Good agricultural practices in oil palm and smallholder inclusion in Indonesia

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Introduction

There has been steady growth in the number of smallholders managing oil palm plantations in Indonesia since the late 1970s, when policies enabled them to benefit from the expanding sector. In 2004, the Roundtable on Sustainable Palm Oil (RSPO) was established, an international and sector-wide initiative to reduce the negative environmental and social impact of palm oil production. Its main goals are to reduce deforestation and protect high conservation and high carbon stock areas and peat lands when increasing the area of oil palm plantations, while also providing economic opportunities for smallholders. Before oil palm growers can acquire RSPO certification, they must implement “good agricultural practices.” These include a wide variety of farm operations that increase the efficiency of production, thereby reducing the...
unnecessary waste of resources; this increases yields and net returns from existing oil palm plantations and decreases the need for expansion.

Increasing the yields of existing oil palms through implementing good agricultural practices is especially relevant in smallholder plantations, as these show the largest yield gaps. RSPO certification for smallholders aims to help them produce more oil using less land, provide access to new markets, increase their income, and reduce the risk of land conversion, which threatens forests and biodiversity (RSPO n.d.). Introducing good agricultural practices to smallholder oil palm farmers is also a potential means of achieving inclusive innovation, i.e., promoting technical and organizational changes that predominantly benefit low-income groups in society (Chataway, Hanlin and Kaplinsky 2014).

This article reports on results from a survey of more than 310 smallholders in five different areas in Sumatra and Kalimantan, and an in-depth study of weeding and harvesting practices in Riau province, Sumatra. It reflects on how implementing good agricultural practices contributes to the inclusion of smallholders in Indonesian palm oil production. It also provides a better understanding of the potential trade-offs between costs and benefits, and between crop productivity and the environment. This understanding will better allow for tailoring farm labour management and the functioning of smallholder organizations in order to realize inclusive and sustainable palm oil production.

**Fertilizing and harvesting**

The survey looked at agronomic practices in terms of weeding, pruning, fertilizer application and harvesting (Figure 1). It surveyed smallholders who had and had not received training in good agricultural practices from government extension officers, NGOs or consultants. Some mills organized training for smallholders connected to the company, so-called plasma smallholders. Results showed that most farmers knew about “good” oil palm management practices, but implemented them in only a limited way, irrespective of whether farmers were trained or not. Most farmers carried out most activities themselves, except for harvesting and pruning, for which they hired labour. Pruning and harvesting were done simultaneously or as separate operations.

Improving soil fertility is a key component of good agricultural practices. It involves the application of the right quantities of the key nutrients in the right balance and at the right time. Mulching with empty fruit bunches is recommended as organic fertilizer. The survey showed that smallholders applied enough nitrogen and phosphorus, but insufficient potassium (K). More of the trained than the untrained farmers reported that they had changed their fertilizer application practices, but all farmers said that fertilizers were very expensive and not always available and that they therefore applied what they had on hand at the time. Farmers also received different advice from different traders, as illustrated by one farmer’s comment: “there are so many different ideas about fertilizers, I get confused.”

Farmer organizations and cooperatives have an important role to play in facilitating smallholder access to fertilizer at a fair price, and providing independent advice on what, when and how to apply fertilizer. However, it will be difficult for cooperatives to control fertilizer application other than through price reduction and incentives. Fertilizers are mostly applied by the farmers themselves (Figure 1), which implies that organizing fertilizer application (such as by labour teams) is not appropriate. In implementing good fertilizer application, cooperation plays a key role in facilitating access to inputs and agronomic advice. Once these conditions are met, smallholders can follow recommendations more easily, which will lead to increased yields and incomes.
Implementing good harvesting practices can lead to quick increases in the quantity and quality of harvested and marketable fresh fruit bunches. Recommendations include a shorter (ten-day) harvesting interval, the use of loose fruits as a ripeness standard, and collection of all harvested bunches and loose fruits, but the survey showed that these practices were not implemented consistently. Trained farmers did increase their harvesting frequency and applied the ripeness standard, but very few of them managed to follow the ten-day cycle. To implement recommendations in full, smallholders, cooperatives traders and mills all have to adjust their practices. Smallholders have to reorganize farm management; cooperatives and traders need to collect the harvest more frequently; and mills must accept more regular deliveries. Mills should also recognize the increased quality of fruits and be willing to pay a higher price for them; that would also benefit the traders and cooperatives in the medium term. Good harvesting and a reasonable mill price are necessary for making other good agricultural practices profitable. When mills, cooperatives and traders align their activities with such recommendations, there is more inclusion of smallholders in the supply chain.

This study shows that producer groups face new organizational challenges in the implementation of good agricultural practices. One aspect is arranging new and effective linkages between farmers and other actors, mostly traders who buy fresh fruit bunches or sell fertilizer. An important role for farmer organizations is to negotiate lower prices for farm inputs and higher mill gate prices for farmer produce. Another is organizing adequate support for smallholders to implement good agricultural practices. Organizing labour teams for fertilizer application may not be feasible, but for harvesting this is a viable option that is already widely practised. These examples show that improved inclusion requires intensifying the interactions between smallholders and cooperatives, which in turn requires increased organizational capacity.
Organization of weeding through spraying teams

An in-depth analysis of a spraying team in Pelalawan District, Riau Province, Sumatra (Lisnawati 2017) involved the work of a team (tim unit semprot) created by a farm cooperative to facilitate safe herbicide applications. Team members followed basic rules, including the use of protective clothing, safe storage of chemicals and equipment, and guidelines on using designated spots for cleaning equipment and disposing of empty containers. These rules are all in line with the good agricultural practices required for RSPO certification. Recommendations for limiting environmental impacts included correct mixing of chemicals (mostly Glyphosate and Triclopyr) in relation to observed weed cover, and effective application. For example, clean water is brought to the fields for making the spraying liquid. This prevents labourers from filling their sprayers with water from open sources, which brings a substantial risk of spillage.

The use of spraying teams should reduce health and environmental risks, but in practice there were several observed challenges. The volumes of herbicide were not always correctly measured and safety instructions were not always followed. And when spraying devices stopped working, mostly due to small pieces of debris blocking the nozzle, disassembly resulted in leakage and skin contact. If specialized teams have difficulties following the rules, it can be assumed that individual smallholders will find it even harder. This must be addressed.

The cost structure of weeding teams created further complications. Most smallholders own one or two fields of about two hectares each, and a spraying team served several farmers per day. Costs per farmer were calculated based on the amount of herbicide used and the number of sprayers, but farmers also pay for other costs such as safety equipment, the tank of clean water needed, and the
hours worked by the team leader responsible for oversight of the operations. Farmers compared the costs for a team with the costs of hiring individual labourers, and often chose to hire one or two individual sprayers because that was cheaper than paying for a whole team. This shows that for the use of spraying teams to be adopted, the cooperatives have to convince the farmers of the added benefits and have to foster a sense of shared responsibility between the farmers and the teams to respect the rules and keep each other accountable (Jelsma et al. 2017). This requires the extensive involvement of cooperatives, both for organizing the teams and for providing farmers with information about costs and benefits, so that they become, and remain, included and committed.

Conclusions

Effective implementation of good agricultural practices and RSPO certification as a whole requires greater involvement of farmers and their organizations in farm operations. Optimizing agronomic techniques requires greater social inclusion of smallholders and labourers in the cooperatives. However, support from producer organizations to smallholders for implementing good agricultural practices and arranging RSPO certification also involves additional costs. In principle, cooperatives should be able to reduce these costs through economies of scale, but in practice, smallholders and cooperatives struggle to achieve the combined goal of economic inclusiveness and more sustainable palm oil production practices. In particular, more efficient use of chemical fertilizers and herbicides, and following the rules set by RSPO for these fertilizers, requires concerted efforts by all actors involved in palm oil production and limits the options for smallholders to gain direct income benefits.

Results from the survey underlined the importance of farmer groups and cooperatives in sharing information and creating economic benefits for their members. Price benefits from the shared procurement of inputs, realigned harvest frequencies, and the collective selling of fruit bunches will increase smallholder inclusion in the palm oil economy. Farmer groups and cooperatives also play a key role in the introduction of improved farm practices aimed at the increased sustainability of smallholder oil palm farms. But results from this survey show that the implementation of good agricultural practices as required for RSPO certification poses serious challenges for farmer groups and cooperatives. The task-based organization of spraying teams is new, compared to that of harvesting teams, and is driven by and assessed on economic output criteria. Such criteria are not enough to assess the performance of spraying teams, however. When working with products hazardous to health and the environment, the need for safe handling should not be overruled by economic considerations. Spraying teams and their methods of working must be redesigned to optimize logistics, economics, farmer health and safety, and the environment.

Findings make clear that organization within and around smallholder palm oil production needs to be reconsidered. Farmer groups and cooperatives have a broad set of tasks, but seem to be primarily product-focused organizations that mediate economic transactions between farmers, traders and millers. However, realizing benefits for members also requires the organization of knowledge and on-farm labour in relation to farm operations. Introducing new work procedures and technologies implies a rearrangement of farming practice (Glover, Venot and Maat 2017). The different organizational requirements of farmers, cooperatives and other farmer groups become more apparent when RSPO certification is an objective. The responsibility of task-related organizations does not stop at the farm gate, but involves the actual practices of fruit bunch harvesting, fertilizer application and weeding on the farm.
Farmers may prefer individual decision-making and want to hire their own casual labour, which seem more cost-effective. However, the increased dependencies between smallholders, cooperatives, mills and other actors imply that mistakes or non-compliance of any of these actors imperils group certification, and may reduce benefits for smallholders. These interactions and co-dependencies need much more attention from science and policy when moving toward more inclusive smallholder palm oil production.

References


