Technological quality of common buckwheat (*Fagopyrum esculentum* Moench.)

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ABSTRACT

Seven cultivars of common buckwheat were tested in field trials under two levels of nitrogen fertilisation on two experimental sites during 1998–2000. The aim of the experiments was to evaluate the influence of cultivar, nutrition and year on main technological quality parameters (thousand achenes weight, volume weight, proportion of fractions on sieves 4.5 and 4 mm, proportion of husks and yield of groats). The differences were observed between buckwheat cultivars in all observed parameters of technological value. Nitrogen fertilisation before sowing (50 kg.ha^{-1}) did not influence any parameter. On the contrary, buckwheat technological value was influenced by sequence weather (particularly rainfalls) during flowering and achenes formation periods (July). The influence of year was manifested especially on development of endosperm and husks of achenes. Better growing conditions on experimental site Uhříněves caused lower values of volume weight, lower proportion of pericarp (husks) and considerably higher proportion of fraction over 4.5 mm.

Keywords: common buckwheat; technological quality; cultivars; fertilisation

Common buckwheat (*Fagopyrum esculentum* Moench.) belongs to pseudocereals grown on limited area, but its production seems to be economically profitable (Joshi and Rana 1995). Common buckwheat is a typical low input crop (Kreft 1989). Achenes have high nutritional quality of proteins and are rich in minerals. Levels of fibre, starch with reduced speed of digestion and rutin made buckwheat products favourable for healthy nutrition, patients with diabetes and coeliac disease (Kreft et al. 1997).

Common buckwheat has been utilised in food products as groats or meal. Two main methods are used for achenes husking: mechanical grinding of husks or thermal treatment. Uniform size of achenes is the main parameter of suitability for their processing. This parameter is evaluated by thousand achenes weight (TAW), volume weight and also by determination of percentage of husks. TAW values are based on content of absolute dry matter and achene size. Volume weight is affected by achene shape and specific weights of embryo and husks. The rate of these individual size fractions is influenced by a cultivar, growing conditions, and harvest (small achenes are less sensitive to damage). The sorting minimised wastes and increase yield of product (Aufhammer 2000). The most valuable fraction form achenes of size over 4.2 mm. Fraction below 4 mm is unmarketable (Aufhammer 2000). Buckwheat achenes below 3 mm are not suitable for husking. The processing of buckwheat achenes is influenced also by water content, which determines persistence and fragility of coat; humidity should be below 14% (Honermeier et al. 1998).

The aim of our experiments was to evaluate the influence of cultivar, nitrogen fertilisation and year of cultivation on particular parameters of technological quality.

MATERIAL AND METHODS

Seven cultivars of common buckwheat (Pyra – CZ, Aelita – RUS, Emka – PL, Huszowska – Pl, Kora – PL, Krupinka – RUS and Sumčanka – RUS) were grown in field trials in České Budějovice (380 m above sea level, acid cambisoil, gleying, sandy loam soil) and Praha-Uhříněves (295 m above sea level, brown soil, clay) under two levels of nitrogen fertilisation (0 and 50 kg N.ha^{-1}) during 1998–2000. Fertilisation was applied before sowing in the form of ammonium nitrate with limestone. Basic meteorological data during 1998–2000 are shown in Tables 1 and 2.

The plots were sown in rows 12.5 cm wide, density of growth was 200 plants.m^{-2}. No mechanical or chemical treatment was applied during the vegetation period. Soil pH was in the range of acid to moderate acid (pH = 5–6.6), mean content of mineral nitrogen (NH_4^+, NO_3^-) in soil was low to medium (8–23 mg.kg^{-1}).

Weight of thousand achenes and volume weight was evaluated after harvest in all four repetitions. Mixed sample (1000g) was used for determination of size fraction on sieves 4.5 and 4 mm, percentage of hulls and yield of groats. Statistical evaluation was done using the analysis of variance and linear regression – Statistica 6.0 software.

RESULTS AND DISCUSSION

The mean weight of thousand buckwheat achenes fluctuated within 25–35 g (Table 3). Only tetraploid cultivar Emka differed significantly from the rest of cultivars. The variety had TAW higher in average 8–9 g than other cultivars (25–26 g). That observation was also reported

Table 1. Basic meteorological data during 1998–2000 (České Budějovice)

	IV.	V.	VI.	VII.	VIII.	IX.	Average during vegetation	Average of year
				Mean temperature (°C)				
1998	9.8	14.3	17.8	18.3	18.5	12.9	16.1	9.3
1999	9.3	14.6	16.3	19.5	17.9	16.3	14.6	9.3
2000	12.0	15.6	18.6	16.5	19.3	14.0	15.9	9.9
30 years average	8.1	13.0	16.2	17.7	17.1	13.5	14.3	8.2
				Total precipitation (mm)				
1998	40.2	37.9	109.9	93.3	35.4	64.5	341.0	579.5
1999	22.9	75.1	43.5	72.9	68.2	41.1	336.2	505.1
2000	6.7	45.2	68.6	104	73.2	72.0	369.6	601
30 years average	46.5	70.1	93.0	77.8	78.8	47.5	413.7	528.8

by Aufhammer (2000). The sequence weather during year is the most significant factor influencing this character (Table 9). The lowest values of TAW were recorded on both experimental sites in 1999. The period of achene formation (July) was in that year characterised by lower precipitation (below-average) and higher average temperatures. These conditions influenced probably abortion of developed embryos. Smaller and later developed achenes formed the final yield in that year. Also Aufhammer et al. (1999) reported the influence of year and period of sowing on TAW. Experimental site did not significantly influence this parameter ($p = 0.07$), but higher values of TAW were observed on experimental site Praha-Uhříněves. Also, nitrogen fertilisation did not significantly influence TAW (Table 9). On the contrary, Zakarackas (1999) reported that nitrogen fertilisation increased TAW. Also Fatyga (1991) observed in cultivar Emka increase of TAW after application of 30 and 60 kg of nitrogen per ha.

Values of volume weight were within 55.8–58.5 kg per hectolitre (Table 4). The lowest volume weight was observed in tetraploid cultivar Emka: the value was about 1.6–2.8 kg lower than in other cultivars (55.4–56.6 kg.hl^{-1}). Also, Aufhammer (2000) reported that tetraploid cultivars did not reach values of volume weight typical for diploid cultivars. The highest value of volume weight was observed in cultivar Krupinka (56.66 kg.hl^{-1}). It is in accord with Honermeier et al. (1998), who reported that small-seed cultivars reached higher values of volume weight. The difference between cultivars was significant (Table 9). Significant impact was observed also for experimental site, lover volume weights were observed in samples from Praha-Uhříněves. Volume weight was mainly influenced by year: the highest values were recorded in 1999. Conditions during the ripening period affected development of husks, which subsequently determined the size of endosperm and of achene. The influence of nitrogen fertilisation was not significant. Similarly as Honermeier et al. (1998), we recorded a negative correlation between TAW and volume weight ($r = -0.602^{*}$, volume weight = 85.16 – 1.1 × TAW).

The proportion of the particular size fractions was different in analysed cultivars on experimental sites and years of cultivation. The highest proportion above sieve 4.5 mm was observed in tetraploid cultivar Emka and in that variety we recorded the lowest proportion of achenes below 4 mm (Tables 5 and 6). On the contrary, the lowest proportion of achenes above 4.5 mm in the both years and all variants of fertilisation was recorded in cultivar Krupinka. Moreover, the highest proportion of achenes below 4 mm was recorded in the cultivar. The difference in

Table 2. Basic meteorological data during 1998–2000 (Uhříněves)

	IV.	V.	VI.	VII.	VIII.	IX.	Average during vegetation	Average of year
				Mean temperature (°C)				
1998	8.2	15.0	18.1	18.1	18.2	13.7	15.2	9.5
1999	10.0	15.1	18.1	19.8	18.3	17.3	16.4	9.9
2000	12.2	16.2	19.1	16.5	20.0	14.2	16.4	10.6
50 years average	8.2	13.4	16.3	18.2	17.5	14.0	14.6	8.28
				Total precipitation (mm)				
1998	9.9	27.0	107.7	89.0	30.3	41.5	305.4	488.8
1999	18.5	54.1	66.8	78.1	33.9	57.6	309.0	548.3
2000	9.4	47.5	46.7	92.6	40.2	33.1	269.5	545.9
50 years average	46	65	74	74	72	49	380	575

Table 3. Thousand achenes weight (g)

Variety	N (kg.ha^{-1})	České Budějovice			Praha		
		1998	1999	2000	1998	1999	2000
Aelita	0	26.29 ± 1.91	25.97 ± 1.52	24.98 ± 0.55	24.21 ± 0.11	25.32 ± 0.96	25.78 ± 0.72
Emka	0	37.40 ± 1.77	26.63 ± 0.59	34.83 ± 0.59	35.56 ± 0.35	33.50 ± 2.37	36.98 ± 0.89
Hruszowska	0	26.36 ± 1.48	23.20 ± 2.12	24.93 ± 0.35	26.43 ± 0.39	25.14 ± 0.29	26.06 ± 0.43
Kora	0	27.16 ± 1.96	26.26 ± 1.03	24.85 ± 0.55	26.84 ± 0.51	25.03 ± 0.61	25.66 ± 0.26
Krupinka	0	26.20 ± 0.77	25.33 ± 0.19	24.94 ± 0.34	24.71 ± 0.11	24.96 ± 1.29	24.98 ± 0.42
Pyra	0	26.65 ± 1.46	26.05 ± 1.41	25.56 ± 0.34	27.95 ± 0.03	25.05 ± 0.82	26.82 ± 2.05
Sumčanka	0	25.08 ± 1.27	26.12 ± 1.01	24.99 ± 0.37	26.44 ± 0.34	25.89 ± 0.85	25.95 ± 0.69
Aelita	50	27.47 ± 1.75	25.73 ± 1.24	26.58 ± 1.00	25.29 ± 0.30	25.37 ± 0.33	25.69 ± 0.62
Emka	50	37.72 ± 1.14	26.33 ± 0.81	31.91 ± 0.86	35.09 ± 0.69	33.70 ± 1.16	39.12 ± 1.72
Hruszowska	50	25.97 ± 1.51	27.13 ± 1.41	25.32 ± 0.42	25.12 ± 0.27	25.19 ± 0.34	25.44 ± 0.82
Kora	50	27.40 ± 1.61	26.40 ± 1.27	25.61 ± 1.12	25.49 ± 0.80	25.06 ± 0.42	25.89 ± 0.78
Krupinka	50	25.87 ± 0.47	25.40 ± 1.95	27.14 ± 0.26	24.52 ± 0.51	24.19 ± 0.67	26.04 ± 1.65
Pyra	50	25.58 ± 1.58	23.67 ± 2.93	25.90 ± 0.80	27.18 ± 0.13	24.35 ± 1.85	26.11 ± 0.27
Sumčanka	50	25.02 ± 1.52	25.42 ± 1.67	26.00 ± 0.17	25.72 ± 0.01	24.94 ± 0.61	25.93 ± 0.44
Average		27.87 ± 1.44	25.69 ± 1.37	26.68 ± 0.55	27.18 ± 0.33	26.26 ± 0.90	27.60 ± 0.84

proportion of achene fractions 4.5–5 mm between cultivars was reported also by Honermeier et al. (1998). All tested cultivars had higher proportion of achenes above 4.5 mm in 2000. Better growing conditions on experimental site Praha-Uhříněves were manifested in lower proportion of achenes below 4 mm and significantly higher proportion of fraction above 4.5 mm. No influence of nitrogen fertilisation on achene size was observed (Table 9).

The proportion of husk (waste) in common buckwheat was between 15 and 37% (Table 8). This proportion is dependent on conditions during ripening. Lower proportion of pericarp was recorded on the both experimental sites in 1999. Unfavourable weather conditions in July influenced the yield, which was produced by achenes from lateral branches. These achenes were smaller but with relatively higher proportion of endosperm. Lower proportion of seed coat was observed on the experimental site in Praha-Uhříněves in all years. Better growing conditions increased proportion of endosperm and percentage of husks decreased. Tetraploid cultivar Emka had higher proportion of pericarp (33.16% in average) in comparison to other cultivars. The lowest proportion of husks was recorded in cultivar Aelita (19.5%). Cultivar Emka had a smaller proportion of pericarp in the both years on both experimental sites under nitrogen fertilisation. The proportion of husks was in significantly positive correlation with volume weight and in negative correlation with TAW (Table 10).

Yield of final product (groats) was in narrow negative correlation with proportion of husks (Table 10). Our samples reached the yield ranging from 48–75% (Table 7). Similarly as proportion of husks, the yield of final prod-

Table 4. Volume weight (kg.hl^{-1})

Variety	N (kg.ha^{-1})	České Budějovice			Praha		
		1998	1999	2000	1998	1999	2000
Aelita	0	54.35 ± 1.71	57.38 ± 0.95	57.73 ± 0.81	54.25 ± 3.15	56.59 ± 0.74	57.47 ± 1.06
Emka	0	52.22 ± 2.03	56.95 ± 0.33	52.7 ± 0.27	48.93 ± 0.10	54.92 ± 0.41	53.09 ± 1.29
Hruszowska	0	54.71 ± 0.75	57.18 ± 0.76	57.70 ± 1.33	54.66 ± 0.33	56.78 ± 0.62	56.68 ± 1.40
Kora	0	53.33 ± 0.27	57.85 ± 0.46	54.05 ± 1.20	54.49 ± 0.41	56.10 ± 0.28	57.90 ± 0.39
Krupinka	0	52.17 ± 0.24	58.00 ± 0.32	56.26 ± 0.90	54.89 ± 2.35	58.30 ± 0.20	60.10 ± 1.17
Pyra	0	51.00 ± 0.38	56.29 ± 0.44	57.59 ± 0.52	52.94 ± 3.36	54.62 ± 0.20	56.16 ± 2.21
Sumčanka	0	51.68 ± 1.66	58.52 ± 0.57	55.36 ± 0.41	56.99 ± 1.61	57.68 ± 0.35	55.49 ± 0.91
Aelita	50	54.79 ± 0.59	58.17 ± 0.15	55.81 ± 0.71	53.72 ± 0.30	56.86 ± 0.50	56.14 ± 1.35
Emka	50	57.23 ± 0.01	56.82 ± 0.37	51.74 ± 0.29	52.37 ± 2.42	56.14 ± 0.48	53.12 ± 0.54
Hruszowska	50	56.07 ± 1.24	58.07 ± 0.18	55.64 ± 0.71	54.94 ± 0.46	56.68 ± 0.61	58.09 ± 0.04
Kora	50	59.65 ± 0.73	57.86 ± 1.31	54.52 ± 0.52	51.90 ± 0.86	57.11 ± 0.85	55.50 ± 1.19
Krupinka	50	55.68 ± 1.42	56.45 ± 1.75	57.08 ± 0.78	56.50 ± 0.71	57.32 ± 1.24	57.11 ± 0.39
Pyra	50	54.73 ± 1.33	55.26 ± 0.04	54.49 ± 0.35	54.65 ± 2.33	53.62 ± 0.28	56.94 ± 0.01
Sumčanka	50	53.50 ± 0.38	57.35 ± 1.08	56.30 ± 0.71	52.32 ± 0.53	55.41 ± 2.51	53.87 ± 0.36
Average		54.37 ± 0.91	57.30 ± 0.62	55.50 ± 0.68	53.83 ± 1.35	56.30 ± 0.66	56.26 ± 0.88

Table 5. Percentage of fractions on sieves 4.0 and 4.5 mm (České Budějovice)

Variety	N (kg.ha^{-1})	1998			1999			2000		
		> 4.5	4.5–4.0	< 4.0	> 4.5	4.5–4.0	< 4.0	> 4.5	4.5–4.0	< 4.0
Aelita	0	6.61	67.95	25.44	23.88	52.22	23.91	45.40	45.03	9.57
Emka	0	61.33	30.22	8.45	35.38	43.43	21.19	87.36	7.03	5.61
Hruszowska	0	10.35	63.74	25.91	10.72	58.53	30.74	46.94	43.90	9.16
Kora	0	30.28	53.55	16.17	19.86	50.62	29.53	55.41	37.72	6.87
Krupinka	0	2.51	71.26	26.23	23.36	51.93	24.72	35.44	51.69	12.87
Pyra	0				16.91	53.70	29.40	50.88	41.96	7.16
Sumčanka	0				13.39	59.08	27.53	47.95	42.71	9.34
Aelita	50	3.64	70.72	25.64	10.93	62.41	26.66	50.28	40.84	8.88
Emka	50	50.74	41.21	8.05	21.03	62.48	16.49	81.84	13.76	4.40
Hruszowska	50	23.18	58.95	17.87	10.18	63.34	26.48	50.41	41.11	8.48
Kora	50	8.07	85.08	6.85	28.17	45.54	26.29	58.36	35.05	6.60
Krupinka	50	1.48	67.89	30.63	9.41	63.04	27.55	43.95	47.09	9.96
Pyra	50	8.60	54.86	36.54	10.20	68.53	21.27	50.32	40.71	8.97
Sumčanka	50	6.44	57.85	35.71	43.51	37.7	18.76	47.64	47.24	10.12
Average		14.59	62.37	23.04	19.06	57.58	23.36	54.69	37.97	8.20

uct was dependent on climatic conditions during the ripening period. The highest yield of final product was observed in 1999 (69.6%). Tetraploid cultivar Emka (61.09%) and cv. Krupinka (61.97%) have the lowest yield of final product. Yield of final product in tetraploid cultivar Emka is probably influenced by higher demands on fertilisation and higher sensitivity to climatic conditions. Yield of final product in cv. Krupinka was affected by smaller seed size. The highest yield of final product was reached in cultivar Aeli-ta (66.85%). The differences in yields of final product between the experimental sites were very low. Nitrogen fertilisation did not influence yield of final product. Yield of final product was in positive correlation with TAW and in negative correlation with volume weight.

CONCLUSIONS

Differences in the determined parameters of technological quality were observed between common buckwheat cultivars. Tetraploid cultivar Emka differed from the other cultivars by higher TAW, lower volume weight, and higher percentage of husks, lower yield of final product and by the highest fraction of achenes above 4.5 mm. On the contrary, the small-seed cultivar Krupinka had the lowest TAW, the highest volume weight and the lowest fraction above 4.5 mm. Cultivar Aelita reached the highest yield of final product.

Sequence weather during the period of flowering and achene formation (July) influenced development of endosperm and husks and its impact was evident in all ob-

Table 6. Percentage of fractions on sieves 4.0 and 4.5 mm (Uhříněves)

Variety	N (kg.ha^{-1})	1998			1999			2000		
		> 4.5	4.5–4.0	< 4.0	> 4.5	4.5–4.0	< 4.0	> 4.5	4.5–4.0	< 4.0
Aelita	0	57.28	36.55	6.17	15.87	51.58	32.55	79.44	19.13	1.43
Emka	0	96.37	2.87	0.76	84.81	11.91	3.27	98.68	1.22	0.10
Hruszowska	0	58.68	37.57	3.75	16.54	55.35	28.11	88.01	11.47	0.52
Kora	0	67.49	29.39	3.12	15.93	57.71	26.36	87.28	12.10	0.62
Krupinka	0	46.35	43.15	10.49	9.25	53.10	37.65	67.43	30.36	2.21
Pyra	0	70.64	26.85	2.51	17.22	51.75	31.03	83.38	15.44	1.18
Sumčanka	0	70.53	26.14	4.68	20.00	51.80	28.21	85.27	13.89	0.84
Aelita	50	61.93	32.13	5.95	12.81	53.05	34.14	80.35	18.25	1.40
Emka	50	97.94	2.38	0.40	90.51	5.89	3.61	98.72	1.08	0.20
Hruszowska	50	65.45	31.74	2.81	14.01	56.52	29.47	85.18	14.17	0.65
Kora	50	64.02	34.15	1.82	18.74	55.60	25.66	85.69	13.59	0.72
Krupinka	50	59.14	33.74	7.15	12.65	45.39	32.74	69.51	28.59	2.41
Pyra	50	60.82	34.92	4.26	22.38	48.84	28.78	78.64	24.88	1.79
Sumčanka	50	63.69	32.00	4.32	43.46	22.73	23.81	87.02	13.67	1.08
Average		67.17	28.83	4.16	28.16	44.37	26.10	83.90	15.56	1.08

Table 7. Yield (%) of final product

Variety	N (kg.ha^{-1})	České Budějovice			Praha		
		1998	1999	2000	1998	1999	2000
Aelita	0	66.24	69.34	63.57	67.19	70.74	64.88
Emka	0	56.10	68.36	63.47	47.85	63.12	55.67
Hruszowska	0	63.70	70.56	61.51	63.77	71.36	63.09
Kora	0	63.27	67.57	58.51	63.67	71.39	65.56
Krupinka	0	61.58	69.22	59.17	56.77	70.75	64.86
Pyra	0		69.70	66.24	56.39	71.66	62.75
Sumčanka	0		69.94	63.92	75.06	69.86	65.51
Aelita	50	66.60	69.29	62.55	64.74	71.52	65.53
Emka	50	61.87	70.07	57.30	64.78	62.44	62.05
Hruszowska	50	65.33	69.72	56.62	60.26	72.19	64.28
Kora	50	66.86	71.21	65.93	53.67	70.41	60.33
Krupinka	50	55.42	71.05	47.72	55.61	71.26	60.33
Pyra	50	59.66	69.56	57.57	58.36	71.47	62.89
Sumčanka	50	60.30	68.47	58.83	63.81	66.58	62.47
Average		62.29	69.91	58.07	60.18	69.41	62.55

served parameters of technological quality. Higher temperatures and lower (below-average) precipitation in July caused abortion of developed embryos. Yield was achieved by achenes on lateral branches, which were smaller but better developed.

Better growing conditions on experimental site Praha-Uhříněves were manifested by lower values of volume weight, lower percentage of pericarp (husk) and significantly higher proportion of fraction above 4.5 mm. Nitrogen fertilisation before sowing did not influence any parameter of technological quality.

The percentage of husks was in positive correlation with volume weight, and in negative correlation with TAW and with yield of final product (groats). Yield of final product was in positive correlation with TAW and in negative correlation with volume weight. Negative correlation was also observed between TAW and volume weight.

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Table 8. Percentage of husks

Variety	N (kg.ha^{-1})	České Budějovice			Praha		
		1998	1999	2000	1998	1999	2000
Aelita	0	23.26	20.68	23.38	15.07	16.95	17.7
Emka	0	37.28	23.63	30.77	37.38	32.74	37.18
Hruszowska	0	24.38	18.48	21.23	18.25	18.31	23.69
Kora	0	25.91	21.66	21.98	20.86	16.28	21.52
Krupinka	0	23.32	21.31	23.44	19.46	15.38	17.09
Pyra	0		19.28	20.37	29.73	15.76	24.8
Sumčanka	0		20.15	22.48	22.75	16.51	21.38
Aelita	50	20.8	20.8	21.14	19.06	16.34	19.71
Emka	50	32.69	20.22	27.76	31.24	30.87	31.11
Hruszowska	50	24.6	19.96	21.77	22.8	17.31	21.3
Kora	50	22.83	18.84	22.3	18.22	18.57	26.72
Krupinka	50	23.62	19.1	20.19	26.24	16.86	21.53
Pyra	50	21.58	21.7	26.27	23.83	17.4	22.61
Sumčanka	50	22.37	22.74	25.27	21.1	17.32	24.2
Average		24.07	20.48	23.53	23.21	19.24	23.88

Table 9. Analysis of variance (*MS* Effect)

Factor	*N*	Volume weight	TAW
Cultivar	6	16.98**	431.20**
Fertilisation	1	0.355	0.123
Experimental site	1	1.18**	3.36
Year	2	547.388**	65.39**
Cultivar × fertilisation	6	2.67*	1.835
Cultivar × experimental site	6	4.83**	23.37**
Experimental site × fertilisation	1	7.918**	1.53
Cultivar × year	12	7.898**	21.27**
Fertilisation × year	2	1.275	4.138*
Experimental site × year	2	26.158**	20.88**
Cultivar × fertilisation × experimental site	6	2.08	2.79*
Cultivar × fertilisation × year	12	4.002**	3.36*
Cultivar × experimental site × year	12	4.876**	12.84**
Fertilisation × experimental site × year	2	23.295**	0.08
Cultivar × fertilisation × experimental site × year	12	2.023	3.062**

** $p < 0.01$ * $p < 0.05$

Table 10. Correlation between parameters of technological quality

	TAW	Volume weight	Rate of husks	Yield of final product
Volume weight	–0.602*			
Rate of husks	–0.730**	0.705*		
Yield of final product	0.825**	–0.73**	–0.82**	
Fraction above 4.5 mm	0.405	–0.21	–0.56	0.339

** $p < 0.01$ * $p < 0.05$

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ABSTRAKT

Technologická kvalita pohanky seté (*Fagopyrum esculentum* Moench.)

V letech 1998 až 2000 bylo ve dvou variantách hnojení a na dvou stanovištích pěstováno sedm odrůd pohanky seté. Cílem pokusu bylo posoudit vliv odrůdy, hnojení a ročníku na ukazatele technologické kvality (hmotnost tisíce nažek, objemovou hmotnost, podíl velikostních frakcí na sítech 4,5 a 4 mm, podíl obalových vrstev a výtěžnost krup). Mezi odrůdami pohanky seté byly zjištěny rozdíly ve všech sledovaných parametrech technologické hodnoty pohanky. Aplikace dusíku před setím v dávce 50 kg.ha^{-1} neovlivnila žádný ze sledovaných ukazatelů. Technologickou hodnotu pohanky ovlivnil průběh počasí (zejména srážek) v období květu a tvorby semen (červenec). Vliv ročníku se projevil zejména na vývinu endospermu a obalových vrstev nažky. Lepší pěstitelské podmínky na stanovišti v Uhříněvsi způsobily nižší hodnoty objemové hmotnosti, nižší podíl oplodí a výrazně vyšší podíl frakce nad 4,5 mm.

Klíčová slova: pohanka setá; technologická kvalita; odrůdy; hnojení

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