Health status of *Triticum aestivum* ssp. *vulgare* and *Triticum aestivum* ssp. *spelta* depending on cereals participation in the crop rotation

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Summary

The aim of the research was to determine the healthiness of common wheat and spelled wheat depending on the share of cereal crops in crop rotation and evaluation of the quantitative structure and qualitative fungal communities inhabiting the roots and the base of wheat stalks. The research was conducted in 2014-2017 on experimental plots established in 2012 at the Production and Experimental Plant in Bałcyny. It was a static, three-factor experiment (1st- year of research, 2nd - wheat subspecies, 3rd - crop rotation) established using the randomized sub-blocks method in four repetitions.

During a four-year field study, the health status of two winter wheat species cultivated in four rotations with a different proportion of cereal plants was assessed. During the growing season of wheat, the severity of infection by pathogens: roots, leaves, ear and stem base of both tested species was assessed. During field observations, roots and stem bases showing disease symptoms were collected. Isolations of fungi inhabiting the affected plant organs were made in the laboratory from the collected samples. Tests were carried out on the effect of selected species of the genus *Trichoderma* on fungi of the genus *Fusarium*. Diseases such as: root rot, fusarium foot rot, eyespot, sharp eyespot, powdery mildew, septoria leaf spot, brown rust, glume blotch and black point occurred in all experimental years (2014-2017) and in all crop rotations.

Differences in the severity of diseases of roots, stem base, leaves and ears were found in crop rotations with different share of cereals. Crop rotation with 75% share of cereals in rotation turned out to be the most severely affected by disease causing agents. The crop rotation with 25% share of wheat turned out to be the least affected crop rotation. Spelt wheat was found to be less susceptible to diseases than common wheat. Fungi were isolated from the root zone and stem base of both wheats. From the roots of common wheat, the following were most often isolated:

Aureobasidium bolleyi and *A. pullulans*. From spelt wheat roots: *Cladosporium cladosporioides* and *A. pullulans*. *Fusarium oxysporum*, *F. avenaceum and F. culmorum* were isolated most frequently from the stem base of both wheats. The inhibitory effect of *Trichoderma* species on the development of selected *Fusarium* species was demonstrated.