sectoring is similar to that obtained following ultraviolet treatment of pollen and is in contrast to the results following X-ray treatment of pollen in which sectoring is rarely observed. The ratio of fractional to entire endosperm effects following DEB treatment was not influenced by the year of experimentation, the stock used, or the method of treatment. The size of mutant sectors forms a nearly normal frequency distribution about the center value of one-half the endosperm. The following factors may be involved in sectoring: (a) If the chromosome has effectively two strands at the time of treatment, breaks in chromatids rather than whole chromosomes would result in sectoring. (b) If breaks are entirely chromosomal but the centric and acentric portions are held together by the matrix until division occurs, a sector would result if following division, one acentric chromatid restitutes while the other is lost. (c) Chromosomal instability induced by the treatment may be involved in sectoring.

6. There is no evidence that DEB markedly increases the frequency of gene mutation in maize, although the loss of single loci may include some gene mutations. Furthermore, the treatment of maize pollen with DEB has little or no effect on the F_1 plant generation. This is similar to results following ultraviolet treatment of maize pollen and is in contrast to the results following X-ray treatment in which there is a close correlation between the frequency of mutation in the embryo and endosperm. The absence of any effect on the F_1 plant generation suggests that DEB will be of little value in the production of mutations in maize for plant breeding purposes using the above methods of treatment. However, since DEB is extremely effective as an inducer of gene mutation in the Neurospora back mutation test and of chromosomal deficiencies in Drosophila, there is the possibility that it may be effective in increasing the mutation rate in other organisms or in maize embryos under different conditions.

Jean D. Kreizinger

CROW'S HYBRID CORN COMPANY
Milford, Illinois

1. Dwarf prolific corn.

We have been doing some preliminary work since 1950 on a new type of corn that could be harvested with a combine. In order to get a heavy set of ears, we have crossed our inbred lines with teosinte and have backcrossed once to corn, then started a selfing program. We crossed about a hundred lines with teosinte this year to broaden the program. We have also crossed it with all our dwarf types, and with male sterile and male restorer. We believe that this project has merit, and we are going to make every effort to produce an acceptable

dwarf prolific corn. See the December 6, 1957 issue of Seed World, pp. 16-17, for a more complete discussion of the project.

2. Twin-shoot.

In 1956, we made a number of complementary crosses between twin-shoot and Inbred Hy, a single eared strain. We used single plants in each case for closer control. We needed to know whether any cyto-plasmic inheritance was involved. However, the F_1 plants were all single-eared, regardless of the way the cross was made. F_1 ears were selfed to check F_2 ratios.

We had five ear rows of twin-shoot, numbering 194 plants, that were entirely homozygous for the character.

3. Siberian corn.

The strain of Siberian corn we mentioned in our last report seems to be quite dominant for earliness. The strain itself was producing silks and tassels this year 43 days after the seed was planted. The crosses we had made between Siberian corn and some of our regular early lines like M14 and Oh51A were from a week to 10 days earlier than the lines themselves. The Siberian corn is quite susceptible to bacterial wilt, and we have had a considerable amount of it in our breeding field the past two years. Lack of time kept us from following up on some indication of self-sterility in this corn. The pollinations we made to continue the strain were all sib-pollinations.

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EAST AFRICAN AGRICULTURE AND FORESTRY RESEARCH ORGANIZATION
Kenya Colony, East Africa

1. Genetics of resistance to Puccinia polysora Underw.

F_1 families from crossing lines homozygous for Rpp_1 and Rpp_2 reacted uniformly against infection by P. polysora.

(a) Against Race EA.1 - typical hypersensitive lesions (class "01") characteristic of Rpp_1. No effect of Rpp_2 was detectable.

(b) Against Race EA.2 (against which Rpp_1 confers no resistance) - typical necrotic lesions (class "1") characteristic of Rpp_2 alone.

From studies of derivatives from this cross, the conclusion was reached that Rpp_1 and Rpp_2 are linked. Three separate estimates of