

ANALYSIS OF AGRO-BIODIVERSITY AND APPROACHES OF ITS MANAGEMENT IN VIETNAM

Luu Ngoc Trinh and Dao The Tuan

National PGR Coordinator of Vietnam
Plant Genetic Resources Center
Vietnam Agricultural Science Institute
E-mail: lntrinh@hn.vnn.vn

Agro-biodiversity is the part of biodiversity that is most frequently used and has been created by man through the process of human civilization, then both the natural and socio-economic condition affect and contribute to its formation and evolution.

Being not big in territory, but Vietnam has a great agro-biodiversity, is one of 15 countries having the most diverse and richest plant genetic resources. Diversity in eco-geography and diversity in ethnic culture are the main factors that have created the agro-biodiversity of Vietnam.

During the last four decades of the 20th Century as whole the World, the history of Vietnam had passed unprecedented transformation, which conducts to considerable changes in agro-biodiversity. Since 1994, the Plant Genetic Resources Center under the Vietnam Agricultural Science Institute has been systematically assessing the agro-biodiversity in various areas of Vietnam. Village is taken as the unit of assessment. From each district, three villages representative to its three most relevant ecological zones were assessed. The assessing form consists of 9 tables: Cultivated Land and Cropping System; Pattern of Crop Rotation, Intercalation and Intercropping; Varieties and Crop Species; Main Natural Plant Species; Races and Species of Raising Animal; Natural Animal Species; Plant Disease and Pest Insect Species; Quantity of Pesticides Used per Unit of Cultivated Land; Occurrence of Disease and Pest Epidemic and Change in Crop Varieties Composition afterward. Assessing data were collected from different periods since 1960.

Agro-biodiversity data from four ecosystems of the north Vietnam was analyzed. Midland ecosystem characterized by the highest diversity in cultivated land, then has the richest diversity in natural plant and crop species. Lowland rice ecosystem characterized by the lowest diversity in cultivated land and by the 100% of the rice monoculture index. Mountain ecosystem and coastal ecosystem have the lowest rice monoculture index, the later one also characterized by the highest index of land use per year, which reaches 3.5. Agro-biodiversity from midland ecosystem and coastal ecosystem is more diverse, which is the main reason making farmers there more rich than those from the other ecosystem.

Analysis on agro-biodiversity aspects concerned with rice as a predominantly major crop in Vietnam was focused. Tendency of decreasing of rice monoculture index reflects that rice has been replaced by the other crops. Due to particular features on ecology, rice genetic diversity index has decreased in dry crop season but increased in wet crop season.

In the same condition of lowland rice ecosystem, but where the traditional specialty rice was more extended, farmers got richer. Specialty landraces play important role not only in generating more income, but also in protecting environment because no pesticide was used. In ecosystem where exist high inter-specific diversity index, high rice genetic diversity index and high percentage of local rice varieties, there is non-significant damage of pests and diseases, which reflects the role of agro-biodiversity in control of biotic stresses. The study in this case shows a co-existence of agro-biodiversity conservation and economy development in the rural, a desirable tendency rarely found on solving the contradiction between conservation and development.

A significant number of traditional varieties of many crops having special quality and high potential to be extended in production was invented.

Approaches on agro-biodiversity management were proposed. It is discussed and suggested that special attention must be paid in *the socialization of the agro-biodiversity management and conservation*.