

New variety of spring bread wheat Sigma 5 based on a doubled haploid line

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The variety is one of the main factors in the sustainable production of wheat grain. Climate change in Western Siberia, the emergence of new virulent biotypes and races of pathogens requires the accelerated creation of new varieties of spring bread wheat that can adapt to changing growing conditions. It takes 12 to 15 years to develop a commercial variety. The use of DH lines in breeding can significantly reduce the breeding process. The spring bread wheat variety Sigma 5 was derived from the DH line 48-3, which carries a combination of resistance genes to fungal pathogens Lr26/Sr31/Yr9/Pm8, as well as the Lr and Pm genes introgressed into bread wheat from *T. diccoides*. The Sigma 5 variety was created in 6 years and in 2021 it was submitted to the state variety trial and is being tested in 9-11 regions of the Russian Federation. The main advantage is high yield (> 6.0 t/ha), resistance to leaf and stem rust, powdery mildew and uniformity in morphological characteristics, high grain quality: grain size 749 g/l, weight of 1000 grains 38.7 g, crude gluten content 32.6%, protein 16.21%, flour strength 446 a.u., total baking score 4.4 points.

The main publications of authors on the subject of the abstract:

Development of varieties of spring bread wheat using DH lines in Western Siberia/I.A. Belan, L.P. Rosseeva, N.P. Blokhina et al. The 6th International Scientific Conference; Abstracts. DOI 10.18699/PlantGen2021-018.

Alloplasmic recombinant lines (H. vulgare)-T. aestivum with 1RS.1BL translocation: initial genotypes for production of common wheat varieties /L.A. Pershina, L.I. Belova, N.V. Trubacheeva et al. Vavilov Journal of Genetics and Breeding. 2018. DOI 10.18699/VJ18.393.

Take-home message:

Сорт пшеницы мягкой Сигма 5 создан за 6 лет путем использования ДГ-линий. Основное достоинство –высокая урожайность (> 6,0 т/га), устойчивость к листовым патогенам, однородность по морфологическим признакам и высокие показатели качества зерна.