The role of transgression in the resistance to Xanthomonas phaseoli

Velich, I. - Szarka, J. - Horvath, I.
Vegetable Crops Research Institute
and Company
Department of Budateteny
Budapest, Hungary

In developing resistance to Hungarian aggressive Xanthomonas phaseoli isolate cultivars have not had suitable level of resistance. The polygenic system of a few line from wild types, showing hypersensitive reactions, can hardly build in to the cultivars with backcrossing method.

The high level of resistance in the progenies of variety combinations, having remarkable quality, gives valuable basic material to resistant breeding.

In our trial the F_2 generation of 11 hybrid combinations of 8 parents were infected artificially by a highly pathogenic Hungarian isolate.

To the evaluation we used a 5 degree scale /1=RR, 5=SS/.

The means estimated on the distribution of parents were between 2,63 and 3,27, on the F_2 hybrids 2,70-3,66. Standard deviation characteristic for parents were 2-5, against 1-5 of F_2 hybrids /Table 1/. In F_2 generation we observed a recombination of individuals having a higher level of resistance /RR/ than in the parents, which refers to genetic transgression.

Table 1 Frequency of symptoms in the parental and F_2 populations after infecting the leaves by Xanthomonas phaseoli

Parents /P_1, P_2/ and F_2 hybrids	Leaf reaction /segregation percent/				
	1 /RR/	2	3	4	5 /SS/
OXY-AMIDOR	-	20,0	66,7	13,3	-
RÓNA	-	2,3	55,8	39,5	2,4
VALJA	-	42,1	52,6	5,3	-
PI 150 414	-	25,6	74,4	-	-
MAXIDOR	-	3,4	65,5	31,1	-
CNRA-HW5A	-	12,5	57,5	25,0	5,0
AMBOY	-	3,4	65,5	31,1	-
FEHÉR ÓRIÁS	-	29,4	51,3	19,3	-
BUDAI GOMBÖLYU	-	-	84,6	15,4	-
OXY-AMIDOR x RONA F_2	-	24,1	59,8	16,1	-
VALJA x PI 150 414 F_2	-	16,5	69,1	4,4	-
MAXIDOR x RONA/1 F_2	-	15,7	71,4	12,9	-
MAXIDOR x RONA/2 F_2	-	16,0	52,0	32,0	-
VALJA x CNRA-HW5A F_2	1,4	14,4	43,5	27,5	13,2
CNRA-HW5A x AMBOY F_2	-	4,0	49,3	38,7	8,0
VALJA x PI 150 414 F_2	-	13,8	69,2	17,0	-
B.GOMBOLYÜ x CNRA F_2	2,0	17,0	72,0	9,0	-
FEHER O. x CNRA HW5A F_2	-	13,6	77,3	9,1	-
MAXIDOR x RONA F_2	-	15,7	71,4	12,9	-
OXY-AMIDOR x PI 150 414	-	-	50,0	33,3	16,7