requires higher costs, but also provides a higher level of profit. Compared to the farmer pattern, there is an increase in the total cost of about 2.4 times. However, the alternative pattern provides the largest level of income, which is about 1.9 times the income of the farmer's cropping pattern or 1.5 times the income of the renewed farmer pattern.



Figure 1. Casava, Farm Products in Kuripan

Assistance activities for cassava farmers are carried out during December 2021. Starting with the preparation of the team to Kuripan Village. At first, a small community service team consisting of 5 students went to Kuripan Village to conduct an initial survey of community needs. Furthermore, a large team of lecturers, staff and students held a FGD at the Village Office on December 18, 2021.



Figure 2. Map of Kuripan District

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After the FGD, the team continued to cassava and *oyek* plantations to gather information with local farmers and at the same time provide counseling in the field (garden) on the problems raised by the farmers. The problem is the low price of cassava and *oyek* so that the production produced in monoculture does not provide a decent income. The team then developed a problem-solving strategy and consolidated with the local government represented by the Village Head, Village Secretary and farmer representatives. The next action taken by the UMJ Community Service team was to take action on cassava farmers through farmer groups.

The two actions carried out are first, counseling and assistance on plant diversification through cassava & motorcycle farmer groups. Second, designing a one-year cropping pattern on cassava and *oyek* land through the Farmers Group. The counseling carried out by the UMJ team was carried out through farmer groups because togetherness through groups would increase farmers' collectivity in production, capital and marketing. This is confirmed by (Ban et al., 1999) that the subjects of agricultural development are farmers, farming communities in general and farmer groups in particular. As one of the components in the agribusiness system, the role of farmer groups will determine the success of extension.



Figure 3. Workshop Optimalization of Land in Kuripan District

After the action activities took place, there were two things that were achieved from the community service carried out by the UMJ Team. First, the farmers involved are aware of the importance of diversifying cassava or *oyek* crops with other crops, namely corn and peanuts. These two types of plants can grow well on land conditions in

Kuripan Village, namely soil with limited mineral nutrients. According to (Damanhuri et al., 2017), dFarm diversification is also intended to prevent the negative impact of monoculture cultivation systems which in the long term can lead to a decrease in soil quality and fertility, increased resistance to pests and plant diseases, low land productivity, and prevent the risk of drought and crop failure. According to (Hanafie, 2010), diversification must consider the willingness of farmers as producers to grow various crops on their land and pay attention to the comparative advantages of the use of natural resources and local socio-economics. Based on the counseling given, pFarmers in Kuripan Village will work together in their farmer groups accompanied by local agricultural extension workers in implementing crop diversification.

Second, farmers are able to carry out farming planning by designing simple cropping patterns according to their land conditions that will provide income continuity and maintain the fertility of the land they cultivate. Thus, the agricultural extension carried out by the team is an effort to empower the community (farmers). According to (Bahua, 2015), agricultural extension in the sense of community empowerment implies that farmers are people who are able to develop their potential according to the potential of natural resources around them. With this potential, farmers are expected to be able to change their mindset for the better.

The following is a chart of activities carried out by the UMJ Community Service Team in Kuripan Village to optimize agricultural potential in Kuripan Village.

There are three factors that support the implementation of the UMJ community service program, namely first, the amount of support from the local government who is always present in every activity carried out. Second, the togetherness that is established by farmers who are members of cassava farmer groups will mutually strengthen farmers in diversifying crops in cassava and *oyek*

farming. Third, the farmers basically have the skills and experience to cultivate corn and peanuts as intercropping plants suggested by the team. Meanwhile, the main inhibiting

factor in implementing cassava and *oyek* farming is the lack of capital to provide seeds and supporting production facilities.

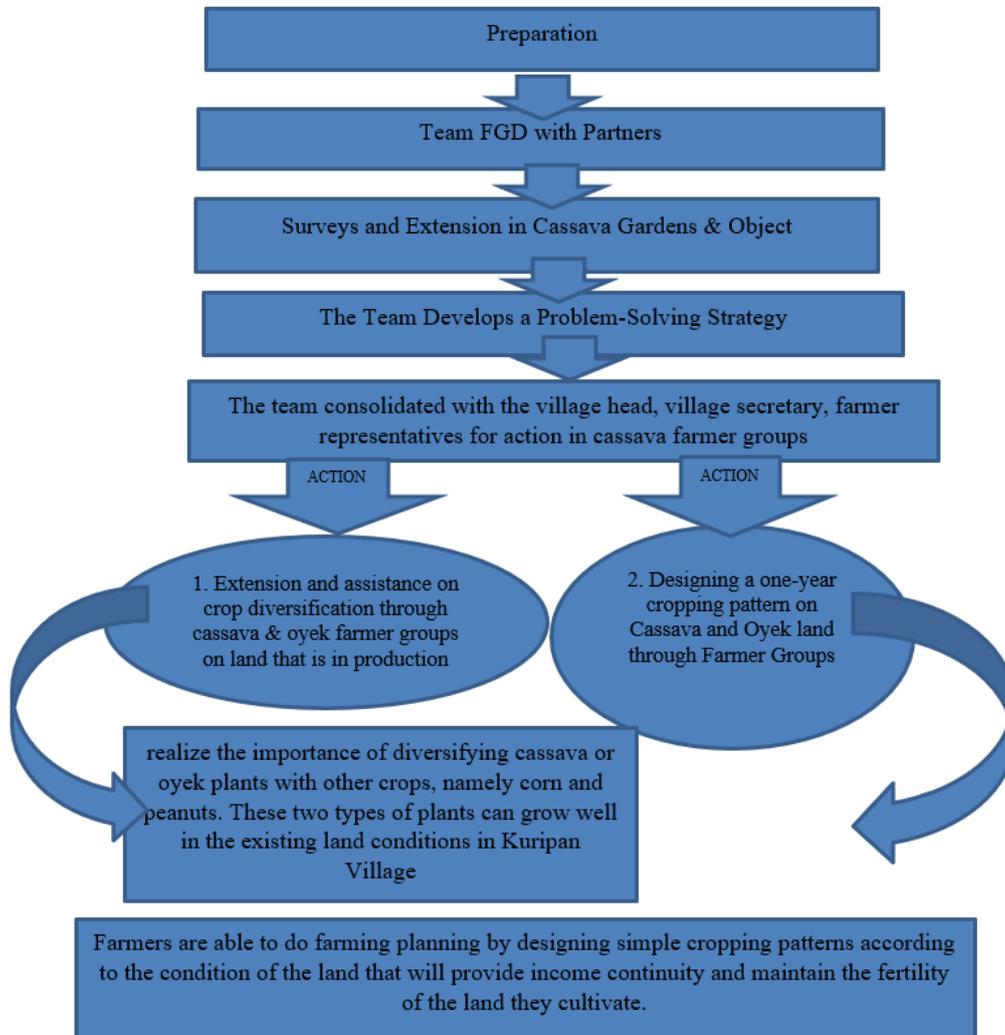


Figure 4. UMJ Team Abdimas Activities in Kuripan Village

The low capital owned by farmers to diversify crops is a common phenomenon of Indonesian farmers. According (Damanhuri et al., 2017), limited farmers' capital is the main factor that hinders the development of diversification and reduces farm productivity. Capital is used by farmers to finance farming activities, such as buying production facilities (seeds, fertilizers, and medicines), labor wages, and other operational costs. Limited capital will certainly limit farmers to get production facilities so that their farming cannot provide optimal results. Limited capital causes farmers to have resistance to

implementing new cropping patterns that are not in accordance with previous habits because they are worried about the risk of loss that will be experienced.

D. CLOSING Conclusion

Community service for the UMJ team through training and mentoring of cassava and *oyek* farmers is carried out to optimize land use through diversification and arrangement of cropping patterns in accordance with land conditions in Kuripan Village. The results achieved are; pFirst, the

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farmers involved are aware of the importance of diversifying their cassava or *oyek* crops with other crops, namely corn and peanuts. Second, farmers are able to carry out farming planning by designing simple cropping patterns according to their land conditions that will provide income continuity and maintain the fertility of the land they cultivate. Three factors that support the implementation of the UMJ team service program are the amount of support from the local government, the bonds of togetherness in farmer groups and the farming skills of the farmers. The main inhibiting factor in implementing crop diversification is the lack of economic capital to provide seeds and supporting production facilities.

Suggestion

From this program, it is hoped that cassava and *oyek* farmers will get an increase and continuity of income from optimizing the land they cultivate through diversification and regulation of cropping patterns. For its implementation, farmers need support from official financial institutions such as banks or cooperatives and further assistance from local agricultural extension workers so that farmers are no longer dependent on moneylenders or middlemen.

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