A test for paramutation at the P locus.

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

The heterozygote $P^{fr}/P^vV$ was self pollinated and the progeny were grown out and pollinated with homozygous $P^{fr}$ in the same inbred background as the $P^vV$ and $P^{fr}$ 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 $P^{fr}$ 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 $P^{fr}$ and $P^vV$ alleles.

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Differences in recombination in $f$ and $g$.

Crosses between exotic stocks and 5-9a carrying sh/wx/g1 were backcrossed reciprocally with sh/wx/g1. Only the results for sh-wx are completed. In all cases, crossing over was higher in the $f$.

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/g1 stocks.

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