

1 Haploidy.

Following Chase's procedure our attempts to establish haploid lines have not been successful. We have, however, succeeded in isolating 26 haploid plants after processing 291,583 seedlings. To date none of them has been fertile enough to self-pollinate or the time of silking has failed to coincide with anthesis.

One of the best marker stocks is the Emerson brown aB Pl type which gives good aleurone color in the female parent and a strong root color in the zygote. The ideal marker is, of course, one which will induce the largest number of haploids, a uniformly dark aleurone, and a high concentration of anthocyanin. The female parents which produce the least amount of anthocyanin upon exposure to light and the best pigment coloration when crossed with a marker stock are most desirable.

Oddly enough, the approximate ratio of 1:10,000 obtained for induced haploidy, corresponds closely with the frequency of natural occurrence of polyembry (double-diploid, double diploid-haploid, or triple diploid embryos). In one study of seedling from germination samples of commercial seed fields, it was found that 210,100 seeds yielded 22 polyembryonic specimens, mostly all double-diploid in nature. The previously mentioned 291,583 seedlings surveyed for haploidy yielded only 8 double-diploid embryos. It is of course not known how many haploids occurred in the germination sample, observed from the commercial seed fields.

However, the above frequencies suggest that haploidy could occur and also account for the occasional off-type ears which are found on the sorting belts of both foundation and commercial production and are "inbred" in appearance yet fail to closely resemble either parent.