Diversity, Management, Utilization and Conservation of Local Rice Germplasm
(Oral Presentation)

Benjavan Rerkasem, Sansanee Jamjod and Kanok Rerkasem

Faculty of Agriculture, Chiang Mai University, Chiang Mai 50200 Thailand

Rice is staple food to half the world; it provides livelihoods to hundreds of millions who depend on rice farming for a living. Spectacular productivity gains have been made in rice farming since the 1970's, in what now known as the Green Revolution. Unfortunately, the achievement was made at the expense of major genetic losses, when genetically diverse local germplasm was replaced by just a few 'improved' genotypes. Thailand is one of a handful countries in Asia where local rice varieties are still grown to significant extent. This paper presents studies of genetic diversity of the local rice germplasm and its management and use by farmers and local communties in this country[1], and raises issues related to in situ conservation. We have found that local varieties are the only, often quite satisfactory, options available to farmers in areas yet to be reached by modern varieties. The many agroecological niches that can only be filled by local varieties are described by difficult ecological conditions of soil, microclimates and pests as well as social and traditional ones that determine usage and custom. Genetic analysis, including molecular diversity, has found genetic variation among rice that look the same and sharing the same name, and even more variation within individual seedlots. The genetic system is also highly dynamic, under the influence of seed flow, mediated by rapid varietal and seed turnover among farmers, and gene flow espcially via hybridization with the ubiquitous wild rice, Oryza rufipogon. In addition to the seed turnover, different farmers influence rice genetic diversity by the many different ways in which they manage their seed stock, from the length of time over which a particular seedlot is kept within the family to the seed selection methods applied. Domesticated species like rice are different from wild species, which can be conserved *in situ* by preservation of their habitats. The changes are much more rapid in both (a) the agroecological environment, with perpetual social and economic changes and emergence of new innovations and technology, and (b) the human manipulated genetic system. Sustainable on-farm conservation of local germplasm will require understanding of the nature of the genetic variation, how it changes over time, what impact farmers' management has and what value they derive from it.

Presenting author: Benjavan Rerkasem, benjavan@chiangmai.ac.th