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# kiprah agroforestri

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### Special Edition:

**Knowledge and capacity strengthening of Pagar Alam farmers to livelihood improvement through coffee agroforestry (EMPOWER)**

The Empower project has been funded by:



**W**ho does not like the delicious taste of coffee? Indonesian coffee is well-known worldwide, including that from Pagar Alam, South Sumatra. In the Empower project, coffee farmers in Pagar Alam are diversifying their coffee farms by adding economically valuable species to increase the productivity of their land. This is supported by Sucden Coffee, Jacobs Douwe Egberts and IDH the sustainable trade initiative and carried out by Sucden Coffee Indonesia and World Agroforestry (ICRAF).

In this issue, you can read a series of exciting stories from the Empower project in Pagar Alam, harvesting the progress since 2018. Empower aims to strengthen the capacity of robusta farmers in Pagar Alam to keep producing coffee despite obstacles such as an increasingly unpredictable climate that reduces production, attacks by pests and diseases, aging coffee trees, and competition from other, perhaps more profitable, land uses.

Agroforestry enables farmers to survive many pressures. Empower has been building the capacity of farmers in agroforestry in Dempo Tengah and Dempo Utara sub-districts, such as in nursery establishment and management, production of organic fertilizers, and marketing. Training in vegetative propagation of fruit trees, in particular, received very positive responses expressed with great enthusiasm by farmers. They have started to build a nursery based on the agroforestry concept, adding other types of trees besides coffee to their farms to provide shade. Some farmers have chosen fruit and timber trees that will also provide additional income for their families. Younger farmers are particularly enthusiastic about implementing coffee agroforestry systems. They learn lessons from failures and are not discouraged nor giving up until they succeed.

Training in organic fertilizer production and application has also proven beneficial. The willingness to apply organic fertilizer or compost shows that there are changes in the community's behaviour after farmers' awareness increased about chemical fertilizers and the damage they can do to soil fertility. Farmers also have begun to sell their self-made organic fertilizer to others, adding to their family income.

Impact from training to livelihood will directly be linked with marketing aspects. Therefore, training in marketing and promotion has been conducted to help farmers attract consumers and wholesale buyers. The target markets are expected to expand and reach national level through online platforms. Moreover, hopefully there will be support from local government to help with promotion by participating in exhibitions held outside Pagar Alam. With the government and others' support, more farmers in Pagar Alam will be able to reach their livelihood goals.

Happy reading,  
Tikah Atikah





Training on designing coffee agroforestry gardens conducted by the Empower Project with participants are farmers in Dempo Tengah District, Pagar Alam City. (Photo: World Agroforestry/Endri Martini)

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**Agroforestry** is a land use system that combines trees with other crops and/or livestock

We invite readers to share stories and opinions about agroforestry. Please send a written manuscript (500-1000 words) accompanied by a large resolution photo. Suggestions and comments can also be written on the KIPRAH blog at <http://blog.kiprahagroforestri.id>



# Two years of Empower outcomes in Pagar Alam

By Endri Martini and Sarah Novitasari

**E**mpower is a capacity-building project that focuses on improving the knowledge and capacity of robusta coffee farmers in Pagar Alam, South Sumatra. It aims to enhance the livelihoods of farmers through coffee production and other crops grown in mixed coffee farms, also known as agroforestry systems.

For generations, farmers in Pagar Alam have been practising simple forms of agroforestry. They chose simplicity agroforestry because they had limited information about the species that can be integrated with coffee, including planting distances. Thus, improving farmers knowledge for establishing and managing coffee agroforestry systems has been the focus of Empower for the past two years.

The training began in September 2018, initially 'training of trainers' involved in Empower. Since July 2019, this cohort of trained trainers have been training other farmers in four villages in Dempo Tengah and Dempo Utara sub-districts.

Two years after their training, there were no changes to be seen at landscape level. However, the outcomes of Empower had started to develop 'behind the scenes'. The potential to change the knowledge and behaviour of around 400 farmers who had joined the Empower project was slowly being realised, particularly, knowledge of superior seedlings and the principles and benefits of agroforestry. They learned especially about the benefits, the principles of agroforestry and how to create superior seedlings in a nursery. Farmers' access to seeds is a significant determination of the type of agroforestry to be developed in an area.

Empower was evaluated in November 2020 through a survey of 60 farmers from two sub-districts. The results showed that nurseries had real impact because of Empower.

## Nurseries as a major outcome

With the existing coffee farms in Pagar Alam, to improve agroforestry, a change in the arrangement of planting distance

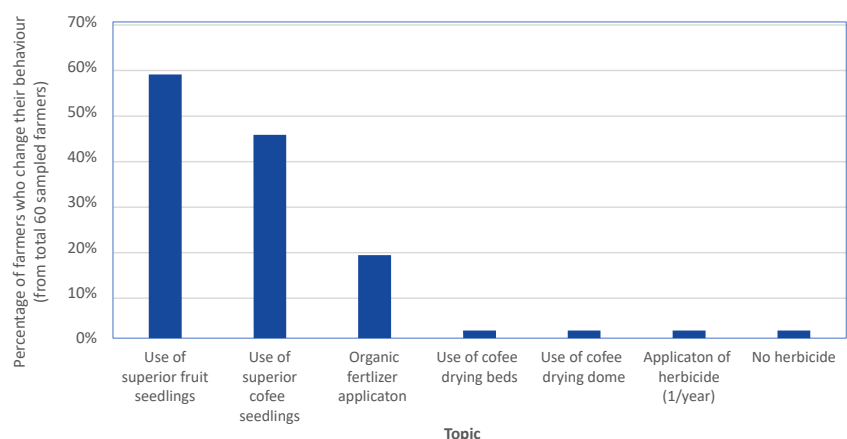


between individual trees has been required. Changing the farms' species' configuration has some risks that have delayed farmers decisions whether they want to adopt the system or not. They usually required considerable time to re-think adopting agroforestry systems. This is why, after two years of training, the outcomes were not seen on farms. However, there is another successful path taken by farmers through the training sessions provided by Empower, that is, the development of nurseries to support the production of superior planting material, in this case, grafted seedlings.

Planting material — seeds and seedlings — is an important investment, especially for farms growing crops

that can only be harvested after three years. If the planting material is not good quality, the result will only be discovered in 3 to 5 years after planting. Thus, having superior fruit-tree seedlings is essential. Farmers in Pagar Alam are well aware of this matter; they enthusiastically learn vegetative propagation techniques to produce superior seedlings.

Based on results of the interviews of 60 Empower farmers, it was clear that within a year, 35 farmers (58%) had changed their behaviour from using unselected seedlings to superior seedlings of fruit trees produced from nurseries, and 27 farmers (44%) had already used superior coffee seedlings.



Behavior change based on the results of an evaluation conducted on 60 sampled farmers in North Dempo and Central Dempo, Pagar Alam.



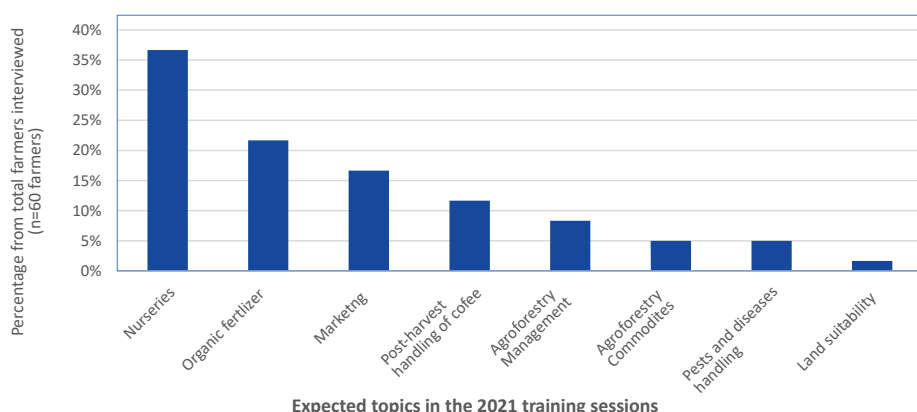
Other changes have also been made: 11 farmers started to use organic fertilizer; eight farmers started to dry their coffee on the roof; and one farmer dries coffee in a drying house built using an independent fund. Meanwhile, there was only a minor change in herbicide use because weeds were still growing very fast. Farmers use herbicides 3 to 4 times a year.

#### More outcomes in the year ahead

In 2021, the Empower activities will continue to focus on nurseries, production and application of organic fertilizer, and marketing. In terms of

the nurseries, these are expected to increase their production of superior seedlings. A 'mother garden' is needed as the source of budwood for good quality trees. As for the application of organic fertilizer, it is expected that the organic fertilizer formula will be proven effective in increasing coffee production.

Both the nurseries and organic fertilizer outcomes are being realised within the last couple of years of Empower, however, one outcome that cannot be seen yet is the results of the marketing activity. Farmers are working on the marketing of coffee and of seeds and fruits produced from the coffee agroforestry. Collaboration with various groups will support farmers' capacity in practising their marketing strategy to sell their uncategorized coffee beans, red-picked beans, superior seedlings, and organic fertilizer. Hence, marketing is expected to be the next outcome of Empower to improve the well-being of farmers in Pagar Alam. The involvement of women in training held by Empower is expected to add to this outcome.



Farmer's expectation for capacity building topics from the Empower Project for year 2021 in North Dempo and Central Dempo, Pagar Alam.

## Achieving dreams via coffee and fruit-tree nurseries: success stories from Pagar Alam

By Iskak Nugky Ismawan and Tizen Pahri

Coffee and fruit are the two most well-known commodities from Pagar Alam and are the primary source of income for the coffee-farming community. The fertile land and adequate rainfall are suitable for growing coffee and fruit.

Fruit trees are commonly planted in house yards or in between coffee trees as an intercrop. Farmers buy superior seedlings of fruit trees from Lampung or purchase seeds from Bogor and Majalengka. They buy seeds because they are not skilled as yet in producing their own seedlings.

Despite their mastery of the vegetative propagation techniques for top-grafting coffee trees, farmers still lack information

about, and experience in, applying vegetative propagation for fruit trees. Information about vegetative propagation techniques is obtained only from videos online and no practice has been done to date.

In the last three years, Empower provided training in vegetative propagation for fruit trees, held in February 2020 in Dempo Tengah and Dempo Utara. This training was attended by farmers ranging in age from 20 to 60 years-old. Total participants were 58 (12 females) in Dempo Utara and 46 (7 females) in Dempo Tengah. They joined the training with great enthusiasm and responded positively by practising what they learned.



Vegetative Propagation Training, February 2020  
(Photo: World Agroforestry/Iskak Nugky Ismawan)



As a result of the training, some farmers were more skilled in producing superior seedlings through vegetative propagation. By June 2020, there were about 18 nurseries of fruit trees in the two sub-districts. These nurseries produce coffee, orange, durian, mango, avocado, 'petai' (*Parkia speciosa*), soursop, superior guava, and clove seedlings.

Empower's training in vegetative propagation has motivated farmers to adopt agroforestry techniques, adding non-coffee trees to their farms with the expectation that these trees can be alternative sources of income for their families. Favourite types of plants were fruit trees, such as durian, avocado, jengkol, superior guava; timber trees, such as 'sengon' (*Albizia chinensis*); and plantation trees, such as cinnamon.

When establishing the nurseries, farmers independently provided seeds by collecting randomly and buying from fruit stalls in the Pagar Alam area. The bamboo for the nursery frames were also self-provided by farmers. Meanwhile, Empower facilitated other material, such as polybags, shading nets, and UV plastic. The nurseries are going well and now are focusing on the business of fruit seed.

#### Success story from Dempo Utara Sub-district

Tizen Pahri, 30 years-old, is one of Empower's participating farmers in Muara Siban Village. Tizen started to sell fruit seedlings after receiving training in nursery techniques and vegetative propagation of fruit trees. At the time of writing, he has produced about 1000 seedlings of fruit trees, such as durian, avocado and superior guava, with



Jengkol nursery in Central Dempo.  
(Photo: Nedcoffee/Boby Berlinsyah)

approximately 70% of the seedlings being grafted. The budwood or scions come from Lampung and neighbouring areas, such as varieties of durian trees — 'musanking', 'monthong', 'oche', 'bawor' and 'lai' — varieties of avocado: 'alligator', 'miki' and 'kendil'.

The durian seedlings are for sale in a ready-to-plant condition at heights of 30 cm for IDR 50,000 (≈ USD 3.50), 60 cm for IDR 100,000 (≈ USD 7), and as high as 1 m for IDR 150,000 (≈ USD 10.40). Avocado seedlings are for sale at IDR 40,000 (≈ USD 2.80) each. Some of the fruit trees are planted as mother trees and some are for sale direct to farmers.

Before joining the training, Tizen had learned about nursery and vegetative propagation online but he was hesitant to try in practice. After joining Empower, he learned many things, including how to establish a nursery and doing vegetative propagation.

'Knowing how to produce superior seedlings by grafting is like fulfilling my hobby about plants,' he said. 'I can do vegetative propagation by top-grafting and bud grafting. Now people come to me

and ask about techniques of top-grafting, bud grafting, marcotting and how to recognize varieties of fruit trees. The most important thing is the nursery that I have built today has become my business. Hopefully, in the future, I can be the boss of fruit seeds, can create a training centre and be preferred by farmers who need fruit seeds.'

Tizen has a unique strategy to achieve his expectations by continuously producing seeds every year and expanding his marketing network. For example, he joined a community on social media. He also hopes the nursery development will reflect the Pagar Alam farmers' vision of 'Anjam Tani', which means 'Be fond of Farming', and will continue to support farmers in Pagar Alam to be more productive.

#### Success story from Dempo Tengah Sub-district

Apart from Tizen, who has gained success from his nursery after joining training held by Empower, there is Zairin, 42 years-old from Jangga Hamlet, Padang Temu Village. He is now developing seedlings of fruit and timber trees for a big sale. After training in nursery management in 2018 and vegetative propagation in February 2020, Zairin began his nursery business by connecting with the Government's seed market.

In 2020, Zairin and his colleagues had an opportunity to collaborate with the District Environmental Office (Dinas Lingkungan Hidup/DLH) Empat Lawang for procuring seeds. The office ordered 1000 'jengkol' (*Archidendron pauciflorum*) seedlings at IDR 7000 (≈ USD 0.49) each and 1700 durian, 500 jackfruit and 2500 'bambang' (*Michelia champaga*) timber seedlings at IDR 7500 (≈ USD 0.52) each.

These seedlings will be planted in customary land and protected forest by DLH Empat Lawang. If the seedlings grow well, the collaboration will continue every year. Zairin and his colleagues gained this collaboration from promotion online and were supported by his network in other districts in South Sumatra. The large number of seeds ordered by DLH encouraged colleagues in the nursery community to cooperate in fulfilling the order. They hope to continue to receive large orders of seeds in the years to come.



a) Sale and purchase transactions of fruit seedlings. b) Seedlings of fruit trees c) Nurseries in Zairin at Dempo Tengah. d) Tizen Pahri in the nursery. e) The process of transporting seedlings from Dempo Tengah to Empat Lawang District. (Photos: Nedcoffee/Boby Berlinsyah and Jon Fikri)

### Expectations of further nursery development in Pagar Alam

The two stories show that the nurseries are a potentially good business in Pagar Alam. Support from the local government and private sector have been necessary, especially in providing a certified Single

Mother Tree (Pohon Induk Tunggal) from the Agency of Seed Certification Control (Balai Pengawasan Sertifikasi Benih/BSBB) of South Sumatra Province. The certification of the local mother tree by BPSB and the City Government sees the registration of this mother tree, allowing it to be used as the source of scions to

improve planting material. More superior coffee and fruit mother trees are planned to be identified and registered as sources of scions for coffee farmers in Pagar Alam. Identification can be done through a local fruit contest. Hopefully, with such support, more coffee farmers in Pagar Alam can reach their livelihood goals.

## The enthusiasm of a young farmer for coffee agroforestry

By Tizen Pahri and Iskak Nugky Ismawan

**D**iki Andriansyah, born in 1988, is a young man from Muara Siban Village, Dempo Utara Sub-district. Unlike many other young men, who more interested in non agricultural topics, Diki has been keen to learn about farming. He always look for the latest innovations to improve his farm's productivity and actively seeks market opportunities.

He joined Empower's training in coffee agroforestry systems to improve the productivity of his coffee farm. Diki believes that he can improve his economic life in a way that also protects nature. Besides coffee farming, he has other activities, such as developing a small-scale nursery for superior seedlings of durian, avocado and guava.

Before receiving training from Empower, Diki used to find information about farming from television or online but the information was not complete. It did not give any tips or tricks for successful farming. For example, Diki learned about vegetative propagation online then he tried it at home but it often failed. However, the failures did not discourage him from learning. Instead, he considered them as lessons in themselves.

Through his interactions with the Empower field staff, Diki had a chance to learn how to propagate superior seedlings by bud grafting, top grafting, marcotting etc. Diki regularly attended the training held by Empower because it gave him plenty of new knowledge. Training in production of superior seedlings led to him growing some

on his coffee farm to give him extra income. Some of them were sold, too. After applying the knowledge for seven months that he received from Empower, Diki was able to produce superior seedlings from grafting techniques. He also improved his skill in vegetative propagation.

'I am very grateful to Empower for inviting me to join the training on propagating superior seedlings,' he said, 'because now I am skilled enough to propagate seeds by bud grafting and top grafting.'



Diki Andriansyah, a champion on fruit plant breeder. (Photo: Nedcoffee/Tizen Pahri)

The knowledge he learned from Empower has already been shared with other farmers who are also willing to propagate superior seedlings for commercial results.

Slowly but sure, Diki has expanded his nursery. When his neighbours ask him for some seedlings, Diki gives them for free. He expects that his seedlings will help other farmers to diversify the number of commodities produced from their agroforestry farms. The people who receive his seedlings are pleased because they can also learn how to produce superior seedlings themselves. Diki always shares his knowledge with people who want to know.

Nevertheless, there are still obstacles that he has to face in developing his nursery, such as the absence of a mother tree garden of certified fruits, like durian, avocado, mango. In the meantime, Diki and his friends use the local superior mother tree to produce seedlings by top-grafting. Apart from that, Diki also needs to achieve legalization as a nursery operator by the Government and he still needs more knowledge on seedling marketing.

Facilitation by the Government or other party is required to support his plan to develop his nursery. Diki is quite enthusiastic about having a larger nursery than the one he has now. He wants to be registered as a nursery operator of fruits and coffee. Diki hopes that his nursery will become a centre of knowledge and a learning station for farmers to learn about agroforestry.

In this era, it isn't easy to find young men who have the spirit for agriculture and developmental plans with an agroforestry concept or a multi-species farm. Diki deserves to be supported to achieve his dreams.



# Learning from coffee-agroforestry demonstration plots

By Iskak Nugky Ismawan, Yanuar M Nur, and Endri Martini

As we enter Pagar Alam City at the foot of Mount Dempo, we can see that coffee has been the source of livelihoods for the local community for a long time. Coffee farms are easily seen as we pass by, from young coffee farms to old ones. Besides coffee, there are also shade trees, such as *Gliricidia*, that seem to have been planted a long time ago judging by their diameters. Other species integrated with coffee are still few in number.

In Dempo Selatan Sub-district, rubber is used as a shade tree for coffee. In Dempo Utara and Dempo Tengah, other crops are planted on relatively new farms, such as potato, shallot and chilli. The various crops grown on the coffee farms are expected to provide extra income for farmers so that if the coffee harvest fails the other plants can provide the livelihood of the coffee farmer's family.

The non-coffee commodities planted in coffee farms, besides adding to household incomes, also help modify air temperature and humidity for better coffee production.

Yet farmers are sometimes constrained by their limited knowledge of how to design agroforestry systems that can give economic and environmental benefits. The key to mixed-planting or intercropping varieties of plants is to understand the biophysical suitability of the main plant (in this case, coffee) and its supporting plants, such as trees and seasonal plants.

To showcase a simple coffee-agroforestry model that can provide both economic and ecological benefits, Empower established coffee-agroforestry demonstration plots in Dempo Tengah and Dempo Utara. These plots represent suitable systems that can be developed in Pagar Alam. Based on a farmers' survey, economically valuable plants they wished to plant with coffee were fruit trees such as durian, avocado, petai and timber like sengon and bambang. A special technique is needed to arrange sufficient planting distances for growing the trees on farms.

Empower provided training to increase farmers' understanding of how to design and establish a coffee-agroforestry farm. The training has been provided since 2018 to robusta coffee enthusiasts in Pagar Alam. Following the training, the development of demonstration plots started by discussing the design of the plot that the farmers wanted to create.

Results of the discussions with the farmers of three farms in Dempo Tengah and one in Dempo Utara were that most wanted to combine their coffee with fruit trees. Only one farmer with a demonstration plot in Candi Jaya Village wanted to mix their coffee with sengon and cinnamon. In the meantime, another four farmers planted varieties of fruits such as petai, durian and avocado on their coffee farms. The development of these demonstration plots has been continuing since mid-2019.

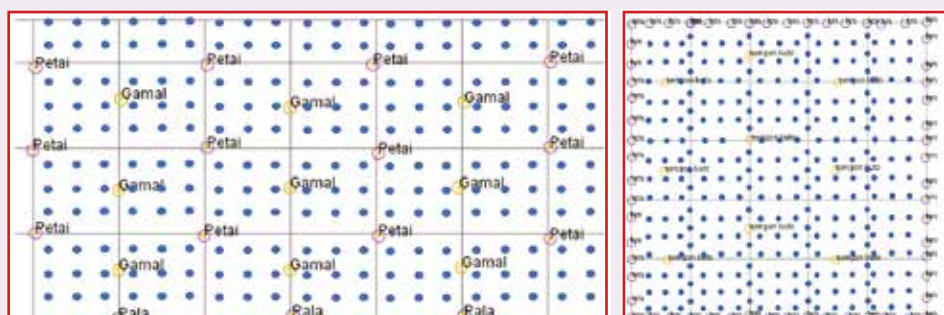
The collaboration between a farm owner and Empower is outlined in a written agreement that contains information on the roles and responsibilities of both parties in demonstrating a successful coffee-agroforestry farm.

Support was given by Empower to farmers, such as providing a grass-cutter to remove weeds and avoid the intense use of herbicides. This manual weeding practice is expected to reduce the effect of herbicides in lowering soil pH, which commonly occurs in some places in Pagar Alam. Other support provided by the Empower included hand-tools for weeding, non-coffee seedlings, composting house, and other inputs related to the maintenance of the system. The Empower field team periodically monitors improvements at every demonstration plot.

From the monitoring carried out by the Empower field team after 1.5 years since the demonstration plot was established, it became clear that the main lessons were on the effects of using organic fertilizer, and the discontinuation of herbicides uses to soil condition. The use of organic fertilizer also tended to be cheaper, using coffee-husks waste as its primary material. This organic fertilizer is applied at a rate of three 5 L buckets per pit on farms more than 15 years-old. If less than three buckets are applied, the effect on coffee production will be limited. Another prominent effect of reducing herbicide use was that the soil was more humid, suitable for coffee plant freshness.

The effect of additional types of plants on family incomes was not felt yet because there had not been any production. The farmers and Empower team expect that by the fourth year the non-coffee plants will be producing fruits.

At the moment, those who can learn from the demonstration plots are owners of the farms where the plots are situated because not many farmers can easily see results during a field day, for example, from a demonstration plot that is only 1.5 years-old.



Farm design of coffee agroforestry for coffee-petai-nutmeg (left) and coffee-sengon buto-cinnamon (right). (Photo: World Agroforestry/Endri Martini)



North Dempo demoplot with enrichment of non-coffee plant species, such as durian, petai and avocado. (Photo: Nedcoffee/Yanuar M Nur)



Petai planting as coffee shade tree in the North Dempo agroforestry demonstration plot. (Photo: Nedcoffee/Tizen Pahri)

Consequently, only one farmer in Candi Jaya Village imitated the maintenance as applied in the demonstration plots. Other farmers have not done so because they have not been able to see any changes as yet in production and revenue. Agroforestry plants as primary commodities need at least 3–4 years before harvesting. Therefore, we expect that more lessons will be learned from the demonstration plots and applied on other coffee farms in Pagar Alam in the next two years.

## Building the future with organic fertilizer

By Iskak Nugky Ismawan and Bobby Berlinsyah

**O**rganic fertilizer is a type of fertilizer made from natural ingredients such as manure and farm and food waste processed by fermentation to create nutritional elements that can be easily absorbed by plants. The use of organic fertilizer has positive impact on the environment. Apart from fertilizing the soil, in the long-term organic fertilizer can improve soil structure and ecosystems in the soil and it is also cheaper than chemical fertilizer.

In comparison to chemical fertilizer, nutrients in organic fertilizer are slowly absorbed by plants, thus, its impact on plants' growth is relatively slower than chemical fertilizers. As chemical fertilizer is quickly absorbed, overuse

can kill the plants. With long-term use, chemical fertilizer can change soil pH, which can affect micro-organisms in the soil and reduce soil fertility. Based on this, the use of organic fertilizer is preferable.

Organic fertilizer can be self-made by farmers using ingredients from their neighbourhood so they do not need to buy fertilizer. Empower has trained farmers in how to produce organic fertilizer and many are now applying it on their coffee farms. Compost is made from coffee-husks waste, mainly collected after the harvest season. The application of compost by coffee farmers in Pagar Alam shows a change in behaviour in the community that previously depended on chemical fertilizer.

### Intensive facilitation of coffee farmers to produce organic coffee

Changing the behaviour of a community from using chemical to organic fertilizer requires intensive facilitation. Since 2018, Empower has provided training and facilitation to coffee farmers in Dempo Tengah and Dempo Utara. One of the training and facilitation activities is to introduce techniques of producing organic fertilizer and facilitate farmers to make and apply it.

Training in producing organic fertilizer covers three elements: 1) Local micro-organism production, which functions as an organic decomposer in the fermentation process; 2) Compost; and 3) Liquid organic fertilizer.

Organic fertilizer is made using coffee-husks waste as raw material because coffee husks contain amounts of phosphorus (P) and calcium (K) needed in the production process of coffee trees. The organic fertilizer made by farmers is then applied on coffee and vegetable farms.

By September 2020, in Dempo Utara and Dempo Tengah, 30 locations were producing organic fertilizer, however, farmers have not sold organic fertilizer because the market opportunities are not yet available. The organic fertilizer produced is used for their own needs. About 80% of the farmers who produce organic fertilizer prefer to make liquid organic fertilizer since it is easier to make and does not require a large area. Another 10% of farmers prefer to make compost by using coffee-husks waste, like Jon Fikiri from Dempo Tengah, who produced 6 tons of compost in one harvesting season.



Sarbini, a farmer that has marketed his own-produced local micro-organism he learned from the Empower Project. (Photo: Nedcoffee/Bobby Berlinsyah)



According to the Empower farmers who applied organic fertilizer, the organic fertilizer from coffee husks has positively impacted coffee production. The physical appearance of coffee plants seems fresher, leaves seem shinier, and the growth of coffee shoots is healthier, too.

### **Revenue from local micro-organism production: a story from Dempo Tengah**

Unlike in Dempo Utara and Dempo Selatan where organic fertilizer has not had its market opportunity yet, in Dempo Tengah farmers who produce local micro-organisms have succeeded in promoting their product.

Sarbini, 38 years-old from Candi Jaya Village in Dempo Tengah, participated in training in making organic fertilizer held by Empower. He saw the potential to produce local micro-organisms for supporting production of organic fertilizer. The main reason Sarbini produces local micro-organisms is that the commercial product called EM4 that farmers usually buy is difficult to procure by farmers in Candi Jaya, who live in a mountainous area far away from Pagar Alam City.

Vegetable farmers from the same village as Sarbini like his local micro-organisms. They use it for making liquid organic fertilizer. Before selling his liquid organic fertilizer, Sarbini tested it first on his vegetables and coffee. His vegetables grew well and his coffee plants that previously had withered after two months of spraying began to grow shoots and branches and their leaves turned greener and looked fresher.

In the beginning, the local micro-organisms produced by Sarbini were only shared with his fellow farmers but when demand increased Sarbini sold the product for IDR 10,000 ( $\approx$  USD 0.69) per litre, which is lower compared to EM4 at IDR 25,000 ( $\approx$  USD 1.73). Up until the end of 2019, Sarbini had sold 700 L of local micro-organisms, earning about IDR 7,000,000 ( $\approx$  USD 485.50), adding significantly to his family income.

### **Organic fertilizer to support the future of coffee farmers**

The use of organic fertilizer provides both economic and ecologic benefits to farmers. The economic benefits are as follows.

1. Reduced cost of buying chemical fertilizer. In general, coffee farmers use manufactured fertilizer, approximately four sacks of NPK and two sacks of urea per hectare, at a cost of IDR 1,050,000 ( $\approx$  USD 73) per year. With compost, farmers only spend IDR 480,000 ( $\approx$  USD 33.29) to buy EM4, brown sugar and a tarpaulin.
2. A new source of income for farmers. Farmers producing and selling organic fertilizer add to their household income.
3. Increase coffee value through organic certification. Coffee farmers who use organic fertilizer can apply for organic certification and obtain benefits from selling their organic coffee. Facilitation in arranging organic certification is needed because it has various complicated terms and conditions to meet.
4. Reduced dependency on chemical fertilizer. Chemical fertilizer can disrupt soil ecosystems over the long term and reduction or cessation of use is desirable.

Increasing community awareness of the benefit of organic ingredients is not an easy task because it requires proof that it improves farm productivity. Therefore, the involvement of either the Government or other parties in facilitating post-training activities and information dissemination is necessary. The support will provide knowledge to motivate farmers in producing and applying organic fertilizer. Government and others can also promote the use of organic fertilizer for coffee and other plants so that there will be increases in production of coffee and other crops and decreases in costs and negative impacts, which, combined, will affect farmers' future for the better.



a) Composting process in Dempo Tengah, Pagar Alam. b) Making Organic Liquid Fertilizer. (Photos: Nedcoffee/Boby Berlinsyah)



Better tree growth after being given organic fertilizer. (Photo: Nedcoffee/Tizen Pahri)

# The Bittersweet of robusta coffee marketing: a story from Dempo Tengah and Dempo Utara

By Iskak Nugky Ismawan and Bayu Ega Firmansyah

**R**obusta coffee has been a superior commodity of Pagar Alam since the Dutch colonial era. From 1890 until now, it has been the primary source of livelihoods for farmers in Pagar Alam. In the last five years, Pagar Alam coffee has been improving in both quality and quantity. For example, there has been a 3% increase in the production of red-picked coffee beans. However, effective marketing is still an obstacle. In the meantime, red-picked coffee beans are only bought by direct consumers or cafe buyers, so coffee

farmers do not receive any added value. Empower in Pagar Alam has been assisting farmers in producing certified robusta coffee and promoting it at the national level.

Certified coffee needs a lot of attention, starting from its planting to post-harvest processing. Empower provides training in good coffee domestication and motivates coffee farmers to improve their marketing. Following are stories of coffee marketing from Dempo Tengah and Dempo Utara.

## **The bittersweet of marketing red-picked coffee beans from Candi Jaya Village, Dempo Tengah**

Bittersweetness in marketing red-picked coffee beans has been experienced by Yuli (whose full name is Ni Wayan Yuli Astiti). This 47 year-old woman from Candi Jaya is a robusta coffee farmer who manages a 1-hectare farm with her family. Her farm produces about 1 ton of coffee per year. Yuli has often attended

training held by Empower to improve her coffee production. The knowledge she obtains from the training is shared with her family and community, so much so that she is called the 'Kartini' (the name of a famous female educationalist) of coffee agroforestry.

Other than actively disseminating information about coffee agroforestry, Yuli is also a marketing enthusiast. Since 2015, Yuli and her farmers' group have been involved in selling red-picked coffee beans. The coffee brand, Beguyur, that she produces is available in many variants: green beans, roasted or ground. Every year, the micro-, small- or medium-sized enterprise (UMKM) Beguyur is able to sell approximately 0.5 tons of red-picked coffee beans to their consumers in Pagar Alam and further afield in Tangerang, Cileduk, Palembang, Bandung and Yogyakarta. Aside from red-picked beans, Yuli also sells uncategorized beans that she produces for collectors in Pagar Alam.

Before having a smartphone in 2015, Yuli only relied on an ordinary cellular phone and word of mouth for promoting her products. In 2015, the coffee enthusiast community was still unaware of UMKM Beguyur and its signature coffee. Another obstacle to marketing back then was that they lacked buyers when the coffee stock was available. In an attempt to attract consumers to be regular customers, UMKM Beguyur always provides a bonus for a minimum purchase of 5 kg: a free coffee sample for tasting.

Yuli began to feel the sweetness of marketing her red-picked coffee beans after packaging her products in 2014 and receiving halal certification in November 2020. Package refinement addressed the online marketing strategy of UMKM Beguyur. The packed coffee is also promoted in exhibitions held by the Government. In anticipating large-scale orders,



Yuli from Sumber Jaya with Beguyur coffee brand.  
(Photo: Nedcoffee/Bayu Ega Firmansyah)





Zulkifli from Bumi Agung with Lesung coffee brand. (Photo: Nedcoffee/Bayu Ega Firmansyah)

UMKM Beguyur has cooperated with coffee farmers outside the groups that already exist in Candi Jaya.

The price of products varies from the green bean for IDR 35,000 ( $\approx$  USD 2.50) per kg, roasted coffee for Rp 100,000 ( $\approx$  USD 7) per kg and ground coffee for Rp 125,000 ( $\approx$  USD 8.67) per kg. In one season, Yuli provides 500 kg of red-picked green beans.

In the future, it is hoped that there will be support from the local government to help with

### Enthusiasm for producing good quality coffee from Bumi Agung, Dempo Utara

Zulkifli, 52 years-old, is an active farmer in Empower, a coffee enthusiast and a businessman. 'Mang Don', as he is familiarly called, and his family manages a 1.5 hectare coffee farm divided into three plots that produce 2.5 tons of beans per year. His coffee domestication refers to the Indonesian national coffee standard that he obtained when training as a Master Trainer initiated by the Sustainable Coffee Platform of Indonesia (SCOPI). As a coffee enthusiast in Pagar Alam, this father of two has welcomed Empower. According to him, Empower's activities have assisted farmers in obtaining access to information and knowledge related to proper coffee-farm management.



Besides managing his farm, Mang Don has sold packed coffee since 2015 under the brand name, Kopi Merah Cap Lesung. His average sale amount of coffee is 50 kg per month to areas outside of Pagar Alam City, such as to Java and other parts of Sumatra. Since then, this husband of Nisdiarti has kept expanding his coffee business.

Besides selling coffee, Mang Don runs a roasting service. He began this after seeing farmers' enthusiasm in his area who were previously roasting their coffee traditionally. Now they have started to understand the taste of coffee and roast their beans in a modern way, which is faster, more consistent and provides evenly roasted beans that release their taste. Mang Don usually roasts about 50 kg of coffee bean per day from farmers who use his roasting service. He also educates farmers by allowing them to roast their own beans under his supervision and guidance.

'I am open for consultation if farmers want to ask me anything related to coffee farming and roasting,' he said. 'At least they can taste a cup of quality coffee from their own farm.'

His wish for the welfare of coffee farmers in Pagar Alam is a broad, open market for red-picked coffee beans. Then farmers will be more excited and enthusiastic in improving their coffee domestication and post-harvesting techniques.

### Development of marketing of Pagar Alam robusta coffee

The Government of Pagar Alam District supports the development of marketing of robusta coffee. Because of the examples above, the two villages have become a priority for the Government. Candi Jaya has become one of the central producers and business areas of robusta. In 2020, Yuli and her members received support from the Government of Pagar Alam in the form of a solar house for drying coffee, a warehouse, and a coffee-production house. The UMKM members manage the solar house and each member has to maintain the amount of red-picked beans at the production house as much as 100 kg per person. This applies to all group members in Candi Jaya.

In Bumi Agung Village, where Mang Don resides, the Government plans to make the area a focus of coffee tourism, targeting both local and international tourists who can visit and learn about coffee its domestication through to post-harvest processes all at once. Moreover, Bumi Agung is also planned to become an organic coffee development area. Hopefully, these Government programs will assist in creating new markets for coffee produced from Pagar Alam.



Pagar Alam's red picked coffee brand and packaging. (Photo: Nedcoffee/Tizen Pahri)

# kiprah agroforestri

**Knowledge and capacity strengthening of Pagar Alam farmers to livelihood improvement through coffee agroforestry (EMPOWER)** is a capacity-building project that focuses on improving the knowledge and capacity of robusta coffee farmers in Pagar Alam, South Sumatra.

**Empower aims** to enhance the livelihoods of farmers through coffee production and other crops grown in mixed coffee farms, also known as agroforestry systems, and to strengthen the capacity of robusta farmers in Pagar Alam to keep producing coffee despite obstacles such as an increasingly unpredictable climate that reduces production, attacks by pests and diseases, aging coffee trees, and competition from other, perhaps more profitable, land uses.

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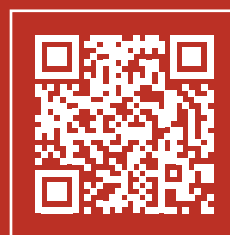
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