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“Comparison of Abaca growth performance in two multi-strata trials  
with special reference to fiber yield and surrounding vegetation”

Diplomarbeit

by

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## Abstract

This study deals with the possibility of integrating abaca (*Musa textilis*) into Rainforestation Farming systems designed to relieve the remaining Philippine rainforests from the increasing pressure imposed by the growing population and commercial logging. During the last decades the natural forest systems declined rapidly. Soil degradation and unsustainable utilisation of resources have led to a lack of agriculturally useable land. The resulting fallow land, mostly grassland, causes disturbances in the ecosystem- and watershed functions as well as severe cases of soil erosion. The Rainforestation farming concept was developed to tackle some of these problems. It combines a sustainable reforestation approach using local tree species for the establishment of close-to-nature forest systems with an integrated fruit and crop planting scheme in order to secure and improve the income of the farmer. The success of the Rainforestation concept is highly dependant from the cooperation with local farmers, so the obvious ecological advantages have to be combined with economic incentives. One of these could be the integration of abaca into the Rainforestation sites. In order to gain comparable data about abaca integration, two study sites were established in 2003, one near Barangay Mailhi, Baybay, following the Rainforestation approach, and the other one near Barangay Caridad, where a conventional abaca intercropping system was used in an existing Coconut Plantation.

During the stay on Leyte Island in autumn 2005, different sets of data have been collected from both sites, including soil samples, abaca tissue for nutritional analyses and fiber samples. In addition, data about the sites fiber yield as well as segetal plant communities was gathered. The results of the analyses confirm the possibility of a successful integration of abaca into existing Rainforestation sites. The yield of the abaca plants included into this study did not vary significantly between the two sites. Fibers from both sites did show similar tensile characteristics, with fibers from the lower slopes of the Rainforestation site having the most constant and highest values for tenacity.

However, the total yield per hectare was higher using the conventional intercropping concept, as the planting design was denser and more homogenous mostly due to topographical reasons. But this effect will be compensated by the additional income for the farmer selling fruits and crop plants, and, in later stages, by the possibility of cutting single lumber trees.

So, the integration of abaca into Rainforestation Systems seems to be a sensible way of combining the farmers' interest of a stable income with of ecologically sustainable reforestation.