Variety of Teosinte	No. of Kernels with Colored Scutellum	No. of Shrivelled (Defective) Kernels	No. of Kernels with No Scutellum Color	Total No. of Kernels	% Kernels with No Scutellum Color
Guatemala 51764	907	40	16	963	1.66
Nobogame	1,011	31	23	1,065	2.16
Chalco 62-394	371	30	9	410	2.19
Perennial	690	62	30	782	3.84

The anthocyanin pigmentation is produced by the $\underline{R}^{nj}$ factor in the maize parent. All of the kernels showing aleurone color and/or scutellum color probably represent maize-teosinte hybrids. The defective kernels might be due to abnormalities in endosperm development associated with the ig gene. At least some of the colorless kernels probably contain androgenetic teosinte embryos. Chromosome numbers from root tips will be checked before transplanting to the field in June.

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7. Preliminary studies on the inheritance of abscission layer development in Zea.

A disarticulation of the maize cob requires the transfer of genetic control of abscission in two areas. (1) Abscission through the rind which extends along the interface between the beak (roof) of the cupule with the glume cushion from above, angling upward to the pith. (2) Abscission through the pith at a level adjacent to the deepest indentation of the cupule. This second area of pith abscission is variable in expression, developing sometimes as a tear at these morphologically predetermined points of weakness. The tear may quickly heal leaving only a trace-like band extending across the pith or it may open into a gap usually bound by abscission layers.

Preliminary analysis of the linkage data for chromosome four indicates control of pith abscission (ab^{p}) on the short arm and control of rind abscission (ab^{r}) on the long arm. Although the genes controlling these two areas of abscission may be 50 crossover units or more apart, they tend to be inherited together in hybrids of corn four with Nobogame teosinte four because of a reduction in crossing over in the Su-Gl$_{3}$ region. Crossing over is normal in similar hybrids with the fourth chromosome from Florida teosinte, a variety of the primitive Guatemalan teosinte, Jutiapa. Final analysis of the linkage data awaits completion of the tedious sawing of longitudinal sections through some 1000 highly lignified corn cobs.

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1. Chemical mutagenesis following treatments at different developmental stages.

The study of the effectiveness of chemical mutagens, administered at different stages of ontogeny, upon induction of mutations might bear useful information of both theoretical and practical value. We chose for this analysis an alkylating agent, ethyl methane sulphonate (EMS), whose mutagenic power has been established in many organisms.

The following treatments were performed:

1. Seeds: soaking for 24 hr. in the mutagen solution at 23±2° C
2. Seedlings: immersion of the primary root in the mutagen solution after removal of its distal portion to insure better uptake
3. Plants at the time of male meiosis: injection of 10 cc of EMS solution into a Pasteur pipette with its tip inserted into the plant stem
4. Pollen grains: as in previous stage