

Crossover percentages are higher than normal for the Bt-Pr and Pr-Gl regions but the suggested three-point order is Bt-Pr-Gl. My stocks of gl₈ and gl₁₀ have either become mixed or these 2 glossies are identical.

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1. Genetics of tillering.

A project has been initiated to investigate what if any genetic basis exists for tillering in some of the races such as Parker's Flint in contrast with many midwest inbreds and other races such as Zapalote Chico. Crosses have been made this winter in Florida between Parker's Flint and a series of translocations compiled by E. G. Anderson and E. B. Patterson. In addition, tillering and non-tillering sibling plants from several backgrounds were selfed in 1961; these seeds will be grown and the progeny checked further this coming year.

It is the aim of this project to try to relate expressed morphology more closely to genetic background. Since environment plays a seemingly significant role in tiller development, knowing whether or not specific genes for tillering exist in a particular plant should provide a means of separating environmental and genetic influences on tiller and presumably other aspects of plant development with greater accuracy than is now possible. The aid of E. G. Anderson, E. B. Patterson and W. L. Brown has been enlisted in various ways.

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2. Responses of certain tassel and dwarfing genes to growth substances.

A series of tests was run during 1961 on na₁, na₂, py, br₁, cr₁, d₁, d₂, nl, rt, ba, Cg, and Tp. Groups of plants were subjected to one of the following treatments: Gibberellic acid, naphthalene acetic acid, indole butyric acid, GA-NAA, GA-IBA. Treatments were applied in several concentrations at two-day intervals. NAA stimulated root growth and stalk stiffness, but decreased branching, stature, leaf size, inflorescence size and fertility. IBA stimulated overall growth, but not height; leaves were wider, often longer, more tillers developed, they produced functional inflorescences and root growth was enhanced. GA retarded root growth and inhibited development of lateral branches. In a few cases, it increased height. Generally, effects of IBA-GA or NAA-GA were additive. br₁ / br₁ was markedly affected by GA; leaves were only 1/3 as wide as controls, plants were shorter and with culms 1/2 as great in diameter and inflorescences did not develop. nl / nl plants remained nl; ba / ba plants remained barren. Stature was only slightly modified in na₁ and na₂ plants. rt plants formed roots when treated with IBA or NAA. Tp and Cg plants behaved under effects of GA treatment as previously published; with IBA their increase in vigor was marked, while with NAA they showed few growth differences from controls.