Mexico, in an inbreeding-cum-evaluation nursery, where half of a 5-m-long row was used for evaluation and the other half for within-line selection and selfing. Selection among and within lines was done at different stages of plant growth. Information on the agronomic performance of lines per se was obtained from replicated multi-environment trials conducted periodically on promising lines. Reaction of the lines to southern corn leaf blight (caused by * Bipolaris maydis* (Nisikado & Miyake Shoemaker), rust (caused by * Puccinia polysora* Underw.), and ear rot (caused by * Fusarium moniliforme* J. Sheld.) was recorded under natural epiphytotic conditions at Poza Rica. Information on combining ability was obtained from multi-environment evaluation of diallel and/or factorial crosses.

Sixteen of the 24 CMLs have inbreeding levels of S5 to S9. The other eight inbreds (CML 8, CML 9, CML 36, CML 38, CML 46, CML 48, CML 49, and CML 55) were selfed for three to four generations and then sib-mated for at least three generations. The lines within populations were unrelated, except for two pairs. Inbred CML 8 is an advanced-generation line from CML 6, and CML 273 and CML 274 were derived from a common S2 family.

All lines per se have average to high yield potential (>3 Mg ha⁻¹ under lowland tropical conditions in Mexico) and have good general combining ability for yield. Information published earlier on the heterotic relationships among the source germplasm and inbred lines (2,3) should facilitate efficient utilization of these lines in maize breeding programs. All lines are good pollen producers and have good synchrony between pollen shedding and silk emergence. The lines generally possess good standability (<2 on a scale of 1 to 5, where 1 = good, 5 = poor), with CML 9 being outstanding for this trait. Most lines have a good level of resistance (≤2.5 on a scale of 1 to 5, where 1 = resistant and 5 = susceptible) to ear rot, rust, and leaf blight. Inbreds CML 3, CML 55, and CML 247 have very good performance per se for grain yield, standability, and multiple disease resistance and have good general combining ability for grain yield. In addition, CML 3 has a short plant height and low ear placement.

Breeder seed of each of these lines is maintained by the Maize Program, CIMMYT, Mexico, and is available on request in 50-kernel lots depending on the availability of seed. Information on the performance and utilization of these lines will be greatly appreciated. Appropriate recognition of CIMMYT is requested if any of the lines contributes to the development of a new breeding line or cultivar.

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References and Notes

1. CIMMYT. 1981. CIMMYT report on maize improvement 1980-81. CIMMYT, Mexico, D.F.


Registration of 21 Tropical Yellow-Endosperm Parental Lines of Maize

Twenty-one parental inbred lines (Reg no. PL-218 to PL-238, PL 595551 to PI 595571) of maize (*Zea mays* L.) were developed by the Lowland Tropical Maize Subprogram, International Maize and Wheat Improvement Center (CIMMYT), Mexico (Table 1). These CIMMYT maize lines (CMLs) originated from tropical yellow maize germplasm, and have dent or flint kernels. The CIMMYT Maize Program announced the release of 20 yellow parental lines in August 1991 and 27 lines in March 1994, among which these 21 lines seem to have greater potential to accelerate hybrid research in maize breeding programs. All lines are good pollen producers and have good synchrony between pollen shedding and silk emergence.

The source germplasms are CIMMYT's maize populations and gene pools, namely Population (Pop.) 24 (Antigua-Veracruz-181), Pop. 26 (Mezcla Amarilla), Pop. 27 (Amarillo Cristalino-I), Pop. 28 (Amarillo Dentado), Pop. 36 (Cogoliero), Pop. 79 (Tropical Yellow Flint-Dent), Syn. Amarillo TSR (a synthetic resistant to tar spot, caused by *Phyllocladus maydis* Maub.), and Pool 22 (Tropical Intermediate Yellow Dent). Information on the germplasm base and improvement of these materials through modified full-sib families and modified ear-to-row selection in pools has been published by CIMMYT (1).

Nine lines (CML 19, CML 20, CML 25, CML 27, CML 28, CML 29, CML 31, CML 40, and CML 285) originated from full-sib families. CML 52 was derived from an experimental variety. Eight lines were developed from germplasm improved for resistance to tar spot: CML 297, CML 298, CML 299, CML 300, CML 303, and CML 305 from Syn. Amarillo TSR, and CML 32 and CML 33 from Pop. 28 TSR. Inbreds CML 282, CML 283, and CML 287 were derived by recycling early-generation lines.

The lines were developed at CIMMYT's Experiment Station in Poza Rica (20°32' N, 97°26' W; 60 m above mean sea level), Mexico, primarily by selfing but sibbing in some instances. During each generation of inbreeding, the lines were evaluated for various agronomic traits (Table 1). Selection among and within lines was made at different stages of plant growth. Fifteen lines were sibbed for five to seven generations. The remaining six lines (CML 20, CML 27, CML 28, CML 31, CML 40, and CML 52) have undergone three to four selfings and at least two sib-matings. All lines are of diverse origin except three pairs: CML 285 is an advanced-generation line from CML 20; CML 299 and CML 300 are sister lines at the S4 level; and CML 303 and CML 305 are sister lines at the S2 level.

Information on yield and agronomic performance of lines was generated from multilocation evaluation trials conducted in a minimum of six environments in Mexico and Latin America. Disease reactions for southern corn leaf blight (caused by *Bipolaris maydis* (Nisikado & Miyake) Shoemaker), rust (caused by *Puccinia polysora* Underw.), and ear rot (caused by *Fusarium moniliforme* J. Sheld.) were recorded under natural epiphytotic conditions at Poza Rica. Combining ability of the lines was determined in topcrosses, diallel crosses, and/or line × tester crosses evaluated in multi-environment experiments.

All lines have shown high yield potential per se (>3 Mg ha⁻¹ under lowland tropical conditions in Mexico) and good general combining ability. The lines CML 32, CML 33, and CML 40 were exceptionally good for these traits. Information on heterotic