Smallholder Farmer Seed Orchards: Producing Quality Tree Seed On-Farm

Background
Tree planting activities are successful and benefit local livelihoods and the environment, but...

Seed is often an obstacle to local tree planting
- Seed shortages are an annual problem
- Farmers & NGOs use whatever seed is available regardless of quality
- Farmers & NGOs have no access to high-quality seed

Assumptions & Methods
- Farming on smallholdings, with limited resources, and theDodso-funded Indonesia Farmer Seed Project (DISP) implemented a project to enhance the tree planting activities of farmers and NGOs in Indonesia by strengthening their technical awareness and skills regarding tree germplasm collection and management.

Activities included: participatory appraisals, training courses and workshops, the distribution of high-quality tree seed, the production of farmer-level technical documents, and the establishment of farmer demonstration trials.

Results & Discussion

Relative quality of various seed sources

Seed Quality Aspects of Importance
- Genetic quality at the individual tree level
- Genetic quality at the population level
- Physical and physiological quality of the seed

Local Tree Seed is often Poor (below-average) Quality
- Local stands established with seed of scarce or unknown genetic origin
- Farmers, NGOs and local dealers do not use seed collection guidelines
- They select seed from trees that are easy to access - regardless of quality
- They often collect seed from only 3-5 trees, sometimes from a single or isolated tree
- Such unselected seed sources yield seed of below-average quality

How to address the problem
- Enhance local tree seed collection and management through training & information
- In-flow of high-quality seed to establish farmer tree systems / farmer seed orchards
- Inoculated, virus-free seedlings / farmers develop seed businesses, with a focus on various tree seed seeders and seed customers

Seed orchards are stands of trees established for the specific and sole purpose of seed production. They are generally monocultural. Management eliminates the production of other products. Objective: maximise seed production from trees of the best proven genetic quality.

Farmers & NGOs have no direct access to high quality seed
- Local stands established with seed of narrow or unknown genetic origin
- Farmers & NGOs use whatever seed is available regardless of quality
- Farmers & NGOs have no access to high-quality seed

Seed shortages are an annual problem

Four years of experience indicates there are 2 appropriate models for farmers’ seed orchards

Note: This diagram depicts the different models for seed orchards and the appropriate conditions for each.