applied at successive stages of development. Opportunity was afforded to test the yield of the treated crop varied in yield reduction from 80%.

Seed from plots treated in 1952 at 12 sowing was planted in a replicated field row trial at 1953, in a split-plot design with four repli- 1952 was harvested separately from the center of the first tiller. Their seed progenies were the treatment as whole plots. Yield of the crop in 1952 and of their progenies in 1953 are given in table 1.

From the separate analysis of variance of variety the differences in yield among the Cherokee were highly significant, with treatments causing greatest reductions in yield the previous producing the lowest yielding progenies. Differences in yields of progenies from Andrew barely exceeded level of significance and only two of the Cherokee progenies were significantly lower than the check.

In neither variety was there a significant difference in yield of progenies from the main culm and basal tillers.

In an attempt to determine the cause of reduction in the progenies of treated Cherokee, an analysis of the grain from treated plants to determine 100 kernels, germination (in soil) and seed weight of the progenies as measured by dry weight per plant 2 weeks after emergence. These data to the same stages and the check are summarized in the analysis of variance it was shown that the seeds was lower than the check from plots of 22, 34, and 38 days after seeding. Lowest seed was obtained at the 34 and 38 day treatment, greatest reductions in yield. Germination of two treatment dates also was much lower than the check. Differences in dry weight of seedling progeny were not significant.

From these data it would appear that differences obtained from a test of progenies from treated largely were due to reduced seed plumpness which in turn reduced yield, rather than changes in genotypes.—I. J. JOHNSON, pro- of farm crops, Iowa State College, Ames, Iowa.