

5. Responses of Sorghum plants to gibberellic acid.

Treatment of dwarf, medium and tall varieties of Sorghum with GA resulted in excessively thin and almost non-productive plants at concentrations of 125 and 625 μg GA every 3rd day. However, an amount of 25 μg caused, in addition to the usual suppression of tillers, development of inflorescences two weeks earlier than controls; plants were also shorter by 15 cm, 30 cm and 60 cm than corresponding controls. Studies are continuing, employing stocks which insofar as possible differ only in the number of dwarfing genes present.

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1. Paramutagenic action of Navajo mutants from a presumed stippled-Navajo compound allele.

The occurrence of a presumed stippled-Navajo compound allele, symbolized as $\underline{R}^{st}:nj$, among the offspring from an $\underline{R}^{st} / \underline{R}^{nj} / \underline{r}^{g} \times \underline{R}^r \underline{R}^r$ mating was reported in News Letter 34 (1960). This allele mutates rather frequently to a stable form giving the Navajo phenotype. Unlike ordinary Navajo, however, which is non-paramutagenic, the Navajo mutants from the compound are paramutagenic in heterozygotes with \underline{R}^r at about the same level as the parent allele, as the following data show.

Genotype testcrossed on $\underline{r}^g \underline{r}^g \text{ ? ?}$	Pigmentation score of $\underline{R}^r \underline{r}^g \underline{r}^g$ testcross kernels $\underline{1}$
$\underline{R}^r \underline{r}^g$ (control)	5.48
$\underline{R}^r \underline{R}^{st}$ (control)	2.32
$\underline{R}^r \underline{R}^{st}:nj$	3.36
$\underline{R}^r \underline{R}^{nj-1}$ (mutant from $\underline{R}^{st}:nj$)	3.33
$\underline{R}^r \underline{R}^{nj-2}$ (mutant from $\underline{R}^{st}:nj$)	3.16
$\underline{R}^r \underline{R}^{nj-3}$ (mutant from $\underline{R}^{st}:nj$)	3.77
$\underline{R}^r \underline{R}^{nj-4}$ (mutant from $\underline{R}^{st}:nj$)	3.14

$\underline{1}$ 1 = colorless, 7 = self-colored.

It appears probable that these Navajo mutants result from change of the stippled component of the compound to self-color, thus permitting the Navajo component to express itself in the endosperm in the usual form. Retention by the mutants of paramutagenic action about equal to