

EFFECT OF FOLIAR BORON TREATMENT ON SEED YIELD AND YIELD COMPONENTS OF RED CLOVER (*TRIFOLIUM PRATENSE* L.) GENOTYPES

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Abstract: Adequate micronutrient nutrition can have a positive effect on seed yield and yield components of red clover, particularly on acid soils. The objective of this study was to evaluate the effect of foliar boron treatment on seed yield and yield components (stem number per plant, inflorescence number per stem, inflorescence number per plant, flower number per inflorescence and seed fertility) in ten red clover genotypes grown under low plant density (70 x 40 cm). Foliar boron treatment during intensive growth of red clover had a positive effect on inflorescence number per plant, flower number per inflorescence, fertility and seed yield.

Keywords: red clover, boron, seed yield, seed yield components

Introduction

High variability, adaptability and genetic plasticity of red clover (*Trifolium pratense* L.) are the result of the extremely xenogamous character of fertilisation. This has contributed to the development, through natural selection, of a large number of local ecotypes that show superiority under particular growing conditions (Helgadottir, 1996). As seed crops of red clover are frequently established on acid soils where the availability of certain nutrients is reduced, particular attention should be given to adequate mineral nutrition (Dear and Lipsett, 1987). The objective of this study was to evaluate the effect of foliar treatment with boron, a micronutrient whose availability in acid soils is reduced, on seed yield and yield components of selected red clover genotypes.

Materials and methods

The experiment was established in 2009 in Čačak (43°54'39.06" N, 20°19'10.21" E, 246m a.s.l.) on alluvial acid soil (pH_{H2O} 4.8) according to a completely randomised block design in five replications (with 20 plants per plot at a plant spacing of 70x40cm). A total of ten red clover genotypes, including nine diploid (G1, G2, G4, G8, G9 and G10 selected from cvs. Viola, Una, Kolubara, Avala, K-17 and K-39, respectively, and G3, G6 and G7 selected from local populations found in the vicinity of Čačak) and one tetraploid (G5 selected from cv. K-27 Tetra), were used in the study. Two foliar treatments with boron (B) (Bor-feed, Haifa, Izrael, at a concentration of 0.1% and water rate of 1000 L ha⁻¹) were employed: during the stage of intensive growth and prior to the onset of flowering. The second cut in the second year was evaluated under field conditions for the following: stem number per plant (SNP), inflorescence number per stem (INS), and inflorescence number per plant (INP), using a sample of five plants per plot. Laboratory evaluation included determination of: flower number per inflorescence (FNI), (using ten randomly selected inflorescences), fertility (F) (ratio between grain number and total flower number per inflorescence). Seed yield components

