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► To cite this version:

Margot Moulin, Laurène Feintrenie, Cécile Bessou, Julie Wohlfahrt. Oil palm dreams and disillusion: smallholders' plantations in a context of low inputs farming systems in Indonesia. 4. International Conference on Oil Palm and Environment: Oil Palm Cultivation: Becoming a Model for Tomorrow's Sustainable Agriculture, 2014, Bali, Indonesia. 1 p., 2014. hal-02794467

HAL Id: hal-02794467

<https://hal.inrae.fr/hal-02794467>

Submitted on 5 Jun 2020

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Oil palm dreams and disillusion: smallholders' plantations in a context of poor access to agricultural inputs

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Diversity of smallholders: a matter of real agricultural practices

In the study area, we found four main types of cash crop cropping systems:

- Oil palm « very low inputs » plantations with unselected seedlings without mineral fertilization
- Oil palm « low inputs » plantations with unselected seedlings and low mineral fertilization
- Rubber agroforest with local seedlings without mineral fertilization^{1,2}
- Mono specific rubber plantation with local seedlings without fertilization^{1,2}

We used surveys held in plasma plantations in Siak and Kampar districts (Indonesia, Riau province, Sumatra) as a reference for oil palm « high inputs » plantations with selected seedlings and recommended mineral fertilization.

« Low inputs » oil palm plantations are less competitive than rubber mono specific plantations and rubber agroforest

The gross margin of oil palm cropping systems is higher than the two rubber cropping systems **if** growers can access to selected seedlings and recommended fertilization rates.

In the study site, we found out that:

- There is no local reliable oil palm seedlings suppliers
- Growers do not have the initial funds to pay for selected seedlings
- Fertilization mostly depends on growers available (varying from year to year)

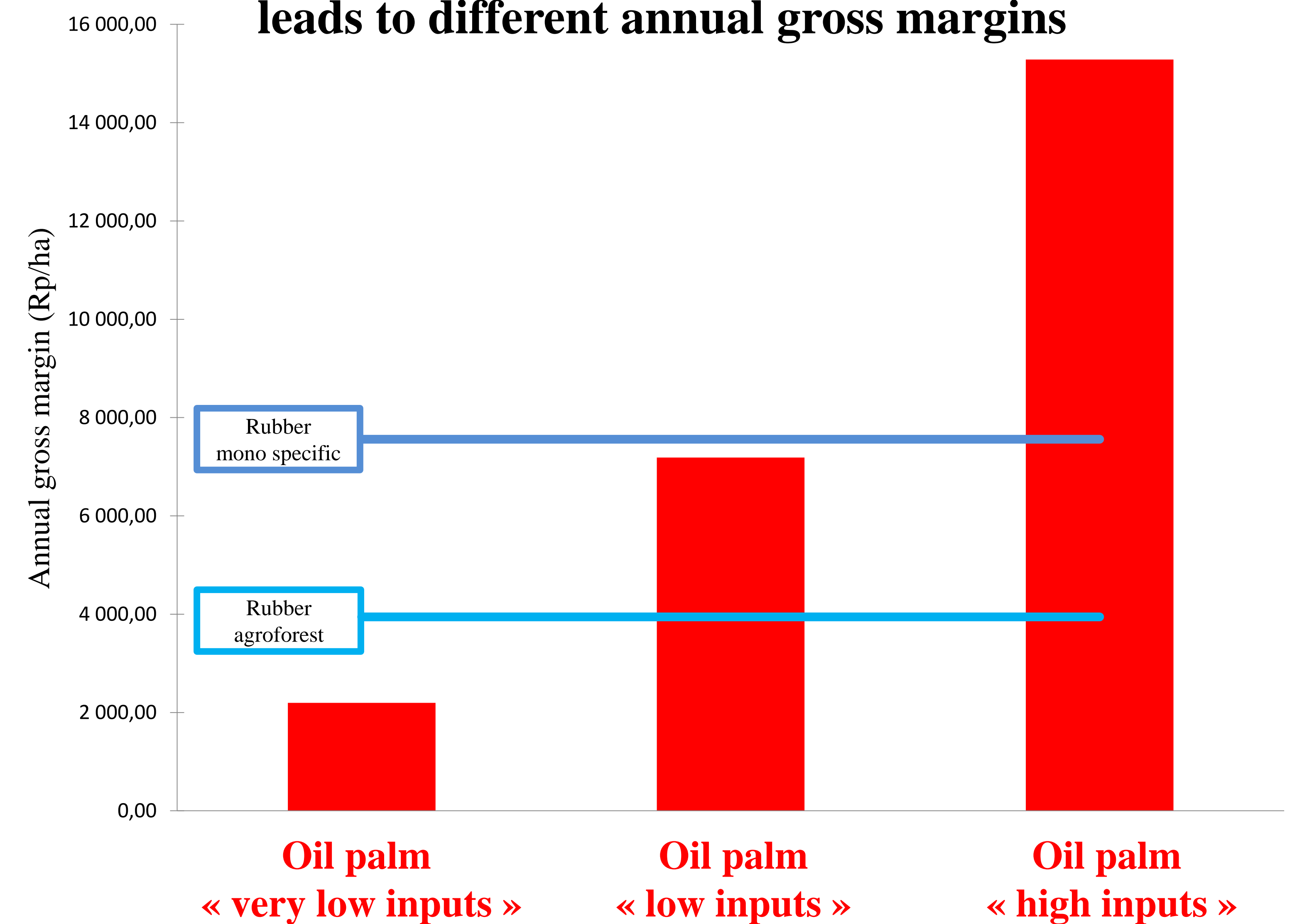
- 5 traditional villages (Kecamatan Bathin III Ulu, Bungo district, Jambi Province, Indonesia).

- Rubber is the main and traditional cash crop. Most villagers rely on rubber slab to make a living.

- Encouraged by the success of plasma plantations, the development of oil palm plantations started around 10 years ago, as a mean to diversify the source of incomes.



The diversity of oil palm agricultural practices leads to different annual gross margins



We calculated a simplified annual gross margin of mature plantation, considering the main cost and benefits of the 3 oil palm cropping systems and the 2 rubber cropping systems.

$$\text{Simplified annual gross margin} = (\text{Commodity price} * \text{yield}) - (\text{labour cost} + \text{mineral fertilization cost})$$

Farm gate prices in October 2013: 877Rp/kg for FFB; 10 222Rp/kg for rubber slab (DRC50)

A better description of the diversity of oil palm cropping systems leads to assess better the sustainability of palm oil production



1ha of « low inputs » oil palm plantations is not enough to make a living

In our case study, the average 1ha size of « low inputs » oil palm plantation is not enough to make a living.

Most oil palm growers rely on external incomes: rubber plantations and daily works.

In the study site, we found out that oil palm plantation size is mainly constrained by:

- The capacity of smallholders to buy a sufficient amount of oil palm seeds
- The availability of land suitable for oil palm cultivation

Perspectives

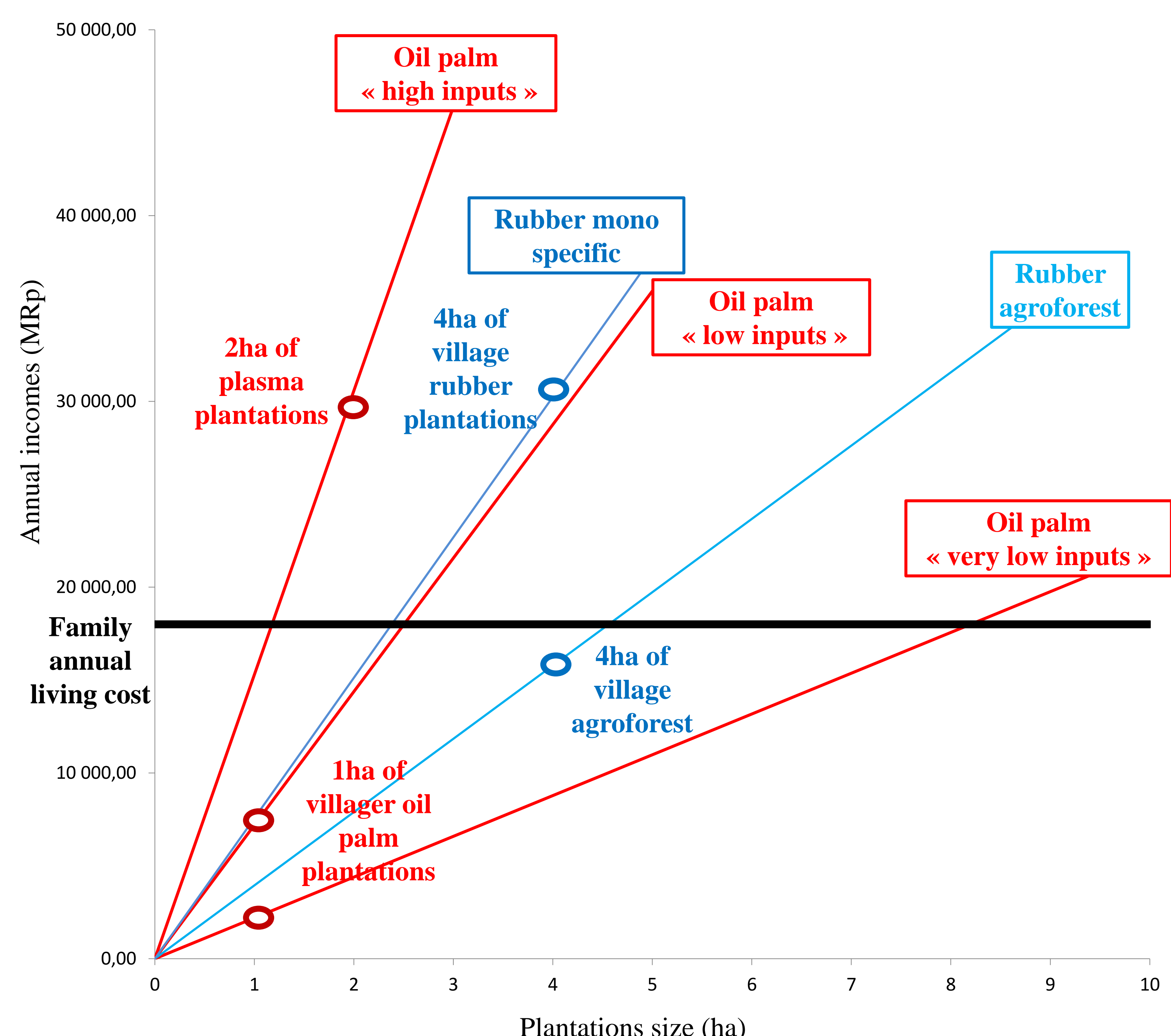
- Extension of the survey to both other growers and areas to validate these first results.
- Recording more detailed agricultural practices for the whole oil palm cycle could improve the global assesment of oil palm cultivation.

This work is based on Margot Moulin on-going PhD work, « Modeling futures of palm oil production land, Riau and Jambi provinces, Indonesia », part of the SPOP project funded by the French National Research Agency for the 2012-2016 period.

Sources:

- (1) Bonnart, How can the improved livelihoods of rural community and the biodiversity conservation be integrated in the landscape mosaics in Bungo district. Master thesis. 2008.
- (2) Mienmany, Agriculture beyond the oil palm development in Jambi province, Participatory Prospective Analysis. Master thesis. 2013.

The minimum plantation size to make a living depends on the practices



Based on surveys, we estimated the cost of living of an Indonesian family to 1 500 MRp/month.

We assumed that the gross margin is linearly correlated to the size of the plantation.

Per family, the size of cash crop plantations is usually:

- For oil palm: 2ha for plasma plantations, 1ha for local villagers' plantations and 0,75ha for the latest transmigration programs
- For rubber: at least 4ha of rubber plantations and/or agroforest



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