

CASSAVA IMPROVEMENT FOR THE SEMI-ARID AGRO-ECOLOGIES OF AFRICA

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Abstract

The role of cassava (*Manihot esculenta* Crantz) has been increasing recently in the traditional cereal-dominant production systems of the semi-arid zones of Africa. Major reasons for the increase are drought-related famines, abandonment of land to invading parasitic weeds, and deteriorating soil fertility. Researchers face a major challenge to provide (1) farmers with improved cassava varieties that are high yielding, adapted, and resistant to pests and diseases; and (2) consumers with better quality roots and leaves. This paper describes some of IITA's ongoing efforts in the areas of crop physiology, breeding, and agronomy to deliver suitable clones to national counterparts to alleviate food problems in these agro-ecosystems. Physiological manipulations are geared to reduce the effect of prevailing abiotic stresses such as drought, high temperatures, and harmattan winds, and altering growth habits and yield components to increase dry matter yield per unit area within a unit time. Some selection traits contributing to adaptation to semi-arid conditions have notable genotypic variability, such as stomatal response, fibrous root development, 'stay-green ability' of leaves, storage root growth rate, and apparent water-use efficiency. Breeding efforts, based on advanced generation selection stages, produced promising cassava clones. In preliminary and advanced yield trials, several Nigerian local cultivars performed better or as well as the IITA improved elite clones, even though these latter had broad ecozonal adaptation and Latin American introductions from a homologous semi-arid site. For a given subecozone within these semi-arid zones, a combination of traits is needed. Each category of clones could play an important role in achieving high and sustainable cassava production levels. IITA's activities are expected to help answer the needs of the 21st century for improved cassava clones in the expanding cassava belt of semi-arid Africa.

Note: This manuscript was incomplete (copies of the figures were mislaid)

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