

#### 4. Gametophyte factor studies - specificity tests.

Stocks have been built up to test the specificity of the Ga interaction between silks and pollen. That is, if the silks are carrying the Ga factor in chromosome 4, will pollen from plants heterozygous for bt and the Ga factor in chromosome 5 show the differential effect resulting in deviating ratios for bt? The reverse test: silks carrying the Ga factor in chromosome 5 against pollen from plants heterozygous for su and the Ga factor in chromosome 4 has been set up also. The scheme of the tests has been to establish two Bt Bt Su Su stocks: #1 carries Ga in chromosome 4 and not the Ga in 5; and #2 carries the Ga in 5 and not the one in 4. Number (1) is crossed with su to produce the heterozygote and these plants are crossed on stock #2 to check the specificity of the interaction between silks and pollen and they are also crossed on stock #1 as a check on the results. The progeny are grown in open-pollinated blocks with su or Su su borders and interspersed rows. Counts on the number of Su Su and Su su plants are made when the ears are mature. Tests of silks carrying the Ga in 5 against pollen from plants heterozygous for su and for the Ga in 4 gave 115 Su Su and 128 Su su plants, while the check test of silks with the Ga in 4 pollinated with the same Ga gave 144 Su Su and 47 Su su, showing that when the Ga in 5 is present in the silks it does not permit the expression of the differential effect of Ga in 4 in the pollen. The tests of silks with the Ga in 4 against the Ga in 5 in the pollen are not complete.

One of these crosses involving a pop corn segregated for normal vs. fasciated ears in a 9:7 ratio.

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