



CULTIVAR RELEASE

Barley cultivar BRS 224

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ABSTRACT - BRS 224 barley, bred by Embrapa Trigo, is a two-rowed spring barley released in 2002 for cultivation in Southern Brazil. BRS 224 is an early maturing, medium tall and high yielding cultivar, resistant to diseases (net blotch, powdery mildew, leaf rust), lodging-resistant, and broadly adapted to the crop production regions of Southern Brazil.

Key words: crop, cultivar, barley.

INTRODUCTION

BRS 224 is a barley (*Hordeum vulgare* sp. *vulgare*) cultivar developed by Embrapa Trigo. It was released in 2002 for production in the states of Rio Grande do Sul, Santa Catarina and Paraná, after several years of yield testing and malting quality evaluation under the inbred line denomination CEV 96051. The designation CEV indicates that the line was developed by a formal technical and financial cooperation agreement between Embrapa and the malting-brewing companies Antarctica and Brahma (now AmBev), Kaiser and Cooperativa Agraria Mista Entre Rios Ltda.

PEDIGREE AND BREEDING METHOD

BRS 224 is result of a single plant selection realized in the F₂ population from cross PFC 85107/PFC 9114 (Figure 1). Line PFC 85107 was released in 1995 as cultivar Embrapa 43. Both parental breeding lines were developed by a barley improvement program of Embrapa. The cross and inbred line selection were realized in 1992 and 1996, respectively. The F₂ population was field-grown in Guarapuava, PR in 1993, where single plants were selected. These plants were advanced to the F₅ generation in bulk through single seed descent (SSD), under greenhouse conditions in Passo Fundo, state of Rio Grande do Sul (RS). The F₆ selected plant progenies were field-grown in Passo Fundo, growing season of 1995, and the selected

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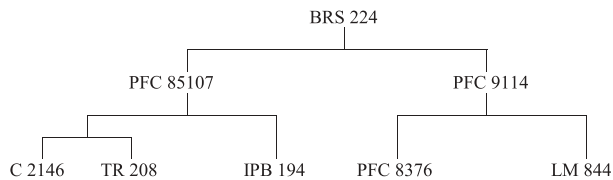


Figure 1. Pedigree of BRS 224

ones harvested in bulk for seed increase. The selected inbred line number 13, bulk harvested from F_7 grown in Passo Fundo, in 1996, gave origin to line CEV 96051. The line was next evaluated in official yield trials in 12 environments consisting of four growing seasons (1998 to 2001) and three sites. In 2002 it was registered and protected under the designation BRS 224, as a new production cultivar for all regions of Rio Grande do Sul, Santa Catarina and Paraná. In 2003, BRS 224 was included in the official list of recommended varieties of the Comissão de Pesquisa de Cevada (Barley Research Commission), for cultivation in southern Brazil (Comissão 2003).

PERFORMANCE

BRS 224 has a grain yield potential above 4000 kg ha⁻¹ (Minella 2002). Average grain yield and kernel plumpness across 12 environments in the growing seasons 1998-2001 were 4647 kg ha⁻¹ and 93.3% (Table 1), respectively. Average yield across all locations was 15% higher than that of check MN 698, varying from 9% in Passo Fundo, RS, to 25% in Victor Graeff, RS. The superior yield potential of BRS 224 was confirmed on grower fields, where yields of over 4200 kg ha⁻¹ were obtained. The combination of earliness, high yield and kernel plumpness, and lodging and disease resistance makes BRS 224 a superior candidate to replace MN 698 in Rio Grande do Sul, Santa Catarina and Paraná producing regions. In a pilot

malt analysis, BRS 224's quality meets the requirements for malting barley. It has however not yet gone through a complete commercial malt and brewing evaluation of the industry.

Table 1. Mean grain yield and kernel plumpness of BRS 224 and check cultivar MN 698, over the 1998 to 2001 growing seasons, in three locations in Southern Brazil

Location	Grain yield (kg ha ⁻¹)		Kernel plumpness (%) ¹	
	BRS 224	MN 698	% of MN 698	BRS 224 MN 698
Passo Fundo	4192	3835	109	93.1 93.4
Victor Graeff	4213	3354	125	94.6 85.9
Guarapuava	5617	4974	113	93.0 93.3
Average	4647	4054	115	93.3 90.8

¹Kernels retained in a 2.5 mm diameter sieve

OTHER CHARACTERISTICS

BRS 224 attains heading and harvesting maturity about 90 and 135 days after plant emergence, respectively. It heads two days later than check MN 698. It has a semi-erect growth habit in the vegetative phase. It grows 100 cm tall, but is moderately lodging-resistant. BRS 224 combines resistance genes to powdery mildew, net blotch and leaf rust (Minella 2000). Besides its high potential as malting barley, it is also promising as feed barley and is very competitive to oat and wheat in total dry matter production.

MAINTENANCE AND DISTRIBUTION OF FOUNDATION SEED

Breeder seed of BRS 224 is maintained by Embrapa Trigo. Foundation seed is produced and marketed by Embrapa Transferência de Tecnologia, EN Passo Fundo, C. P. 451, 99.001-970, Passo Fundo, RS, Brazil.

REFERENCES

- Comissão de Pesquisa de Cevada (2003) **Indicações técnicas para a produção de cevada cervejeira: safras 2003 e 2004**. Embrapa Trigo, Passo Fundo, 80p.
- Minella E (2000) Adapting barley for unfavorable environments: results from Brazil. In: Logue S (ed.) **Proceedings of the 8th International Barley Genetics Symposium**. Adelaide University, Adelaide, p. 267-268.

- Minella E (2002) Performance de cultivares e linhagens de cevada no sul do Brasil, no período 1998-2001. In: Minella E (ed.) **Anais e ata da 22^a Reunião Anual de Pesquisa de Cevada**. Embrapa Trigo, Passo Fundo, p. 366-373.