

1. Plant nurse trees: Fast-growing nitrogen fixing trees can be planted first to improve site conditions. This approach is often used for crops like coffee on poor sites, where nurse trees are valued for shade and soil enrichment throughout the life of the coffee crop (see Table 1). Common species suitable for this method are *Albizia lebbek* (chres), *Gliricidia sepium* (snaov), *Dalbergia cochinchinensis* (kra ngoung), *Pterocarpus indicus* (thnong) and *Acacia mangium*. All these species have special characteristics such as: they cast a light shade or can be pruned to adjust shade; are nitrogen-fixing; produce timber, fodder, or other useful products; are sun-loving; adapted to local climates and soils; and fast-growing.

2. Intercrop annual crops: Choose an intercrop each planting season that is adapted to current sun or shade conditions. Shade-tolerant under-storey crops include: *Ananas cosmosus* (pineapple), *Capsicum* spp. (peppers), *Colocasia esculenta* (sweet taro), *Curcuma domestica* (turmeric), *Anthurium* spp. (flowers), *Ipomea batatas* (sweet potato), *Xanthosoma sagittifolium* (dryland taro), *Zingiber officinarum* (ginger), and mushroom cultures.

3. Plant shade-tolerant trees. After one year or when the nurse trees provide enough shade, plant shade-tolerant trees. Plant them 3-4 m apart, or at the recommended spacing for the tree crop. Plant them 1-2 m away from the nurse trees.

4. Fertilize, prune and weed as for other tree crops.

Table 1: Example of Crop Combinations

Size of tree	Sun-loving (first to be planted)	Shade-tolerant when young (can be planted later)
Tall (large tree)	<i>Albizia saman</i> (raintree) <i>Artocarpus altilis</i> (breadfruit) <i>Casuarina</i> spp. <i>Cocos nucifera</i> (coconut) <i>Gmelina arborea</i> <i>Mangifera indica</i> (mango) <i>Pterocarpus indicus</i> <i>Swietenia macrophylla</i> (mahogany) <i>Tectona grandis</i> (teak)	<i>Durio zibethinus</i> (durian) <i>Garcinia mangostana</i> (mangosteen) <i>Nephelium lappaceum</i> (rambutan) Many timber trees
Medium-tall (small tree)	<i>Anacardium occidentale</i> (cashew) <i>Azadirachta indica</i> (neem) <i>Elaeis guineensis</i> (oil palm) <i>Psidium guajava</i> (guava) Many fruit trees Many fuel wood trees	<i>Areca catechu</i> (betel nut) <i>Annona muricata</i> (soursop) <i>Bambusa</i> spp. (bamboo) <i>Cinnamomum</i> spp. (cinnamon)
Medium-short (shrubs, vines, epiphytes)	<i>Carica papaya</i> (papaya) <i>Manihot esculenta</i> (cassava, tapioca) <i>Musa</i> spp. (banana)	<i>Coffea</i> spp. (coffee) <i>Flagellaria indica</i> (rattan) <i>Piper nigrum</i> (black pepper) <i>Theobroma cacao</i> (cacao) orchids
Short (herbaceous)	Upland rice Many vegetables	Shade-tolerant vegetables Other shade-tolerant crops

Source: Kathleen et al 1999.