in 1966, also in cooperation with EUCARPIA, and together with the organizers of the XIth Pacific Science Congress a Symposium on the Use of Isotopes and Radiation in Agriculture. During the first two years of this joint venture of FAO and IAEA, a number of international programmes has been established, which have fostered cooperation among scientists the world over. The resulting coordination in some of the fields dealt with has already contributed to more rapid progress in the use of nuclear methods in agricultural research and has helped to place this technique in its proper perspective as an important and unique additional tool to further research towards more and better food.

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1. Spm regulation of Diffuse and mosaic pericarp.

Preliminary evidence presented in the M.G.C. News Letter last year suggested that mosaic pericarp and Diffuse may be regulated by an Spm-like element. Further studies make this suggestion unlikely. Neither p^{mo} nor Idf are consistently associated with regulation of the gene action of a^{m-1}, a gene known to be regulated by Spm. The 1966 test ears were again confusing. Spm-like elements are present in both the stock carrying p^{mo} and the stock carrying Idf, but there does not seem to be a one to one relationship. That is, ears with the Diffuse phenotype do not always regulate the action of a^{m-1} as though they carried Spm, and Spm is not always absent in non-Diffuse ears. The frequent presence of strong Spm-like regulators in these stocks remains unexplained.

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2. Pericarp phenotype of a^{m-1}.

The mutable allele a^{m-1} produces a pale aleurone color in the absence of Spm (with $A_2 C_1 C_2 R$) and colorless aleurone with deep spots when Spm is present. In combination with the pericarp allele p^{rr}, this allele acts as a full recessive to give strong brown pericarp color both with and without Spm and not an intermediate red-brown as its aleurone color interaction would suggest. In the presence of Spm, red stripes are present. One ear of the genotype a^{m-1} prr Idf Spm has been observed. It has strong brown pericarp with frequent colorless sectors typical of the Diffuse phenotype and frequent red stripes due to the response of a^{m-1} to Spm.

It appears as though the phenotype of a^{m-1} $\underline{P}^{mo}$, both with and without $\underline{Spm}$, is also brown but the low color level mosaic allele used makes color identification difficult.

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1. On the origin of abnormal 10.

In spite of the considerable interest in abnormal 10 (K10) that has been generated by the studies of Rhoades, Dempsey, and others, the origin of this chromosome has not been established. Ting (Chromosoma 9:286, 1958) postulated that the extra segment of K10 arose by simple translocation between normal 10 and a B-chromosome. This hypothesis was tested by comparing meiosis in haploids with either K10 or normal 10 (k10) and carrying a single B-chromosome. The desired haploids were obtained from diploids of the constitution $\underline{gl_6/gl_6}$ $\underline{K10/k10}$. The glossy seedlings were selected as putative maternal haploids among the progeny of the glossy female parents crossed with normal males. The male parent used was "stock 6", a high haploid-inducer line discovered and supplied by Dr. E. H. Coe. Sixty-four glossy seedlings were found among a total of 7,100 progeny obtained from this cross. Of these glossy exceptions, 58 were verified as haploids by chromosome counts in root tip squashes prepared by the Feulgen procedure. This is a haploid frequency of 0.82% which is considerably higher than the normal frequency of 0.1%. The chromosome 10 constitution was also determined in each haploid during the examination of dividing root tip cells where K10 can be recognized at metaphase by the acrocentric position of its centromere. Microsporocytes at various stages of division were obtained in the greenhouse from two plants of each chromosome 10 constitution. First division cells were examined for the occurrence of bivalent configurations, that is, associations of two chromosomes joined by a chiasma. Since no metaphase plate is formed during first division in haploid pollen mother cells, it is difficult to distinguish anaphase I from metaphase I. Only those cells in which several univalents were seen passing to the poles were scored. At this stage the two chromosomes of a bivalent can be seen disjoining but connected by a bridge resembling a delayed chiasma. Normally, maize haploids possess ten chromosomes. However, all of the plants used in this study had eleven chromosomes including the normal complement of ten plus one B-chromosome also contributed by the maternal parent.

The frequency of bivalent configurations at metaphase I-anaphase I in k10 and K10 haploids was determined and the data are presented in Table 1. One bivalent occurred in approximately 14% of the microsporocytes from both k10 and K10 plants. Two cells from each type of haploid were found to have two bivalents while one cell from a k10 haploid had three bivalents. A total of 51 bivalents, or an average of 0.15 per cell, was observed among the cells from K10-carrying haploids. This is not