Deutscher Tropentag, October 8-10, 2003, Göttingen

"Technological and Institutional Innovations
for Sustainable Rural Development"

Crop Diversity and Its Changes in Rural Homegardens of Central Sulawesi, Indonesia

Katja Kehlenbeck, Brigitte L. Maass

Georg-August-Universität Göttingen, Institute for Crop and Animal Production in the Tropics, Germany

Abstract

Tropical homegardens with their large crop species and varietal diversity are regarded as an ideal production system for *in situ* conservation of plant genetic resources. They are also known to be fields of experimentation and domestication of wild plants. However, garden diversity varies according to ecological and socio-economic factors and/or characteristics of gardens or gardeners. But little is known about these factors and the dynamics of crop diversity. This study aims to assess the stability of homegarden crop diversity over a period of two years as well as the influence of selected factors on the diversity.

In 30 homegardens randomly selected from three villages adjacent to the Lore Lindu National Park in Central Sulawesi, species diversity and abundance were assessed in the years 2001 and 2003. Overall, 149 crop species were identified in 2001 and 168 crop species in 2003. The gardeners stopped growing 16 crop species altogether, while planting 37 new species, chiefly new vegetable and medicinal plant species. Many gardeners cultivated minor crops, thus, playing an important role in conserving such under-utilized crops. Compared with 2001, at present nearly 80 % of the gardeners cultivated more crop species, even minor crops (e.g. two "new" *Solanum* species as leaf and fruit vegetables). Of many crops, several varieties were cultivated, e.g. 25 of banana and 13 of chilli. Homegardens from one village, mainly inhabited by migrants, contrasted strongly with those from the other two villages with mainly indigenous inhabitants. Total number of crop species as well as average number of species per garden, species density and diversity (Shannon index) were markedly lower in the migrant village. Species composition was clearly different between the migrant village and the other villages investigated. Besides ethnicity, crop diversity could have been influenced in varying extent by additional factors such as soil fertility (that is low in the migrant village), age and size of homegarden or market access.

In conclusion, crop diversity seems to be less static over time but rather dynamic. Nevertheless, the number of crop species has not decreased in the period studied. The sustainability of the homegardens investigated as well as their suitability for *in situ* conservation of plant genetic resources is discussed.

Keywords: Genetic resources, *in situ* conservation, sustainability, Indonesia

Contact Address: Katja Kehlenbeck, Georg-August-Universität Göttingen, Institute for Crop and Animal Production in the Tropics, Grisebach Straße 6, 37077 Göttingen, Germany, e-mail: katja_kehlenbeck@yahoo.de