4. A test for paramutation at the P locus.

An invariable change of the kind reported by Brink for R^{st} and R^{mb} in heterozygotes with R^{r} was not found at the P locus when the standard Wisconsin P^{vv} (variegated pericarp) allele was used in a mating scheme with P^{rr} (red pericarp) similar to that developed by Brink (Genetics 41, 1956).

The heterozygote P^{rr}/P^{vv} was self pollinated and the progeny were grown out and pollinated with homozygous P^{wr} in the same inbred background as the P^{vv} and P^{rr} parent cultures. Four red pericarp F_2 segregates and 2 variegated F_2 segregates were selected and grown out and the progeny examined for deviations from the expected red pericarp and medium variegated pericarp.

Three of the four red F_2 ears proved to be homozygous P^{rr} and produced only red pericarp offspring. One of the red F_2 ears was apparently heterozygous and produced medium variegated and red pericarp offspring. The two variegated F_2 ears were homozygous and produced medium variegated offspring plus a few red pericarp mutants as expected.

All of the red pericarp ears in the 6 cultures were similar in phenotype and the variegated ears were typical medium variegated phenotype for the background used. Thus, there is no evidence of paramutation between these P^{rr} and P^{vv} alleles.

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1. Differences in recombination in ♂ and ♀.

Crosses between exotic stocks and 5-9a carrying sh wx gl were backcrossed reciprocally with sh wx gl. Only the results for sh-wx are completed. In all cases, crossing over was higher in the ♂. For crosses with Purple Tama, the averages are 8.9 and 14.7, for Argentine pop, 8.9 and 15.5; and for KYS, 3.1 and 16.4. These large differences were not found in hybrids between the exotics and normal sh wx gl stocks.

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