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Breeding value of partial waxy wheat samples in Tatarstan

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Non-functional alleles of *wx* genes affect the violation of synthesis and changes in the localization of amylose in cereal starch. Wheat samples carrying non-functional alleles of *wx* genes at one or two loci are called partial waxy wheat. From crossing the winter wheat variety Starshina (have non-functional allele *Wx-A1b*) and the line of spring wheat O-192-03-5 (have non-functional allele *Wx-B1b*) we obtained two promising lines of partial waxy wheat, which combines non-functional alleles *Wx-A1b* and *Wx-B1b.* These are the K-243-13Wx-2 and K-243-13Wx-6 lines. Test these lines was conducted in the Tatar Research Institute of Agriculture in 2017–2018. Tatar RIA is located in the northern part of the Middle Volga region of Russia. The average yield of the line K-243-13Wx-6 was 276 g/m^2, which is much less than the standard variety Yoldyz – 550 g/m^2. The line K-243-13Wx-2 has an average yield of 534 g/m^2. The average weight of 1000 grains at the line K-243-13Wx-2 was 49.6 g. At the line K-243-13Wx-2 degree of lesion of leaf rust was 0–15 %, the degree of damage of stem rust was 15 %. This line is susceptible to powdery mildew, its resistance is 3 points (9 points – *maximum*). Line K-243-13Wx-6 is susceptible to leaf rust, the degree of damage was 15–50 %. Line K-243-13Wx-6 is susceptible to stem rust, the degree of damage was 30–70 %. Resistance to powdery mildew in this line in epiphytotic 2017 was 4 points. At the line K-243-13Wx-2 date of earing before on 1 day, than at the line O-192-03-5. At the line K-243-13Wx-6 date of earing occurred simultaneously with the line O-192-03-5. According to the analysis of the harvested grain in 2018 year, the lines K-243-13Wx-2 and K-243-13Wx-6 have a high protein content in the grain of 14.9 and 14.5 %, respectively, and have a high gluten content in the grain of 30.8 and 31.7 %, respectively. Thus, the evaluation of agronomically valuable properties of the obtained samples of partial Waxy wheat indicates the prospects of their use as a starting material for the production varieties of spring wheat with a modified composition of grain starch.