

# YIELD AND TECHNOLOGICAL VALUE OF SPRING *T. DURUM* CULTIVARS GROWN IN POLAND

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## Introduction

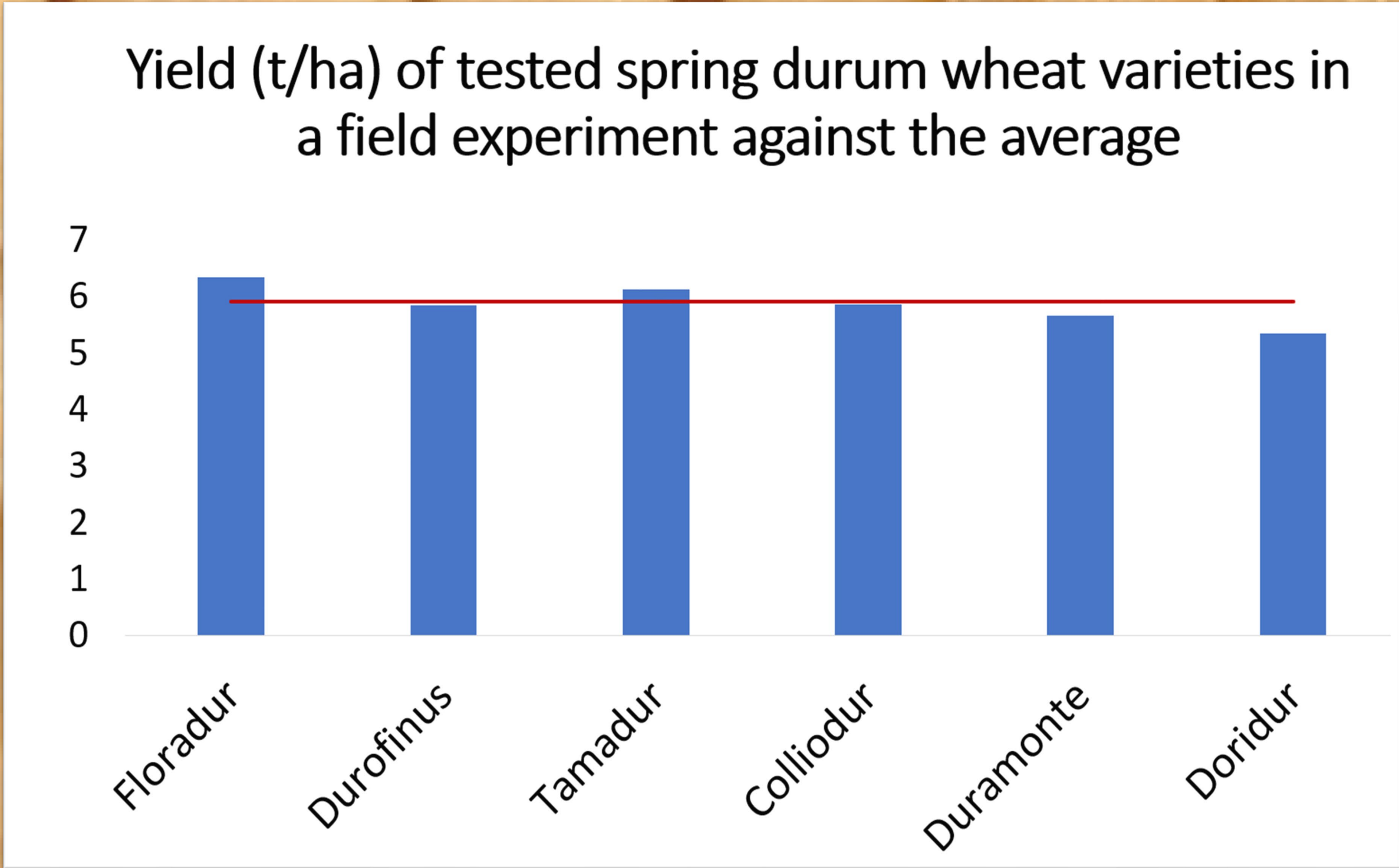
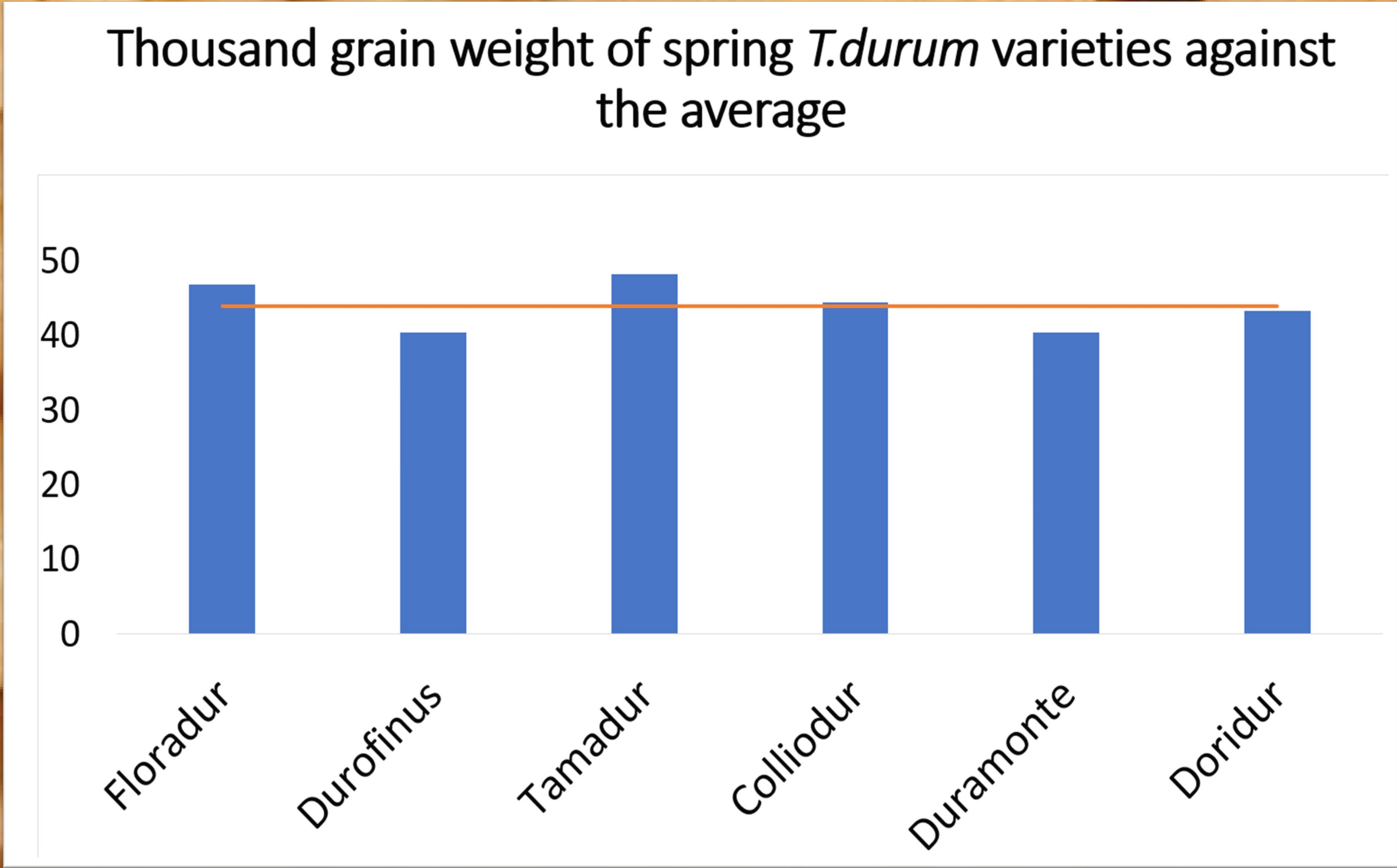
Due to climate change, the growing region of durum wheat in Europe has expanded to include the central part of the European continent. In Poland, the first cultivation of durum wheat dates from 2005 year. Since then, the area under spring and winter varieties of *T. durum* has increased regularly, reaching a total of about 14 000 ha between 2005 and 2021 years. Both spring and winter varieties are grown, which have a high yield and good technological parameters of grain. Durum wheat in Poland is grown in seven provinces.



The aim of this study was to investigate the yield potential and technological quality of spring durum grain grown in northern Poland.

## Material and methods

The studied material consisted of six spring durum varieties: Colliodur, Doridur, Duramonte, Durofinus, Floradur, Tamadur. Grain was obtained from a field experiment performed at the Agricultural Experiment Station in Bałcyny near Ostróda, Poland (53°36'N, 19°51'E). The experiment was conducted using a randomized complete block design with three replications. All genotypes were sown at the same rate (220 kg/ha). NPK fertilizer was applied at rate of 140/25/80 kg/ha. Using Single Kernel Characterization System-SKCS (Perten) and Infratec 1241 (FOSS) and using reference methods we analyzed value of basic traits determining grain quality: protein content, gluten, starch, grain hardness and thickness, thousand-grain weight, Zeleny sedimentation index and hectoliter weight. We also studied the yield and Weight of a Thousand Grains.



Grain quality indicators of spring *T.durum* varieties determined on the Infratec 1241

	Protein (%)	Hectolitre weight (kg)	Gluten (%)	Starch (%)	Zeleny (ml)	Hardness (Infratec)
Floradur	17.3	80.2	43.6	64.1	74.3	52.1
Durofinus	17.4	77.6	40.7	63.6	74.8	57.9
Tamadur	16.9	78.9	42.6	63.9	72.1	51.3
Colliodur	17.0	75.5	39.6	63.5	71.6	57.7
Duramonte	17.3	77.7	38.7	64.3	73.5	57.9
Doridur	18.5	75.0	45.1	60.0	76.4	74.4
Mean	17.4	77.5	41.7	63.2	73.8	58.6
SD	0.58	1.98	2.49	1.60	1.79	8.33
RSD	3%	3%	6%	3%	2%	14%
Min	16.9	75.0	38.7	60.0	71.6	51.3
Max	18.5	80.2	45.1	64.3	76.4	74.4



## Results

Floradur and Tamadur varieties had the highest yield (60.3 dt/ha and 60.1 dt/ha respectively). The lowest yield was reported in the cultivar Doridur (50.3 dt/ha). The other varieties yielded at similar levels (57.0 to 59.0 dt/ha). The cultivar Doridur was particularly characterized by high grain hardness (74.4), protein (18.5%) and gluten content (45.1%) and high Zeleny sedimentation index (76.4) among the cultivars tested. In general, varieties variation was low (coefficient of variation from 2 to 6%) except for grain hardness (coefficient of variation 14%). The best varieties for cultivation in northern Poland seems to be Floradur and Tamadur.

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