

#### 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  $R^L$  was not found at the P locus when the standard Wisconsin  $P^{vv}$  (variegated pericarp) allele was used in a mating scheme with  $prr$  (red pericarp) similar to that developed by Brink (Genetics 41, 1956).

The heterozygote  $prr/pvv$  was self pollinated and the progeny were grown out and pollinated with homozygous  $pwr$  in the same inbred background as the  $P^{vv}$  and  $prr$  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  $prr$  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  $prr$  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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