Abstract

CASTILLO-GONZALEZ, FERNANDO. Agronomic evaluation of Latin American maize populations. (Under the direction of Major M. Goodman).

Introduction of exotic maize into breeding programs for temperate areas has been an important concern since the beginning of the century; however, despite several extensive collections in Latin America, which were assembled in the 1940’s and 1950’s, very limited use of them can be traced in U.S. commercial maize. Maladaptation and lack of appropriate methods for extensive agronomic evaluation and photoperiod conversion have hindered their use. 394 typical maize racial collections were evaluated under short day (Homestead, Fla., and Weslaco, Tx., 1983 and 1984 autumn) and long day conditions (Clayton, N.C., 1985 summer). Agronomic problems associated with latitudinal origin were observed under long day conditions; no important problems associated with latitude were observed in Weslaco or Homestead. Additional evaluations under short day conditions in Homestead, Fla. (1983 and 1984 autumn; 50 entries) and Weslaco, Tx. (1984 autumn, and 1985 spring and autumn; 344 entries) were carried out. Some maize races with populations having good agronomic attributes and feasible breeding conditions are: Cateto Sulino, various Nal-Tel derivatives, and Cónico Norteño in the very early short day maturity group; Amarillo Salvadoreño, Dent Branco Rio Grandense, Cateto Assis Brasil, Cubano Dentado, Tusón, Early Caribbean, and Costeño among the early materials; Ecuadorian races introgressed with Cuban introductions, Brazilian Dents, Yungueño, Cuban Flint, Tusón, Venezuelan Tuxpeño, Tepecintle, and a single collection of Perla in the intermediate maturity group; and Chandelle, Costeño, and Cariaco among the late ones. Evaluation of exotics per se under short day conditions could be useful to test thousands of collections housed in the Latin American maize germplasm banks.