Combining ability analysis of grain yield and its components in maize

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SUMMARYThe main objectives of the present work was to evaluate new inbred lines of maize through line x tester analysis. The experimental work of this study was carried out in 1996, 1997 and 1998 summer seasons at Sids, Sakha experimental Stations of the Agricultural Research Center Egypt. The present investigation included two parts. The first part included twenty three white inbred lines at S3 of inbreeding and derived from synthetic Sids 1. While, the second part comprised twelve yellow maize inbred lines at S3 of inbreeding and derived from pop. 45 Ev-2. In 1996 season, the inbred lines were toperossed to each of four testers of different genetic base, namely, synthetic Sids 1, GM- 18, GM- 21 and G. 613 in white maize and pop 45 Ev- 2, G. 638, GM. 1002 and GM. 1021 in yellow maize in Sids Station. The resultant 92 top crosses along with two checks (SC. 9 and SC. 10- in white maize experiment) and 48 top crosses along with two checks (SC. 153 and SC. in yellow maize experiment) were evaluated in 1997 and 1998 seasons at both Sids and Sakha locations. The experimental design used in both locations for each experiment was a randomized complete block design with three replications. Recorded data were days to 50% tasseling, days to 50% silking, plant height, ear height, percentage of resistance to late wilt disease, ear length, ear diameter, number of rows/ ear, number of kernels/ row, 100-kernel weight and grain yield (ardab/ fad). Line x tester analysis was used according to kempthorne (1957) for each year and combined over two years at each location.