

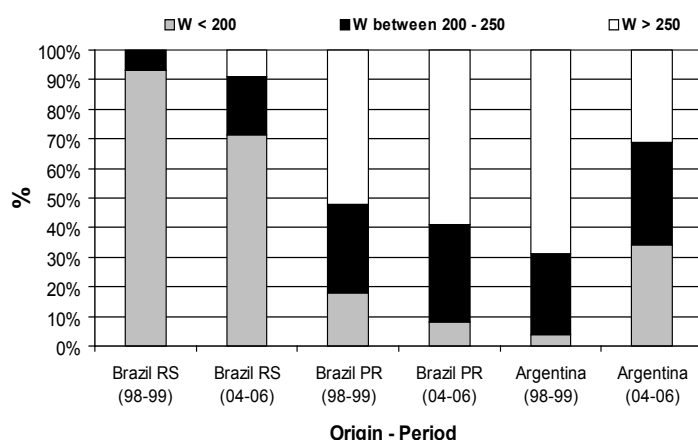


Fig. 2. Evolution of gluten strength ($W \times 10^{-4}J$) in samples received by the J. Macêdo Mill in Brazil, coming from Argentina and Brazil (Rio Grande do Sul (RS) and Paraná (PR) States) in 1998–99 and 2004–06 (Source: J. Macêdo Mill, 2007).

The quality of Brazilian wheat has significantly increased in the last few years. Nevertheless, cultivar mixtures and the varying features of Brazilian wheats is still a challenge that should be overcome in order to increase the value of this cereal.

Embrapa's share in the Brazilian wheat seed market (2000–08).

Eduardo Caierão, Márcio Sôe Silva, and Pedro Luiz Scheeren.

Since its founding in the mid-1970s, Embrapa has worked on wheat genetic improvement, aiming at developing more and more productive cultivars with better tolerance/resistance to biotic and abiotic stresses, aligned with the

quality profile demanded by industry and consumers. In almost 40 years of existence, more than 100 cultivars have been made available to farmers, many of which have had a remarkable importance in the recent history of the Brazilian wheat crop and were the most grown cultivars in their time. For example, in the state of Rio Grande do Sul, the most grown

cultivars were CNT 10 (1982), CNT 8 (1985–87), Wheat BR 23 (1990–94), Embrapa 16 (1995–98), BRS 49 (2000), and BRS 179 (2002–03). The genealogy of the cultivars released during these years that became market leaders is described in Table 3.

Table 3. The genealogy of Embrapa cultivars that became market leaders in the Brazilian state of Rio Grande do Sul.

Cultivar	Year	Pedigree
CNT 10	1982	IAS 46/IAS 49//IAS 46/Tokai 66
CNT 8	1985–87	IAS 20/ND 81
Wheat BR 23*	1990–94	Corre Caminos/Alondra Sib/3/IAS 54-20/Cotiporã//CNT 8
Embrapa 16	1995–98	Hulha Negra/CNT 7//Amigo/CNT 7
BRS 49	2000	BR 35/PF 83619//PF 858/PF 8550
BRS 179	2002–03	BR 35/PF 8596/3/PF 772003*2/PF 813//F 83899

Table 4. Participation of public and private institutions in the wheat seed market (%) in the Brazilian state of Rio Grande do Sul from 2002 to 2008.

Breeder	Profile	2002	2003	2004	2005	2006	2007	2008
Coodetec	Public/Private	1	1.5	4	5	4	3	5
Embrapa	Public	35	45	44	40	23	11	14
Fepagro	Public	1	0.5	0	1	0	0	0
Fundacep	Public/Private	48	37	23	18	33	37	48
OR Seeds	Private	14	16	27	35	40	47	32
Other	—	1	0	2	1	0	2	1
Totals	Public	36	45.5	44	41	23	11	14
	Public/Private	49	38.5	27	23	37	40	53
	Private	14	16	27	35	40	47	32
	Others	1	0	2	1	0	2	1

Historically, Embrapa has played a significant role in the Brazilian wheat seed market, whether for the market share it has held or for setting the standards for the market as a whole (in economic and technical aspects). Beginning in 1997 with the implementation of the Cultivar Protection Law for the wheat crop, other plant-improvement companies have grown, especially because of the possibility of charging royalties for marketed seed and because of the importance of wheat in Brazil. The wheat seed market shares in Brazil, for the states of Rio Grande do Sul and Paraná, are presented and the aggregation, according to the company profile (public or private) (Table 4 and Table 5, p. 45).

Table 5. Participation of public and private institutions in the wheat seed market (%) in the Brazilian state of Paraná from 2000 to 2008.

Breeder	Profile	2000	2001	2002	2003	2004	2005	2006	2007	2008
Coodetec	Public/Private	14	14	26	28	31	46	41	34	35
Embrapa	Public	23	27	24	16	22	23	33	44	48
Iapar	Public	38	37	30	30	27	18	10	8	8
OR Seeds	Private	21	14	17	23	18	13	15	13	6
Other	—	4	8	3	3	2	0	1	1	2
Totals	Public	61	64	54	46	49	41	43	52	56
	Public/Private	14	14	26	28	31	46	41	34	35
	Private	21	14	17	23	18	13	15	13	5
	Others	4	8	3	3	2	0	1	1	2

In Rio Grande do Sul, Embrapa was the market leader in 2003, 2004, and 2005, but its participation has decreased drastically, down to 14% of the market share in 2008. From 2005 to 2008, Fundacep increased its participation, growing from 18% to 48%. The participation of public companies was once larger, especially in 2002, 2003, and 2004. In

2007, an equilibrium between the participation of public and private companies was achieved (Table 4, p. 44).

In Paraná, the current participation of Embrapa in the wheat seed market is highly significant, having reached its highest rate in nearly 10 years (55%). On the other hand, the participation of Iapar (a traditional breeder in the state) has abruptly dropped since 2000, reaching only 7% in 2008. Coodetec, which led the market in 2004, 2005, and 2006, also has shown a reduction in its participation in the last 2 years. The participation of OR Seeds in the Paraná market is rather modest and achieved its highest rate (23%) in 2003 (Table 5).

ITEMS FROM THE PEOPLES REPUBLIC OF CHINA

CIMMYT, C/O CHINESE ACADEMY OF AGRICULTURAL SCIENCES
No. 30 Baishiqiao Road, Beijing 100081, P. R. China.

Zhonghu He.

Characterization of low-molecular-weight glutenin subunit Glu-B3 genes and the development of STS markers in common wheat.

To characterize the LMW-GS genes at the *Glu-B3* locus, gene-specific PCR primers were designed to amplify eight near-isogenic lines and Cheyenne with different *Glu-B3* alleles (*a*, *b*, *c*, *d*, *e*, *f*, *g*, *h*, and *i*) defined by protein electrophoretic mobility. The complete coding regions of four *Glu-B3* genes with the complete coding sequence were obtained and designated as *GluB3-1*, *GluB3-2*, *GluB3-3*, and *GluB3-4*. Ten allele-specific PCR markers designed from SNPs present in the sequenced variants discriminated the *Glu-B3* proteins of electrophoretic mobility alleles *a*, *b*, *c*, *d*, *e*, *f*, *g*, *h*, and *i*. These markers were validated on 161 wheat cultivars and advanced lines with different *Glu-B3* alleles, thus confirming that the markers can be used in marker-assisted breeding for wheat grain processing quality.

Characterization of novel LMW-GS genes at the Glu-D3 locus on chromosome 1D in Aegilops tauschii.

The objectives of this study were to clarify the relationship between LMW-GS *Glu-D3* gene of *Ae. tauschii* registered in GenBank and the six *Glu-D3* genes, including 12 allelic variants of common wheat characterized in our previous studies, and identify novel *Glu-D3* genes and haplotypes from *Ae. tauschii* using gene-specific PCR amplification. By searching