in the *P. triticina* population. In the pathogen population, there was eliminated or decreased virulence for the following pathotypes: pp2b, pp2c, pp3a, pp3bg, pp3ka, pp10, pp11, pp12, pp13, pp15, pp16, pp17a, pp19, pp21, pp24, pp30, pp32, and ppH. It is interesting that the following virulent pathotypes remained in the population: pp2a, pp14a, pp18, pp20, pp22a, pp23, pp27+31, pp37, pp38, pp14b, pp14ab, pp33, pp34, and ppb, which showed high adaptability to high temperature and were drought resistant.

Effects of interaction 6Agi (6D) chromosomes from Thinopyrum intermedium and Lr19 translocation from Th. elongatum on flour protein content spring bread wheat.

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On leached, chernozem soil with a crop rotation (a bare fallow–spring bread wheat), flour protein content varied from 13.9% up to 20.3% and gluten content from 30% up to 48%. In these conditions, near isogenic lines for chromosome 6Agi (6D) from *Th. intermedium* and an *Lr19* chromosome 7D translocation from *Th. elongatum* had a positive influence on flour protein content in spring bread wheat, both within a leaf rust epidemic and without.

In a population from crosses between parents Л1400R and 6Agi(6D) and Л1089 and *Lr19*-T7D, we selected recombinant inbred lines Л1204 and Л1205, which have the combination *Lr19*-T7D and 6Agi(6D). In a population from crosses between parents Л2032 (*Lr19*-T7D) and Л1400R, we are selected RILs Л108 and Л396, which have only 6Agi (6D). All four lines (Л1204 and Л1205, Л108, and Л396) are resistant to the Saratov population of a leaf rust and, on a grain yield and a flour protein yield per unit area, exceed that of the parents. For flour protein content, they are less than that of the parents. The mechanism of interaction, 6Agi(6D)/*Lr19* and *Lr19*/6Agi(6D), in a *T. aestivum* background, and the control of the decrease in flour protein content in the RILs, compared with the parents, are unknown.

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A new spring durum wheat cultivar 'Nikolasha' has been released in the Russian Federation.

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The State Commission on the Test of Breeding Achievements approved a new cultivar of spring durum wheat named 'Nikolasha' (137/00-5) for use in agricultural production in 2009–10. Nikolasha appears well adapted to southern and southeastern areas of European part of the Russian Federation, such as the Krasnodar, Rostov, and Saratov regions. The cultivar was developed thanks to the joint breeding program between P.P. Lukyanenko Krasnodar Research Institute for Agriculture (KRIA) and Agricultural Research Institute for the South-East Regions (ARISER).

Cultivar Nikolasha was developed as a result of individual plant selection in the F_2 generation from the hybrid population obtained by crossing the line D-2033 with the cultivar Nick (D-2029) at ARISER. The line D-2033 was derived from a cross between two highly drought-resistant local lines Leucurum 1863 and Leucurum 1945. The cultivar Nick was derived from a cross between Saratovskaya zolotistaya and Altayskaya Niva. The local cultivar Saratovskaya zolotistaya has very high quality grain and pasta products. The cultivar Altayskaya Niva originated from the Altay region and is highly resistant to common bunt and loose smut. The elite plant was selected in the F_8 generation at KRIA in 2001. The field test of the line 137/00-5 was conducted in Krasnodar in 2004–05.

The spike of Nikolasha is white with white awns, pyramidal in shape, and of medium length (6–8 cm) and density (26–27 spikelets/10-cm rhachilla). Kernels are amber and vitreous. The 1,000-kernel weight was 38–46 g and test weight was 770–822 grams/L. Plants have good resistant to lodging. Plant height is 100–115 cm, which is 5 cm lower than that of the standard cultivar Novodonskaya. Plant heading is earlier than that of Novodonskaya by 1–2 days.

The cultivar is very drought resistant. Nikolasha has a high level of disease resistance, particularly to common bunt and loose smut; good field resistance to leaf, stripe. and stem rust; septoria leaf spot; and tolerant to root rot if sown after such fore crops as winter wheat and barley.

Nikolasha durum wheat is a widely adapted cultivar. The cultivar combines high potential productivity and drought resistance. In 2008, the yield in main trials at KRIA (Krasnodar) reached up to 6.28 t/ha against 4.74 t/ha for the check Kharkovskaya 17. In 2004–06, the average productivity of Nikolasha in the main trial was 5.14 t/ha, which was higher than that of the check cultivar Novodonskaya by 0.37 t/ha. In the Saratov field test in the 2010 spring wheat growing season when the hydrothermal coefficient for May–July in the Volga River Region was very low (0.1–0.2), which corresponds to an extremely strong drought, Nikolasha gave a grain yield of 0.75 t/ha, compared to 0.33 t/ha for the Saratovskaya zolotistaya check. This new cultivar has good physical grain parameters and strong gluten quality. For 2008–10, the average SDS-sedimentation index was estimated up to 50 mL, similar to that of Saratovskaya zolotistaya. Durum wheat Nikolasha is good achievement of ARISER and KRIA shuttle breeding program and according to the technological suitability for the pasta industry after the official testing it was also approved as an original cultivar for the dry, southeast areas of the Russian Federation (Saratov) in 2010 from the State Variety Testing Commission.

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Anther culture method of creating initial breeding stocks for triticale selection at ARISER.

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The generation of doubled haploid (DH) plants via anther culture is an important biotechnological method, which permits significant shortening of the breeding process. This technique speeds up the time of cultivar development by several years. Different intervarietal and wheat-triticale hybrids (F_2–F_3 generation) based on the local triticale and wheat cultivars were used for haploid production in this study. The undoubled haploid plants were served by microclonal propagation using a somatic embryogenesis method.

The created DH lines were studied in a traditional breeding process. The winter hexaploid cultivar Student from the Volga region serves as standard cultivar. The triticale breeding program at ARISER works to solve the problems of reducing abiotic and biotic stress influence on the plant growth and increasing yield capacity and grain quality.

In a short time, using traditional and biotechnological approaches, some advanced DH lines of hexaploid triticale were developed. They differ from each other by several botanical and agronomical characteristics, yield capacity, quality of the grain, plant height, and vegetative period. In 2010, Sviatosar, a new winter triticale created by combining conventional and haploid breeding was submitted to the state variety tests. This cultivar was derived from cross of local line with the Krasnodar cultivar Strelets. The higher yield capacity of Svaiatosar is mainly due to a higher 1,000-kernel weight (Table 2).

Table 2. Grain yield, 1,000-kernel weight, and plant height of the new triticale cultivar Sviatosar.

	Grain yield (t/ha)					1,000-kernel weight (g)	Plant height (cm)
Cultivar	200	2008	2009	2010	Average	Average 2007–10	
Sviatosar	3.21	3.69	3.23	1.62	2.94	44.4	130
Student-St	2.81	3.17	2.89	1.08	2.48	38.2	130
LSD_{05}	0.36	0.38	0.30	0.30	0.30	2.4	—