plants were produced by both classes of seeds. These results would place bm distal to 5S.10, the breakpoint of T1-5(8041) in chromosome 5.

Donald S. Robertson

UNIVERSITY OF MASSACHUSETTS
Suburban Experiment Station, Waltham, Massachusetts and
HARVARD UNIVERSITY
Bussey Institution, Cambridge, Massachusetts

Genetic systems for the production of hybrid corn seed without detasseling

True genetic systems to eliminate detasseling (in contrast to cytogenetic systems that require translocations and deficiencies for gamete selection) are possible if man takes a physical part in selection for certain seed or plant characters associated with male sterility. Two such systems are described here.

A y ms system based on the close linkage of yellow-white endosperm and the male sterile gene on chromosome 6 was described by Singleton and Jones in 1930. The system was never put to use because the problem of contamination by the five percent of recombinant plants was not resolved. A modification in this system by applying the electronic eye seed sorters can make it practical. The y ms kernels that give male sterile plants are electronically sorted from a sib to heterozygous yellow endosperm, male fertile (Y y Ms ms) counterparts. When these white kernels are planted as the female in a crossing field with a normal yellow male, damage from selfing and sibbing by the five percent fertile recombinants appears as white kernels. Here again the electronic seed sorters are used but this second time to remove the white seed. Thus, the result is 100% hybrid bicolor seed. The farmer's crop will segregate ca. 25% white kernels on each ear.

A ts2 sk system is based on the female development of the tassel and its modifying genes. The ts2 gene raises the level of femaleness, resulting in tassel seed as well as ears with irregular rows from the development of both florets. But when the ts2 gene is combined with the silkless (sk) gene on chromosome 2, the tassels become at least partially male fertile, depending on the environment and other modifying genes. In contrast to the ts2 gene, the sk gene raises the level of maleness, resulting in stamens developing in both tassels and ears. Thus, when both the ts2 and sk genes are combined in the double recessive some sort of a male-female balance is once again established. A line cross between plants that are homozygous for ts2 and sk yields a progeny that is 100% tassel seed male sterile (ts2 ts2 Sk sk) because the recessive silkless gene is heterozygous. When this line cross is used as the female in crossing fields, detasseling is unnecessary. The ts2 ts2 Sk sk parent of this line cross must be maintained by the backcross-sib technique. In producing the line cross, the normal segregants may be cut out of the female rows long before pollen shedding. The tassel silks on the plants to remain in the field appear in the plant-whorl stage two weeks or more before the plant elongates and exposes ear silks.

Walton C. Galinat

Further notes on the use of Tr7 in the production of bisweet hybrids

In last year's MNL we mentioned that Tripsacum chromosome 7 (Tr7), which carries the Su locus also found on corn chromosome 4, may facilitate the practical production of bisweet hybrids. When the double recessive of sugary-shrunken-2 with an extra pair (20+2) of Tr7 chromosomes is line-crossed to su sh2 without the extra pair, the 20+2 condition is reduced to the 20+1 state. Then if the sh2 gene is also covered in the final crossing field involving a normal sugary seed parent, the hybrid seed crop is normal sugary with about 10% starchy kernels from Tr7. These starchy kernels may be eliminated from hybrid seed by the proper combination of