

PYRAMIDING MAJOR GENES FOR RESISTANCE TO LEAF RUST PATHOGEN OF WHEAT

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The individual use of single race-specific resistance genes with major phenotypic effects has rarely provided lasting resistance. However, breeding and combining or pyramiding of resistance genes into individual cultivars has had considerable success, particularly in situation where the pathogen does not reproduce sexually, as in the case of wheat leaf rust pathogen. Within international leaf rust of wheat investigations it was necessary, to create by breeding new resistant wheat lines to *Puccinia recondita tritici* for differentiation of pathogen population, as well as for sources of resistance in European-Mediterranean regions. In the beginning 18 donors of resistance had been selected after an extensive screening test of several International Rust Nurseries, to be crosses with recurrent parents varieties Princ and Starke. These testing proved that in those lines were present new resistant genes. Eighth genetically different hybrids of the first backcross had been selected and tested in the seedling stage with three international pathogen cultures (YU-13-19-1; H-13-9-1 and C2-13-Ar-3). Considerable influence of recurrent parent to the number of resistant genes in donors used were demonstrated. On the other side, it was established considerable influence of the pathogen culture to the number of resistance genes in donors used. The same crossing combinations tested with one pathogen culture results in presence of two resistance genes, but with another culture three or one resistance gene. In order to enhancement resistance and pyramiding genes in these hybrids, eight select the most interesting lines have been crossed with only effective isogenic containing the strong genes Lr9, Lr19 and Lr24. The genetic analysis of twenty two crossing combinations have been realized by testing with three pathotypes of *Puccinia recondita tritici* (Bg.s. 12/89; Is.w 8/89 and Chl.w. 14/89). On the base of different segregation ratios of all crossing combinations it was proved that no one of the resistant donors did not contained the strong resistant genes used. It means, that our hybrid lines contained resistant genes from the donors and in addition three strong resistant genes Lr9, Lr19 and Lr24.

Key words: hybrids wheat, accumulations genes resistance, leaf rust pathogen