

Experiments in previous years have indicated that inbred lines resistant to the leaf blight caused by *Helminthosporium turcicum* differ greatly in value as breeding sources of resistance to this disease. The resistance of Mo21A has been transferred readily to other lines although Mo21A does not itself have as high a rating for resistance as many other lines tested. Other resistant lines (for example T528) have been very disappointing as breeding sources of resistance.

In a continued search for better sources of resistance a number of resistant lines were crossed with the highly susceptible lines R₄ and Tr. F₂ populations of several of these crosses were grown in 1953 and the plants were inoculated with *H. turcicum* and classified for blight. The blight data on these progenies are reported in the following table.

Table 1. Frequency distributions of leaf-blight ratings on F₂ plants from crosses of resistant and susceptible inbred lines.

Cross	Percentages of plants with the grades indicated										
	0	0.5	1.0	1.	2.0	2.5	3.0	3.5	4.0	4.5	5.0
K175 x R4		15	19	15	15	24	8	3	1		
H547 x R4	3	7	10	10	10	14	18	19	6	1	2
H548 x R4	4	15	22	19	16	13	7	2	2		
H875 x R4		7	4	13	16	20	21	10	1	1	7
H898 x R4		16	19	12	11	15	12	5	4	3	3
Pd2287-2 x R4	14	21	33	7	14	7	3	1			
B3510 x R4	7	19	33	14	14	7	2	3			1
Wh4971 x R4	29	30	27	9	4	1					
GT169a xA4		1	12	14	21	18	20	4	3	1	6
WHF3-431 x R4	1	6	19	11	15	10	11	8	10	3	6
K175 x Tr		4	24	19	22	16	12	3			
H547 x Tr		4	21	16	20	11	22	4	2		
H548 x Tr		7	28	21	17	11	11	3	1		1
H875 x Tr		8	22	20	23	16	9	1	1		
H898 x Tr	4	12	24	18	14	9	8	6	2	1	2
B3510 x Tr	22	30	20	11	6	1					

In progenies from the crosses with R₄ the plants falling in the two most resistant classes (0 and 0.5) ranged from a low of one per cent to a high of 59 per cent. Lines Pd2287-21 B3510 and Wh4971 seem to be rather promising sources of resistance. B3510 also is the most promising of the lines crossed with Tr.

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