which is apparently the p-oH phenylpropenoid building block. Accordingly tracer experiments were conducted in which both $\underline{bm_1}/\underline{bm_1}$ and $\underline{+bm}/\underline{+bm}$ plants were allowed to take up either UL C^{14} phenylalanine or UL C^{14} tyrosine and then frozen 24 hours later for analysis. Estimation of the specific activity of the isolated alkali lignins indicated that both amino acids were equally good lignin precursors for both $\underline{bm_1}/\underline{bm_1}$ and $\underline{+bm}/\underline{+bm}$ plants. This would appear to rule out the hypothesis suggested above.

If anyone has a brown-midrib mutant which is known not to be 1, 2, 3, or 4, we would be most interested in obtaining it.

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3. The location of the $\underline{Hm_2}/\underline{hm_2}$ locus.

In the 1951 News Letter (25) we reported a second locus affecting susceptibility to Race I, Helminthosporium carbonum. This locus has now been designated as $\underline{Hm_2}/\underline{hm_2}$ and located on chromosome 9. Its location is probably on the long arm of the chromosome since in a 3-point test (CS) the order of the genes is sh wx $\underline{hm_2}$ with recombination between wx and $\underline{hm_2}$ approximating 25 percent.

The allelic constitution at the $\underline{Hm_2}/\underline{hm_2}$ locus can be determined only in the presence of $\underline{hm_1}/\underline{hm_1}$. The double mutant $\underline{hm_1}/\underline{hm_1}$; $\underline{hm_2}/\underline{hm_2}$ is fully susceptible. Such markedly susceptible inbreds as Pr, Mo. 21a, and K61 are of this genotype. Plants which are $\underline{hm_1}/\underline{hm_1}$; $\underline{Hm_2}/\underline{hm_2}$ or $\underline{Hm_2}/\underline{Hm_2}$ display increasing resistance with time. Seedlings are moderately susceptible and quite large lesions are formed on the leaves attacked by the fungus. The leaves last initiated are highly resistant and only chlorotic flecks develop in response to infection. With artificial inoculations at the flowering stage or later, there is no difficulty in distinguishing $\underline{hm_1}/\underline{hm_1}$; $\underline{hm_2}/\underline{hm_2}$ plants from $\underline{hm_1}/\underline{hm_1}$; $\underline{Hm_2}/\underline{hm_2}$ or $\underline{Hm_2}/\underline{Hm_2}$ plants within ten to fourteen days following penetration by the pathogen. Under natural growing conditions $\underline{hm_1}/\underline{hm_1}$; $\underline{Hm_2}/\underline{Hm_2}$ plants are for practical purposes resistant to infection by the fungus.

The data on the location of $\underline{Hm_2}/\underline{hm_2}$ substantiate those collected earlier from a RS progeny. The F_2 progeny investigated in 1960 was derived from $\left(\frac{\underline{hm_1}\ \underline{Sh}\ \underline{Wx}\ \underline{Hm_2}}{\underline{hm_1}\ sh\ wx\ \underline{hm_2}}\right)$ ⊗. The data are given in Table I.

TABLE I

$\left(\frac{hm_1}{hm_1}; \frac{Sh\ Wx\ Hm_2}{sh\ wx\ hm_2}\right)$ ⊗ Bulked Seed

Kernels Planted	Disease Reaction: Resistant ($Hm_2/?$)	Disease Reaction: Susceptible (hm_2/hm_2)
sh wx	33	49
sh Wx	39	4
Sh wx	30	33
Sh Wx	122	24

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4. Production of diploid eggs by normal diploid maize.

The presence of triploid plants in diploid maize populations has frequently been observed, especially in experimental hybrid tests. It seems logical to theorize that these resulted from diploid (2N) eggs fertilized with normal (1N) pollen. If this is true then pollination of normal 2N plants with 2N pollen from established tetraploids should give rise to a low frequency of plump tetraploid kernels; the other kernels, of course, will be defective triploids. This method would provide an easy, large scale screening technique for detection of 2N eggs and recovery of tetraploid strains for breeding purposes.

In 1958 the above hypothesis was tested on a very small scale and several tetraploids were obtained.

In 1959 ten inbreds and fourteen single crosses were hand pollinated in an isolated field with 2N pollen from tetraploids. Delaying pollination by 4, 7, and 10 days after silking was tried to determine if this would increase the frequency of 2N eggs. The resulting plump kernels from these crosses were unfortunately planted in a Florida winter nursery where poor growing conditions and frost prevented the classification of a majority of the plants. Nevertheless, at least 56 tetraploid plants were obtained among 22 of the 24 crosses.

Classification of only part of the suspect plants prevented an accurate determination of the frequency of 2N eggs. From these limited