

Promoting Trees at the Oil Palm Frontier: Experimental Evidence from Indonesia Miriam Romero, Katrin Rudolf, Meike Wollni

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Introduction

- Oil palm production is expanding rapidly in Indonesia. The resulting transformation of rainforest into oil palm plantations is associated with a loss of biodiversity and ecosystem functioning [1].
- Enriching already established plantations with native trees has been proposed as one sustainable management option [2].

Which policy options are effective in promoting native tree planting in oil palm?



Experimental design, method and material

- Randomized control trial
- Stratified random assignment of 36 oil palm growing villages
 - Two treatment and one control group (each 12 villages)

Treatment 1 Informational intervention Assumption: *"Farmers lack information"*



Illustrative Manual



Film

Treatment 2 Structural intervention Assumption: *"In addition to information,*

farmers do not have access to high quality seedlings"



Informational campaign





Oct 2015	Feb 2016	Oct 2016	
Baseline	Follow-up	Endline	

Econometric model: Intention-to-treat effects

- $Y_{iv} = \beta_1 + \beta_2 T_{inf} + \beta_3 T_s + \beta_4 S + v + u_i$
- Y_i : Dummy variable of whether a farmer plants in oil palm Intention to plant trees in oil palm (subjective belief)

Saplings

- Perceptions on trees in oil palm (17-scale Likert scale)
- *T*: Treatment (information or structural)
- *S* : Stratification and other control variables
- v: Village effects

Note: Inverse probability weights for attrition applied

Results



Impact of interventions				
	(1)	(2)	(3)	
	Intention to	Actual tree	Actual tree	
	plant trees	planting	planting	
nformational	0.213***	0.085	0.086	
	(0.042)	(0.061)	(0.061)	
Structural	0.204***	0.409***	0.385***	
	(0.036)	(0.051)	(0.057)	
ntention to plant trees		0.177***	0.153***	
		(0.051)	(0.051)	
Perceptions			0.032**	
			(0.012)	
Observations	743	678	651	



- Perceptions of ecosystem services provided by trees in oil palm improved in the short term due the interventions. But perceptions decreased on the
 medium term if only information is provided
- Both interventions have a positive and significant effect on the intention to plant native trees in oil palm. Furthermore, the structural intervention has
 positive and significant effect on actual tree planting, both directly and through intentions and perceptions.



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