(germination index from 0.74 to 0.95) lines. A total of 41 lines carried the translocation or the whole chromosome of *Th. intermedium* with preharvest sprouting resistance lower than the better parent.

Preharvest-sprouting resistance of the red-grained sibs and three NIL pairs were significant higher than that of the white-grained lines. L204 (red grained) and L205 (white grained) NILs were identical and equally susceptible to preharvest spouting. The germination index of lines 'BC_1F_6-8JI2032*2/M6R' was significantly higher than that of L2032. L400 is a 400S sib line that does not have the *Th. intermedium* translocation. The preharvest-sprouting resistance of 400S was significantly higher than that of L400 only in 2003.

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Using of cultivar mixtures of soft spring wheat for improving technological qualities of grain in the Russian Far East.

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Developing cultivars with high technological and baking qualities is the most complicated problem in soft spring wheat selection in the Russian Far East (Shindin and Cherpak 2005). To resolve that problem, we are interested in mixtures consisting of cultivars that are remarkable for their technological and baking qualities. Some scientists determined that cultivar mixtures, as complicated populations, are resistant to abiotic and biotic stresses and have more stable yields and grain quality than homologues cultivars under changeable weather conditions (Sekun 1951; Martynyuk 1964; Kuzmin 1966; Vedrov et.al 1998).

We used the cultivars Khabarovchanka, Zaryanka, and Lira 98, grown in the Far Eastern region, for our mixture. Lira 98 is most valuable for food grain quality among the three cultivars. Lira 98 is used to improve the technological and baking features of Khabarovchanka and Zaryanka, which are less valuable but highly productive and resistant to lodging and disease. A two-cultivar mixture (Khabarovchanka + Lira 98) was 50:50, and the three-cultivar mixture (Khabarovchanka + Lira 98 + Zaryanka) was 33:33:33%.

A comparative analysis of the cultivars and their mixtures showed that Lira 98 and two mixtures turned out to be the best ones by their technological and baking qualities (Table 1). According to the State Standards of the Russian Federation (GOST RF), grain from all the cultivars conforms to the standard of an appreciable sort of wheat. Also important is that the cultivar mixtures yield similar to the initial cultivars in the years of drought, and 10–15% higher in the years of humid weather.

Table 1. Technological qualities of soft spring wheat cultivars and their mixtures (average for years 2001–02).

Cultivars and mixtures	Grain vitreousness (%)	Dough elasticity (alveograph, mm)	Elasticity and stretching ratio (alveograph units)	Flour strength (alveograph units)	Gluten content (%)	Bread output from 100 g of flour (mL)	Baking quality (mark)
Khabarovchanka	56	115	1.9	311	32.4	871	3.6
Zaryanka	55	134	2.4	331	33.5	950	3.8
Lira 98	77	121	1.7	497	37.0	1,010	4.2
Khabarovchanka + Lira 98	66	110	1.2	469	32.4	1,040	4.2
Khabarovchanka + Lira 98 + Zaryanka	61	106	1.0	438	35.2	1,000	4.0

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Races of Puccinia graminis f. sp. tritici in the Russian Federation in 2007.

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The wheat stem rust pathogen, having an extremely high ability to evolve new, virulent phenotypes (such as Ug99), is one of the most important monitored pests that needs annual control in cereal-growing countries. Last year in the Russian Federation, the survival strategy of *P. graminis* f.sp. *tritici* was to emphasize barberry and wild grasses being limited on the wheat cultivars (Lekomtseva et. al. 2007).

In the summer of 2007, unfavorable conditions controlled the spread of stem rust in the European part of the Russian Federation (Central Region and Northern Caucasus) and Western Siberia. The average temperature was about 22ºC with 45% relative humidity in June–July. Local wheat cultivars were quite resistant to stem rust under these climactic conditions.

Barberry was heavily infected by *P. graminis* f.sp. *tritici* in all these regions during May and the first week of June. Furthermore, in early autumn, wild grasses (*Elytrigia*, *Phleum*, and *Festuca*) were severely damaged by wheat stem rust. The spores of *P. graminis* f.sp. *tritici* from barberry and wild grasses were collected and multiplied on the susceptible wheat cultivar Khakasskaya. Race identification of 32 monouredinial isolates of *P. graminis* f.sp. *tritici* was carried out using the standard technique of infection of 20 wheat lines, which were supplied by the USDA–ARS Cereal Disease Laboratory, St. Paul, Minnesota, USA, in 2005.

In Pgt nomenclature (Roelfs and Martens 1988), six races of *P. graminis* f.sp. *tritici* were revealed among the geographical samples (Table 1), and all phenotypes were combined in the single, highly virulent, Stackman's race 15. Race TKNTF (15) dominated in the different regions of the Russian Federation with a frequency of 75% in populations of the fungus.

Table 1. Races of *Puccinia graminis* f.sp. *tritici* in some regions of the Russian Federation in 2007.

Race	Area	Plant host	Number of isolates
TKNTF	Central area	barberry	18
	Northern Caucasia	barberry	1
	Central area	couch grass	4
	Central area	fescue	1
TKSTF	Central area	barberry	1
TTSTF	Northern Caucasia	barberry	1
PKNTF	Northern Caucasia	barberry	1
TTNTF	Northern Caucasia	barberry	1
	Western Siberia	barberry	1
TKNRF	Central area	couch grass	2
	Central area	timothy grass	1
Total			32

The race composition of *P. graminis* f. sp. *tritici* on barberry in Northern Caucasus was significantly different from that in Central Russia and Western Siberia. Only two races were found in Central Russia with TKNTF (15) dominating. TKNTF also was prevalent in Western Siberia. No race was dominant of the five virulent phenotypes identified in the Northern Caucasus region, although one of these races was TKNTF (15). Intensive sexual process provides high variability of race composition on barberry in the mountains of Northern Caucasus. This determines