

SELECTION OF TREE SPECIES BY HOUSEHOLDS IN THE MANUPALI RIVER WATERSHED, LANTAPAN, BUKIDNON, PHILIPPINES¹

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INTRODUCTION

The Manupali River Watershed in Lantapan, Bukidnon Province in Southern Philippines is one of the sources of water that runs the power generation facilities of the National Transmission Corporation and the irrigation infrastructures of the National Irrigation Administration. It also supports economic activities of villages in the mid and downstreams of the watershed. Likewise, the plantations of two big corporations exporting quality bananas are benefiting from the rivers of the watershed.

Logging activities in the watershed in the 70s has greatly affected the volume and quality of water flowing at the Manupali River. They also affected the social and economic well being of the communities living in the watershed who depend mainly on local resources for their livelihood. To restore the integrity of the watershed, various interventions were brought in the 80s and 90s. Some of the interventions were the World Bank-funded Manupali-Muleta Watershed Reforestation Project and the USAID-funded Sustainable Agriculture and Natural Resources Management Collaborative Research Support Project (SANREM-CRSP). ICRAF was one of the participating institutions in the SANREM-CRSP and was responsible for the development of appropriate agroforestry and soil and water conservation technologies.

Through the Reforestation Project, SANREM-CRSP and ICRAF, different species of timber trees were introduced to the communities for watershed protection, biodiversity conservation, and as a response to their basic needs.

In 1998, a group of Lantapan farmers were trained by ICRAF and SANREM on seed collection and nurserying. The farmers later on decided to organize the Agroforestry Tree Seed Association of Lantapan (ATSAL). The following year, ICRAF's Landcare Project inspired farmers to form sub-village Landcare groups, and eventually organized the Lantapan Landcare Association (LLCA). Both ATSAL and LLCA are concerned for the protection of the environment and for the improvement of livelihoods in the watershed.

The municipality of Lantapan has an altitude that ranges from 240 to 2,938 meters above sea level. It is near the equator at longitude coordinate of 124°51' - 125°11' and latitude coordinate of 8°2' - 8°5'. Based on the Corona classification, the municipality has a Type

¹ Paper presented during the Tree Domestication Training Course held at the World Agroforestry Centre (ICRAF) Headquarters in Nairobi, Kenya on 17-22 November 2003.

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III climate. Reforestation, agroforestry and other environment- and economic-related interventions are situated mostly in the upper villages of the municipality.

OBJECTIVES

This study aimed to:

1. Determine the characteristics that smallholder farming households in the Manupali River Watershed consider in choosing tree species.
2. Determine how the households decide on what species to propagate and cultivate in their farms.
3. Identify the timber and fruit tree species that the households prefer to cultivate.

METHODOLOGY

A survey with open-ended questions was administered with 25 farmers belonging to the LLCA. Some of the respondents were also members of the ATSAL. Of the total number of respondents, 17 were male and 8, female. Except for one single, one widow and one widower, all the rest were married.

A group discussion was also conducted with the same respondents where selected participants and couples shared their criteria of selecting species, highlighting those of the latter's (couples) way of deciding which to grow. Both activities were done in November 2003 in Lantapan, Bukidnon, Philippines.

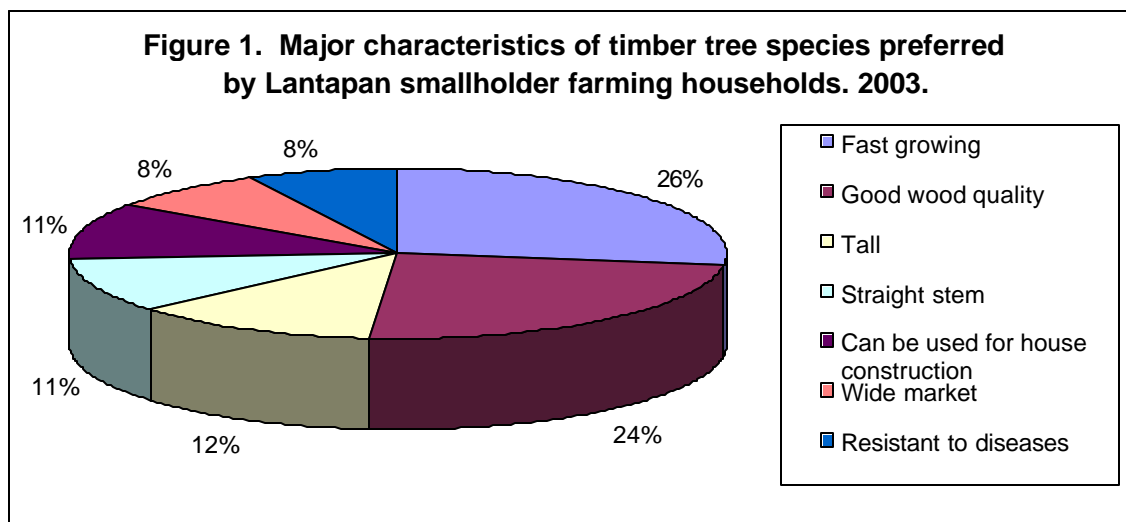
A follow-up visit to selected respondents was also done to validate some information.

RESULTS AND OBSERVATIONS

Characteristics of preferred timber trees

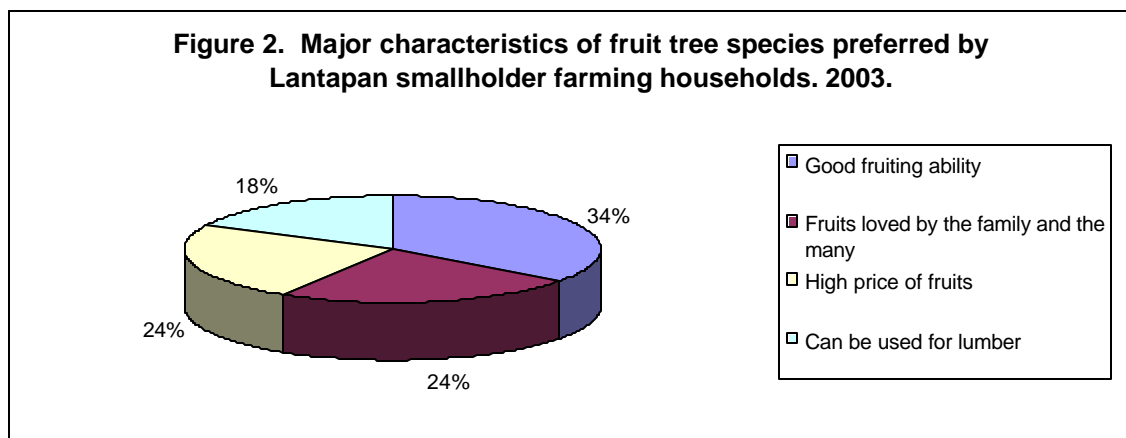
The respondents grow timber trees both for their household use and for the market. To satisfy such objectives, the ability of a tree to grow fast and harvested early was indicated as the most important characteristic to consider in choosing what species to grow. For both purposes, the respondents prefer those that have good wood quality, tall, straight stem, can be used for house construction, with wide market and resistant to diseases (Fig. 1).

Other characteristics mentioned are: variety of uses (e.g., lumber, veneer, medicine, medicine, firewood, soil erosion control, landscape beautification, furniture making, electric post), big market for seeds, high price of wood in the market, resistant to strong winds, and adaptable in the locality.



Characteristics of preferred fruit trees

Over the years, the Lantapan farmers have been growing mostly timber trees in their farms. Lately, they started including fruit trees in their nurseries to increase their sources of food, income, and even lumber while contributing to watershed protection. Considering such purposes, the growers prefer those that have good fruiting ability, those whose fruits are loved by the family and the many and command high price in the market, and those which can also be used as lumber mainly for house construction (Fig. 2).



Household decisions

Based on the needs of the household, husbands and wives define the characteristics that they are looking for in timber and fruit tree species. They match the characteristics with the information they have on the locally available and adaptable species, and with available information on markets and technologies. Information comes from various sources such as the training and workshops that they have attended, the IEC materials that they receive from ICRAF and partners, their fellow farmers, buyers and processors.

The preferred species of the husband and the wife may not always be the same. Aside from the objective of increasing the income from the farm, the husband cultivates trees for house construction. Fruit trees are included in the list of the wife primarily as source of food and nutrition for the family. Respecting each other's choice, the couple considers planting the preferences of both members.

The process by which the household comes to a decision as to what tree species to propagate and cultivate is shown in Fig.3.

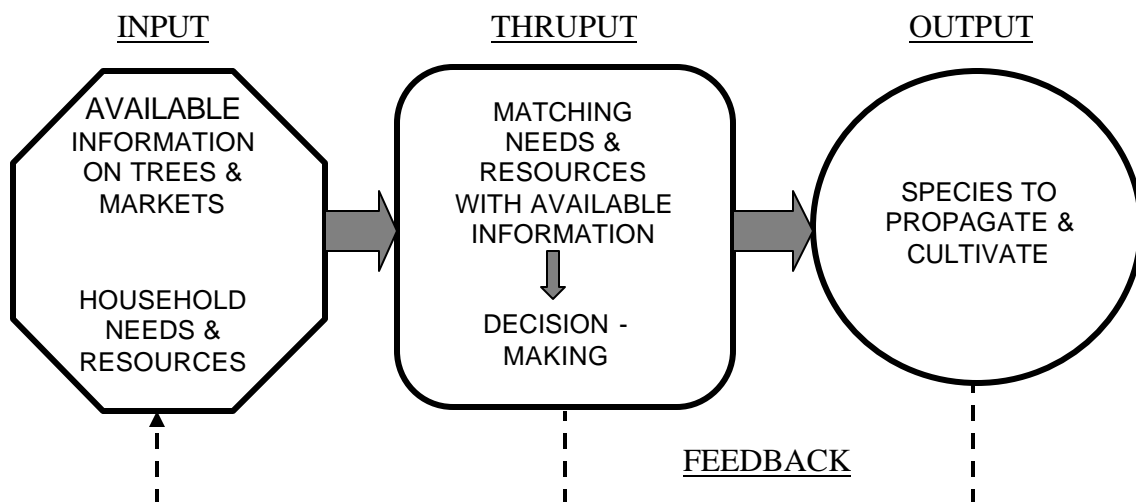
Choice species

The Eucalypts, particularly *Eucalyptus deglupta*, *E. robusta*, *E. torillana*, and *E. pellita*, African umbrella tree (*Maesopsis eminii*), Mahogany (*Swietenia macrophylla*), *Grevillea robusta*, and Gmelina (*Gmelina arborea*) are the most preferred timber species by the Lantapan farmers. All these are included in the lists of local wood processors. Earlier, LLCA and ATSAL members brought log samples of *M. eminii*, *E. robusta*, and *E. torillana* to a wood processor for testing for veneer manufacturing. All the three passed the manufacturer's quality standards. *M. eminii* also passed the quality test for lumber that was done by another wood processing company. Falcata (*Albizia falcataria*) and Ipil-ipil (*Leucaena leucocephala*) are also in the farmers' list.

Among the fruit trees, lanzones (*Lansium domesticum*), citrus (*Citrus reticulata*), durian (*Durio zibethinus*), jackfruit (*Artocarpus heterophyllus*), and mango (*Mangifera indica*) are the most preferred species. Others include avocado (*Persia americana*) and guava (*Psidium guajava*).

For both timber and fruit trees, the choice of the Lantapan farmers are limited to the species that are available in the locality. Specifically for fruit trees, the choice is limited, particularly in the villages of higher elevation.

Fig. 3. The process of tree species selection by households in the Manupali River Watershed in Lantapan, Bukidnon, Philippines.



CONCLUSIONS

Based on the results of this study, the following conclusions can be drawn:

1. Lantapan farmers grow trees mainly for household needs and income. Households use timber trees for house construction, soil fertility improvement, medicine, firewood for cooking, soil erosion control, landscape beautification, and forage for livestock. They think they can also sell their trees for lumber, furniture-manufacturing and electric post.
2. Fruit trees are grown for food and income. They are also grown for lumber needed by the household.
3. The husband and wife share the decision as to what species of timber and/or fruit trees to propagate and cultivate. This is based on the available information on trees and markets and the needs and available resources of the household.
4. The choice of species to grow is also limited to the availability of planting materials in the locality. The altitude of the area also limits the choice for fruit trees.