

to equality of distribution of cellular components at mitosis, thus accounting for sectoring. Moreover, it would seem to have lost a primary quality of infectiveness in its failure to reproduce independently of cellular reproduction. Hence, its state might be described as imperfectly integrated.

D. L. Shaver

8. Another case of simple inheritance of highly variable partial pollen restoration.

The inbred line, K64 restores partial and seemingly complete fertility to T cytoplasm which is variable according to environment, dosage effects, and genetic background, similar to the behavior of the classical inbred line, M14. Shaver (MGCNL 30:159) showed that the seemingly complex restoring characteristics of that inbred were actually controlled by a single locus which could be converted to nonrestoring state by simple backcrossing techniques. This finding was later confirmed in extenso by Duvick. Likewise, in K64, all of the seemingly endless degrees of restoration are controlled by a factor that segregates as a single gene in backcross recovery progeny.

D. L. Shaver

9. The use of id/id in production of super early corn.

In maize, the physiological limit to earliness would seem to be the need for a sufficiently long vegetative period to develop a plant "factory" large enough to support ear and grain production. Galinat has hypothesized that very early New England sweetcorns are always highly tillered because selection pressures have produced main culms which flower so early that they have insufficient photosynthetic capability, without tillers, to produce a realistically sized ear of table corn. Brawn, and later Shaver, have shown that Gaspe is so early that the main culm is florally induced as a maternal effect embryonically, while the meristematic apex is still within the seed. If one wishes to inbreed and thus further reduce an already minimal size of plant, special difficulties are experienced in barrenness or very marginal yield performance in the seedfield.

If, however, one works such super early types within the id/id state or phenotype, the very adverse effects of super earliness are avoided, since the plants are only cryptically early, and in reality grow to normal sized (id/id) plants before flowering and ear production. Such plants produce large ears and shed copious, fertile pollen over a long period and would thus be very desirable seedfield parents. If the other parent of the hybrid were normal (Id/Id), the derived seed would all be of normal phenotype, and thus the super-earliness of the id/id parent would be unmasked and made economically available in the form of an early hybrid.

Following this line of reasoning, one can immediately seize upon the idea that, in working for further earliness cryptically in id/id, one might be able to supercede the former limits of earliness described above, and proceed to a whole new plateau of earliness in maize. However, the maternal induction effect might set a limit to earliness in id/id, but this should be tested in other backgrounds than Gaspe Flint. At any rate, it is certain that one can by using id/id, develop super early lines of maize without paying the penalty of small plant size and utter dependence upon a long summer day environment for their successful production.

D. L. Shaver

FUNK BROTHERS SEED COMPANY
Bloomington, Illinois

1. Cytoplasmic restoration of ms - sterility.

Cytoplasm may occur which restore fertility in single recessive genetic male sterile lines. That is, the various ms genes may be analogous to the rf genes and produce male sterility in the presence of a specific cytoplasm or conversely a specific ms gene may not produce male sterility in the presence of a certain cytoplasm. If such a cytoplasm should be found, a male sterile (S) ms ms line could be increased using the male fertile counterpart (F) ms ms as a male. The female rows