



Empowerment of Organic Fertilizer Farmer Groups in Developing Green House-Based Organic Vegetables

Asyhari¹, Budhi Cahyono¹, Siti Sumiati¹, Dyana Wijayanti², Naila Najihah¹, Choiril Anwar³

¹Faculty of Economy, Sultan Agung Islamic University

²Faculty of Teacher Training and Education, Sultan Agung Islamic University

³Faculty of Language and Communication Science, Sultan Agung Islamic University

E-mail: dyana.wijayanti@unissula.ac.id

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Abstract: *Organic vegetables produced by the women farmers group and organic fertilizers produced by the youth groups are not yet productive. The purpose of this community service activity is to empower the women farmers groups and the youth group in the village of Manggihan, Getasan District, Semarang Regency so that they can improve the quality of organic vegetable and organic fertilizers products. This community service is carried out by using ABCD approach, which is an approach to understanding and internalizing assets, potential, strength, and utilization independently and optimally. The results of this community service activity concluded that the entrepreneurial mindset of organic vegetable and organic fertilizer farmer groups was more creative and innovative in processing Green House-based organic vegetables, skilled in bookkeeping, online marketing, and making Intellectual Property Rights to increase awareness of healthy living, increase profits, business, and welfare of rural communities.*

Keywords: *Organic vegetables, Green House, Organic fertilizer, Online Marketing, Intellectual Property Rights.*

Introduction

Boosting immunity could be the answer to deal with Covid-19 pandemic. One of alternatives to boost immunity is by having healthy lifestyle, such as consuming organic vegetables as daily routine. Organic vegetables not only could fulfill daily nutrient need, but also are free from synthetic materials. Even the demand of organic vegetables at the market continues to increase¹. The increasing demand of organic vegetable consumption

¹ CNN Indonesia, "Efek Corona, Permintaan Sayur Organik Melonjak," *CNN Indonesia*, last modified 2022, <https://www.cnnindonesia.com/ekonomi/20200629100435-92-518488/efek-corona-permintaan-sayur-organik-melonjak>.

should be in accordance to the production quantity. Thus, some potential regions need a development in order to increase the quantity of organic vegetable production.

Manggihan Village, Getasan District, Semarang Regency has a total area of 182 Ha and is a highland or mountain area with a population of 1,716 people and 435 families². Farming is one of promising potentials in the village of Manggihan. There are approximately 300 cows and cattles³. The villagers here refers to the Manggih Makmur farmer group chaired by Mr. Paimin that started to exploit the potential of Manggihan village in making solid organic fertilizer in 2019⁴.

However, the observation conducted at December 1st, 2021, indicated that the infrastructure of feces collection site (barn), organic fertilizer processing site, and the tools used in the production process were still improper (figure 1). Besides, the process of producing and packaging was still too simple (figure 2). In this case, Manggih Makmur farmers did not use laboratorium to check the composition of the solid organic fertilizer and also did not have any trademark copyright yet. On the other hand, the villagers here still used organic fertilizer. Thus, this service put a great attention on *online* marketing.



Figure 1. Condition of Improper Tools for Producing Solid Organic Fertilizer



Figure 2. Process of Simple Packing in Fertilizer Production

² Badan Pusat Statistik, “Kecamatan Getasan Dalam Angka 2021,” *BPS*, last modified 2021, <https://semarangkab.bps.go.id/publication/2021/09/24/4e8d18c55a42b3551df326d2/kecamatan-getasan-dalam-angka-2021.html>.

³ Pusat Informasi Desa, *Profil Desa Manggihan* (Kabupaten Semarang, 2020).

⁴ Wawancara Personal, *Wawancara Tentang “Produksi Pupuk Organik dan Pertanian Organik” di Rumah Bapak Paimin, Desa Manggihan* (Kabupaten Semarang, 2021).

⁵Nurhapsa, Suherman, and Irmayani, “Optimalisasi Limbah Ternak Sebagai Pupuk Organik Di Desa Batu Mila Kecamatan Maiwa, Kabupaten Enrekang, Sulawesi Selatan,” *Jurnal Pengabdian kepada Masyarakat (Indonesian Journal of Community Engagement)* 6, no. 2 (2020): 88–93.

There has been many workshops about improving people awareness on how important the optimalization of animal feces waste is to be transformed into solid or liquid organic fertilizer in terms of health and economy. For Example, Mandiri Jaya Farmer Group had used and turned cow feces waste into organic fertilizer with economic values and could sell it to members⁵. In terms of health, the farmers seemd to be more aware that the abandoned wastes could lead to environmental and health issues⁵. Nevertheless, not many services focused on the improvement of infrastructure in organic fertilizer production, improvement of production process by involving chemical laboratorium, improvement in organic fertilizer packaging and online selling expansion.

The location of Manggihan Village is geographically advantageous for it located on the mountainside of Mount Merbabu that has fresh air around (Figure 3). It is promising for planting vegetables. Interestingly, Manggihan villagers have done their vegetable planting with organic concept and organic fertilizer (Figure 4). Nonetheless, the selling of those vegetable product needs a management of long and complicated stock chain; starting from the seeds planted, the care taking and the harvest. For example, unpredictable weather could lead to a decrease in the harvest result. One thing that could prevent this kind of situation is creating *green house*. The *Green House* could control water so the plant could grow well. Hopefully, this service could help Manggih Makmur farmer group to stabilize vegetable production with *Green House* assistance.



Figure 3. Manggihan Village is located on montainside of Mount Merbabu



Figure 4. The potential of organic vegetables in Manggihan Village, Semarang Regency

The management of stock chain does not stop on the stable quality and quantity of vegetable harvesting. It continues to how to pack the vegetables with organic certified label and how to distribute to concumers. It is because the segmentation of organic

⁵ Nurhapsa, Suherman, and Irmayani, "Optimalisasi Limbah Ternak Sebagai Pupuk Organik Di Desa Batu Mila Kecamatan Maiwa, Kabupaten Enrekang, Sulawesi Selatan," *Jurnal Pengabdian kepada Masyarakat (Indonesian Journal of Community Engagement)* 6, no. 2 (2020): 88–93.

vegetable consumers is still limited. Thus, this service prioritized on mentoring activities about organic vegetable certification and how to link the Manggih Makmur farmer group to the companies engaged in organic vegetable marketing.

In addition to organic vegetable, organic fertilizer is also an important supporting part in the activity of cassava commercialization in Manggihan Village. Cassava grows easily in large amount here. However, the villagers just sell it as it is. They sell it in a traditional way. Relating to this situation, this service focused not only on the workshop of *online* organic fertilizer marketing, but also on the online commercialization of cassava refined products.

Seeing the potential of Manggihan Village to be an independent village, the concept of empowering villagers based on natural and human resources is necessary in order to improve the prosperity of Manggihan villagers. In short, the proper solution for this situation is to maximize the opportunity that had been simply organized by exploiting the large amount of natural resources (organic vegetable) in forms of creative economical entrepreneurship which is significant in business⁶.

Various activities of mentoring in production and marketing had been conducted. A training had conducted the development of organic vegetable-based nutraceuticals in Batur Village, Getasan District, Semarang Regency⁷. Outcome of the development was the improvement of entrepreneurship around farmers group in the village. Besides, mentoring activity could lead to an improvement of health standard in production process. With the help of selling skill and art⁸, the mentoring activity in Batur Village could technically improve product selling and marketing.

From the explanation above, it can be concluded that farmers group in Manggihan Village; female farmers (organic vegetable) group and youth community, should solve some problems as: 1) the production of organic fertilizer was not optimal yet so it could not fulfil the need of organic fertilizer in Manggihan Village to support the vegetable products for the villagers; 2) the development of farming system using *green house* for female farmers group was not optimal whereas the market opportunity was highly promising; 3) *online marketing* brought positive impact in organic vegetables marketing (*green marketing*) for it influenced the buyers' decision⁹; 4) the entrepreneurship spirit among Manggihan villagers was not optimal; 5) the role of bookkeeping to support the business was not optimal; 6) the villagers had lack of awareness about the importance of certification for the products; 7) the villagers had lack of awareness about the importance

⁶ Asyhari, *Strategi Pengembangan Ekonomi Kreatif* (Semarang: EF Press Digimedia, 2014).

⁷ Asyhari, Heru Sulistyono, and Naniek Widyaningrum, "IbM Kelompok Istri Petani Sayuran Organik Dalam Pengembangan Produk Nutrasetika Berbasis Sayuran Organik Di Desa Batur Kecamatan Getasan Kabupaten Semarang," in *Seminar Nasional 6th UNS SME's SUMMIT & Awards 2017. Peningkatan Daya Saing UMKM Berbasis Ekonomi Kreatif Dalam Era Masyarakat Ekonomi ASEAN*, vol. 6, 2017, 323-332.

⁸ Asyhari, *Seni Manajemen Penjualan* (Semarang: EF Press Digimedia, 2012).

⁹ Asyhari and Sitty Yuwalliatin, "The Influence of Green Marketing Strategy on Purchasing Decision With Mediation Role of Brand Image," *Jurnal Aplikasi Manajemen* 19, no. 3 (2021): 535-546.

of intellectual property rights (HKI) to support product competitive values.

In principle, this community service activity combined the industry of organic fertilizer and the activity of planting organic vegetables, so the cooperation would happen between the industry and the farmers. Purposes of this community service are 1) to empower the villagers in Manggihan village in organic fertilizer production, 2) to empower Manggihan villagers in creating *green house* to plant quality vegetables, 3) to provide workshop of *online marketing* for organic vegetable products (*green marketing*), 4) to provide workshop about entrepreneurship to encourage entrepreneurship spirit for business owners in Manggihan Village, Getasan District, Semarang Regency, 5) to provide workshop about bookkeeping to support the entrepreneurship, 6) to provide workshop of certification for the products, and 7) to provide workshop about intellectual property rights (HKI) for business owners to support product insurance and competitive values.

Method

This service used *Asset Based Community Development* (ABCD) approach. The term initially used by John McKnight and Jody Kretzmann is in principle an approach that manages to conduct community empowerment based on community assets and power¹⁰. In other words, this approach starts from all assets that the community has. Mathie, A., & Cunningham, G. (2003) asserted that there were some steps to do in ABCD such as discovering communal power through appreciative interviews to determine community power for further process¹¹. Moreover, the next step was to build advantageous link that connects individual, communal and local institutional power. Then, analysis on communal economy should be conducted to design next actions. The final step should be monitoring and evaluation.

Two communities that became the focus of this service were youth community that produced organic fertilizer and organic vegetable female farmers group. Considering a research indicated that youth community took an effective role in community service¹² and also the important role of females in farmers family to help the prosperity,¹³ the local institution represented by the government of Manggihan Village, PT Sido Muncul and students of Islamic Sultan Agung University who joined the MBKM

¹⁰ Alison Mathie and Gord Cunningham, "From Clients to Citizens: Asset-Based Community Development as a Strategy for Community-Driven Development," *Development in Practice* 13, no. 5 (2003): 474-486.

¹¹ Ibid.

¹² Mohammad Muslih et al., "Pengembangan Sentra Produksi Kemasan Berbasis Anyaman Bambu Melalui Pemberdayaan Karang Taruna Dan PKK Untuk Peningkatan Ekonomi Masyarakat Di Desa Mojorejo Kecamatan Jetis Kabupaten Ponorogo," *Engagement: Jurnal Pengabdian Kepada Masyarakat* 4, no. 2 (2020): 343-362.

¹³ Wahyuni Husain, Bahtiar, and Muhammad Ashabul Kahfi, "Pemberdayaan Kelompok Wanita Tani Melalui Participatory Rural Appraisal (PRA) Di Kelurahan Battang Kota Palopo," *Engagement: Jurnal Pengabdian Kepada Masyarakat* 4, no. 2 (2020): 376-385.

Program involved in this activities. Activities in this service were divided into two kinds. The first was the production of organic fertilizer to sell to market/consumers. The first activity required packing, labelling, trademarking and distributing the products. The second was that female farmers group focused on planting organic vegetables using organic fertilizer (obtained from the group of organic fertilizer composer) so it was chemical free. Besides, the construction of *green house* facility, fascinating product packaging (with trademark), and distribution of online selling requires development. This activities run for about 3 months starting from October to Deember 2021.

Table. 1 Stages of community service activity in Manggihan Village

Community Focus	Asset Strength	Linking the assets and mobilizing community	Actions	Monitoring and evaluation
Yiuth Community	Composing Organic Fertilizer		<ul style="list-style-type: none"> • Entrepreneurship Workshop • Bookkeeping Workshop • Online Marketing Workshop • Organic Certification • HKI Workshop 	<ul style="list-style-type: none"> • Reconstructing site for producing organic fertilizer • Constructing green house • Using the organic fertilizer produced by Youth Community
Female Farmers Group	Planting Organic Vegetables			

The effectiveness of this community service hopefully could be found out from the result of mentoring and evaluation by comparing before and after series of activities through *pre-test* and *post-test*, especially on the activities of *entrepreneurship*, quality certification on organic vegetables, *online* marketing, bookkeeping, and registration of intellectual property rights. Steps of the activities could be seen on table 1.

Result and Discussion

In order to discover community assets strength, the team conducted intensive interview with villagers and government (Figure 5). Result of the interview indicated that two communities had identified asset strength. These two communities were youths community with their organic fertilizer products and female farmers group with their organic vegetable products. After relating assets and analysis on community economy, the team took actions such as workshops about entrepreneurship and bookkeeping (Figure 6 and Figure 7).



Figure 5. Intensive Discussion with community and government in Manggihan Village



Figure 6. Workshop of entrepreneurship for organic fertilizer and vegetable business owners



Figure 7. Workshop of bookkeeping for organic fertilizer and vegetable business owners

Speakers in the entrepreneurship workshop were from the service team, the head of Manggihan village, the head of Getasan regency and representative of PT Sido Muncul. The workshop emphasized the importance of innovation for entrepreneurs along with ages. The entrepreneurship workshop was conducted to improve audiences' skill to understand and implement principles of entrepreneurship as an important part to succeed in managing their business. Entrepreneurship nowadays is so important and required to create independent and brave generation in starting business with risks. On Figure 7, female farmers group seemed to be discussing with speakers about bookkeeping. This workshop discussed about recording groups, summary and report. The bookkeeping workshop was so important for business owners as all activities in business should be recorded in a book. The activities were; purchasing raw materials, paying employees' wage, asset disposal, business expansion plan, and workshop fee for employees. Daily operational expenses should be recorded on book. The bookkeeping workshop for farmers was useful to determine the effectiveness of bookkeeping workshop for their success in business. However, speakers emphasized on how to start the bookkeeping process by saying Bismillah and finish it by saying alhamdulillah.

Moreover, workshop of online marketing was also conducted in this community service. *Online marketing* workshop (Figure 8) had been delivered by the service team and students of MBKM Program. In the workshop, the audiences received knowledge about the importance of online marketing and how to register to online shop application. The next workshop was about registering Intellectual Property Right (HKI in Indonesian). IPR is a right given to the inventors of product secret in form of a certificate to protect their intellectual property. IPR is so important to protect the inventors' right from others' duplication. The workshop is all about the importance of having patent rights and trademark relating to organic fertilizer and vegetables (Figure 9). Last workshop was about organic certification to obtain acknowledgement toward the products. The certification is important to ensure a trust to consumers in their decision to buy the products. The organic certification workshop was conducted to provide knowledge to

business owners about product certification. Through this workshop, audiences and speakers discussed about how to register their organic vegetables to national certification and how to cooperate with CV Merbabu in distributing organic vegetables. This CV is a distributor of national and international certified organic vegetables located on Manggihan District (Figure 10).



Figure 8. Online marketing workshop for business owners



Figure 9. HKI workshop to protect farmers' products.



Figure 10. Organic Certification Workshop.

As a follow-up from previous workshops, both youth community and female farmers group received direct mentoring. The mentoring for the youth community was in forms of reconstructing organic fertilizer facility (Figure 11) and organic fertilizer packaging (Figure 12) along with registration of trademark (Figure 13). In packaging session, youth community discussed with students and the service team to decide economical package for the organic fertilizer marketing. Besides, the package mentoring produced a logo design for the organic fertilizer. The logo had been proposed for registration with trademark DID2021090062.



Figure 11. Reconstruction of Organic Fertilizer Facility



Figure 12. Mentoring of Organic Fertilizer Packaging



Figure 13. Mentoring of trademark registration for solid organic fertilizer

The service did not stop only on packaing and trademark registration process, but also on the organic fertilizer patent right. Those activities were conducted to obtain the composition of organic fertilizer. It was then known that composition of organic fertilizer to bring the soil fertility back consisted of: 1 Ton of manure (84,4%), 50 Kg of kitchen ash (4,2%), 50 L of bran (4,2%), 1 L of EM4 (Effective Microorganisme 4) (0,1%), 2 L of sugarcane (0,2%), 50 Kg of limestone (4,2%), 32 L of water (2,7%). This invention contained proper composition of each materials for the sake of soil fertility, increasing of water absorption toward the soil, and longer storage of plant. The composition is now on the process of substantial observation for petty patent with number registration S00202109784.



Figure 14. Display of Organic Fertilizer Production on an online shop



Figure 15. Process of organic fertilizer order on an online shop.

In addition, the next activity was mentoring on online marketing for organic fertilizer. Finally, the organic fertilizers could be ordered through online shops. Even the service team once tried to buy the organic fertilizer from Manggihan Village through online shop and had been delivered to Semarang City. The illustration of this activity could be seen on Figure 14 and 15.

Mentoring for female farmers group was conducted through the mentoring of greenhouse construction (Figure 16). On Figure 17, the *greenhouse* was officially opened by the Head of Manggihan District along with the service team, the village government, and partners (farmers group, CV Bangkit Merbabu and PT Sido Muncul). The *greenhouse* hopefully could improve the quality and wuantity of organic vegetables. In this occasion, the negotiation was conducted with CV Merbabu. In agreement, vegetables from female farmers group in Manggihan Village could be organic vegetable supplier through CV Merbabu standardization (Figure 18). As explained before, CV Merbabu has handed the certification of organic vegetables.



Figure 16. Mentoring on green house construction



Figure 17. Official opening of green house



Figure 18. Discussion with CV Merbabu.

The final stage of this community service was monitoring and evaluation. The service team conducted *pre test* before the activities and *post test* after the activities. Purpode of the tests were to determine the effectiveness of workshop and mentoring activities.

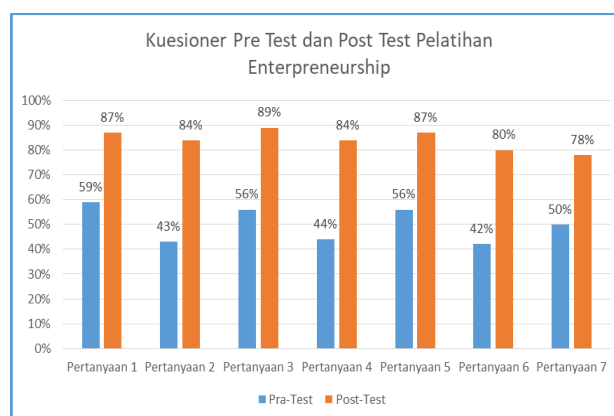


Figure 19. Questionnaire of Pre Test and Post Test in Entrepreneurship Workshop

To determine the effectiveness of entrepreneurship workshop, the service team compared the *pre-test* and *post-test* (Figure 19). There were 5 question indicators on the entrepreneurship test. Those indicators were that a successful entrepreneur has characteristics to control self confidence, a successful entrepreneur could quickly identify and solve problems, a successful entrepreneur could work hard and cooperate with experts collect achievement, a successful entrepreneur is brave to take risks and could prevent possible risks, a good entrepreneur could easily separate between emotional relationship and career, an entrepreneur could ignore the status that distracts his business, an entrepreneur puts his dedication highly and works time to time to build his won business.

Result of the test using questionnaire by comparing before and after joining the workshop indicated that there were 3 indicators that increased significantly, as: a successful entrepreneur characteristics to control self confidence, a successful entrepreneur could work hard and cooperate with experts collect achievements, and a good entrepreneur could easily separate between emotional relationship and career. These findings indicated that entrepreneurship workshop based on audience perception had brought some benefits for the entrepreneurs, and could be means to collect achievements and even higher career.

Indicators used in organic certification workshop were: Certification of organic vegetable product could provide insurance by applying the Organik Indonesia logo on each packs, Certification of organic vegetable product could protect consumers and producers from manipulation or fraud that criminally violate laws, Certification of organic vegetable product could ensure ethical and fair trade for both producers and consumers, Certification of organic vegetable product could provide plus points for the organic products and encourage the national and international market access, and Certification of organic vegetable product means a support to Go Organik Indonesia Program as a main organic farming producer in the world. According to respondents' answers, there were 3 indicators that had significant impact in organic certification workshop. First, certification of organic vegetable product could ensure ethical and fair trade for both producers and consumers. Second, certification of organic vegetable product could provide plus points for the organic products and encourage the national and international market access. Finally, certification of organic vegetable product means a support to Go Organik Indonesia Program as a main organic farming producer in the world. These findings indicated that product certification could improve insurance for producers and could gain expanded market access through consumer trust around the world.

Significantly pre-test and post-test indicated positive impact for the villagers. Entrepreneurship workshop could improve self confidence and become means to collect achievements. The bookkeeping workshop provide knowledge about the function of planning and decision making in business. Moreover, online marketing workshop could

bring benefits on how to sell products online easily. Then, HKI workshop encouraged people to be more aware of the product acknowledgement. Finally, the knowledge about product certification could ensure insurance for both producers and consumers, and could reach larger market access through consumer trust around the world.

Mentoring with youth community brought a result of trademark and patent registration for solid organic fertilizer. Besides, the youth community succeeded to sell the solid organic fertilizer online. Furthermore, they still found some obstacles in the production such as the drying process that still depended on weather. It could be obstacles when they received many orders. This condition could be anticipated with the help of large scale drying machine¹⁴. In addition, the online marketing mentoring was still limited on online shop and order trial attempts. The mentoring of digital marketing should be conducted on other platforms such as instagram, whatsapp, facebook¹⁵. Another thing to do in the mentoring was that about registration of national and international organic certification.

However, organic fertilizer created by the youth community had succeeded to fulfil the need of organic fertilizer for planting vegetables by female farmers group. Moreover, the construction of greenhouse had increased the quality and quantity of vegetables. Even CV Merbabu that is a distributor of organic vegetables for national and international scale has agreed that female farmers group became one of vegetable suppliers. Based on the baseline, some improvement are required such as the improvement of watering quality in the greenhouse¹⁶. Also, registration for organic vegetable certification should be independent;y conducted.

Conclusion

The empowerment of villagers in Manggihan Village, Getasan District, Semarang Regency basically means to improve people prosperity. It could be achieved through the improvement of economical activities in the region. The production of organic fertilizer and vegetable planting with *green house* system in Manggihan village could potentially provide competitive and sustainable contribution to the farming sector and people prosperity.

This program also focused on the improvement of people awareness on

¹⁴ Petrus Maharsi, "Penerapan Mesin Pengolah Pupuk Organik Di Desa Keji Ungaran Barat," *Jurnal Admisi dan Bisnis* 16, no. 1 (2015): 41-48, <https://jurnal.polines.ac.id/index.php/admisi/article/view/887/0>.

¹⁵ Ni Nyoman Ayu Suryandari, I Made Tamba, and I Gede Pande Triyasa Putra, "Peningkatan Strategi Pemasaran Dalam Penjualan Pupuk Organik Di Masa Pandemi Covid 19 Di Desa Penyaringan," in *Prosiding Seminar Regional Pengabdian Kepada Masyarakat Unmas Denpasar Di Masa Pandemi Covid-19 Tahun 2020*, 2020, 77-80, <https://e-journal.unmas.ac.id/index.php/ProsidingCovid-19/article/view/1952>.

¹⁶ Aziz Musthafa, Shoffin Nahwa Utama, and Triana Harmini, "Sistem Kontrol Suhu Ruangan Dan Penyiraman Tanaman Bawang Merah Pada Greenhouse Dengan Smartphone," *Multitek Indonesia* 12, no. 2 (2018): 95-103.

organizing organic products. In general, there was an improvement of awareness and understanding after receiving the workshops of entrepreneurship, online marketing, bookkeeping, product certification, and intellectual property right.

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