



Smallholder management practices, influencing factors and obstacles under oil palm cultivation on peat soils in Sarawak, Malaysia

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Introduction

On tropical peat land in Sarawak with its big peat swamp areas, oil palm production on peat is increasing on a big plantation scale, but also smallholders are getting more involved due to various reasons and can't be seen as an minor player¹. Best management practices and management support have mainly been developed for big scale plantations and these also need to be assessed for smallholders, whose reduced resources and capacities require adapted practices². Furthermore, environmental impacts in a unique ecosystem like peat lands need to be considered in terms of smallholders, and studied.

Conclusion

The current analysis shows that the smallholders are doing relatively well cultivating oil palm on peat soils, even though the inputs and general management are fairly low. This might change after the first decade of cultivating, as a result of the low management. Increased sustainable management and a more efficient way of using the farmers' resources is necessary for the future conservation of the soils, and to assure the farmers' livelihoods. Therefore it is crucial to overcome the numerous obstacles, such as land ownership issues and a lack of advisory services.

Objectives

1. Investigate the current soil management practices that are applied by smallholders: what factors are influencing management practices and which obstacles are being faced?
2. Evaluate the potential for more efficient or sustainable management practices that can be implemented by smallholders on peat soil

Methodology

- Mapping of the area, peat soil location and smallholders

- 50 questionnaires with smallholders
- Key informant interviews at the field side and surroundings

- 15 resource flow mapping and semi structured interviews with smallholders
- Key informant interviews in different locations

- Soil sampling in 15 smallholder fields:
 - Soil respiration (Sub-Soil)
 - Bulk density (0-15, 15-30cm)
 - Auger samples (0-30cm)

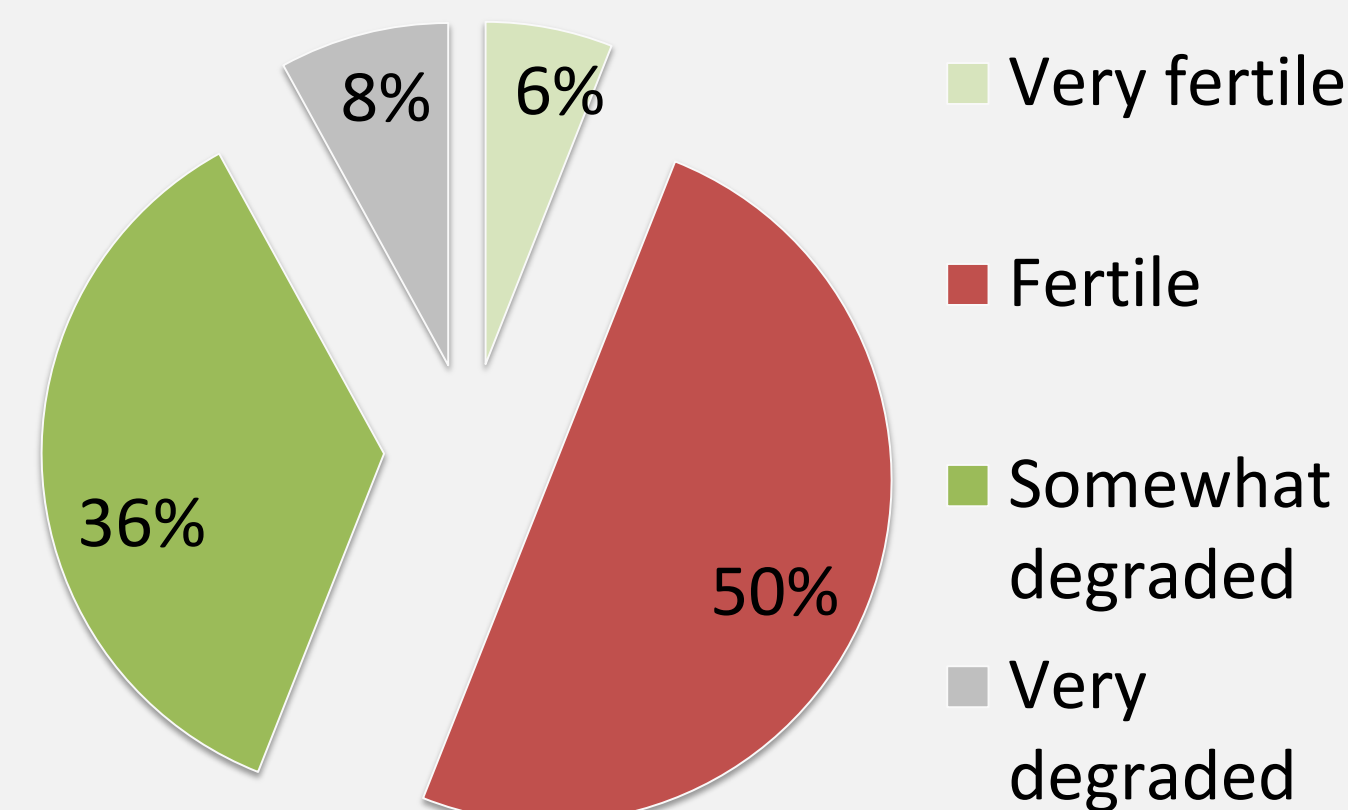


Figure 1: Questionnaire survey in the field.

Results & Discussion

1. Why oil palm on peat soil?

When asked, 34% of the farmers state that peat land is convenient because it is flat land. Also due to its availability (28%) which is related to the former land use, with 44% being former paddy area and 28% forest, it is perceived as a suitable land.



Furthermore, when asked how fertile is your soil, 50% of the farmers considered their soil as fertile, even though the input and soil management level is fairly low and mostly focusing on applying paddy fertilizer.

2. What are the current soil management practices?

43% of the questionnaire respondents would mainly rely on fertilizer application, while 14% of the farmers also state that they mix their peat soil with mineral soil. During the resource flow mapping 2/3 of the farmers appear to intercrop their fields with pineapple as well as banana trees and other crops.

3. What is the main source of farming advice?

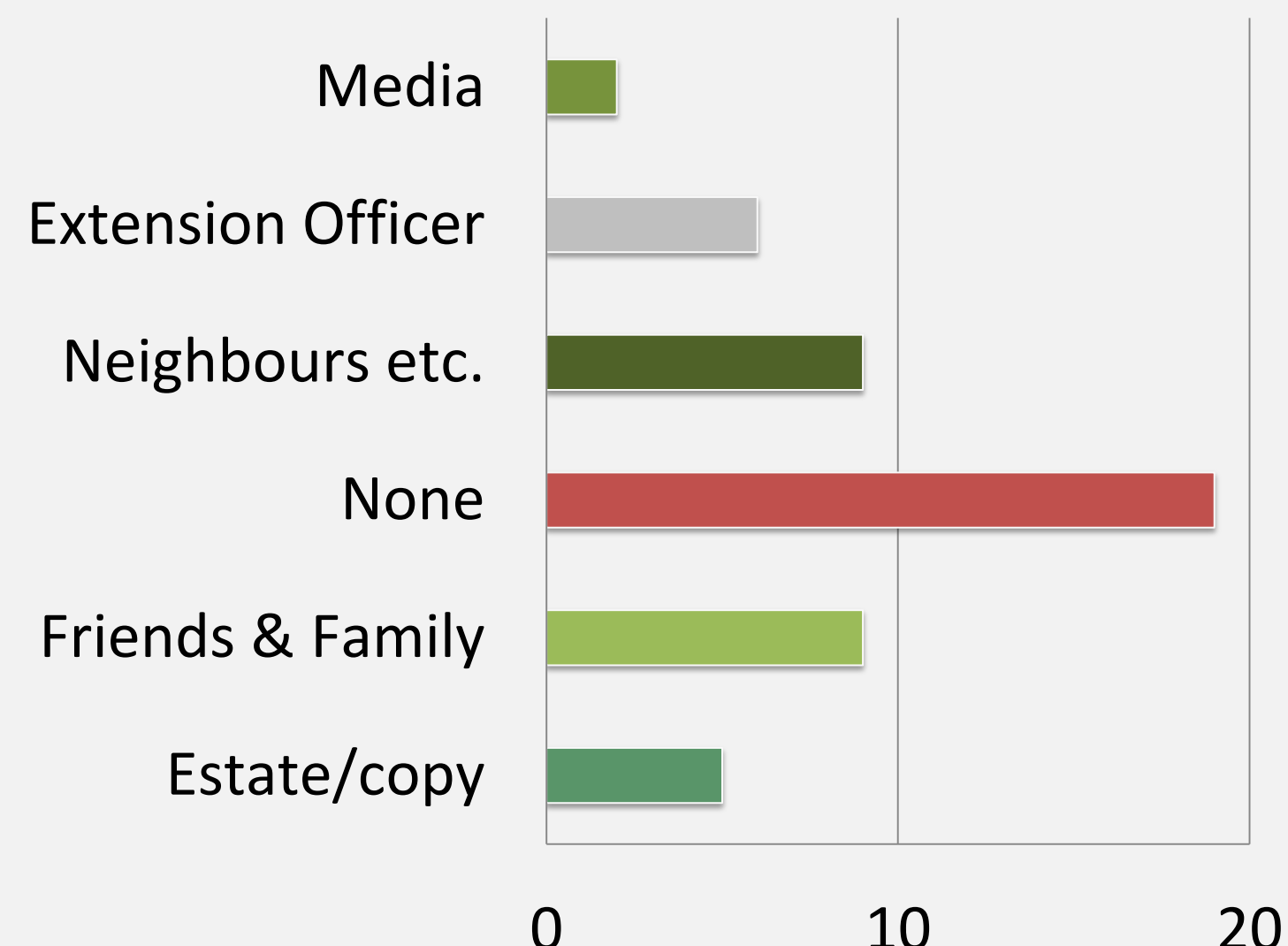


Figure 2: Oil palm field intercropped with pineapple

28% of the farmers state that they don't receive any farming advice, while others share information with neighbours and family members about their field management. Unawareness of possible advisory services and very limited extension capacity cause a lack of knowledge transfer, even though there is high demand for such.

4. What are the main obstacles being faced?

- **Farmers' age**
38% of the farmers are in the age range 56-65. Due to the loss of youth and limited financial resources to hire labor, the ability to implement labor-demanding work, like building drains, is reduced.
- **Land Rights**
Native customary right lands regulations and farmers working on their land for generation without landtitle or ownership.³
- **Fruit price**
The drastic drop of the price for oil palm fruits in Malaysia and forced selling to middleman leaves no financial resources to invest in soil management.
- **License**
Without land title no license or extension service.
- **Advisory Service**
There is an obvious lack of extension service in the area. Farmers without official license don't receive advice. Farmers that do receive advice are often not able to implement the recommendation due to lack of resources

5. What are the key factors for more sustainable management practices? ⁴

- Appropriate practices for smallholders
- Available advisory services
- Access to knowledge
- Land ownership and fair prices
- Efficient use of resources



Figure 3: flooding in the oil palm field

Follow-up Research

How are soil management practices influencing the actual soil characteristics?

Analysing soil Parameters (C, N, pH, Soil Respiration, Bulk density)

Comparison between smallholder fields and big scale plantations in terms of nutrient characteristics

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