



CRC 990 “Ecological and socioeconomic functions of tropical lowland rainforest transformation systems (Sumatra, Indonesia)”

ACCESS BENEFIT SHARING (ABS) FUND 2017

EFFECTS OF FERTILIZER REGIMES AND TIME OF PLANTING ON BIODIVERSITY ENRICHMENT EXPERIMENT OF OIL-PALM LANDSCAPE

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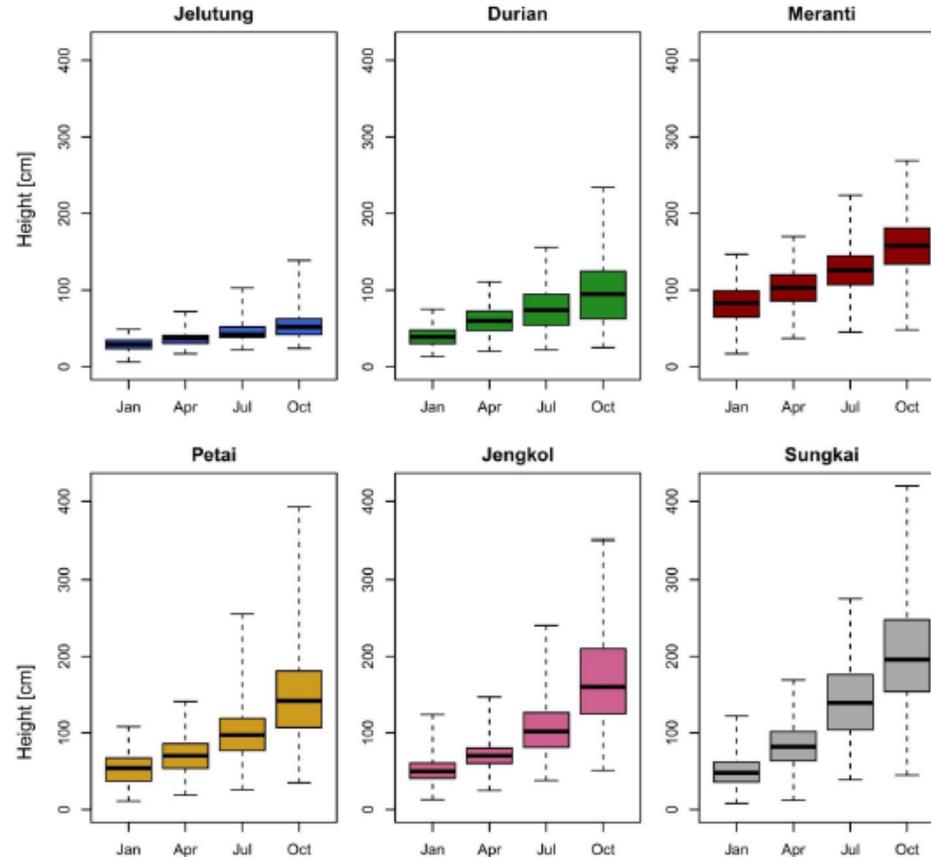
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Background

- ☐ Petai, jengkol and Sungkai show best growth performance



Tree growth - Height

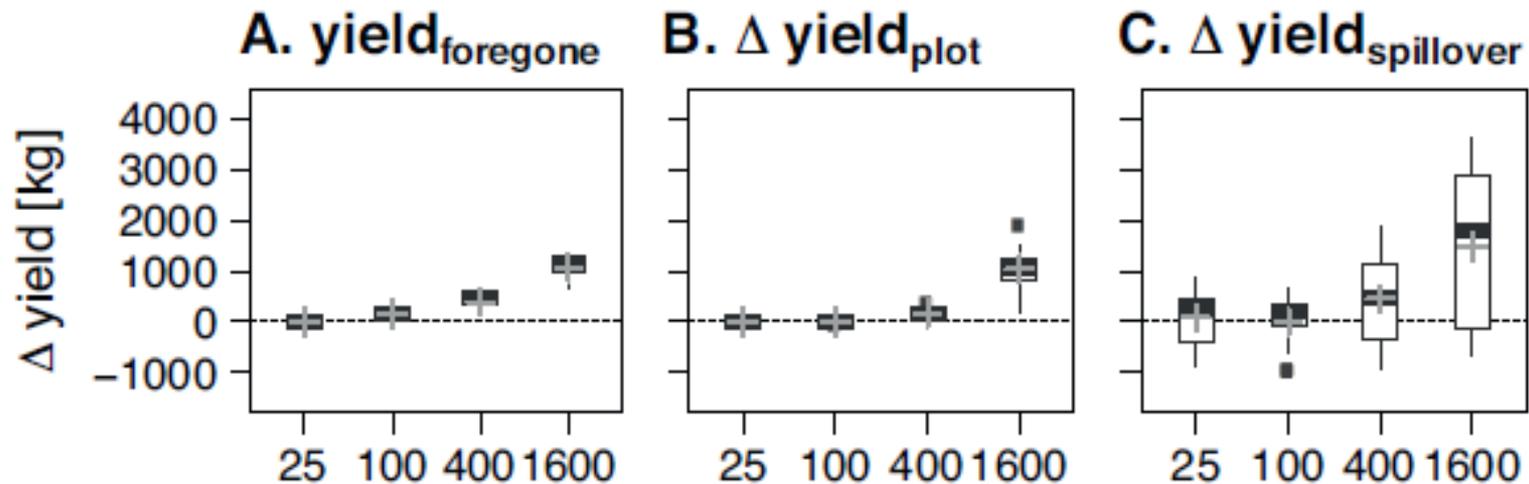




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□ Economic evaluation of yield changes induced by the experimental treatment

- Panel A shows the estimated values of inside-plot yield loss due to oil-palm thinning
- Panel B the estimated values of the inside-plot yield gain of the remaining oil palms
- Panel C the estimated values of the adjacent-to-plot yield gain, all against the plot size.



Gérard, A., et al., (2017)





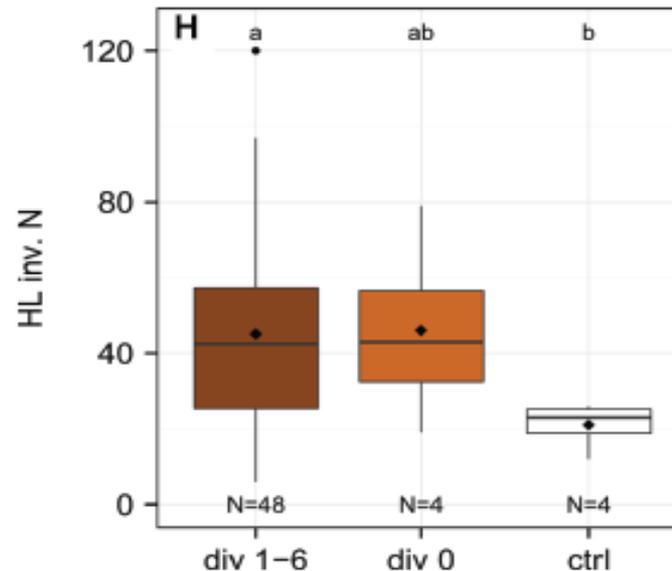
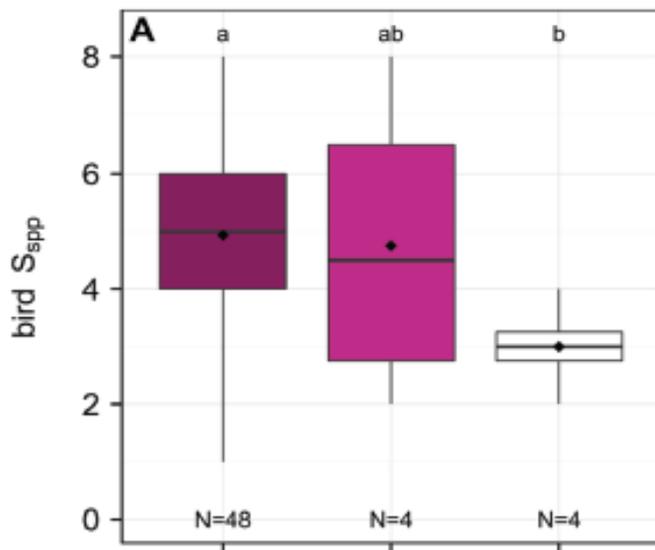
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❖ 2 Years After Planting

Effect of Enrichment to Diversity

- ❑ Bird species richness
- ❑ The abundance of Herb Layer invertebrates

Significantly increased on plots with trees compared to control plots



Teuscher M, et al., (2016)





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Research questions:

1. In which oil palm age, the enriched trees should be planted in the landscape?
2. When the number of oil palm trees and the planting space still in the same as the regular manner, is the BEE still feasible both in ecological and economical views?
3. In which level of fertilizer to the trees that managed in the landscape may provide better growth of trees and production of oil palm trees?





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Specific Objectives:

1. To study the interaction between age of oil palm when the enrichment trees has been planted and fertilizer regimes.
2. to study the impact of age of oil palm when the enrichment trees has been planted to the growth and survival rate of the trees and production of oil palm.
3. To study the impact of fertilizer to the growth of trees and the production of the oil palms.





METHODS

Location: PT. Mekar Agro Sawit, Aur Gading, Jambi.

The experimental design: Split Plot Randomized Design (Age of oil palm as main plots and fertilizer regime as sub plots).

3 levels of oil palm:

- ❖ a1: one year old oil palm;
- ❖ a3 : three year old oil palm and
- ❖ a5: five year old oil palm.

Fertilizer

- ❖ f0: No fertilizer
- ❖ f1 Additional fertilizer (200 g Urea (46% N); TSP (46% P₂O₅) and g KCl (60 % K₂O)

5 Replications

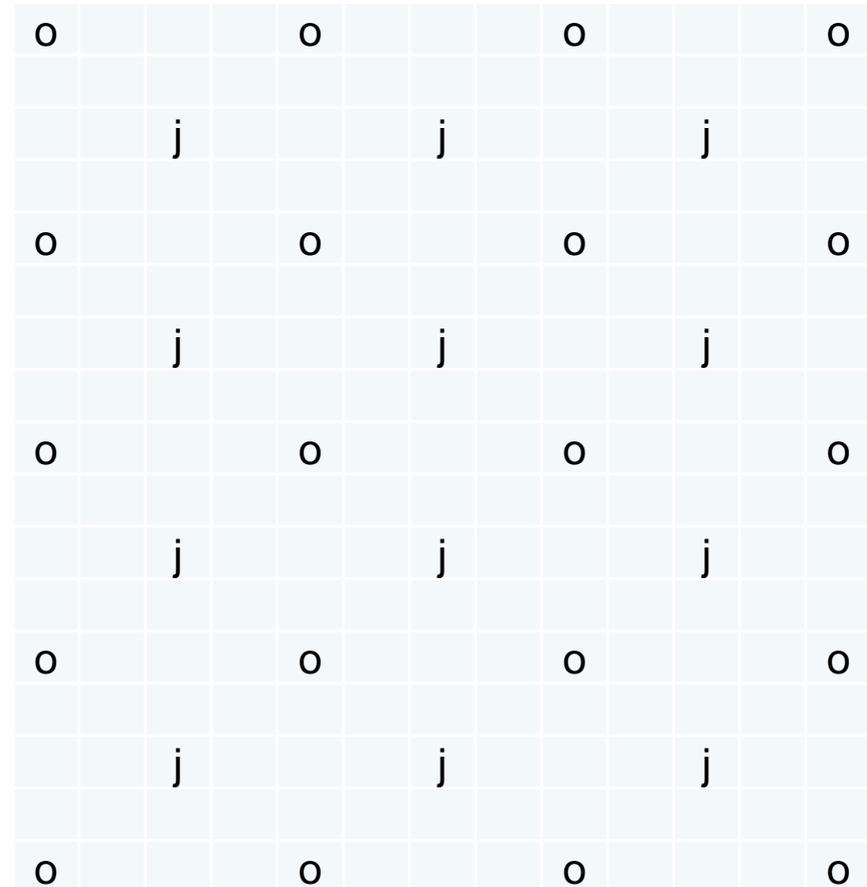
The total number of plot treatments is 30 plots.





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The plot size is about 45 m x 32 m. The number of oil palm trees per plot is 20 trees. The total size of core plots is 3.7 ha. Between the plot will be laid 2 rows of oil palm trees as a border.





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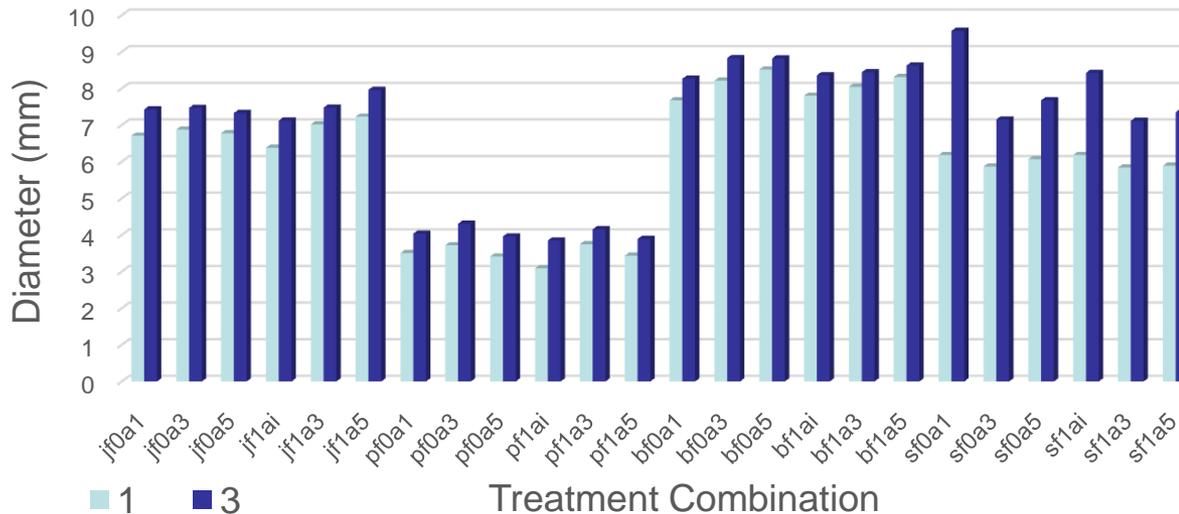
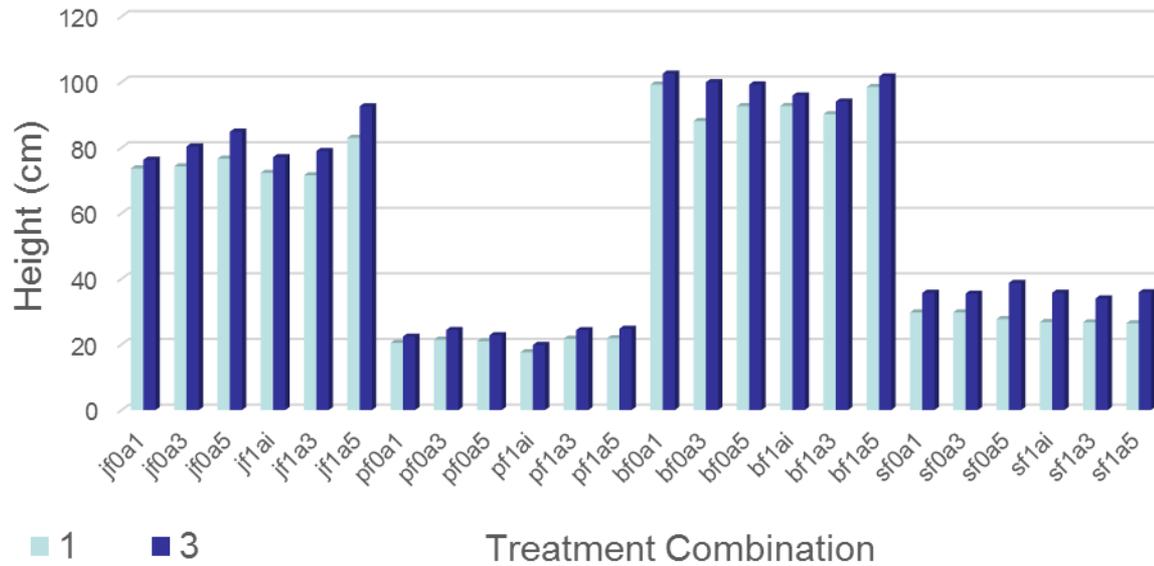
Data summary on preliminary measurement

Species	Height (cm)				Diameter (mm)			
	Mean	Max	Min	Deviation Standar	Mean	Max	Min	Deviation Standar
Jengkol	75,34	109,20	50,20	13,29	6,83	8,47	4,69	0,93
Petai	20,69	25,40	15,20	2,49	3,48	4,34	2,58	0,41
Bulian	93,56	104,90	71,60	7,41	8,09	9,00	6,86	0,53
Sungkai	27,87	35,30	20,20	4,57	6,00	6,80	5,34	0,49





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Terimakasih

