

1. Previous activities in the area

- *University of Brawijaya* 'biological management of tropical soils' work
- *ASB* characterization of landuse and diagnosis of farming constraints
- *Homegarden inventory* of carbon stocks and tree species
- *Informal discussions* with individual farmers and farmer groups regarding tree farming



2. Establishment of activities to 'Expand options for smallholder farmers'

List of timber taxa in trials

- *Acacia mangium* – mangium local
- *Acacia mangium* – mangium super
- *Alstonia scholaris* – pule
- *Eucalyptus* hybrid – eurograndis
- *Paraserianthes falcataria* – sengon
- *Peronema canescens* – sungkai
- *Swietenia macrophylla* – mahoni
- *Tectona grandis* – jati local
- *Tectona grandis* – jati emas
- *Tectona grandis* – jati super



Initial finds from trials

- All taxa show good survival under smallholders' conditions
- Trees planted under established cassava demonstrated 35-40% less height growth compared to trees planted simultaneously with cassava (through a rotation of cassava)
- Intercropping with short stature and short rotation crops (legumes and maize) results in better tree survival and growth compared to intercropping with cassava
- Weed control is necessary to minimize the competition from *Imperata* and companion crops, particularly when using fertilizers. Survival and height growth were 10% and 30% less, respectively, when weed control was not conducted.
- Based on a compilation of early data (less than 1 year) relative height growth between species is as follows: first *Paraserianthes*; second *Acacia mangium*, *Eucalyptus* hybrid and *Alstonia*; third *Swietenia*; and *Peronema* and last *Tectona*.
- Based on 4-month data, improved quality germplasm demonstrates superior height and diameter growth compared to local germplasm – 80% greater for *Tectona* and 13% greater for *Acacia mangium*.

Timber rotation categories - smallholder criteria

Short rotation (5-10 years)

Acacia mangium, *Eucalyptus*, *Paraserianthes falcataria*

Medium rotation (15 years)

Alstonia scholaris

Long rotation (+ 20 years)

Peronema canescens, *Tectona grandis*, *Swietenia macrophylla*

3. Related and future plans

- Marketing study for timber produced by smallholders
- Training related to 'fruit and timber tree propagation and management'
- Training on 'seed source management and seed collection'
- Evaluation of fruit and timber tree germplasm pathways
- Evaluation of preferred planting niches for fruit tree
- Compile list of on-farm and priority tree species
- Facilitate the development of a smallholder tree farmers group

