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Determination of competitive ability of wheat against volunteer rye (*Secale cereale* L.) using reciprocal yield model in Karaj

M. A. BAGHESTANI and A. R. ATRI
Plant Pests and Diseases Research Institute

ABSTRACT

In order to study the competition effects by using reciprocal yield model of wheat against volunteer rye, an experiment was conducted at the Research Center of Karaj during 2001 and 2002. The experimental design was randomized complete block with 24 treatments and 4 replications. The competition design was bivariate factorial. The treatments included the pure stands of wheat at densities of 350, 450, 550 and 650 plant/m^2 and volunteer rye at densities of 10, 30, 50 and 60 plant/m^2 and mixed stands of two plants at complete factorial densities. Results indicated that the rye was a stronger competitor compared to wheat. The biologic and economic yields of wheat were mainly affected by interspecific competition. Economic yield was affected more, compared to biologic yield by rye densities. Evaluation of competitive ability, using regression coefficient showed that the effect of each rye plant on reciprocal grain yield of wheat at first and second years were equivalent to 3 and 2 plants of wheat, respectively. In other words, each 0.36 and 0.51 plants of rye had an equivalent effect of one wheat plant on reciprocal economic yields at first and second years, respectively

Key words:

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Address of the authors: Dr. M. A. BAGHESTANI and Eng. A. R. ATRI, Plant Pests and Diseases Research Institute, P.O. Box. 1454-19395, Tehran, IRAN