

Annotation

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Impact of plant growth regulators on the development of fungal infections and productivity of winter triticale under conditions of Polissia

Winter triticale is a promising crop for cultivation in the Ukrainian Polissia as it has high potential productivity on soils with low fertility and limited moisture. A frequent disregard of the technology of winter triticale cultivation along with shortcoming of its elements leads to mass expansion and development of the pathogens causing fungal diseases in the farming ecosystem. Renewal of assortment of plant growth regulators of the new generation for application on triticale crops requires the examination of their impact on the development of fungal diseases affecting triticale and applicability for the protection against fungal infections with various technologies of cultivation in the advanced integrated systems.

During 2012–2015, the objective of the study carried out under conditions of Institute of Agriculture of Polissia of the National Academy of Agrarian Sciences of Ukraine (Zhytomyr region, Korosten district) was to establish the impact of modern plant growth regulators and their combined application with a reduced rate of application of Greenfort FF SC 250 fungicide on the development of basic fungal diseases and yield formation of the Polianske winter triticale variety.

The experimental design included the following variants: check variant (without growth regulators); Greenfort FF, SC 250, 0.5 l/ ha; Greenfort FF, SC 250, 0.4 l/ ha; Agrostymulin, aqueous suspension, 0.005 l/ ha (standard); Biosyl, aqueous suspension, 0.01 l/ ha; Moddus, EC 250, 0.6 l/ ha; Regoplant, aqueous suspension, 0.05 l/ ha; Stympto, aqueous suspension, 0.02 l/ ha; Greenfort FF, SC 250, 0.4 l + Agrostymulin, aqueous suspension, 0.005 l/ ha; Greenfort FF, SC 250, 0.4 l + Biosyl, aqueous suspension, 0.01 l/ ha; Greenfort FF, SC 250, 0.4 l + Moddus, EC 250, 0.6 l/ ha; Greenfort FF, SC 250, 0.4 l + Regoplant, aqueous suspension, 0.05 l/ ha; Greenfort FF, SC 250, 0.4 l + Stympto, aqueous suspension, 0.02 l/ ha. Recording of triticale diseases was carried out by methods (Omeliuta V.P. et al., 1986).

It was found that double spraying of winter triticale plants with the plant growth regulators on the 29th and 60th stages of the plant development ensures increasing of plant height from 107.6 to 115.2 cm and decreasing in development of mycoses: powdery mildew – from 9.4 to 5.4–8.5 %, brown leaf rust – from 14.5 to 7.9–13.3 %, Septoria leaf blotch – from 18.2 to 10.4–17.8 % as compared with the check variant. The combined application of the plant growth regulators with a reduced rate of application of the fungicide Greenfort FF, SC 250 (0.4l/ ha) influences the technical effectiveness against powdery mildew at the rate up to 78.7–93.6 %, brown leaf rust – up to 62.1–82.1 % and Septoria leaf blotch – up to 65.9–80.2 %.

The high technical effectiveness (80.1–93.6 %) and unaffected yield at the rate of 0.64 t/ ha can be ensured with the tank mixture consisting of Greenfort FF, SC 250, 0.4l and Regoplant, aqueous suspension, 0.05 l/ ha. It shows higher rates of the check variant over fungal infections after application of the fungicide Greenfort FF, SC 250 in full (0.5 l/ ha) and reduces the pesticide amount for the farming ecosystem.

Key words: *winter triticale, mycoses, development of fungal diseases, plant growth regulators, yield capacity.*