

genetic milieus. Whether the mutant expresses itself in one genotype because the inbred involved is already "loaded" with teosinte genes or fails to express itself in another because the inbred strain is relatively free of teosinte genes or is already strongly "buffered" against their effects are questions still unanswered.

P. C. Mangelsdorf

8. Heterosis in tripsacoid derivatives of maize.

The object of this study has been to determine whether the chromosomes or chromosomal segments which contribute to the tripsacoid features of certain races of maize are heterotic or not when in heterozygous combination in the near isogenic background of an inbred A158. For this purpose, all possible crosses were made between strains of A158 which had been modified by introducing chromosomes or chromosomal segments extracted from tripsacoid races of maize from Argentina, Bolivia, Paraguay, Brazil, Venezuela, Nicaragua, Honduras and Mexico. The F_1 plants were grown in the summer of 1960 and heterosis was measured for each intercross in terms of averages of (1) days to anthesis, (2) height of the plant from base to the first tassel branch, (3) length of central spike, and (4) yield of grain. The results, though preliminary, indicate that chromosomes producing tripsacoid effects are usually heterotic when in heterozygous combination. Maximum heterosis has been observed in crosses of Honduras x Brazil, Coroica (Bolivia) x Brazil, Coroica x Argentina, and Honduras x Argentina. However, the combinations Paraguay x Coroica, Coroica x Venezuela, and Honduras x Venezuela are in general deleterious. This may be because the same chromosomes are contributed by each of the parents resulting in nearly homozygous condition.

Evidence is accumulating which shows that these chromosomes, except those extracted from Mexican and Honduras varieties, are the result of direct Tripsacum introgression since teosinte is unknown in the other countries represented by these studies.

S. M. Sehgal

9. A new method for estimating teosinte and Tripsacum introgression into maize.

The method used by Wellhausen et al (1952) to estimate teosinte introgression in races of maize in Mexico was highly subjective and was based upon approximate scores of 0-4 for the induration of rachis and lower glumes. In the present study, a somewhat objective approach