

4. Modification of expression of Vg.

Indole butyric acid caused a reduction in expression of Vg. In a population of 59 plants segregating 1:1 for Vg and normal, ll plants, all receiving IBA, shed normal pollen and had glumes equal to +/+ control plants. Ligule growth, another manifestation of the Vg gene, was markedly less in 7 of the ll plants, however. Under Massachusetts growing conditions, some pollen is formed by all Vg plants. Some homozygous Vg plants will be available to study this effect further in 1963. Plants heterozygous for Kn expressed the knotted condition under IBA treatments more strikingly than did controls.

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5. Response of milo and sorghum stocks to gibberellic acid.

A definite reduction in time of flowering varying from 10 days to two weeks compared to control plants has been obtained for three-dwarf, two-dwarf and one-dwarf stocks of sorghum. Milo maize of six different maturity gene combinations showed varying responses. Those with the shortest time of maturity (38 and ll days) were drastically affected by GA; most plants died. As genetically-controlled time lengths to maturity increased, time from planting to anthesis (compared to controls of each group) shortened under GA treatments, as indicated.

50-day plants-----	7 days	earlier	than	controls
60-day plants-----	10 days	"	"	"
90-day plants-----	13 days	"	"	"
100-day plants-----	16 days	"	"	"

It should be emphasized that under Massachusetts growing conditions 50-day plants take nearly 80 days to reach anthesis. It has been suggested (and data have been obtained) by Dr. Lane at Beltsville that the maturity genes are photoperiod-sensitive genes.

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6. Increase in dry weight upon treatment with a naturally-occurring growth substance.

In 5-plant samples of 38-day and ll-day milo treated daily with a growth substance recently isolated from some members of the cabbage family, increases in dry weight were obtained which were two to three times greater than dry weights of controls. Studies are continuing to determine whether the effect is repeatable with this and other closely allied substances, whether it can be achieved with less frequent treatments, and how effective treatment is when begun at specific plant ages. Studies also are being run on mice to determine carcinogenic properties of these substances.

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