YIELD, PROTEIN AND NITROGEN USE EFFICIENCY IN BREAD WHEAT GENOTYPES

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Abstract

The effects of nitrogen fertilization on protein content, yield and nitrogen physiological efficiency (NUE), nitrogen uptake efficiency (NupE) and nitrogen agronomic efficiency (NutE) of grain for eight wheat (*Triticum aestivum* L.) genotypes (Gerek 79, Bezostaja 1, Altay 2000, Bayraktar 2000, Kate A-1, İzgi 2001, Sönmez 2001 and Karahan 99) were elavuated over a N application range of 0-8 kg N da^{-1}, on N-deficient soil in Central Anatolian Region during two growing periods (2007/08, 2008/09). N fertilization increased grain yield and grain protein concentration of all genotypes in two years. In both years of the study increasing levels of nitrogen applied in different bread wheat varieties effects on grain yield, protein content, NUE, NupE and NutE was found statistically significant. In the first year of experiment, average nitrogen use efficiency of bread wheat varieties are analyzed and determined the highest physiological efficiency of nitrogen is Kate A-1 (47.4) bread wheat variety, nitrogen agronomic efficiency and nitrogen uptake efficiency were identified highest in İzgi 2001 (14.7 and 0.33) bread wheat variety. In addition, ın the second year of experiment, on average nitrogen use efficiency of bread wheat varieties are analyzed, determined highest physiological efficiency of nitrogen is Bayraktar 2000 (50.5) bread wheat variety, nitrogen agronomic efficiency and nitrogen uptake efficiency were identified highest in Kate A–1 (15.9 and 0.33) bread wheat variety. During investigated growing years NUE was decreased with increasing nitrogen fertilization.

Key words: nitrogen use efficiency components, protein, yield, wheat.