Journal of Saintech Transfer Vol. 5, No. 1 2022 | 21-28

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Butternut Squash (Curcubita moschata) House Development through the Implementation of the Eco-Techno Farming System as a Solution to Increase Family Income During Covid 19 Pandemic in Pudak Village Kumpeh Ulu District Muaro Jambi Regency

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Abstract. The Covid-19 pandemic has greatly affected people's lives, especially women farmer from the Sibermas Mandiri Women's Farmer Group, Pudak Village, Kumpeh Ulu District, Muarojambi Regency. This pandemic has resulted in a decline in household income. Therefore, it is necessary to find a solution to increase their household income through the cultivation of Butternut Squash (Curcubita moschata) which currently has a large enough opportunity and market potential to become a business. In an effort to achieve this target, the Butternut Squash cultivation innovation can be implemented through the "Learning by Doing" model, which is a cultivation implementation model that is directly carried out by the Women Farmers group on the land. The result of these activities show that the average butternut squash production reaches ± 150 kg. With the selling price of butternut squash Rp.8.000/kg, the average omzet obtained is ± Rp. 1.200.000,-. It shows that the cultivation of butternut squash can increase household income and encourage the women farmer group to continue the cultivation of butternut squash independently.

Keyword: Butternuth Squash, Pandemic, Opportunity, Innovation, Motivation

Abstrak. *Pandemi Covid-19 sangat mempengaruhi kehidupan masyarakat, khususnya ibu-ibu dari Kelompok Wanita Tani Sibermas Mandiri Desa Pudak Kec Kumpeh Ulu Kab Muarojambi. Pandemi ini mengakibatkan pendapatan rumah tangga menurun. Oleh karena itu perlu dicari solusi untuk meningkatan pendapatan rumah tangga mereka, melalui budidaya Butternut Squash (Curcubita moschata), yang saat ini mempunyai peluang dan pasar yang cukup besar untuk dijadikan suatu usaha. Dalam upaya mencapai target ini, maka inovasi budidaya Butternut Squash dapat diimplementasikan melalui model "Learning By Doing", yakni model implementasi budidaya yang langsung dilakukan oleh kelompok Wanita Tani di lahan. Hasil kegiatan menunjukkan produksi butternut squash rata-rata mencapai ± 150 kg. Dengan harga jual butternut squash Rp.8.000/kg, maka rata-rata omzet yang diperoleh ± Rp. 1.200.000,-. Perolehan omzet ini memperlihatkan bahwa budidaya butternut squash dapat meningkatkan pendapatan rumah tangga dan mendorong ibu-ibu kelompok wanita tani untuk melanjutkan kembali budidaya butternut squash secara mandiri.*

Kata Kunci: *: Butternuth Squash, pandemi, peluang, inovasi, motivasi*

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Journal of Saintech Transfer Vol. 5, No. 1 2022 | 21 –28

1. Introduction

The Women Farmer Group Sibermas Mandiri is a business group for women farmers from Pudak Village, Kumpeh Ulu District, Muarojambi Regency that engaged in various processed businesses such as oyster mushroom cultivation and tempe chips. The current COVID-19 pandemic has greatly affected the economy of rural communities in general and women farmer in particular. This condition will clearly affect the spirit and income of the family. If this condition is not given a solution, it will affect the food security of the family. Therefore, it is necessary to diversify other businesses that have considerable opportunities.

In this community service, business diversification is carried out through the development of butternut squash, because it has high enough business opportunity at this time. There are still many imported products and supply from outside the region where the selling price of honey pumpkins is relatively high. Likewise, butternut squash can be an additional family food due to its fairly high nutrient contents. In its economic potential, butternut squash can be used as an additional income.

Butternut squash is rich in nutrients. In 100 g butternut squash there are 0.154 mg Vitamin B5, 0.58 g iron (Fe), 39 Kcal energy total, 16 mg total folate, 14 mg Phosphorus (P), 133 mg Potassium (K), 19 mg Calcium (Ca), 10.05 g Carbohydrates [1]. Butternut squash is also good for breast milk supplement for babies and for body health since it contains vitamin A and vitamin B complex, antioxidants, high fiber and beta carotene. Butternut squash has low-calorie properties and is also very suitable for use in healthy diet menus [1].

The development of Butternut Squash house can be done with the application of an eco-techno farming system. Tani et al., [3] have conducted research on the application of this technology to sweet corn plants (Zea mays L.Sacc) and obtained significant results on the production of sweet corn. It is also desciribe in other research that eco-techno farming system is an agricultural system that considers the environment through technology through the use of waste around the business location [4].

Therefore, the target for this activity is how rural women in the Sibermas Mandiri can cultivate butternut squash independently at home, so that it will generate additional income for the family of farmers and is expected to maintain family food security during the COVID-19 pandemic.

2. Method

Based on above problem statement, several activities were carried out in the form of socialization and direct application in the field with the learning by doing model by applying the innovation of pumpkin cultivation with an eco-techno farming system. The targets for this community service activity are women farmers. The activity stages consist of training in making Tricocompost, Biourine, and butternut squash cultivation.

Journal of Saintech Transfer Vol. 5, No. 1 2022 | 21 –28

2.1 Making Tricho-compost and Bio-urine by utilizing waste around the area

Tricho-compost is a form of compost produced by the combination of beef cattle feces and banana stem waste with several other materials such as biochar, sawdust, dolomite, rice bran and Trichoderma harzianum spp. Following the formula from Alvindo [5], the composition being used in this research including: 70% beef cattle feces, 10% banana stem waste, 10% biochar, 15% rice husk, 3% bran, and 2% dolomite and Trichoderma spp were used according to the weight of the tricho-compost made. The formulation of biourine consists of beef cattle urine, turmeric, ginger, Kaempferia galanga, coconut water, and Trichoderma harzianum spp.

2.2 Training of Butternuth Squash Cultivation to Women Farmers

The training provided includes germination of seeds, transferring seeds to the field, maintaining plants, fertilizing, determining the age of harvest, and harvesting. Germination of seeds were done as follow: the seeds are soaked for ± 2 hours, then placed on a tray with tissue arranged on, then layered it again with tissue and water, following by covering it with a cloth on top for 2-3 days until the butternut sprouts grow and plant in a potray that has been given soil and compost. The seeds are allowed to grow until they are ready to be planted in the field.

Butternut squash seeds that are ready to be transferred to the field, then brought to the field for planting. The community service team gave examples of the process of transferring butternut squash seed from portray to land and planting the seeds. Then the training participants did it by themselves to improve the skills in butternut squash cultivation. In this community service, the participant also given training on making the layout of the planting hole in the plantyard, the technique of planting butternut squash in the planting hole, fertilizing butternut squash plants, triming the lower leaves of the butternut squash plant, monitoring the growth of the butternut squash until it is 70 days old, determining harvest time with indicators of yellowing of fruit stems and light brown pumpkin color, and harvesting honey pumpkins to sell. Butternut squash planting techniques through the application of the Eco-Techno Farming System is shown in Figure 1.

Journal of Saintech Transfer Vol. 5, No. 1 2022 | 21 –28

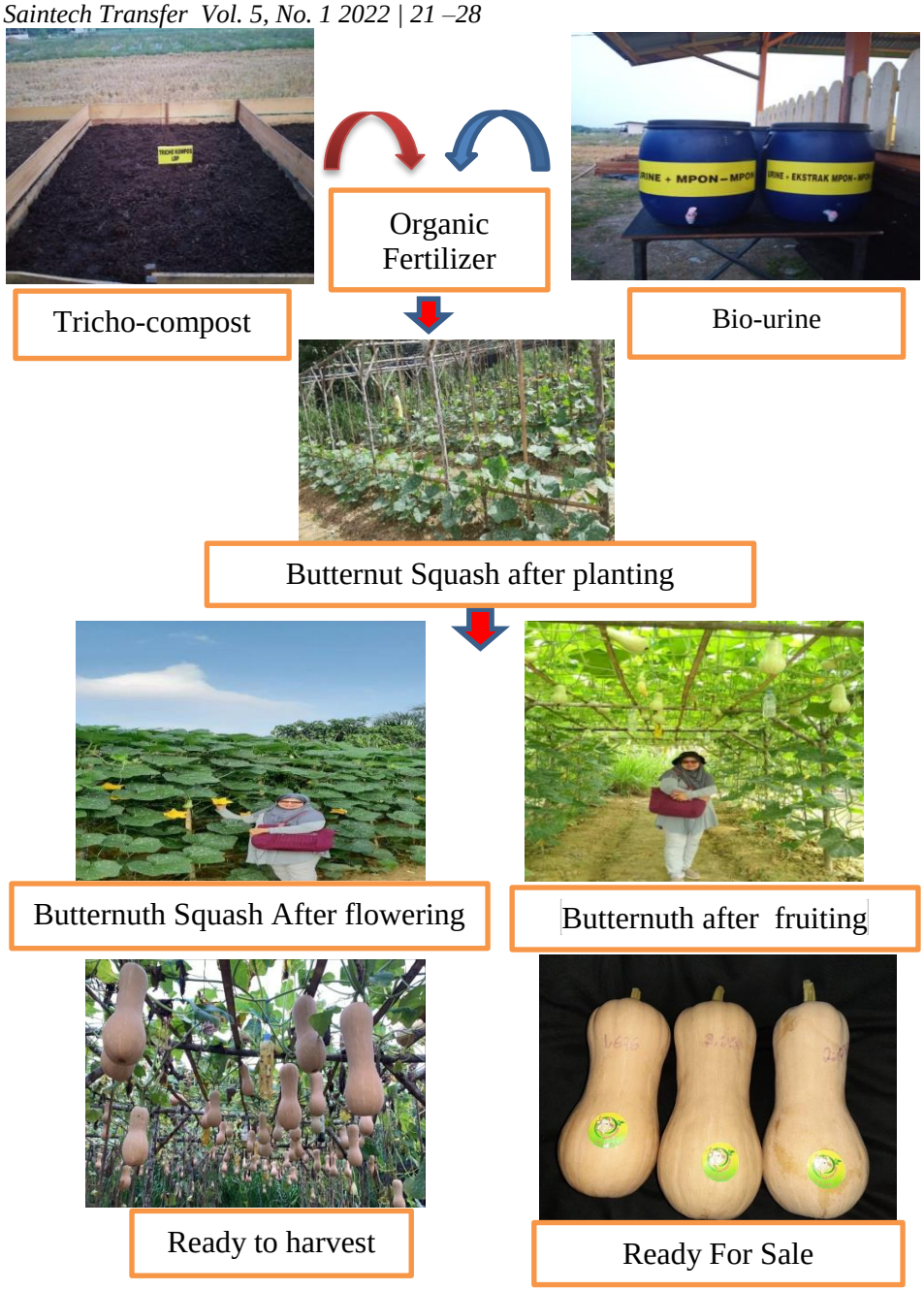

Figure 1. The Cultivation of butternut squash through the application of the Eco-Techno Farming System

3. Results and Discussion

3.1 Land Processing and Seedling Techniques of Butternuth Squash

In cultivating butternuth squash it must be understood the process butternut squash seeding, because if it is not understood it will affect the final results obtained [6]. Butternuth squash hatchery is presented in Figure 2.

Journal of Saintech Transfer Vol. 5, No. 1 2022 | 21 –28

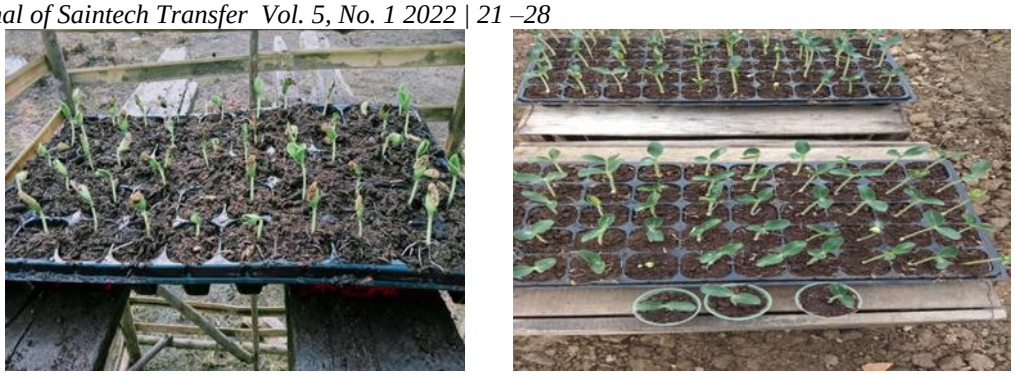

Figure 2. Seeds that have sprouted

From Figure 2. It could be seen that the participants were able to sow the butternut squash seeds they gave themselves. The growth potential of the honey gourd plant that was seeded by female farmers is almost 100% developed. After the seeds grew well, the women farmers were given techniques on land management to develop butternut squash that were ready to be transferred to the field. With the "learning by doing" application model, all participants (100%) have been able to make land for pumpkin planting by women. The land for planting honey pumpkins by women farmer is presented in Figure 3.

Figure 3. Honey Pumpkin Land Preparation

3.2 Land Processing and Seedling Techniques of Butternuth Squash

After seeding and land preparation were carried out, the seeds that have been produced were immediately planted on the prepared land. The prepared planting hole has been made into compost. In this activity, it could be seen that women farmer have also been able to plant seeds on the land as shown in Figure 4.

Journal of Saintech Transfer Vol. 5, No. 1 2022 | 21 –28

Figure 4. Butternuth Squash Planting in the Land and Its Development

The development of the pumpkins that have been planted looks very good, this showed that the women farmer were able to develop them in the field and seem to understand how to maintain their honey pumpkins. Indicators were identified from the appearance of the pumpkin plants looked fertile. In the subsequent maintenance, women farmer were given knowledge on how to fertilize the honey gourd that was starting to grow. Fertilizers were given every week in the form of NPK, MKP and KMNO3 fertilizers every week, aside of that, leaf fertilizers were also given so that pumpkin plant growth becomes optimal. In subsequent developments, it was seen that the honey gourd plant begins to propagate up the para-para and began to bear fruit. This was achieved when planting has entered the age of 30 days. The growth development was presented in Figure 5.

Figure 5. Pumpkin Development

Journal of Saintech Transfer Vol. 5, No. 1 2022 | 21 –28

3.3 Butternut Harvest

At the age of ± 75 days the butternut squash plant has entered the harvest period. At the beginning of the butternut squash cultivation, each participant was distributed one pack of butternut squash seeds with a pack of 100 seeds. Production of butternut squash obtained from each women farmer ± 150 kg. The selling price of butternut squash per kg is Rp. 8.000,-Then the total turnover obtained is Rp. 1.200.000,-The results of the honey pumpkin are presented in Figure 6.

Figure 6. Pumpkins are Ready to be Harvested

3.4 Turnover From Butternut Squash Cultivation

The production of butternut squash obtained from 100 seeds planted will produce ± 150 kg The turnover obtained from the sale of butternut squash if the selling price is Rp. 8,000,- per kg is Rp. 1,200,000,- This result makes women farmer are optimistic to continue cultivating butternut squash to increase their household income.

Sustainability of activities will be carried out continuously by providing motivation for woman farmer to develop again with what they have benefited from the activities that have been carried out. After the activity, the women farmer have to be independent by buying their own seeds from the results they get. The market is always available to sell the honey pumpkin products they develop

4. Conclusion

Cultivation of butternut squash (Curcubita moschata) with the application of the eco-techno farming system model can be a solution to increase income for woman farmer in overcoming the impact of the Covid-19 pandemic. A problem with butternut squash development is fruit flies,

which can spoil the appearance of butternut squash. Therefore, for the next cultivation, protection from fruit flies will be produced so that the quality of the butternut squash will always be maintained

Acknowledgments

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