RESUMO - MELHORAMENTO DE ESPÉCIES ANUAIS

PERFORMANCE OF WHEAT CULTIVARS IN RIO GRANDE DO SUL STATE, BRAZIL, 2016 TO 2020

André Luís Della Vecchia (andre.dellavechia98@gmail.com)

Ricardo Lima De Castro (ricardo.castro@embrapa.br)

Eduardo Caierão (eduardo.caierao@embrapa.br)

João Leonardo Fernandes Pires (joao.pires@embrapa.br)

Marcelo De Carli Toigo (marcelo-toigo@agricultura.rs.gov.br)

Rogerio Aires (rogerio-aires@agricultura.rs.gov.br)

The Brazilian Commission of Wheat and Triticale Research (BCWTR) conducts, annually, the State Test of Wheat Cultivars in Rio Grande do Sul state (STWC-RS), aiming to support the indications of cultivars. This work had the objective to evaluate wheat cultivar grain yield performance of STWC-RS, from 2016 to 2020. The yield grain performance of thirty wheat cultivars (all cultivars released in the last two years of the testing year and the most cultivated in Rio Grande do Sul, up to the limit of 30 cultivars) was studied in 14 environments (years 2016 and 2019), 12 environments (years 2017 and 2018) and 9 environments (year 2020), including the localities of Coxilha, Cruz Alta, Não-Me-Toque, Passo Fundo, Sertão, Vacaria, Augusto Pestana, Eldorado do Sul, Ijuí, Santo Augusto, São Borja and Três de Maio (some places with two or three sowing seasons, depending on the year), in Rio Grande do Sul state. The experiments were carried out in a randomized block design with three or four repetitions. Each plot consisted of five rows of 5 m in length with 0.2 m spacing between rows and the

plant density was about 330 plants m-2. Grain yield data (kg ha-1) were subjected to individual analysis of variance (for each environment) and to grouped analysis of variance (for environments per each year). The grouped analysis of variance was performed employing the mixed model (fixed cultivar effect and randomized environment effect). The grain yield performance of wheat cultivars was evaluated by analysis of adaptability and stability, employing the method of distance from the ideal cultivar, weighed by the coefficient of residual variation, proposed by Carneiro (1988). In this analysis, the ideal cultivar was considered as the cultivar with high grain yield, high stability, low sensitivity to adverse conditions of unfavorable environments and ability to respond positively to improvement of favorable environments. The general average of STWC-RS was 5,499 kg ha-1, 3,544 kg ha-1, 4,184 kg ha-1, 4,676 kg ha-1 and 5,498 kg ha-1, respectively for the years 2016, 2017, 2018, 2019 and 2020. The wheat cultivar with maximum grain yield was BRS Reponte (6,138 kg ha-1) in 2016; FPS Certero (3,963 kg ha-1) in 2017; TBIO Audaz (4,611 kg ha-1) in 2018; BRS Reponte (5,147 kg ha-1) in 2019; and TBIO Aton (6,104 kg ha-1) in 2020.In each year, the five cultivars (top 15%) that came closest to the ideal cultivar were identified. Among all the wheat cultivars evaluated, BRS Reponte stood out for being closer to the ideal cultivar (top 15%) more frequently (years 2016, 2019 and 2020). It was possible to identify wheat cultivars more productive and with greater adaptation and production stability to general growing conditions in Rio Grande do Sul state, Brazil.