All lines are resistant to Race 1 and 2 of rust, incited by Puccinia helianthi Schw., except RHA 359. RHA 356, 358, and 361 are resistant, RHA 357 is moderately resistant, and RHA 359, 360, and 362 are susceptible to Race 3 rust. All lines are resistant to Race 1 and 2 of rust, incited by Puccinia helianthi Schw., except RHA 359. RHA 356, 358, and 361 are susceptible to Race 4 rust. Plant height of RHA 356 and 361 are resistant, RHA 357 is moderately resistant, and RHA 362 was 75, 93, 93, 73, 73, 65, and 85 cm, respectively, compared with 135 cm for RHA 274. Days to flowering of the lines were 59, 60, 64, 63, 58, 65, and 58 d, respectively, compared with 57 d for RHA 274 in 1987. Data were taken in 1986 and 1987 at Fargo, ND.

Hybrids with the seven germplasm lines, produced by crossing with the female lines cmsHA 821 and cmsHA 89, were equal or higher yielding than the hybrid check 694 in 1986 and 1987 tests. Plant height of hybrids with the restorers RHA 356 to RHA 362, when crossed with cmsHA 821, was 123, 138, 138, 143, 123, 130, and 133 cm, respectively, compared with 180 cm for hybrid 894. Days from planting to flowering of hybrids averaged over the two cms parents were 66, 66, 67, 67, 64, 66, and 64 d, respectively, compared with 63 d for hybrid 894. Days from planting to maturity of hybrids averaged over the two cms parents were 115, 116, 117, 119, 111, 120, and 114 d, respectively, compared with 113 days for hybrid 894. Oil percentage of hybrids (dry weight basis) was 47.7, 49.2, 49.1, 46.5, 48.0, 47.0, and 49.1%, respectively, compared with 44.5% for hybrid 894. The short-height characteristic was due to shorter inter-nodes, as the leaf number of hybrids was not significantly different from hybrid 894. These lines may produce hybrids that have head angles of 180° to 225° and curved stems, depending upon which cms line was selected for crossing. Crosses of RHA 356 to RHA 362 with cmsHA 89 had larger head angles than crosses with cmsHA 821. Lodging of lines and hybrids produced from the lines was significantly less in 1987 tests than that of check lines and hybrids.

Limited quantities of seed of each germplasm source are available from the Seedstocks Project, Crop and Weed Science Department, North Dakota State University, Fargo, ND 58105.

J.F. MILLER* AND T.J. GULYA (1)

References and Notes

Published in Crop Sci. 29:1332-1333 (1989).