

SEAG-Symposium, October 14-18, 2002, Vietnam

“The role of dialogue and networking:
From a transitional to an industrialized country”

Secondary Crop Breeding for the Optimal Use of Rainfed Land and Rehabilitation of Critical Land

TARYONO*, SUPRIYANTA**, BUDIASTUTI KURNIASIH***

**Faculty of Agriculture, Gadjah Mada University, Agronomy - Plant Breeding*

***Faculty of Agriculture, Gadjah Mada University, Agronomy-Plant Breeding*

****Faculty of Agriculture, Gadjah Mada University, Agronomy-Crop Ecology*

Abstract

Rainfed land is defined as a field by which different type of crops were able to be cultivated without any access to irrigation. However, there is a draw back such as land becomes critical by the intensive use this kind of land for agriculture.

The best way to cope with this kind of draw back is by improving the cultivation management system. Agriculture activities should maintain the productivity and farm profitability while minimizing environmental impacts by integrating many aspects of agriculture include animal husbandry, forestry, fisheries and crop cultivation.

Growing more than one crop on the same piece of land during one year calender reduce physical damage by rain, wind and soil erosion, eventhough the productivity of the recommended crops in the crop association normally gives a lower yield than in monoculture. Secondary crops are normally intercropped with different crops even perrenial ones, therefore breeding for their high yielding varieties suitable for the rehabilitation of critical land by the use of integrated system should be conducted. For the model crops will be used upland rice and peanut.

Upland rice is normally seeded directly and weeds are the major constraint for its optimal production, because they emerge ahead. It has been reported that some local and red rice cultivars showed strong inhibitory activity to weed. Both cultivars are used for parental crossing. F6 population has been produced and identification of resistant lines is still in progress.

Peanut can be cultivated in different types of critical land. Calcareous soil is an example of critical land. In such soil, iron is normally very limited. As a result, peanut leaves become chlorosis and pod is not able to develop. Breeding work will be based on selection of an individu originated from heterozygote populations on controlled environment using determined iron concentration media.

Keywords: Critical land, peanut, sustainable agriculture, upland rice