Crop Breeding and Applied Biotechnology 15: 43-44, 2015
Brazilian Society of Plant Breeding. Printed in Brazil

CULTIVAR RELEASE

http://dx.doi.org/10.1590/1984-70332015v15n1c7

BRS Sampa: malting barley cultivar for irrigated production

Euclydes Minella[1*], Luiz Eichelberger[1], Leila M. Costamilan[1] and Sandra M. M. Scagliusi[1]

Received 8 March 2014

Accepted 17 June 2014

Abstract – *Barley BRS Sampa is a late heading, dwarf two-rowed malting barley cultivar released for irrigated production in Brazil. It combines high yield and kernel plumpness, disease and lodging resistance with malting quality. It is adapted to all major irrigated production regions of Brazil.*

Key words: *Barley, yield, malting quality, plumpness.*

INTRODUCTION

BRS Sampa is another anther culture derived barley (*Hordeum vulgare sp. vulgare*) cultivar registered in Brazil for production under irrigation. It was registered and protected by Embrapa Trigo for production in the irrigated areas of São Paulo, Minas Gerais, Goiás and the Distrito Federal states, after four years of yield, malting quality and disease resistance evaluations, under the inbred line PFC 2001084. It traces back to a double-haploid (DH) line produced by another culture (Castillo et al. 2000) of the F_1 of the BRS 195/F98097 cross (Figure1), selected from a population of 46 DH lines produced from it. BRS 195 is a cultivar released by Embrapa in 2001, and F98097 is the F_1 of the PFC 8590/PFC 9205 cross, which are breeding lines selected in Embrapa's genetic improvement program. The cross and the DH line selection were accomplished in 1998 and 2002, respectively. The DH line that gave rise to line PFC 2001084 was seed increased and field tested in Passo Fundo, RS; in Manduri, Paranapanema and Itapeva in SP; Sao Gotardo, MG; Silvânia, GO; and Brasilia, DF, in official yield trials. It was registered under the name of BRS Sampa for production in all the recommended regions in the states of Sao Paulo, Minas Gerais, Goiás and the Distrito Federal states.

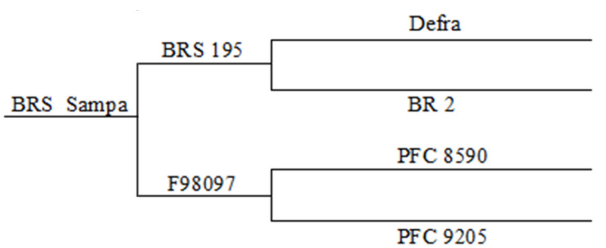

Figure 1. Pedigree of BRS Sampa.

PERFORMANCE

BRS Sampa has yield potential of 7,000 kg ha^{-1} in both plots and farm fields (data not shown). Mean grain yield and kernel plumpness over eight environments during the 2008-2011 seasons were 4,176 kg ha^{-1} and 72.9% (Table 1), respectively. Mean grain yield and kernel plumpness of BRS Sampa was five and almost 10% higher than those of BRS 195 control cultivar, respectively. The superiority of BRS Sampa over the control was even greater in Brasília, São Gotardo and Silvânia (Table 2) The high grain yield potential and the large kernel size of BRS Sampa estimated in trials have been confirmed in commercial production fields in Sao Paulo, in Minas Gerais, Goias and the Distrito Federal, having a broad adaptation in the "Cerrados" of the

Table 1. Mean grain yield and kernel plumpness of BRS Sampa and BRS 195 control cultivar, in eight environments (locations, years) of São Paulo state

Location	Grain yield (kg ha^{-1})			Kernel plumpness (%)[1]	
	BRS Sampa	BRS 195	% of Ck.	BRS Sampa	BRS 195
Manduri	4,595	3,667	125	75.0	55.5
Paranapanema	4,365	5,043	87	71.7	67.4
Itapeva	3,568	3,185	112	71.8	66.8
Mean	4,176	3,965	105	72.9	63.2

[1] percent of kernels retained in a 2.5 mm sieve.

[1] Embrapa Trigo, Rodovia 285, km 294, 99.001-970, Passo Fundo, RS, Brazil. *E-mail: euclydes.minella@embrapa.br

Table 2. Mean grain yield and kernel plumpness of BRS Sampa and BRS 195 control cultivar in Goiás, Minas Gerais and the Distrito Federal states

Location	Grain yield (kg ha^{-1})			Kernel plumpness (%)[1]	
	BRS Sampa	BRS 195	% of Ck.	BRS Sampa	BRS 195
Silvânia GO	3,416	2,042	167	85.1	80,0
São Gotardo MG	3,986	3,401	117	89.3	68.0
Brasilia DF	7,091	6,148	115	92.7	88.3
Mean	4,831	3,863	125	89.0	78.8

[1] percent kernels retained in a 2.5 mm sieve

Southeast and West agricultural regions of Brazil.

In micromalting evaluations, BRS Sampa met all the quality parameters required for a malting barley, being superior to BRS 195 in the major ones such as malt extract, friability and beta glucan content (Table 3)

OTHER CHARACTERISTICS

BRS Sampa heads and ripens at about 68 and 120 days after plant emergence, respectively, being very similar to BRS 195 in life cycle duration (Minella et al. 2002). It has an erect growth habit in the vegetative phase and grows to an average of 75 cm. BRS Sampa has net blotch resistance and reasonable lodging resistance, mainly due to its dwarfness (data not shown).

REFERENCES

Castillo AM, Valles MP and Cistue L (2000) Comparison of anther and isolated microspore culture in barley: Effects of culture density and generation medium. **Euphytica 111**: 1-6.

Minella E, Arias G, Linhares AG and Silva MSE (2002) BRS 195 malting barley cultivar. **Crop Breeding and Applied Biotechnology 2**: 321-322.

Amabile R, Capettini F and Faleiro FG (2013) BRS Savanna: new six-rowed malting barley cultivar for irrigated crops in the Brazilian savanna. **Crop Breeding and Applied Biotechnology 13**: 147-150.

Table 3. Malting quality analysis of grain from commercial fields produced in São Paulo in 2011

Quality parameter	BRS Sampa	BRS 195
Malt extract-fine grind (%)	81.5	79.5
Malt protein (%)	11.5	11.0
Malt friability (%)	80.0	73.0
Malt Beta Glucan(mg L^{-1})	180	350

Source: Malteria do Vale Ltda, Taubaté, SP personal communication (EBC method)

Due to its better quality and yield, BRS Sampa has completed replaced BRS 195 in the irrigated production area in the state of São Paulo, being the most grown cultivar in 2011 and 2012. It will be an alternative to the available cultivars for irrigated production (Amabile et al. 2013).

MAINTAINANCE AND DISTRIBUTION OF FOUNDATION SEED

BRS Sampa was developed under the partnership of Embrapa with Malteria do Vale Ltda., of Taubaté, SP. Breeder seed of BRS Sampa is maintained by Embrapa Trigo. Foundation seed is produced and commercialized by Embrapa Produtos e Mercado, Passo Fundo, Caixa Postal 451, CEP 99001-970, Passo Fundo, RS, Brazil, while Malteria do Vale, produce and commercialize other seed classes.