Table 1 also shows that for 1971 the frequency of non-concordance for female-derived $\widehat{WxMp}$ is significantly higher among selections derived from 4B- and 5B-chromosome parents than among corresponding selections from 0B controls (X^2 test; $P < 0.025$). This indicates that although low numbers of B-chromosomes have no effect on Mp transposition from $\widehat{WxMp}$ during sporophytic development, they may increase the rate of transposition during development of the female gametophyte. There is no detectable difference in the frequency of non-concordance among the different B-chromosome levels when $\widehat{WxMp}$ is derived through male gametes.

In view of the fact that the Wx locus is overtly expressed only in the gametophytes and endosperm, it is of possible significance that the female gametophyte is the only tissue in which an interaction of the abnormally-repressed $\widehat{WxMp}$ compound with B-chromosomes has been detected.

References:

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2. Synthesis of a set of B-A translocations involving a given segment of chromosome 10.

Because of their utility in various cytogenetic investigations, a set of B-10 translocations was sought representing breakpoints in chromosome 10 at various positions between the centromere and the R locus. Toward this end tassels of plants in an R^{scm} (self-colored mutant of R-marbled) subline of Inbred W22 carrying 7 to 10 B chromosomes were irradiated following the first pollen mitosis and then crossed to $r^g r^g$ females. If the irradiation induced an interchange between an A and a B chromosome, the B^A chromosome so formed should nondisjoin at the succeeding pollen mitosis, providing that newly formed translocations behave immediately in the manner of previously established ones. When the break in the A chromosome involved that portion of chromosome 10's long arm proximal to R, and the $B^{10}B^{10}$ sperm resulting from nondisjunction

fertilized the egg, a kernel having colorless aleurone ($\underline{r}^g\underline{r}^g/-$) but the strongly colored embryo characteristic of $\underline{R}^{scm}$ should result.

Extensive matings to $\underline{r}^g\underline{r}^g$ (Inbred W22) females of forty plants treated with 500 R of X-irradiation yielded 102 colorless aleurone but colored embryo kernels. When grown and tested as staminate parents to $\underline{r}^g\underline{r}^g$ the following year, all but 38 segregated self-colored and colorless aleurone in a 1:1 ratio and possessed corresponding embryo phenotypes. Loss of $\underline{R}^{scm}$ from one sperm in these instances had not lead to detectable alteration in the second. The remaining 38 when similarly tested produced kernels of the selected parental phenotype in a high frequency, indicative of B-10 translocation. This experiment netted, therefore, nearly one translocation of the particular sort desired per irradiated plant, or, in terms of kernels screened, about 3×10^{-4}.

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3. Effect of M^{st} on unstable plant color derivatives of $R^{st}R^r$ heterozygotes.

Among the progeny of $\underline{R}^{st}\underline{R}^r$ heterozygotes, near-colorless aleurone derivatives with unstable plant color occur with a frequency of approximately 5×10^{-5}. The phenotype and outside marker configuration of these new forms suggest that they arise by an intralocus recombination event which places the instability component associated with seed spotting of $\underline{R}^{st}$ into cis relation with the plant pigmenting determiner ($\underline{P}$) of $\underline{R}^r$. The net effect is that ($\underline{P}$) replaces the seed pigmenting component ($\underline{Sc}$) of the stippled complex ($\underline{ScI}^R\underline{Nc}$), yielding ($\underline{PI}^R\underline{Nc}$). The present report presents data showing that $\underline{M}^{st}$, an enhancing modifier of stippling, located 5.7 units distal to $\underline{R}$, also increases the plant color instability of ($\underline{PI}^R\underline{Nc}$) forms.

The plant color gene ($\underline{P}$) is expressed most conspicuously in the young seedling, where it conditions colored coleoptile and roots, and in the tassel, where it conditions pigmented anthers. The effect of $\underline{M}^{st}$ on unstable expression of ($\underline{P}$) was investigated at both stages of development, in separate studies. Three ($\underline{PI}^R\underline{Nc}$) selections of independent origin, isolated by K. V. Satyanarayana, were grown in each case as