

## Preferred Native Tree Species for Smallholder Forestry in Leyte

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### ABSTRACT

This paper reports on the research experiences of students and faculty members at the College of Forestry of Leyte State University on smallholders' preferred tree species for smallholder forestry in Leyte, Philippines. Results reveal that farmers have high preference for 'premium' native trees, i.e. those with high quality by-products and multiplicity of uses, both economic and ecological. High ratings were also recorded for three common exotic tree species, namely *Gmelina arborea*, *Swietenia macrophylla* and *Leucaena leucocephala*. The smallholders' desire to raise native trees, however, is inhibited by factors such as tenure security and insufficient knowledge and skills on propagation, management and protection. Other inhibiting factors include limited access to technical and other support services, and inadequate knowledge and understanding of government policies related to cultivation, harvesting and marketing of these trees.

Keywords: native tree species; smallholder forestry; preferences.

### INTRODUCTION

In recent years, the Philippine government has realized the importance of the involvement of the local people in managing the country's forest resources. The Department of Environment and Natural Resources, in particular, has designed resource management programs involving local people, the most prominent of which are the Integrated Social Forestry Program, Community Forestry Program and the most recent umbrella program called Community-Based Forest Management. Although such programs have worked well in some areas, there is still a need for considerable efforts to determine suitable tree species that would fit into the local people's needs and practices in the short, medium and long-term periods. The use of exotic trees, particularly *Gmelina* and *Swietenia*, had been common in almost all reforestation sites in the Philippines. Although they can be propagated easily and are proven to grow in almost all types of soils in the lowland and upland areas, farmers may still prefer native trees since these are well adapted to Philippine conditions and can be used for high-quality wood

products (Lawrence, 1997; Patindol, 1998). The future of some exotic species is uncertain. The experiences at the College of Forestry, Leyte State University, for example, is that *Leucaena*, *Gmelina* and *Swietenia* are relatively vulnerable to pests and diseases, and the sustainability of adoption of these species by smallholder farmers in communities seems to be in question.

The knowledge that local people have about trees is important information for development workers and policy-makers (Patindol, 1998). In particular, details of farmers' preferred tree species for smallholder forestry are a valuable input to community-based forest management. This is particularly important as a reference in the choice of species for community-based reforestation or tree domestication. When the trees to be used for reforestation are based on farmers' preferences, it is more likely that farmers' desire to plant trees on their farms will be enhanced (Lawrence, 1997; Patindol, 1998; Catorce, 1999). This paper presents some of the experiences gained at the College of Forestry, Leyte State University, on smallholders' preferred native trees for cultivation on farms.

## FIELD OBSERVATIONS

### Preferred Tree Species

Farmers, based on perceived ecological and economic usefulness of the species, consider native trees important (Lawrence, 1997; Patindol, 1998). Natural regeneration of native trees on farms is usually managed and protected as a source of high quality posts and lumber for house construction. The findings of Lawrence (1997) and Catorce (1999) reveal that smallholders consider natural regeneration as important for soil conservation particularly in steep slopes on farms, and as shade for important economic crops such as abaca (*Musa textiles*).

Table 1 lists the tree species found to be preferred by farmers, these comprising mostly native species. However, three important and common exotic species were also considered by farmers to have high utility, namely *Gmelina arborea*, *Swietenia macrophylla* and *Leucaena leucocephala*. *Swietenia macrophylla* and *Gmelina arborea*, for example, can be used for house construction and furniture-making. *Leucaena leucocephala*, on the other hand, is mainly preferred for fuelwood. These species are actually easy to propagate and grow, which is the main reason why they have gained wide acceptance, particularly by small farmers (Lawrence, 1997).

The study of Patindol (1998) on local knowledge on trees revealed similar results, particularly in relation to species preferred by farmers for construction, furniture, fuelwood, and poles and posts. In a related study conducted by Pasa and Repulda (2001) on tree species preferred for fuelwood, preference for tree species was not well-defined, the farmers appearing to simply gather whatever trees are conveniently available. Narra (*Pterocarpus indicus*) for example, a premium species with high value for furniture production, is used by farmers as fuelwood.

Table 1. Preferred tree species for smallholder forestry and their perceived uses

Common name	Scientific name	Uses
Apitong	<i>Dipterocarpus grandiflorus</i>	Construction
Bagalunga	<i>Melia dubia</i>	
Bitanghol	<i>Calophyllum inophyllum</i>	
Dalingdingan	<i>Hopea dalingdingan</i>	
Dao	<i>Dracontomelon dao</i>	
Dugo-an	<i>Myristica philippinensis</i>	
Gisok	<i>Shorea guiso</i>	
Gmelina	<i>Gmelina arborea</i>	
Kamagong	<i>Diospyros philippinensis</i>	
Narra	<i>Pterocarpus indicus</i>	
Nato	<i>Palaquium luzonienze</i>	
Mahogany	<i>Swietenia macrophylla</i>	
Red lauan	<i>Shorea contorta</i>	
Tindalo	<i>Azelia rhomboidia</i>	
White lauan	<i>Shorea negronensis</i>	
Yakal	<i>Hopea astylosa</i>	
Apitong	<i>Dipterocarpus grandiflorus</i>	Furniture
Banuyo	<i>Wallaceodendron celebicum</i>	
Gmelina	<i>Gmelina arborea</i>	
Ipil	<i>Intsia bijuga</i>	
Mahogany	<i>Swietenia macrophylla</i>	
Molave	<i>Vitex parviflora</i>	
Nangka	<i>Artocarpus heterophylla</i>	
Narra	<i>Pterocarpus indicus</i>	
Tindalo	<i>Azelia rhomboidia</i>	
Agoho	<i>Casuarina equisetifolia</i>	Firewood
Alagasi	<i>Leucosyke capitellata</i>	
Gmelina	<i>Gmelina arborea</i>	
Ipil-ipil	<i>Leucaena leucocephala</i>	
Kaimito	<i>Chrysophyllum caimito</i>	
Paguringon	<i>Cratoxylum sumatranum</i>	
Suyapao	<i>Commersonia bartramia</i>	
Narra	<i>Pterocarpus indicus</i>	
Anislag	<i>Securrinega flexouosa</i>	Posts/poles
Igang	<i>Syzygium garciae</i>	
Kamagong	<i>Diospyros philippinensis</i>	
Langil	<i>Albizia lebbek</i>	
Lanipga	<i>Toona philippinensis</i>	
Molave	<i>Vitex parviflora</i>	
Sudyang	<i>Bredelia pinangiana</i>	
Apitong	<i>Dipterocarpus grandiflorus</i>	Boat keels
Hindang	<i>Myrica sp</i>	
Lanipga	<i>Toona philippinensis</i>	
Molave (Bongoog)	<i>Vitex glabrata</i>	
Antipolo	<i>Artocarpus blancoi</i>	Tool handles
Bayabas	<i>Psidium guajava</i>	
Duhat	<i>Syzygium cumini</i>	
Kamagong	<i>Diospyros philippinensis</i>	
Nangka	<i>Artocarpus heterophylla</i>	
Santol	<i>Sandoricum koetjape</i>	

Source: Research reports of Lawrence (1997), Patindol (1998) and Catorce (1999).

Some species which farmers gather for fuelwood have not even been properly identified. In fact, experiences show that there have been tree species identified just by their local names without their corresponding scientific names (Patindol, 1998). Accordingly, it is important that these trees be properly identified so that foresters and development workers alike will be able to share information about them.

### **Factors Affecting On-Farm Tree Cultivation**

Survey work and field observation reveal that growing of trees on farms is affected by a variety of factors, the more important of which are now examined.

#### *Tenure security*

Lawrence (1997) reported that smallholders with insecure tenure are less likely to plant or protect natural regenerations of native trees on farms. Land and tenure security affects the enthusiasm of farmers to manage and protect natural regeneration. One major reason for this is the assurance of the benefit that they can get from these trees after some years of maintenance effort.

#### *Land-use system*

The type of land-use system often influences the cultivation of trees on farm. In traditional kaingin farms, for example, where tenure is not secured, the mode of farming is slash-and-burn, land size usually small, land is devoted to raising of traditional food and cash crops, and natural tree regeneration is usually absent. On agroforestry farms, important native trees at various points within and along borders of the farm are protected and managed, while food and cash crops are raised in relatively open areas. Lawrence (1997) and Catorce (1999) observed a high incidence of protected natural regenerations of native trees in coconut plantations. The same observation is true in abaca plantations where native trees are protected and managed as a shade or nurse crop to abaca. Also, protected natural regenerations are more likely to exist on farms located in areas near or adjacent natural forests. Farms nearer to natural forests would likely have greater protected natural regeneration than those farther away.

#### *Income or wealth status*

Income and wealth status have strong effect on the cultivation of trees on farms (Lawrence, 1997). Richer farmers are more likely to plant trees and protect natural regeneration than poorer farmers who have the tendency to plant food and cash crops rather than timber trees. This, however, is not an indication of lack of interest in trees on the part of the poor farmers. They simply have less opportunity to produce planting materials, plant trees and protect natural regenerations on farms.

*Knowledge on propagation and availability of planting materials*

One of the major hindrances to planting of native trees on farms is the availability of planting materials (Lawrence, 1997). Farmers lack the necessary knowledge and skills on propagating native trees from seeds or wildlings. Those farmers who can afford to do so will simply buy planting materials. However, in most areas there are few nurseries producing tree seedlings and the prices charged are prohibitive to smallholders. Furthermore, these few producers usually raise limited number of tree species, most of which are exotics and only few are promising native trees.

*Presence and focus of extension services*

Experiences show that most extension works does not promote the cultivation of native trees on-farm. This observation is corroborated by the findings of Lawrence (1997) claiming that extension work did not support farmers in their use of native trees. Farmers who had been recipients of extension services received information on exotic planting materials. Lawrence (1997) added that in Leyte and in other parts of the Visayas, most foresters and development workers are more inclined to promoting fast-growing exotic trees and consider tree planting only rather than protecting natural regenerations as a means in rehabilitating the uplands. Coupled with the government policies promoting exotics, farmers are influenced to shift interest to planting fast-growing exotic trees particularly for quick economic returns.

**CONCLUDING COMMENTS**

Information gained from the farmers generated a great deal of relevant facts about local people's knowledge and practices on promising native trees. Smallholders have strong preference for promising indigenous tree species because of their multiplicity of uses and the high quality wood products for which they are suitable, especially house framing (which requires trees with wood of high durability) and furniture. In line with the usefulness of trees to suit the smallholders' needs, three common exotic species were also considered important. The smallholders' preferences for promising indigenous trees are encouraging and deserve due recognition by foresters and development workers alike. Immediate consideration and appropriate action, however, are critically needed in view of the factors that constrain smallholders to engage in cultivation of trees on-farm. Implementation of a practical tenure system, for example, that will provide the smallholders the opportunity to plant and harvest native trees may encourage planting of native trees on farms. Building local capacities for germplasm production of native trees as well as their management when grown on-farm may be another sound alternative.

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