

PEMBERDAYAAN KELOMPOK TANI MELALUI BUDIDAYA TANAMAN PERKEBUNAN BERBASIS PEKARANGAN UNTUK MENDUKUNG KETAHANAN PANGAN DI KELURAHAN PAYA PASIR, KECAMATAN MEDAN MARELAN, KOTA MEDAN

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Abstrak

Kelurahan Paya Pasir, Kecamatan Medan Marelan, Kota Medan merupakan salah satu wilayah pesisir dengan potensi lahan pekarangan yang cukup luas namun belum dimanfaatkan secara optimal oleh masyarakat, khususnya kelompok tani setempat. Sebagian besar pekarangan rumah tangga masih dibiarkan kosong atau hanya ditumbuhi tanaman liar, padahal lahan tersebut berpotensi dikembangkan menjadi sumber pangan dan pendapatan tambahan keluarga melalui budidaya tanaman perkebunan bernilai ekonomis seperti kelapa genjah, jahe merah, kunyit, serai wangi, cabe jamu, dan kelor. Kegiatan pengabdian kepada masyarakat ini bertujuan untuk memberdayakan kelompok tani melalui penyuluhan, pelatihan teknis budidaya, pendampingan, dan pembangunan demonstrasi plot (demplot) pemanfaatan pekarangan sebagai upaya mendukung ketahanan pangan keluarga dan wilayah. Metode pelaksanaan meliputi tahap sosialisasi dan identifikasi kebutuhan mitra, penyuluhan, pelatihan teknik budidaya tanaman perkebunan skala pekarangan, pembuatan demplot percontohan, pendampingan lapangan secara berkala, serta evaluasi dan monitoring keberlanjutan program yang diukur melalui instrumen pretest dan posttest. Hasil kegiatan menunjukkan adanya peningkatan pengetahuan dan keterampilan anggota kelompok tani dalam teknik pengolahan lahan pekarangan berpasir, pembibitan, penanaman dengan sistem polybag dan vertikultur, pemupukan organik, serta pengendalian hama dan penyakit secara terpadu. Demplot percontohan yang dibangun bersama mitra menjadi sarana pembelajaran praktis sekaligus contoh nyata pemanfaatan pekarangan produktif yang dapat direplikasi secara mandiri. Kegiatan ini diharapkan dapat menjadi model pemberdayaan masyarakat berbasis pekarangan yang berkelanjutan dan direplikasi di wilayah lain guna memperkuat ketahanan pangan dari tingkat rumah tangga.

Kata Kunci: Pemberdayaan, Kelompok Tani, Tanaman Perkebunan, Pekarangan, Ketahanan Pangan.

EMPOWERMENT OF FARMER GROUPS THROUGH YARD-BASED CULTIVATION OF PLANTATION CROPS TO SUPPORT FOOD SECURITY IN PAYA PASIR VILLAGE, MEDAN MARELAN SUBDISTRICT, MEDAN CITY

Abstract

Paya Pasir Village, Medan Marelan Subdistrict, Medan City is a coastal area with considerable home-yard land potential that has not been optimally utilized by the community, particularly the local farmer groups. Most household yards remain vacant or are only covered with wild vegetation, even though this land has the potential to be developed as a source of food and additional family income through the cultivation of economically valuable plantation crops such as dwarf coconut, red ginger, turmeric, citronella grass, cabe jamu, and moringa. This community service activity aims to empower farmer groups through extension services, technical cultivation training, mentoring, and the establishment of a demonstration plot to support household and regional food security. The implementation method consists of socialization and needs assessment, extension and training on yard-scale plantation crop cultivation techniques, the establishment of a demonstration plot, periodic field mentoring, and evaluation using pretest and posttest instruments. The results show an increase in the knowledge and skills of farmer group members in sandy yard land preparation, nursery techniques, polybag and vertical planting systems, organic fertilization, and integrated pest and disease management. The demonstration plot built together with the partners serves as a practical learning tool as well as a real, replicable example of productive yard utilization. This activity is expected to



become a sustainable model of yard-based community empowerment that strengthens household-level food security and can be replicated in other areas.

Keywords: Empowerment, Farmer Group, Plantation Crops, Home Yard, Food Security.

1. INTRODUCTION

Food security is one of the national strategic issues that has been of concern to the government and the public, especially since the enactment of Law Number 18 of 2012 concerning Food which emphasizes that food fulfillment is a human right of every citizen. The law states that food security is a condition for food fulfillment for the state and individuals, which is reflected in the availability of sufficient food, both in quantity and quality, safe, diverse, nutritious, equitable, and affordable and does not conflict with the religion, beliefs, and culture of the community, to be able to live a healthy, active, and productive life in a sustainable manner. Food security does not only depend on large-scale food production in the formal agricultural sector, but can also be strengthened through the optimization of small plots of land at the household level, one of which is through the use of yard land that has been often neglected.

The concept of Sustainable Food House Areas (KRPL) initiated by the Ministry of Agriculture of the Republic of Indonesia is one of the strategies to encourage people to use the yard as a source of food, nutrition, and additional income for families in a sustainable manner. A well-managed yard can function as a living barn, a living stall, as well as a living pharmacy for households, because it is able to provide fresh food every day without having to rely entirely on the market. In addition to the aspect of fulfilling family nutrition, the productive use of yards also opens up opportunities for household income diversification through the sale of fresh crops and simple processed products.

Paya Pasir Village, Medan Marelan District, Medan City is a coastal area that is directly adjacent to the pond area and the waters of the Malacca Strait. Most of the population makes a living as fishermen, farm laborers, and freelance day laborers, with relatively erratic income levels following the fishing season and weather conditions at sea. These socio-economic conditions make some households vulnerable to fluctuations in food prices, especially during the fish famine season or extreme weather that hinders fishing activities. The low diversification of family sources of income makes household food security in this region one of the issues that need common attention.

The results of initial observations and interviews by the service team with the management of the Farmer Group and the Paya Pasir Village officials show that most of the households in the village actually have yard land with an adequate area to be developed into productive land, although most of the use is still very limited. Some yards are only overgrown with weeds, used as a place to dry fishing gear, or left empty without productive functions. In fact, if managed properly, the land has the potential to be developed into an additional food source as well as a source of income for families, especially through the cultivation of plantation crops that have economic value and are relatively tolerant of sandy soil conditions and air salinity typical of coastal areas.

Plantation plants that can be cultivated on a yard scale are quite diverse, including genjah coconut, red ginger, turmeric, citronella, herbal pepper, and moringa. This type of plant was chosen based on several considerations, namely having high economic value, relatively easy to cultivate by novice farmers, resistant to marginal and sandy land conditions such as in the coastal area of Medan Marelan, does not require a large amount of land, and can be harvested in stages (multiharvest) so as to provide sustainable food and economic benefits for farmer families throughout the year. In addition to being



consumed in fresh form, processed products from these plants, such as instant ginger, sour turmeric herbal drinks, citronella essential oils, and moringa leaf chips and tea, have sufficient market potential at both the local and regional levels, so that they can be a significant source of additional income for households.

Based on the results of the initial discussion with the Farmer Group in Paya Pasir Village, several main problems were identified that became the basis for the implementation of this service activity, namely:

1. Low knowledge and skills of farmer group members regarding plantation crop cultivation techniques suitable for narrow and sandy yards;
2. Limited access to superior seeds, fertilizers, and other means of agricultural production;
3. Lack of knowledge about organic fertilization techniques and pest and plant disease control in an environmentally friendly manner;
4. Not optimal knowledge about post-harvest handling and marketing of yard products; and
5. There is no real example (pilot) of productive yard utilization that can be a reference for local residents.

Based on these problems, the service team from the Indonesian Institute of Palm Oil Technology (ITSI) consisting of lecturers from the Plantation Crop Cultivation Study Program and the Agribusiness Study Program considered it necessary to carry out community service activities in the form of empowering farmer groups through yard-based plantation crop cultivation as an effort to support food security in Paya Pasir Village. This activity is in line with the Tri Dharma of Higher Education, especially the dharma of community service, as well as a means of applying the science of plantation plant cultivation and agribusiness study programs directly in the community.

This activity aims to: (1) increase the knowledge and skills of farmer group members in the cultivation of yard-based plantation crops; (2) encourage the use of yard land that has been less productive as a source of food and additional family income; (3) build a demonstration of pilot plots as a learning model that can be replicated by the community more widely; and (4) provide a knowledge base on post-harvest handling and simple marketing strategies for yard yields. The expected benefits of this activity are increasing household food independence, growing collective awareness of farmer groups to utilize yards productively, and the formation of a yard-based coastal community empowerment model that can be replicated in other villages in Medan Marelan District and the coastal area of Medan City in general.

2. IMPLEMENTATION METHOD

Location, Time, and Target Audience

This community service activity was carried out in Paya Pasir Village, Medan Marelan District, Medan City, North Sumatra Province. The activity lasted in stages for approximately three months, starting from the initial socialization stage, counseling, technical training, making demonstration plots, field assistance, to the final evaluation. The target audience for this activity is members of the Farmer Group in Paya Pasir Village which amounts to approximately 20-25 people, consisting of heads of families and housewives who own yard land and are interested in developing yard-scale farming businesses as a source of food and additional family income.

Troubleshooting Framework

The problem-solving framework in this activity is prepared based on the problems of partners that have been identified at the situation analysis stage. To the problem of low knowledge of cultivation techniques, the solutions offered are in the form of counseling and technical training on the cultivation of plantation plants on a yard scale. To the problem of limited access to seeds and production facilities, the service team provided assistance with superior seeds and initial production facilities as stimulants. To address the problem of lack of knowledge of organic fertilization and environmentally friendly pest control, the team provided training on making organic fertilizers and simple vegetable pesticides. As for the problem of the lack of a pilot, the service team with partners built a demonstration plot (demonstration plot) as a real model that can be observed and replicated independently by other members of the farmer group.

Stages of Implementation

The method of implementing activities is arranged in stages so that the objectives of the activity can be achieved systematically and sustainably, with the following stages:

1. **Socialization and Needs Identification Stage.** The service team coordinates with Paya Pasir Village officials and Farmer Group administrators to introduce programs, capture aspirations, and identify the condition of the yardland, the types of plants that have been cultivated beforehand, and the training needs needed by partners. At this stage, an initial questionnaire (pretest) was also carried out to measure the level of basic knowledge of participants regarding plantation-based crop cultivation.
2. **Extension Stage.** The service team provided counseling on the importance of yard use for family food security, the concept of Sustainable Food House Areas (KRPL), the introduction of plantation plant types that are suitable for sandy yard land, and the economic and nutritional benefits of these plants. Counseling was carried out using interactive lectures, questions and answers, and video screenings of examples of successful yard utilization in other areas.
3. **Cultivation Technical Training Stage.** The training was carried out in a participatory manner with a learning by doing approach and included: (a) narrow and sandy yard land cultivation techniques; (b) seeding techniques and selection of superior seeds of coconut genjah, red ginger, turmeric, citronella, herbal pepper, and moringa; (c) planting techniques with polybag, sack, and verticulture systems for very limited yards; (d) organic fertilization techniques using materials that are easily obtained in the surrounding environment such as kitchen waste, livestock manure, and marine product residues; and (e) integrated pest and plant disease control techniques using plant-based pesticides.
4. **Stage of Making Plot Demonstrations (Demo Plots).** The service team together with farmer group members built a pilot demonstration plot on the yard owned by one of the group members as a real example of the application of cultivation techniques that have been trained, as well as a learning medium for other farmer group members who have not applied similar techniques in their respective yards.
5. **Field Assistance Stage.** Mentoring is carried out periodically, approximately once every two weeks, to ensure that the application of cultivation techniques runs according to directions, helps overcome technical obstacles faced in the field such as pest attacks or water limitations, and provides motivation so that yard cultivation activities can be sustainable.

6. Evaluation and Monitoring Stage. The evaluation was carried out through direct observation of the development of the demonstration plot, interviews with members of farmer groups, and filling out a final questionnaire (posttest) to measure the increase in participants' knowledge compared to the results of the pretest at the beginning of the activity. The results of this evaluation are the basis for compiling program sustainability recommendations.

Instruments and Indicators of Success

The success of the activity was measured using several indicators, namely: (1) an increase in the participant's knowledge score between the pretest and posttest; (2) the level of attendance and active participation of participants in each stage of the activity; (3) the construction of a pilot demonstration plot that grows and develops well; and (4) the commitment of farmer groups to continue and develop the cultivation of yard-based plantation crops independently after the service program ends. The data obtained was then analyzed in a qualitative descriptive manner and presented in the form of narratives and tables to clarify the picture of the results of the activity.

3. RESULTS AND DISCUSSION

Partner Profile and Initial Yard Condition

The implementation of community service activities in Paya Pasir Village received a good response from village officials and members of the Farmer Group. At the stage of socialization and identification of needs, it was identified that most of the members of the farmer group had yard land with an area ranging from 20 to 100 square meters, but most of them had not been used productively. The condition of the soil that is sandy and tends to have salt content typical of coastal areas is also a challenge that needs to be overcome through the selection of the right type of plants and improving soil structure and fertility using organic matter. The characteristics of the participants of the activity are generally presented in Table 1 below.

Table 1. Characteristics of Service Activity Participants in Paya Pasir Village

Yes	Participant Characteristics	Number (people)	Percentage (%)
1	Gender: Male	9	40
2	Gender: Female	13	60
3	Age 20-40 years old	7	32
4	Age 41-55 years old	11	50
5	Age over 55 years old	4	18
6	Has a yard area of < 50 m ²	14	64
7	Has a yard of ≥ 50 m ²	8	36

Implementation of Socialization and Counseling

The socialization activity was carried out at the Paya Pasir Village meeting hall and was attended by village officials, administrators and members of the Farmer Group, as well as the service team from ITSI. At this stage, the service team explained the objectives, benefits, and series of activities that will be carried out. The enthusiasm of the participants was quite high, shown by the many questions asked regarding the types of plants that are suitable for sandy land as well as the possibility of seed assistance and production facilities from the service team.

Furthermore, the counseling activities were delivered with the main material on the concept of family food security, the concept of the Sustainable Food House Area (KRPL), and the introduction of six plantation crop commodities that were the focus of the training, namely genjah coconut, red ginger, turmeric, citronella, herbal pepper, and moringa. The counseling was delivered interactively by displaying visual and video examples of the successful implementation of similar programs in other regions, so that participants could more easily understand the real benefits of productive yard utilization.

Technical Training for Cultivation by Commodity

Technical cultivation training is carried out in a participatory manner with a direct practice approach (learning by doing) in the yard of one of the farmer group members who is used as a demonstration plot location. The training materials are adjusted to the characteristics of each commodity as described in Table 2.

Table 2. Summary of Cultivation Techniques of Six Yard-Based Plantation Crop Commodities

Yes	Plant Type	Trained Cultivation Techniques	Estimated Harvest Time
1	Coconut genjah	Selection of superior seedlings, creation of planting holes, fertilization of organic soil	3-4 years (begins to bear fruit)
2	Red ginger	Preparation of polybag/sack media, soaking of rhizome seedlings, periodic watering	8-10 months
3	Turmeric	Tillage, rhizome planting, follow-up organic fertilization	8-9 months
4	Lemongrass	Clump sapling propagation, spaced planting, weeding weeding	4-6 months
5	Chili Pepper	Construction of climbing poles/para-paras, planting cuttings, pruning	12-18 months
6	Moringa	Planting of stem cuttings, pruning of branches, routine harvesting of leaves	3-4 months (leaf harvest)

In addition to planting techniques, participants were also trained to make liquid and solid organic fertilizers from household waste, livestock manure, and leftover marine products that are easy to obtain in the environment around Paya Pasir Village. This training is important considering that sandy soil conditions require regular addition of organic matter so that the soil's ability to retain water and nutrients can increase. In addition, participants were also trained to make simple plant-based pesticides made from neem leaves, garlic, and chili peppers to control plant pests in an environmentally friendly manner without having to rely on chemical pesticides that cost more and risked health and the environment.

Making Plot Demonstrations (Demo Plot)

The demonstration plot was carried out on the yard of one of the farmer group members covering an area of approximately 80 square meters which was the main pilot location. This demonstration plot is arranged with a combination of six plantation crop commodities that have been trained, combined with companion vegetable plants such as kale and spinach to complete the family's daily food needs. The arrangement of the demonstration plot is carried out by paying attention to functional and aesthetic aspects,

so that in addition to being productive, the yard also looks neat and comfortable to look at. Through this demonstration plot, members of other farmer groups can directly observe and learn the cultivation techniques that have been trained, starting from the stage of land cultivation, planting, maintenance, to harvest preparation, thereby accelerating the technology adoption process by other participants.

Field Assistance and Obstacles Faced

Regular field assistance shows that some members of farmer groups have begun to apply cultivation techniques obtained from training on their respective yards, even though the scale and type of plants vary according to the condition of the land owned. Some of the obstacles faced in the field include: (1) limited sources of clean water in the dry season, considering that some residents' wells have high enough salinity levels so that they are not ideal for plant growth; (2) pest attacks on young plants, especially caterpillars and aphids; and (3) time limitations for some participants who have to divide their time between sea or work activities and farming activities in the yard. These obstacles are discussed together and overcome through technical assistance, such as the recommendation to use organic mulch to maintain soil moisture, watering using rainwater, and pest control using pre-trained plant-based pesticides.

The support from the Paya Pasir Village officials also strengthens the sustainability of the program, including through the provision of meeting places, facilitation of communication with residents, and encouragement for all residents to actively participate in yard utilization activities. This kind of institutional support is essential to ensure the sustainability of the program after the formal service activities have ended.

Evaluation of Participant Knowledge Improvement

The evaluation of participants' knowledge improvement was carried out through a comparison of pretest and posttest scores on several aspects of the training material. The results of the evaluation showed an increase in participants' understanding of all aspects assessed, as presented in Table 3.

Table 3. Comparison of Pretest and Posttest Scores of Participant Knowledge (Scale 0-100)

Yes	Knowledge Aspect	Pretest Average Score	Posttest Average Score	Increase (%)
1	The concept of food security and KRPL	52	84	61,5
2	Sandy yard land cultivation techniques	48	80	66,7
3	Seeding and planting techniques	50	85	70,0
4	Organic fertilization	45	82	82,2
5	Environmentally friendly pest and disease control	40	78	95,0
6	Post-harvest handling and marketing	42	72	71,4

The data in Table 3 shows that the highest increase in knowledge occurred in the aspect of pest and disease control in an environmentally friendly manner, which was 95.0 percent. This shows that the material is new knowledge for most of the participants, considering that previously participants were more accustomed to using chemical pesticides or even leaving plants infested with pests without special handling. A fairly

high increase was also seen in the aspect of organic fertilization, which indicated that participants were beginning to realize the importance of natural soil fertility management, especially in nutrient-poor sandy soil conditions.

Supporting and Inhibiting Factors

Some of the supporting factors for the success of this activity include the high enthusiasm and active participation of Farmer Group members, full support from the Paya Pasir Village officials, the availability of adequate yard land in most households, and the suitability of the selected plant species with the local environmental conditions. In addition, a participatory and hands-on-practice learning by doing approach has been proven to be more effective in improving participants' understanding and skills than the lecture method alone.

The inhibiting factors that need to be considered in the development of future programs include the limited source of clean water in the dry season, sandy and salinity soil conditions that require special treatment, and the limited time of some members of farmer groups who have to divide their time between their main livelihood activities (going to sea or working) and farming activities in the yard. These factors need to be anticipated through continuous assistance and adjustment of plant types and planting patterns to the conditions and capabilities of each household.

Program Sustainability Impact and Potential

Overall, this empowerment activity has a positive impact in the form of increasing the knowledge and skills of farmer group members, growing awareness of the importance of using yards as a source of food and additional family income, and the construction of a pilot demonstration plot model that can be replicated independently by the community. Some members of farmer groups have even taken the initiative to replant the same type of plants in their respective yards by utilizing seeds from independent seedlings from demonstration plots, thereby reducing dependence on seed assistance from outside parties.

The potential sustainability of this program is also supported by the commitment of the Farmer Group management to make yard utilization activities a routine agenda of the group, including the plan to form a joint business unit to process and market yard products collectively, such as instant ginger products and moringa leaf tea. If managed consistently and supported by continuous assistance from universities and related agencies, optimal use of yards through the cultivation of appropriate plantation crops can be one of the effective strategies in supporting food security at the household level, especially for coastal communities with limited productive agricultural land such as in Paya Pasir Village.

4. CONCLUSIONS AND SUGGESTIONS

Conclusion

Based on the results of the implementation of community service activities that have been described, it can be concluded as follows:

1. Farmer group empowerment activities through yard-based plantation crop cultivation in Paya Pasir Village succeeded in improving the knowledge and skills of farmer group members in yard land management techniques, nurseries, planting, organic fertilization, and integrated pest and disease control, as shown by the increase in pretest scores to posttest in all aspects of the training material;

2. The development of pilot plot demonstrations has become an effective means of practical learning and has encouraged some members of farmer groups to start implementing similar cultivation techniques independently in their respective yards;
3. Optimizing yard land through the cultivation of plantation crops with economic value such as coconut oil, red ginger, turmeric, citronella, herbal pepper, and moringa is one of the effective strategies to support family food security, especially in coastal areas with limited productive agricultural land; and
4. Institutional support from the village officials and the collective commitment of the Farmer Group are important factors that strengthen the potential sustainability of the yard utilization program in Paya Pasir Village.

Suggestions

Based on this conclusion, it is recommended that the yard utilization program continue to be developed through several steps, namely: (1) continuous assistance from the service team and related agencies, especially in overcoming technical obstacles such as water limitations and sandy soil conditions; (2) strengthening the access of farmer groups to superior seeds and agricultural production facilities through partnerships with production facilities providers and government agencies; (3) the development of aspects of processing and marketing yard products through the formation of business units with farmer groups, so that the economic added value obtained by the community can be more optimal; and (4) replication of this activity model in other villages in Medan Marelan District and coastal areas of Medan City that have similar socio-economic and environmental characteristics.

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