ITEMS FROM BRAZIL

BRAZILIAN AGRICULTURAL RESEARCH CORPORATION — EMBRAPA
Rodovia BR 285, km 294, Caixa Postal 451, Passo Fundo, RS, Brazil.

Wheat in Brazil – 2014 crop year.

Eduardo Caierão, Ricardo Lima de Castro, Márcio Só e Silva, and Pedro Luiz Scheeren.

In 2014, the Brazilian wheat production was a little bit higher than 5 x 10^6 tons (Conab 2015), which is enough to supply 50% of the domestic demand (Table 1). The southern region, comprised of the states of Rio Grande do Sul, Santa Catarina, and Paraná, accounts for 92.5% of the national production. Nonetheless, due to the characteristics of the cultivation system, average grain yield in this region is not the highest in the country.

Table 1. Cultivated area, total production and grain yield of wheat in Brazil in 2014 (* estimated value - March, 2015. Source: CONAB. 2015. Companhia Nacional de Abastecimento. Central de Informações Agropecuárias/Grãos/Trigo. Available at: http://www.conab.gov.br/conabweb/index.php?PAG=131).

Region	Area (ha x 1,000)	Production (t x 1,000)	Grain yield (kg/ha)
North	—	—	—
Northeast	—	—	—
West-central	23.3	85.8	3,682.0
Southeast	130.5	354.6	2,717.0
South	2,576.6	5,463.5	2,120.0
Brazil [total]	**2,730.4**	**5,903.9***	**2,162.2***

The weather conditions in the south of Brazil were not favorable to wheat in 2014. High temperatures associated to high humidity during grain filling increased the incidence of Fusarium head blight. Therefore, the grain quality was poor. Furthermore, the qualitative analysis of the grains indicated high concentration of micotoxin (DON).

Reference.

CONAB. 2015. Companhia Nacional de Abastecimento. Central de Informações Agropecuárias/Grãos/Trigo. Available at: http://www.conab.gov.br/conabweb/index.php?PAG=131.

Performance of wheat cultivars in the state of Rio Grande do Sul, Brazil, 2013.

Ricardo Lima de Castro, Eduardo Caierão, Márcio Só e Silva, and Pedro Luiz Scheeren; and Jacson Zuchi and Rogério Ferreira Aires (Fepagro Nordeste, C.P. 20, 95.000-000 Vacaria, Rio Grande do Sul, Brazil).

The Brazilian Commission of Wheat and Triticale Research (BCWTR) annually conducts the State Test of Wheat Cultivars in Rio Grande do Sul state (STWC–RS), aimed at supporting the indications of cultivars. This work has the objective of evaluating wheat cultivar grain yield performance of STWC–RS in 2013. The yield grain performance of 30 wheat cultivars (Ametista, BRS 327, BRS 328, BRS 331, BRS Guamirim, BRS Parrudo, Campeiro, CD 1440, CD 1550, Estrela Átria, Fundacep 52, Fundacep Bravo, Fundacep Horizonte, Fundacep Raízes, Jadeíte 11, JF 90, Marfim, Mirante, Quartzo, TBIO Alvorada, TBIO Iguaçu, TBIO Itaipu, TBIO Mestre, TBIO Pioneiro, TBIO Seleto, TBIO Sinuelo, TBIO Tibagi, TEC Frontale, TEC Vigore, and Topázio) was studied in 15 environments (Caxias do Sul, Coxilha, Cruz Alta – season 1, Cruz Alta – season 2, Cruz Alta – season 3, Não-Me-Toque, Passo Fundo – season 1, Passo Fundo – season 2, Sertão, Vacaria, Augusto Pestana, Eldorado do Sul, Independência, Santo Augusto, and São Borja), in Rio Grande do Sul in 2013. The experiments were carried out in a randomized block design with three or four repetitions. Each plot consisted of five 5-m rows with 0.2-m spacing between rows and a plant density of approximately 330 plants/m^2. Grain

yield data (kg/ha) were subjected an analysis of variance for individual (each) and group (all) environments. The grouped ANOVA was performed employing the mixed model (fixed cultivar effect and randomized environment effect). The grain yield performance of wheat cultivars was evaluated by analysis of adaptability and stability, employing the method of distance from the ideal cultivar, weighted by the coefficient of residual variation, proposed by Carneiro (1988). In this analysis, the ideal cultivar was considered as the cultivar with high grain yield, high stability, low sensitivity to adverse conditions of unfavorable environments, and able to respond positively to improvement of favorable environments. The general average of the STWC–RS in 2013 was 4,860 kg/ha. The experiment conducted in Santo Augusto had the highest average of wheat grain yield, 6,884 kg/ha. The maximum wheat grain yield was 8,223 kg/ha in Santo Augusto (cultivar Quartzo). The cultivars TBIO Sinuelo, Mirante, TBIO Mestre, and TEC Vigore had adaptability and stability in favorable environments (environments with average of wheat grain yield higher than the general average). TBIO Sinuelo, TEC Vigore, and Estrela Átria had adaptability and stability in unfavorable environments (environments with average of wheat grain yield lower than the general average). In general, an average of all environments, TBIO Sinuelo (5,634 kg/ha), TEC Vigore (5,231 kg/ha), Mirante (5,317 kg/ha), and TBIO Mestre (5,208 kg/ha) came closest to the ideal cultivar.

Reference.

Carnerio PCS. 1998. New methodologies for analyzing the stability and adaptability of behavior. Ph.D. thesis in genetics and breeding, Post-graduate Program in Genetics and Breeding, Federal University of Viçosa.168 pp.

Wheat crop in the state of Rio Grande do Sul, Brazil, in 2013.

Ricardo Lima de Castro, Eduardo Caierão, Aldemir Pasinato, Pedro Luiz Scheeren, and Márcio Só e Silva.

The state of Rio Grande do Sul is one of the main wheat-producing states in Brazil. Our objective was to analyze the wheat crop in Rio Grande do Sul in 2013. In 2013, the state of Rio Grande do Sul harvested 1,059,032 ha of wheat (50.7 % of the total area harvested in Brazil), producing 3,351,150 tons of wheat (58.4 % of Brazilian production), with an average of grain yield of 3,164 kg/ha (415 kg/ha above the Brazilian average of 2,749 kg/ha) (Table 2). Among the geographical mesoregions of Rio Grande do Sul (Fig. 1), the RS Northwest mesoregion harvested the largest wheat area, 834,788 ha (78.8 % of the cropped area in the state), and had the largest production, 2,675,218 tons of wheat grain (79.8 % of state production) (Table 2). However, the average grain yield obtained in this mesoregion was the third highest of the state, 3,205 kg/ha (41 kg/ha above the state average) (Table 2). The RS Northeast mesoregion harvested 48,803 ha of wheat (4.6 % of the cropped area in the state), produced 161,947 tons of wheat grain (4.8 % of state production), and had the highest average of wheat grain yield of the state, 3,318 kg/ha (154 kg/ha above the state average) (Table 2). The 2013 wheat crop in Rio Grande do Sul had favorable weather conditions, with low temperatures in the winter and no excess rain in the spring. Consequently, the average wheat grain yield in 2013 was the largest in Rio Grande do Sul history. Nevertheless, comparing the wheat crop data with the results of the State Test of Wheat Cultivars in Rio Grande do Sul state (STWC–RS) in 2013, we observed that the average of wheat grain yield of commercial crops was 1,696 kg/ha below the STWC–RS average (4,860 kg/ha).

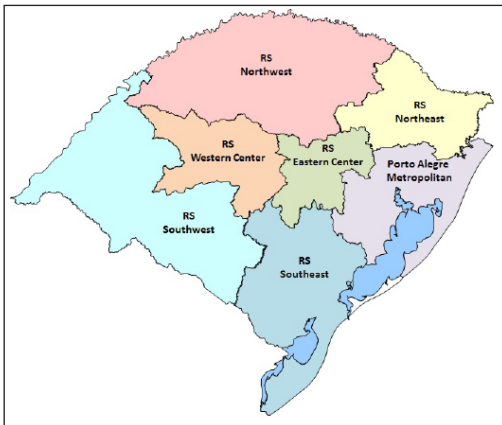

Fig. 1. Mesoregions in the state of Rio Grande do Sul, Brazil.

Table 2. Area harvested, production, and average of grain yield of wheat in each of the mesoregions (see Fig. 1) of the state of Rio Grande do Sul, Brazil, in 2013 (Source: IBGE 2015).

Mesoregion	Area harvested		Production		Grain yield (kg/ha)
	ha	%	tons	%	
RS Northwest	834,788	78.8	2,675,218	79.8	3,205
RS Northeast	48,803	4.6	161,947	4.8	3,318
RS Western Center	87,186	8.2	285,922	8.5	3,279
RS Eastern Center	20,105	1.9	55,403	1.7	2,756
Porto Alegre Metropolitan	2,500	0.2	7,111	0.2	2,844
RS Southwest	51,150	4.8	129,159	3.9	2,525
RS Southeast	14,500	1.4	36,390	1.1	2,510
Rio Grande do Sul state	1,059,032	100.0	3,351,150	100.0	3,164

Reference.
IBGE. 2015. Sistema IBGE de Recuperação Automática - SIDRA. Available at: <http://www.sidra.ibge.gov.br/bda/tabela/listabl.asp?z=t&o=11&i=P&c=1612>. Acessed 21 Mar 2015. Nota: Bank of aggregate data studies and research carried out by the IBGE.

ITEMS FROM THE CZECH REPUBLIC

CROP RESEARCH INSTITUTE
Genebank, Drnovska 507, 16106 Praha 6 Ruzynze, Czech Republic.

An improvement of the genebank management system in the Czech republic.

Ludmila Papousková and Vojtech Holubec.

The existing documentation system for genetic resources in the Czech Republic, EVIGEZ, has not met the requirements of modern documentation systems (documentation of sets of characterization data, including molecular data, image analysis, and other aspects), so we currently are moving to a new documentation system, GRIN Global.

For proper data migration, first we needed to analyse the structure of two databases to avoid losing any recorded information. Although both systems contain parts for passport, characterization, and inventory data, they have different structures. The GRIN Global system allows, in most cases, more detailed information about genetic resources, for example, the recording of germination tests. In EVIGEZ, only the initial germination and subsequent records of germination test were recorded and stored outside the system in Excel tables. Now, it is possible to convert these records collectively to a database. System components also should report on the need for regeneration of material if germination reaches the critical value, contributing to more accurate control of the stored material.

The structure of the two systems of characterization and evaluation data did not differ significantly, however, a big advantage is the possibility of recording more sets of observation data relating to a single accession.

The greatest problem of data migration was, in our case, the transfer of taxonomic data. GRIN taxonomy does not fully correspond with the taxonomy in EVIGEZ. The GRIN system does not cover all taxa and synonyms and does not recognize lower taxonomic classification (to variety). However, EVIGEZ data can be transformed into GRIN Global without losing detailed taxonomy data using taxonomic synonyms.

Part of the GRIN Global system is a website of the database that will be used for all information and ordering genetic resources on-line via a shopping cart setup. Until now, it was possible to order genetic resources held in the Czech Republic only through e-mail.

This change of genebank management systems will help improve the quality of work in the genebank and, thus, improve the quality of service for users of genetic resources.

Germplasm conservation and seed longevity in the Czech genebank.

Vojtech Holubec and Ludmilla Papousková.

Seed longevity is a function of temperature and relative humidity. Decreasing moisture content by 1% results in a doubling of longevity. However, longevity depends on many factors, mainly the biologic quality of seed, pre- and post-harvest treatment, storage conditions, and gas composition. Seed genetic resources have been kept in the Genetic Resources