Interactive influence of fertilization, tillage and year on winter barley grain yield

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Abstract
The field polyfactor experiments with winter barley were established in 2004/05 and 2005/06 on brown soil in maize growing area with 3 systems of tillage (A = tillage to the depth 0,18 m, B = reduced tillage, C – minimalization tillage) and 5 fertilization variants (a = 0, b = 60 kg.ha⁻¹ N, c = 60 kg.ha⁻¹ N + foliar fertilization, d = 80 kg.ha⁻¹ N, e = 80 kg.ha⁻¹ N + foliar fertilization). Statistical significantly influence on clocked yield in average for two years had tillage, fertilization, varietes and year. In term of tillage all three varietes (Barcelona, Premuda, Gerlach) responded the most positively on conventional tillage (A = tillage to the depth 0,2 m) with grain yield difference 1,15 t.ha⁻¹ for Barcelona (A-C) and 0,56 t.ha⁻¹ (A-C) for Premuda. In term of varietes reaction on different nutritents levels statistical significantly were differences between fertilization variants and no fertilization control with difference from 0,80 (a-b) to 1,11 t.ha⁻¹ (a-c) (Barcelona), from 0,73 (a-b) to 1,22 t.ha⁻¹ (a-e) (Premuda) respectively. Combination of foliar fertilization DAM 390 + Humix responded higher grain yield in comparison with fertilization variant without foliar fertilization application but this increasing was not statistical significantly. Barcelona variety gave in comparison with Premuda variety statistical significantly higher grain yield (about 0,61 t.ha⁻¹) in average for two years from two-rowed varietes. Six-rowed variety Gerlach gave in comparison with two-rowed varietes from 1,87 (Barcelona) to 2,54 t.ha⁻¹ (Premuda) higher grain yield.

Key words: foliar fertilization, tillage, winter barley

Influence of production technology on the yield of hybrid wheat

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Abstract
Hybrid wheat cultivars are characterized by a various properties that are different from those of traditional line cultivars, both in harvest yield and production ability and also in growing requirements. The aim of our work was to evaluate the yield formation process of selected hybrid wheat cultivars (Hybnos, Hynomonta) using the different sowing rates (100, 200, 300, 400 germinating seeds per m²) and 3 different growing intensities (total doses of nitrogen 100, 160 and 220 kg N ha⁻¹, different levels of the plant protection) and to specify differences in production abilities between hybrid cultivars and control – traditional wheat cultivar Biscay. Small-plot trials were carried out at the experimental station of CUA in Červený Újezd.

The highest grain yields were achieved in both hybrid cultivars at the sowing rate of 200 germinating seeds per m² and at the total dose of nitrogen 220 kg N ha⁻¹ (Hynomonta 9.1 t ha⁻¹, Hybnos 8.0 t ha⁻¹). At this sowing rate hybrid cultivars also achieved the highest number of ears per m² (Hynomonta 668, Hybnos 696 ears per m²). Using higher sowing rates, usual for the traditional line wheat cultivars (300, 400 germinating seeds per m²), hybrid cultivars responded by the reduction of yields and number of ears per m². Control wheat variety Biscay achieved the highest yield 8.2 t ha⁻¹ and the highest number of ears per m² (328) at the sowing rate 400 germinating seeds per m² and at the total dose of nitrogen 220 kg N ha⁻¹.

Key words: hybrid wheat cultivars, sowing rate, nitrogen, yield