

CD 109 - wheat cultivar

Volmir Sergio Marchioro^{1*}, Francisco de Assis Franco¹, Ivan Schuster¹, Tatiane Dalla Nora¹, Edson Feliciano de Oliveira¹, and Ademar Alves Sobrinho¹

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ABSTRACT - 'CD 109' was developed by CIMMYT in Mexico and selected by COODETEC at the 29th IBWSN, in Palotina, State of Paraná, Brazil, in 1997. This is a cultivar of high industrial quality, with low plant height, drought tolerance, tolerance to the main diseases, and grain yield means of 2603 and 2698 kg ha⁻¹ in the Regions 6 (north) and 7 (center-west) in the State of Paraná, respectively.

Key words: COODETEC's breeding program, wheat cultivar, CD 109

INTRODUCTION

The Wheat Breeding Program of COODETEC is intended to meet different environmental demands. Productivity potential, industrial quality, tolerance to spike sprouting, diseases, drought, acid soils, and natural threshing as well as lodging resistance, high tiller number, response to fertilizer, and grain yield adaptability and stability are the main characteristics that are being improved. CD 109 has productivity potential, tolerance to the main diseases, and industrial quality.

PEDIGREE AND BREEDING METHODS

Wheat cultivar CD 109 (*Triticum aestivum* L.) was developed by CIMMYT (International Center for Corn and Wheat Breeding) in Mexico. F₁ seeds were obtained from

the cross of the parents 'MUNIA' and 'BAGULA' (Figure 1). Mass selection was used in the selection of the F₂ and F₃ populations, which consists in the selection of the best plants, whereupon these plant seeds are mixed and used to obtain the next generation. The pedigree method, which is the selection of individual plants, where seeds of each plant are used to obtain a new population in the following generation, was used for the selection of the F₄, F₅, F₆, and F₇ populations. In F₈, numerous sib lines were selected, which were shown at the 29th International Bread Wheat Screening Nursery (IBWSN) of the CIMMYT and handed on to Wheat Breeding Programs in various countries. This experiment was conducted in Palotina state of Paraná in 1997, by COODETEC's Wheat Breeding Program. Plot number 59 was selected, which gave origin to the CD 109 cultivar.

¹Programa de Melhoramento de Trigo da Cooperativa Central de Pesquisa Agrícola (COODETEC). Rodovia BR 467, km 98, C.P. 301, 85818-660, Cascavel, PR, Brasil. *E-mail: volmir@coodetec.com.br

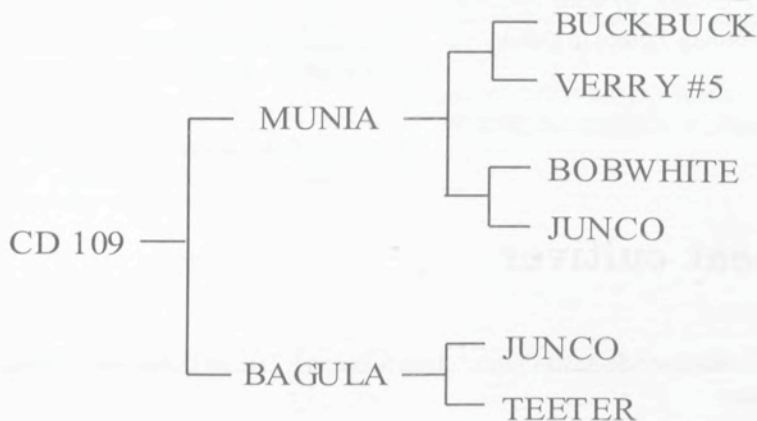


Figure 1. CD 109 pedigree

PERFORMANCE

CD 109 was tested under the experimental designation 'CDI 2008'. After pre-evaluations in experiments in 1998, 1999, and 2000 in Cascavel and Palotina, State of Paraná, the cultivar was evaluated at different locations for several years in the Adaptation Regions 6 (north) and 7 (center-west) of Paraná (IAPAR 2003). Table 1 displays the mean grain yield efficiency of several cultivars in the Regions 6 and 7 of the State of Paraná. Cultivar CD 109 presented a grain yield efficiency of 7% and 5% above the mean, respectively. Due to CD 109's good performance, it was indicated for cultivation in regions 6 and 7 in Paraná State (IAPAR 2003), and registered on July 10, 2003 by the National Service of Cultivars Protection (SNPC), under number 00493 (MAPA 2003). The indication for cultivation was extended to Regions 9 and 10 of Mato Grosso do Sul, Regions 14 and 15 of Goiás and Region 16 of Mato Grosso in 2003.

OTHER CHARACTERISTICS

The plant height of CD 109 is low (from 55 to 82 cm), and the cycle short (from 54 to 75 days to flowering, and 110 to 132 days to maturity). Mean values of these characteristics were 72 cm, 65 days, and 123 days respectively, which can vary according to environmental conditions, sowing date, and soil nature. An analysis of the industrial quality revealed a mean general gluten force (W) of 322×10^{-4} Joules. The weight of one hectoliter and of a thousand seeds amounted to 76 kg hL⁻¹ and 38 grams, respectively. CD 109 was classified as moderately resistant to lodging, susceptible to spike sprouting, and moderately susceptible to acid soils. In relation to the main diseases, CD 109 was classified as moderately susceptible to *Blumeria graminis* f.sp. *tritici*, which according to Reis et al. (2001) is the main disease of winter cereals. It was classified as moderately resistant to *Bipolares sorokiniana* and moderately susceptible to *Septoria tritici* and *Stagonospora nodorum*,

Table 1. Cultivar CD 109 and standard grain yield means (kg ha⁻¹) in regions 6 and 7 in the State of Paraná in two years

Cultivars	Region 6			Region 7		
	2001	2002	Mean	2001	2002	Mean
CD 108	3233	1973	2603	3070	2325	2698
T. BR 18-Terena	2761	1770	2266	2736	2171	2454
IAPAR 53	3367	1532	2449	2665	2495	2580
OCEPAR 16	3321	1791	2556	3139	2283	2711
Mean (Standards)	3150	1698	2424	2847	2316	2582

moderately resistant to *Puccinia triticina*, and susceptible to *Fusarium graminearum*. Top characteristics of CD 109 are a high grain yield potential, high industrial quality, drought tolerance, and tolerance to the main diseases.

MAINTENANCE AND DISTRIBUTION OF FOUNDATION SEED

COODETEC commissions protects cultivars according to law nº 9456/97, so that seed companies can cultivate and commercialize them under agreement. Also, COODETEC has regional representatives under its own management supervision who distribute and commercialize the seeds. Small quantities of seeds for research purposes are available upon request at the address above.

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