



Harvesting, Postharvesting, and Marketing of Robusta Coffee in Pagar Alam



Photo: World Agroforestry (ICRAF)/Isnurdiansyah

1. Introduction

Pagar Alam City is well-known as a producer of Robusta coffee in Sumatra, with 70% of the population working as farmers. Coffee is the primary commodity for Pagar Alam farmers who mostly manage their own lands. Based on a 2019 household survey, 96% of the 416 farmers own coffee farms (Isnurdiansyah *et al.*, 2021a). In addition, coffee farming is part of a tradition that has been passed down and is still practised today. In other words, until now the Pagar Alam community has a very strong attachment to this commodity in their daily activities.

Coffee farmers in Pagar Alam prefer Robusta coffee because it requires less maintenance and yields more than Arabica coffee. The majority of farmers continue to practise traditional coffee farming and postharvesting. However, as the demand for high-quality coffee has grown, some Pagar Alam farmers have gradually improved their coffee farming and postharvest management practises.

In 2019, Pagar Alam's Robusta coffee productivity of 1.38 tonnes/ha has far exceeded South Sumatra's coffee productivity of 0.92 tonnes/ha and the national coffee productivity of 0.8 tonnes/ha (Statistics Indonesia, 2020). However, this relatively high productivity has not been matched with appropriate postharvest policies and programmes tailored to farmers' needs and improve the added-value of coffee.

Key Message

- The market availability for red or ripe coffee cherries, which is an incentive for high-quality coffee postharvesting practises, remains limited, causing farmers to infrequently do so.
- At the local level, institutional efforts to promote market access for high-quality yield must be strengthened. Farmers' cooperatives, as an example of a local economic organisation, can connect farmers to premium coffee markets with competitive prices.
- Pagar Alam's Robusta coffee productivity has far surpassed that of coffee in South Sumatra, and even in Indonesia. In this case, government policies and programmes should prioritise market and capital access for premium Robusta coffee, as well as incentives for eco-friendly coffee productions, over an on-going capacity building programme for farmers on top grafting practices.

Currently, the most significant challenge for coffee farmers in Pagar Alam is limited access to premium coffee markets due to a lack of incentives. As a result, non-selective picked or unripe coffee cherries is the most commonly sold. Competitive market prices will incentivise farmers, encouraging them to improve methods of coffee harvesting, postharvesting, and marketing.

2. A general profile of coffee farmers in Pagar Alam City

Most of the farming households in Pagar Alam manage coffee farms with simple and complex agroforestry systems, making up 76.5% of the total agricultural land. Coffee agroforestry contributes 45% of total household income to farmers' income. Agriculture contributes 54% to farming household income, while other farming-related livelihoods includes, i.e., daily labour, commodity businesses, profit sharing farming, as well as aquaculture and livestock farming. As a result, agriculture or farming provide approximately 75% of farmers' household income in Pagar Alam.

Coffee farmers must increase their farm/crop productivity to increase their income to improve productivity through propagation. There are at least three propagation methods for coffee tree, i.e. seedling, cutting, and grafting. The majority of respondents in this study used top grafting as the best techniques because of its simplicity and the yields will be similar to the source plant which connecting an upper part (scions) from a productive coffee tree to a root system (rootstock) from less productive coffee trees. Another benefit is that the farmer do not have to remove the older tree trunks, which still produce high quality yields, and are free to choose high quality new scions in order to produce better results.

The majority of respondents (78%) have used top grafting techniques in their coffee farms. Farmers understand the importance of top grafting in restoring coffee crops that are no longer productive. However, 4% of respondents are unsure whether top grafting is used on farms they manage because they only work to manage the lands owned by others.



Photo 1. Top grafting technique by Pagar Alam farmers.

Prior to 2005, a few respondents initially conducted top grafting with reference to the neighbouring province, Bengkulu. Top grafting became more popular after 2011, and even greater number of farmers conducted (36%). Top grafting can be carried out gradually. Almost a half respondents conducted coffee trees top grafted are in the range 26-75% and some respondents are in the range above 75% of their coffee trees in their farm.

3. Harvest and postharvest management characteristics

Most coffee farmers have knowledge and skills in coffee farming, which is part of agricultural culture in Pagar Alam. Farmers, on the other hand, believe they do not have enough capital to implement better coffee management practises such as fertiliser application, weeding in accordance with recommendation, ripe coffee cherry harvesting, and postharvesting practises in line with market demands.

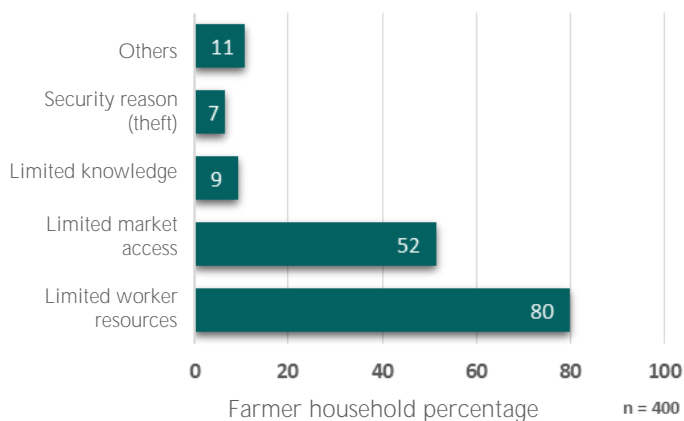


Figure 1. Constraint to coffee selective picking

Almost all coffee farming household (98%) practised non-selective cherry-picking, which involved picking green, yellow, and red coffee cherries all at once (commonly called 'rainbow coffee cherries' by respondents). This practise persists despite the fact that more than half of coffee farmer household respondents (53%) are aware of higher selling price of red coffee cherries.

The two most significant constraint to selective picking (only red or ripe cherries) for coffee growers in Pagar Alam are a lack of workers and market availability with premium pricing for red coffee cherries (Figure 1). Local collectors or middlemen buy coffee cherries from farmers at the same price whether they are selective or non-selective picked. Farmers, on the other hand, need to put more effort in sorting and collecting red coffee cherries. The premium coffee market is available in a very small niche market in Pagar Alam City or in markets outside of Pagar Alam.

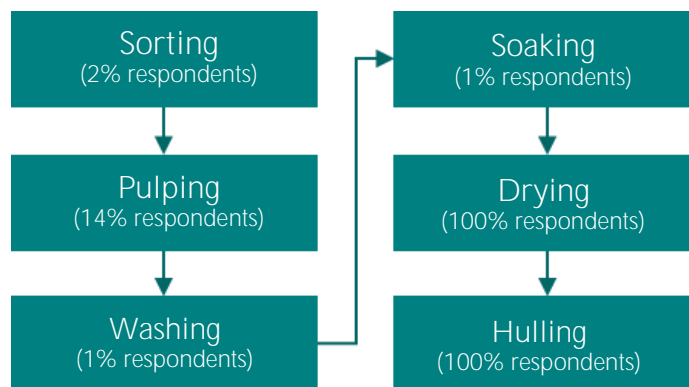


Figure 2. Phases of coffee postharvest handling practices

Postharvest handling of coffee is crucial because it affects the quality of the final, brewed coffee. In general, farmers' processing of coffee was divided into two: 1) dry process; and 2) wet process. Most of the respondents used the dry (natural) method.

Following the harvesting process, the respondents dried the coffee cherries in the sun (approximately 2-3 weeks). In natural process, coffee cherries remain intact because they are dried directly without being peeled, washed, or fermented. The next phase is hulling to produce green beans. Figure 2 shows that all respondents completed the drying and hulling phases. Pulping, which is typically used in wet process, is also used in the natural process to speed up drying. Pulping is the separation of the coffee fruit skin (exocarp) from the fruit flesh (mesocarp), leaving only the parchment, and mucilage.



Photo 2. Drying of coffee cherries on the ground with and without tarpaulin.



Photo: PhotoWorld Agroforestry (ICRAF)/Isnurdiansyah

Photo 3. Hulling to peel the skin of the dried coffee cherries.

The majority of respondents (67%) dry coffee beans directly on the ground or asphalt surface. Farmers' awareness of the cleanliness and quality of dry coffee beans grows year after year, so they use tarpaulin in the drying process (24%) and diversify processing methods (Figure 2). Tarpaulin use incurs additional costs for farmers. Unfortunately, most markets that buy farmers' coffee beans do not differentiate prices based on dry bean cleanliness. As a result, farmers have no incentive to improve the postharvest handling.

4. Coffee marketing

Even though half of respondents stated that they had communicated with more than one potential coffee buyer, 77% sold their produce to only one (Figure 3). The data clearly shows that most farmers do not compare potential buyers and have few options for selling their coffee. This demonstrates that farmers rely on a small circle of buyers, limiting their opportunities to obtain the best prices.

Further, coffee's main supply chain remains conventional. The commodity flow starts with farmers and continues to small collectors, large collectors, before reaching the licence holders supplying coffee to exporting companies. The commodity is then distributed to foreign markets or domestic coffee processing industries.

Farmers in groups have taken several initiatives to establish cooperatives in order to create new supply chains that are more profitable for farmers. Another

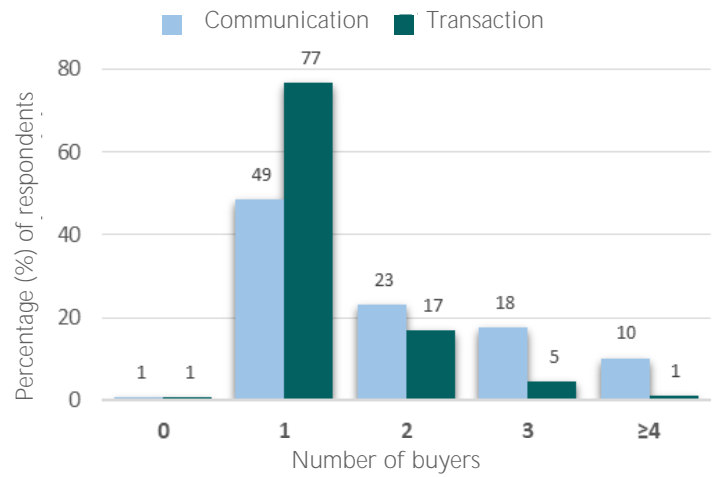


Figure 3. Farmers' coffee selling channels

initiative is to market high quality coffee via e-commerce to domestic coffee shops or coffee connoisseur networks.

However, none of the respondents have used or are connected to the market. The majority of buyers (76%) came from the same subdistrict and nearly half are from the same village (Figure 4). This is very common in conventional supply chains. However, some farmers sell coffee directly to another district within the same province, and some even sell directly to another province. Limited market access challenges the goal to increase farmers' income.

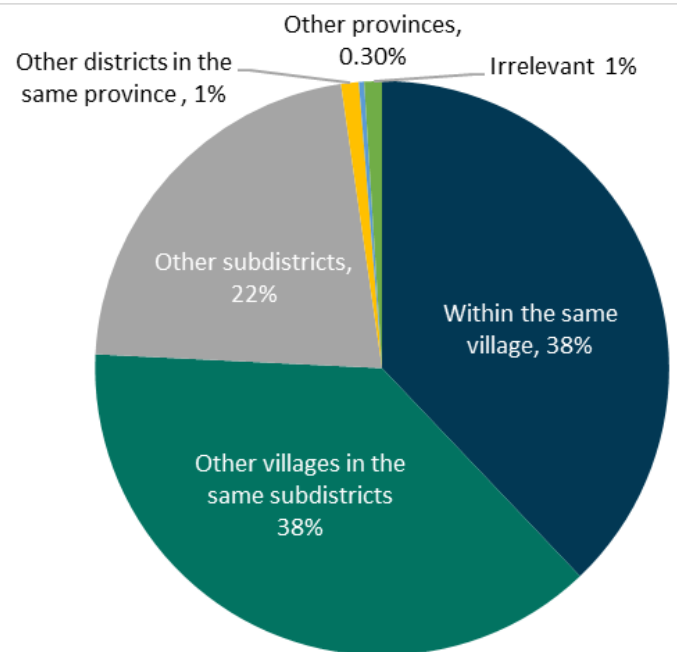


Figure 4. Origin of farmers' coffee buyers

Success Story:

Assisting process of creating market access and financing for coffee farmers

The IndoGreen ICRAF project has assisted Pagar Alam coffee farmers gain direct market access to an exporting company. The following are some marketing assistance activities in 2019-2020.

A. Communication, negotiation, and networking

ICRAF supports the expansion of market access for Pagar Alam coffee farmers through international organisation networks. This was started by facilitating communication between farmers and representatives of a global coffee trader in Lampung, with the goal of encouraging them to source coffee from Pagar Alam. ICRAF facilitated local farmers in Pagar Alam (North Dempo and Central Dempo) in sending the company four samples of randomly picked and premium quality Robusta coffee. Along the way, ICRAF engaged in communication, negotiation, and networking with various parties, including coffee farmers, potential financiers, and the Business Development Centre (BDC) under the Pagar Alam Government.

B. Institutional strengthening of farmer groups

The process of strengthening farmer groups includes institutional and product quality improvement aspects to meet company requirements for coffee bean quality standards, such as the following.

- Facilitating farmer capacity building in terms of coffee quality by inviting farmer representatives to visit the company. This visit helps farmers build their capacity by training them to identify the quality of coffee beans and learn factors that affect coffee quality. They also get to see how practices are carried out in the laboratory, and understand the company's expectation as a buyer.
- Assisting in finalisation of trade cooperation contracts.
- Facilitating small business groups, which in 2020 became the Pagar Alam MAI Independent Producer Cooperative.



Farmers' visit to a coffee-exporting company in Lampung



Meeting with the Pagar Alam Mayor to discuss the establishment of the Community for Geographical Indication Protection (MPIG) of Pagar Alam Robusta Coffee.

MAI is an abbreviation of the Indonesian Agribusiness and Agroindustry Society. This cooperative is needed to effectively organize coffee supply to the company by collectively get coffee from members.

- Providing coffee moisture meters to farmer groups as a resource to help them in meeting exporters' quality standards.

C. Access to Financing

ICRAF facilitates access to financing by connecting farmers to several potential financiers. BRI, a national bank is one of these financiers from whom they obtain seed-funds. There were challenges in completing the required documents, but they were eventually able to solve these through various concerted efforts. As a result, BRI finances business activities through the KUR (People's Business Credit) scheme.

D. Learning Experience

Several important dynamics and lessons were learned during the facilitation process, including the following:

- Market-related innovations must be sought and nurtured, which necessitates the involvement of other stakeholders, specifically those who act as catalysts to assist in any lengthy process.
- The facilitation process is highly dynamic. Learnings are not always smooth with specific challenges arise in each value chain actors. Facilitator must seize any opportunities that arise, for example when a potential buyer in the innovative market interested, we should response quickly in gaining the administrative requirement including the necessary financing.
- It is crucial to consider women's participation in the design of business development strategies for coffee farmer-based organisation. The role of women as initiators and driving forces in the farmer groups contributed to the success of Pagar Alam coffee farmer assistance process in this case study.

5. Conclusion and recommendation

Conclusion

- As most farmers are already familiar with and use top grafting techniques in their coffee farms, coffee farming in Pagar Alam is more productive than in other areas. This is likely to be supported by the Pagar Alam Government's 'One Million Top Grafting' programme. However, it is essential that government policies and programmes prioritise marketing aspects such as increased price, access to premium Robusta markets, and investment.
- Knowledge and application of good postharvesting techniques are insufficient in the absence of market availability that provide farmers with competitive prices. When there is a market for low-quality coffee at a low price, farmers may continue to practise business-as-usual (BAU) postharvest handling because it incurs no additional postharvest costs.
- The long supply chain network (from farmers to final consumers) has a significant impact on prices at the farmer level. Farmers are dissatisfied with the current coffee price, but they must accept it due to limited options of marketing channels.

Recommendation

- Policies relating to coffee farming should be more focused on what farmers need, such as market access and financing for coffee agribusiness

development, particularly the production of premium quality coffee beans. It is crucial to facilitate coffee market expansion in order to achieve a more pro-farmer market with transparent and fair prices for farmers.

- Several prerequisites must be met to gain access to the premium coffee market, such as improving coffee quality through postharvest handling and institutional strengthening. Therefore, proper assistance is required as a catalyst for accelerating postharvest capacity building and connection to the premium coffee market.
- Various innovative market schemes should be explored, introduced, and implemented to improve and sustain farmer livelihoods. In this case, digital traceability systems that allows farmers to transparently know the movement of coffee from upstream to downstream sectors may become an option. Farmers naturally should receive a higher price for their produce than in the past.

Reference

- BPS Sumatera Selatan. 2020. Provinsi Sumatera Selatan Dalam Angka 2019. Badan Pusat Statistik Sumatera Selatan.
- Isnuradiansyah, Amaruzaman S, Lusiana B, Leimona B. 2021. *Production-landscape characteristics and vision through the lens of upland smallholders in Pagar Alam*. Bogor, Indonesia: World Agroforestry (ICRAF) Indonesia Country Program.

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