



iwcc 1ST INTERNATIONAL WHEAT CONGRESS

July 22nd - 26th, 2019
Saskatoon, Saskatchewan,
Canada

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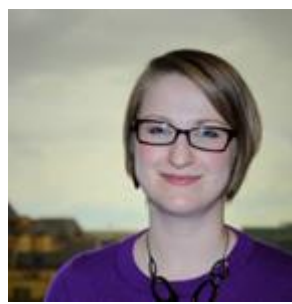
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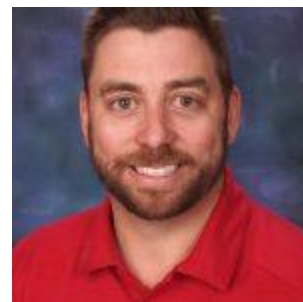
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BREEDING EFFECTS ON GRAIN FILLING IN PANNONIAN WINTER WHEAT CULTIVARS**B Jocković¹**, V Mladenov², R Jevtić¹, V Aćin¹, S Ilin¹, D Živančev¹, N Mladenov¹*¹Institute of Field and Vegetable Crops, Novi Sad, Serbia*

Due to the increase in human population and rapid decrease in the cropping areas, improvement of winter wheat grain yield is the constant breeding objective worldwide. In general, increase in grain yield has mainly been related to the improvement of grain number per unit area, while progress in grain weight has been less pronounced. However, under less favorable environmental conditions, grain yield is often related to high grain weight. Most previous studies have analyzed the breeding impact on wheat grain yield, grain weight and grain number, whereas less information has been available on the changes in grain filling traits. Therefore, the aim of the present study was to analyze the progress and variation in grain weight and grain filling traits (rate and duration) in the set of winter wheat cultivars widely grown in the southern Pannonian region in the past 50 years. The field trials with historical set of 25 winter wheat cultivars were conducted in two growing seasons at the Experimental Field of the Institute of Field and Vegetable Crops, Serbia (typical Pannonian location). Results from this study showed significant variation in grain weight and analyzed grain filling traits. On average, grain weight varied between 24 and 42 mg, where modern cultivars showed higher values than the older ones, with genetic gain of 0.21 mg per year. Grain weight increase was positively associated with grain filling rate and duration, thus association with grain filling duration was weaker. The variation in grain filling rate and duration was significant, but only the rate of grain filling was significantly positively related with year of cultivar release. This study on the effects of breeding on winter wheat in the southern Pannonian plain demonstrated that grain yields could be improved by developing cultivars with increased grain weight and grain filling rate.