

misclassification or from some form of preferential segregation affecting the ratios.

Preliminary three-point linkage tests of the Bh gene on chromosome 9 have yielded the following data:

Ears	Genes	Number of Individuals				Totals
		XY	Xy	xY	xy	
297-1&4	Bh wx	411	167	188	49	815
297-1&4	Bh sh	420	158	188	49	815
297-2&3	Bh wx	411	156	394	91	1052
297-2&3	Bh sh	392	175	372	113	1052

In both 3:1 and 9:7 progenies, Bh shows slightly closer linkage with wx than with sh. Since the crossing over between Bh and wx is high (about 45%) the data so far available suggest that the sequence is sh, wx, Bh and that Bh has its locus on the long arm of chromosome 9. Backcross tests with sh and wx and tests with other genes on chromosome 9 are in progress.

#### 12. A new blotching system affecting the r locus.

A very striking piebald color pattern, commonly found in high-altitude Peruvian flour corn, proves to be a blotching system affecting the r locus. At least two Bh genes are involved in the system since the ratio of Bh to bh is 27:37 when the C locus is also heterozygous. One of these genes is probably linked with y on chromosome 6 as the following data indicate:

Row	Number of Individuals				Total
	Bh Y	Bh y	bh Y	bh y	
56-623	215	95	387	115	803

The percentage of y kernels, 30.6%, among the Bh individuals differs significantly from the percentage, 23.3, among the bh individuals. Further tests to determine more precisely the degree of linkage are in progress.

The expression of blotching in this system is inhibited in crosses with the inbred, Indiana P39. In this respect this system differs

from that previously reported which affects the r locus which is inhibited by Conn. P39 but not by Ind. P39.

### 13. Utilization of Bh genes in the classification of maize.

In last year's News Letter, it was suggested that the genes in the two blotching systems then described might prove to be useful in the classification of maize. A preliminary experiment was conducted during the past season to test this possibility. The results are shown in the accompanying table.

When inbreds carrying the gene C are crossed with testers for the Bh genes, all of which are cc and RR, the F<sub>1</sub> seeds are self colored and do not provide an immediate test for blotching genes. However, the F<sub>2</sub> seeds should show whether or not the inbreds carried such genes.

These preliminary data, although too few to reveal clear-cut relationships, do show the possibilities of this method of approach which is a close counterpart of testing for the blood groups in man. Here is an excellent Ph.D. thesis problem. We shall be glad to provide, to anyone interested, seed of the tester stocks so far available as well as materials from which additional tester stocks can be isolated.

Tests of Inbred Strains for Presence of Blotching Genes

Inbred	Bh genes affecting c			Affecting r		Color genes	
	1	2	3	1	2	C	R
Hy	+	-	+	+	-	-	-
Oh7	-	-	-	-	-	-	-
Oh28	CC	-	CC	-	-	+	-
Wf9	-	-	-	+	-	-	-
38-11	CC	CC	-	-	-	+	-
Oh43	-	-	-	-	-	-	-
Oh45	+	+	+	+	-	-	-
Pa70	-	-	-	-	-	-	-
C103	-	-	-	-	-	-	-
C20	-	-	-	-	-	-	-
C21	-	-	-	-	-	-	-
R2	CC	CC	-	-	-	+	-
M14	-	-	-	-	-	-	-
Os420	-	-	-	-	-	-	-
T11A	-	-	-	-	-	-	-
W23	-	-	-	-	-	-	-
B10	CC	CC	CC	+	-	+	-
NY16	-	-	-	+	-	-	-
A158	+	-	+	+	-	-	-