

All fifteen of the crosses with row 162 showed blotching. All fifteen of the crosses with row 163 lacked blotching. Other tests showed that row 162 involves the same Bh gene as rows 188 and 189 above, in which linkage of Bh with Su is shown.

Our conclusion from the data now available is that the two systems have a Bh gene on chromosome 4 in common. Further tests could show, however, that there are two distinct Bh genes on this chromosome - one involved in the c system, one involved in the r system - and that these two genes are so closely linked that crossing over between them is rare.

4. The blotching inhibitor appears to affect both systems.

In last year's News Letter it was reported that the inbred Conn. P39 carries an inhibitor of blotching in the r system which is closely linked or allelic to one of the Bh genes. The question is whether this gene also inhibits blotching in the c system. To determine this a stock carrying all four of the Bh genes in the c system was crossed with Conn. P39. The F₁ seeds were Cc Rr and completely colored. The F₂ seeds segregated in a 9:7 ratio for self-colored and colorless or blotched. If the F₁ was heterozygous for all four Bh factors, then 31.6 percent (81:175 ratio) of all cc RR/Rr seeds should be blotched (31.6% x 75% x 25% = 5.925%). If the inhibitor from Conn. P39 suppressed blotching in the c system, then only one fourth of this percentage (1.48 percent) blotched seeds should occur. The data from six ears follow:

Total	Number of Kernels			Percent Blotched
	Colored	Blotched	Colorless	
2219	1221	49	949	2.2

The percentage of blotched seeds, 2.2 percent, is nearer the percentage expected, 1.48 percent, from the action of an inhibitor than the 5.9 percent expected if the inhibitor does not act on this system.

The inhibitor of blotching has no discernible effect upon the development of self-color, but the chromosome 9 inhibitor of aleurone color, the I gene, completely inhibits blotching.

5. The possible utilization of Bh genes in the classification of maize.

The four Bh genes in the c system and the five or more Bh genes in the r system may prove to be quite useful in the classification of races, varieties and inbred strains of maize. If the maize in question is