Chapter 4

GERMPLASM COLLECTION, MAINTENANCE, AND USE

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INTRODUCTION

Currently there is international concern for exploration, conservation, description, and utilization of genetic resources of plants in agriculture and forestry. This traces to a shared perception by the Food and Agriculture Organization of the United Nations (FAO) and the International Biological Program (IBP) of the International Council of Scientific Unions of the value of such resources and the threats posed to them in a developing world (Frankel and Bennett, 1970).

The FAO/IBP move to alert biological scientists concerned with genetic resources stimulated action. The American Society of Economic Botany convened a symposium in conjunction with the IBP to support the recommendations of the 1967 FAO conference (Creech and Reitz, 1971).

The realization of a need to collect and preserve plant genetic resources was heightened by the occurrence of the so-called race T of maize leaf blight in the United States in 1969, which reduced the yield of the 1970 crop by some 15%. Subsequent analysis of this situation and examination of the genetic vulnerability/variability of major crop species (National Academy of Sciences, 1972; Day, 1973) alerted plant breeders to the concept of genetic crop resources and their possible erosion.

An important development in germplasm conservation has been the formation of the International Board for Plant Genetic Resources (IBPGR) established by the Consultative Group on International Agricultural Research in 1974. The function of IBPGR is to "promote an international network of genetic resource centres to further the collection, conservation, documentation, evaluation, and use of plant germplasm . . ." (Anonymous, 1985).

The IBPGR has surveyed the genetic resources of sugarcane held in collections (Williams and Damania, 1981) and has convened a working group on