ITEMS FROM BRAZIL

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

Wheat in Brazil – the 2011 crop year.

Eduardo Caierão, Pedro L. Scheeren, Márcio Só e Silva, Ricardo Lima de Castro, Adeliano Cargnin, and Edina Moresco.

In the 2011 crop year, Brazilian wheat production was about 6 x 10^6 tons (Conab 2012), which is enough to supply 50% of the domestic demand (Table 1). The deficit in production makes Brazil the largest country that imports wheat. The south region, comprised of the states of Rio Grande do Sul, Santa Catarina, and Paraná, accounts for 94,6% of the national production. Nonetheless, due to the characteristics of the cultivation system, the average grain yield is not the highest in the country.

Table 1. Area of cultivation, total production, and grain yield of wheat in Brazil in 2011 (Source: CONAB, 2012).

Region	Area (ha x 1,000)	Production (t x 1,000)	Grain yield (kg/ha)
North	—	—	—
Northeast	—	—	—
Central–West	45.3	109.0	2,406.0
Southeast	70.0	200.8	2,869.0
South	2,050.9	5,478.8	2,671.0
Brazil	**2,166.2**	**5,788.6**	**2,632.0**

In 2011, the wheat area cultivated was higher than that in 2010 (2,166.2 against 2,149.8). However, the total production and average grain yield/ha achieved in 2011 were about 1.6% smaller than those of 2010. The grain yield average in the Southern Region of Brazil in the 2011 crop season was one of the highest in the history. Low temperatures during the vegetative stage and grain filling associated with sunny days contributed to the high productivity. The grain quality was good as well.

Reference.

CONAB. 2012. Companhia Nacional de Abastecimento. Central de Informações Agropecuárias/Grãos/Trigo. Disponível em: http://www.conab.gov.br/conabweb/index.php?PAG=131.

Development of wheat germ plasm to biotic and abiotic stresses.

Adeliano Cargnin, Flávio Santana, Luciano Consoli, Marcos Vinicios Fabris, Eduardo Caierão, Pedro Luiz Scheeren, Marcio Só e Silva, Edina Moresco, Ricardo Lima de Castro.

Global warming, based on climate change predictions, demands genetic progress and improvements in production systems in order to explore crop potential by reducing losses caused by biotic and abiotic features. High rainfall from the heading to harvest, which is usual in Brazil, can trigger wheat to sprout and lead to losses for farmers, disparaging the product for the bakery trade (industrial quality). The high level of crop diseases in Brazil, especially Fusarium head blight and wheat blast, work as barriers against an increase in the national wheat production. One strategy to improve the grain production is to exploit the genetic resources and make them available to breeding programs. Hence, our goal is to develop new wheat lines resistant/tolerant to the main biotic (Fusarium head blight and wheat blast) and abiotic stresses (wheat sprouting). The backcross method will be used to transfer resistant/tolerant alleles to potential recurrent parents (cultivars or elite wheat lines). Because the donors will be mainly germ plasm from the wheat core collection, which has been characterized for their resistance/tolerance, as well other genotypes from the Germplasm Bank known for carry other desired features, especially from synthetic wheats of related species (*Aegilops* and *Agropyron*). Resistant/tolerant plants will be selected from each generation for total of three generations of backcrosses (BC_1 to BC_3), following by another three generations of self pollination (BC_3F_1 to BC_3F_3). The four, best BC_3F_3 lines with regard to agronomic features will be genotyped by microsatellite markers. The conversion index of the new, resistant/tolerant lines should vary. As a consequence, only that one with the highest index will become an advanced line. Therefore, these new lines will represent new options for growing or even a new, genetically diverse, wheat genotype resistant/tolerant to biotic and abiotic stresses available to wheat-breeding programs.