

23004324 Cassava Germplasm Conservation and Crop Improvement in Thailand

VII Asian Cassava Research Workshop

NOV/2002

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Creation of broad genetic variability in the cassava population through collection and introduction is essential for the successful recombination of certain desirable traits to produce superior cassava cultivars for release to the farmers. Cassava germplasm in Thailand has been introduced mainly from Latin America via CIAT since 1975. The Thai cassava germplasm collection also includes earlier introductions from the Virgin Islands and Indonesia. Formerly, the cassava germplasm collection was maintained only in the field. Some cassava cultivars were lost due to stress environments, i.e. drought or excessive rain, as well as by insect and disease attack. An alternative conservation method to solve these problems was to maintain the collection also in the laboratory as *in-vitro* cultures. Rayong Field Crops Research Center (RYFCRC) established a tissue culture laboratory for this purpose in 1993. Recently, CIAT collaborated with the Department of Agriculture (DOA) of Thailand to send a duplicate of the CIAT cassava core collection, containing about 630 accessions, to Thailand. The purpose of this collaboration was to keep those genetic resources *in-vitro* at another safe site away from CIAT, as well as to evaluate in the future these genetic resources for traits that may be useful in future breeding efforts. At the present, RYFCRC has obtained 601 accessions in the form of *in-vitro* plantlets. At least five plants of each accession are kept *in-vitro* for conservation. These genetic resources are also multiplied in order to evaluate them in the field for specific traits under Thai conditions.

Most achievements of the Thai cassava breeding program were reported in the sixth Regional Cassava Workshop held in Vietnam in February, 2000. During the past 20 years seven cultivars have been officially released, five from DOA and two from Kasetsart University. These new cultivars are characterized by high yield capacity, high harvest index, high root starch content and early harvestability; they are all suitable for planting in the northeastern region of Thailand. From 1995 to 2000 some hybrids from crosses made in 1992 and 1993 were identified that were slightly superior to these cultivars in terms of root yield capacity and starch content. One of the 1992 hybrids, identified as CMR35-21-199, outyielded the two released cultivars, Rayong 5 and KU-50, by 6.6 and 8.0% respectively, in the Standard Yield trials and on-farm tests (38 trials). Another cultivar, identified as CMR35-22-196 has a 3-5% higher starch content than those same cultivars. Two of the 1993 hybrids, CMR36-55-166 and CMR36-30-329, have 12.9-15.1% higher root yields and 2-6% higher starch contents than those two cultivars. These lines are now being further tested in the farmers' field for possible future release.