

EFFECT OF THE SEED CALIBRATION
ON SOME PROPERTIES OF THE WINTER RAPESEED PLANTS

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ABSTRACT

The effect of seed size (standard, calibration 1,8-2,0 mm, calibration 2,0-2,2 mm) on the yield, overwintering, plant length and term of florescence of winter rapeseed in the semioperational trials on the 38 localities was observed and analysed. Yield effect of the calibration 2,0-2,2 mm achieved in average of both studied years +135 kg of seed/ha. A positive influence on the overwintering was recorded, length of the plants was nonsignificantly increased and term of the florescence was one day delayed.

INTRODUCTION

Seed of the winter rapeseed has often without influence of variety changeable quality, which depends most of all on the year's crop and way of rapeseed production. Especially weather during ripening affects physiologic pathways of the seed formation, his size and TKW (Baranyk, 1992). Problems about seed quality solved by more authors (Perry, 1981, Svatoň, 1993, Hosnedl, 1993 etc.).

At the present high level of the winter rapeseed production isn't easy to find next possibilities to increase economy of this plant. One of them is calibration - size sorting of the seeds. This method can relatively easy remove non-standard, small seeds, from which grows up usually substandard plants with deteriorate health level, vitality and yield ability, which represents in the field in effect a weed.

RESULTS

Trials with calibration of seed were carried out within the framework of semioperational trials of Union of the Rapeseed Growers and Processors (URGP) in 1990/91 (23 trial places) and 1991/92 (15 trial places). The seed was prepared in co-operation with Oseva Praha. As a standard we used the certified seed (C1, 1990/91 DARMOR, 1991/92 CERES), from which two size fraction - 1,8-2,0 mm and 2,0-2,2 mm - were assorted.

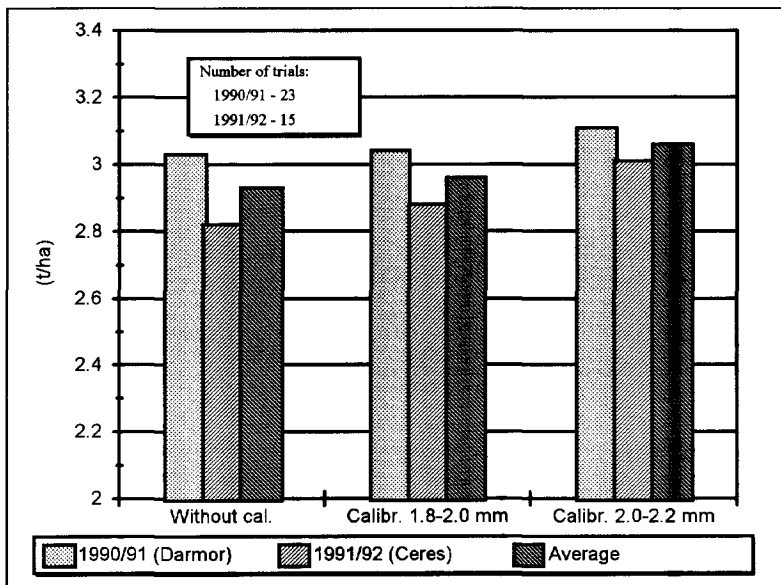
Methodology for that trials was prepared under supervising of the URGP and SIAST, where the main principles are sowing rate of 6 kg/ha, 150 kg N/ha in 2-3 spring rates, one plot area = 1-2 ha. Some aspects of the growth and evolution were recorded in a special forms and analysed.

Calibration affected increasing of the yield/ha positively in both years (Table 1, Fig. 1). In case of comparison of 2,0-2,2 mm seed size to non-sorted seed was achieved increasing 80 kg (1990/91), 190 kg (1991/92) from 1 ha respectively. In average of both observed years (weight average) it is effect +120 kg seeds/ha, e.g. +672 CZK/ha by price of the seeds 5 600 CZK/t (1 USD = ca 28 CZK).

Table 1: Effect of the calibration to the yield of winter rapeseed (t/ha)

	A. Without calibration	B. Calibration 1,8-2,0 mm	C. Calibration 2,0-2,2 mm	Difference B-A (kg/ha)	Difference C-A (kg/ha)	n
1990/91 (Darmor)	3.03	3.04	3.11	10	80	23
1991/92 (Ceres)	2.82	2.88	3.01	60	190	15
Weight average	2.96	2.98	3.08	20	120	38

Fig. 1: Effect of the calibration to the yield of winter rapeseed (t/ha)



It is discussible, whether this effects is sufficient or not. Statistical analysis of results from 1991/92 (year of the greatest yields differences) shown non-significantly differences between these yields (Table 2).

Table 2: Statistical analysis of effects of the calibration to the yield of winter rapeseed

Analysis of
Variance: One Way
Summary

Groups	Count	Sum	Average	Variance
Ceres standard	15	42.24	2.816	0.2724543
Ceres 1.8-2.0 mm	15	43.2	2.88	0.3051429
Ceres 2.0-2.2 mm	15	45.1	3.0066667	0.2186952

Analysis of Variance
Source of Variation

	SS	df	MS	F	P-value	F-crit
Between Groups	0.2824711	2	0.1412356	0.5320994	0.5912774	3.2199423
Within Groups	11.148093	42	0.2654308			
Total	11.430564	44				

From scientific point of view non-significantly differences however means from practical point of view (theoretically, without calibration prices) supplementary profit of 672 CZK/1 ha, e.g. non-negligible ca 33 000 CZK from the quite current area 50 ha rapeseed/farm in addition.

In 1991/92 was besides increasing of the yield registered also positive effect of the calibration to overwintering. Length of plants was 3 cm increased in average and term of the florescence was one day delayed.

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REFERENCES

- Baranyk, P. (1992). Vliv kalibrace osiva na některé vlastnosti porostů řepky ozimé. In: *Sbor. Systém výroby řepky*, Velká Bystřice, pp. 116-119.
- Hosnedl, V. (1993). Modifikace semenářské a biologické hodnoty osiva. *Sbor. Osivo a sadba*, VŠZ Praha, pp. 37-48.
- Perry, D. (1981). *Handbook of vigour test method*. Zurich, ISTA, 173 pp.
- Svatoň, F. (1993). Semenářská kvalita a výnos ozimé řepky ve vztahu k velikosti osiva. *Rostl. výr.*, 39, pp. 395-400.