

Influence of Nitrogen Fertilization on the Yields and Grain Quality of Winter Wheat under Different Environmental Conditions

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Abstract : In 2013/2014 and 2014/2015, a field experiment was conducted in two locations: Osiny and Wielichowo (Poland). The two-factor experiment was based on the method of randomized subblocks, in three replications. The first factor (A) was dose of nitrogen fertilization (two levels). The second factor (B) was nine winter wheat cultivars. It was found that winter wheat cultivars exhibited different reactions to higher nitrogen fertilization depending on the years and localities. Only KWS Dacanto cultivar under all growing conditions showed a significant increase in grain yield after the application of a higher level of nitrogen fertilization. The increase in nitrogen fertilization influenced the increase in gluten proteins content in wheat grain, but these changes were statistically significant only in the first year of the study. The quality of gluten does not depend on nitrogen fertilization. The quality of wheat grain depends on cultivars.

Keywords : fertilization, grain quality, winter wheat, yield

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