

THE USE OF ^{15}N BY BARLEY VARIETIES FROM VARIOUS FERTILIZERS

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The productivity and grain quality of two barley varieties were assessed when mineral (ammonium sulfate) and green (white mustard biomass) fertilizers were added to sod-podzolic medium loamy soil. The grain yield of the Nur variety, compared to the Vladimir variety, was 38% higher with ammonium sulfate application and 13% higher with the green fertilizer application. The Nur variety forms grain with a protein content of 0.8–1.3% higher and uses the maximum amount of ammonium sulfate nitrogen and the green fertilizer nitrogen compared to the Vladimir variety. When organic fertilizer was applied, both varieties reduced the consumption of «extra nitrogen» to 11–12%. The Nur variety consumed the maximum amount of mineral fertilizer nitrogen from the applied dose (42%), while the Vladimir variety consumed slightly less (38%). The use of nitrogen from the green fertilizer by both varieties decreased to 34–31% of the applied dose. 28–34% of the mineral fertilizer nitrogen and 41–45% of the green fertilizer nitrogen are immobilized in the 0–100 cm soil layer. Due to the lower consumption of nitrogen fertilizers by barley for the crop formation, gaseous nitrogen losses are greater for the Vladimir variety, while for both varieties they increase with the application of the mineral fertilizer and decrease with the use of the green fertilizer.

Key words: nitrogen fertilizer, barley, ^{15}N usage, plant nutrition.