Laboratory of Spring Bread Wheat Breeding, 7 Tulaikov Street, Saratov, 410010, Russian Federation.

Breeding of spring wheat in Saratov.

R.G. Sayfullin and F.V. Sirenko, Yu.V. Lobachev and L.G. Kurasova (Saratov State Agrarian University named after N.I. Vavilov, Department of Plant Growing, Plant Breeding and Genetics, Teatralnaya Square, 1, Saratov, 410012, Russian Federation).

In 2009–10, spring bread wheat cultivars from different wheat breeding centers of the Russian Federation, Germany, Belarus, and Kazakhstan were studied in the field trials at the Agricultural Research Institute for the South-East Region (ARISER, Saratov). The modern cultivars developed in the ARISER were used as a check. Grain yield of old Saratov cultivars (introduced into agricultural production in 1924–57) was 43.8% that of the modern cultivars. The closest yields to those the modern ARISER cultivars were those from Samara (Russia), the grain yield of which reached 66.9%. Yield capacity of cultivars from the relatively dry regions of Russia (Ufa, Orenburg, Kurgan, and Barnaul) and Kazakhstan was 53.9–55.1% that of the Saratov cultivars. Grain yield of Moscow Region's cultivars made up only 51.1%, whereas that of cultivars developed in the relatively moist regions of Germany and Belarus comprised 36.5% that of the Saratov cultivars (Table 3).

Table 3. Yield capacity of spring bread wheat cultivars produced by different wheat breeding centers in 2009–10.

Region where the cultivar was created	Grain yield capacity	
	t/ha	%
Saratov (modern cultivars)	1.78	100.0
Saratov (historically developed cultivars)	0.78	43.8
Samara	1.19	66.9
Ufa, Orenburg	0.98	55.1
Kurgan, Barnaul, Kazakhstan	0.96	53.9
Moscow	0.91	51.1
Germany, Belarus	0.65	36.5
LSD05	0.39	—

These data demonstrate that the bioclimatic potential of Saratov Region is most fully used by Saratov spring bread wheat cultivars. The cultivars created in other regions are less adaptive. The farther they are in their origin in time or space from the modern Saratov cultivars, the lower the yield capacity. To get optimal use from the bioclimatic potential of the region, the reach of regional breeding centers should be created and developed. The distance between them will depend on the agro-climatic differences between the regions. An increase of 10–15% of the modern local cultivars yiel capacity over those developed in neighboring regions may be used as an indicator of the working efficiency of any regional breeding center.

MOSCOW AGRICULTURAL RESEARCH INSTITUTE «NEMCHINOVKA»
143026, Moscow Region, Nemchinovka-1 , Kalinina 1, Russian Federation.

Joint inheritance of resistance to leaf rust, spike productivity, and stem length in hybrid soft wheat plants.

V.G. Kyzlasov.

The soft wheat winter cultivar Moscovskaya 39 is characterized by a complex of valuable agronomic features. The cultivar is high-yielding and winter-hardy, and its grain quality is very good. However,Moscovskaya 39 is not resistant to leaf rust. Our aim was to provide resistance to leaf rust from a disomic substitution (2n = 42) wheat–*Aegilops* line (DSL) using a backcrossing technique. The disomic substitution line was selected from a hybrid population '*T. aestivum*/*Ae. speltoides*' (Kyzlasov et al. 2004) that is resistant to leaf rust.

The 'Moscovskaya 39/DSL' hybrid F_1, as well as the DSL itself, proved to be completely resistant to leaf rust. Resistance in the DSL is dominant. The 'Moscovskaya 39/DSL//Moscovskaya 39' F_1 hybrid segregated for resistance