

STUDY REGARDING THE BEHAVIOUR OF SOME NEW RAPE CULTIVARS IN THE BANAT PLAIN ZONE

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Abstract

Research has been made on a salt-sodium gleic chernozem soil type in Banat Plain.

There have been studied seven cultivars of rapes, cultivated on two levels of fertilization ($N_0P_{80}K_{80}$, $N_{150}P_{80}K_{80}$).

The studied biological material is represented by the cultivars: Valesca, Orkane, Ader, Potomac, LG, Belin, Milena.

The average highest production on the experimented fertilization levels, was registered on Valesca cultivar, 2500 kg/ha. Note that on this cultivar, the fund fertilized with $N_{150}P_{80}K_{80}$, yield exceeded 3100 kg/ha. Average yield of over 1900 kg/ha, were registered on varieties Milena and Potomac too.

Nitrogen fertilizers have influenced favourable the yield up to 69% at the variant fertilized with N_{150} on the same constant fund of $P_{80}K_{80}$.

The obtained yields of 2500-3100 kg / ha and the oil content between 44.6 and 51.2%, lead to the conclusion that the reference area is favourable to cultivate this crops.

INTRODUCTION

The autumn rapeseed cultivars presently cultivated in the pedo-climatic area specific to the Banat Plain are unconvincing under the aspect of seed production and respectively of oil production, for which consideration it is imposed the testing of other cultivars cultivated in countries with pedo-climatic conditions similar to those in our country, following to introduce them into production and to optimize some technological links to obtain economical and high quality yields.

Cultivars for industrialization, in particular to obtain biofuels (known as the green Diesel, biodiesel, etc.), for using in diesel engines, must have a high oil content, to have high production capacity and to be resistant to frost, disease and falls.

MATERIAL AND METHODS

Cultivars taken into the study were: Valesca, Orkan, Ader, Potomac, LG, Belin, Milena.

The method of disposing the experiences along the experimental cycle, was in strips, with three replications. The precursory plant crop was winter wheat.

The base work of the soil was made with the disk harrow (GD-3.2), which made a good aeration of the soil without reversing the furrow.

Sowing was done in the last decade of September with 80 germinable seeds/m². The distance between rows was 12.5 cm and sowing depth was 2 cm.

Phosphorus fertilization in dose of P₈₀, was made before the land preparation and fertilization with nitrogen dose of N₁₅₀, was made in two stages, the first on frozen soil in February, and the dose difference in the second half of March.

The weeds combating was made by preemerging erbicidation with Treflan 480 EC-2 1 ha, on germinative soil preparation and postemerging with Lontrel 300 - 0.4 ml/ha in March.

The pests combating was made with Carbendazin 500 SC-1 l/ha, together with Karate Zeon, 150 ml/ha.

In the experimental field were made determinations towards plant height variation, ramification grade variation, variation of the siliqua number on the plant, the variation of the seeds number from the siliqua, the seeds yield, content and oil production.

Determinations were performed on variants, samples were collected from all the three repetitions and every variant was mixed.

The oil content determination was made by the method Soxhlet. The oil production was calculated on the base of the oil content and seeds production.

RESULTS AND DISCUSSION

The yield results from the experimental cycle are shown (table 1).

Note that on two of the experimented cultivars the medium yield per cycle exceeded 2000 kg/ha. Thus, Valesca cultivar was placed first with 2501 kg/ha followed by Potomac cultivar, with 2031 kg/ha.

With yields between 1550-2000 kg/ha were the cultivars: Milena (1994 kg/ha), Orkane (1950 kg/ha), Ader (1736 kg/ha), and Belini (1554 kg/ha).

Table 1

**Synthesis of crop yields obtained in the experimental cycle 2005-2007
in Checea area**

Variety	Yield (kg/ha)	%	Difference (kg/ha)	Significance
VALESCA	2501	100		
ORKANE	1950	78	-551	000
ADER	1736	69	-765	000
POTOMAC	2031	81	-470	000
LG	1450	58	-1050	000
BELINI	1554	62	-946	000
MILENA	1994	80	-507	000

DL 5% = 52 kg/ha
DL 1% = 70 kg/ha
DL 0.1% = 100 kg/ha

In figure 1 there are presented the synthesis results of the experimental cycle 2005-2007 regarding the variation of the oil content on the seven cultivars of rapeseed cultivated on the two agrofunds: N₀P₈₀K₈₀, N₁₅₀P₈₀K₈₀.

At the level of the factors taken in study the amplitude variation situated between the extreme limits of 44.6% (Orkane cultivar N₁₅₀P₈₀K₈₀ fertilizer with 51.2%) and the Milena cultivar N₀P₈₀K₈₀ fertilizer.

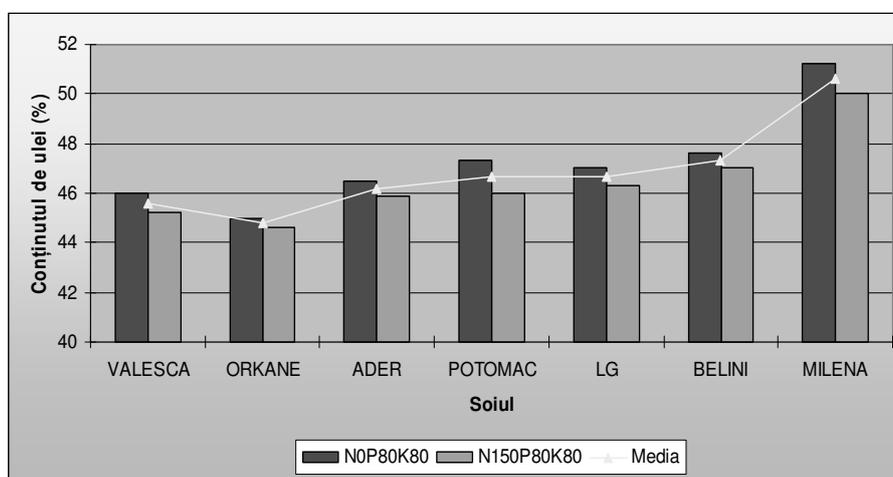


Fig. 1. The variation of oil content (%), depending on the cultivar and the fertilization variant

In table 2 there is presented the oil production synthesis recorded in the experimental cycle on the seven cultivars.

Table 2

Oil production obtained from the experimental cycle 2005-2007 in Checea area

Variety	Yield (kg/ha)	%	Difference (kg/ha)	Significance
VALESCA	1060.4	100.0		
ORKANE	798.5	75.3	-262	000
ADER	766.8	72.3	-294	000
POTOMAC	907.4	85.6	-153	000
LG	649.0	61.2	-411	000
BELINI	676.4	63.8	-384	000
MILENA	955.9	90.1	-105	000

DL 5% = 19 kg/ha

DL 1% = 25 kg/ha

DL 0.1% = 33 kg/ha

It results that the only variety in which the oil production exceeded 1000 kg/ha was Valesca. With yields close to it, respectively productions of over 900 kg/ha were Milena and Potomac cultivars. The other cultivars taken into the study, situated in the conditions of this less favourable period, between 650-800 kg/ha.

CONCLUSIONS

1. The highest seed crops in Checea area, part of Banat Plain, were obtained from cultivars Valesca, Potomac, Milena, for which we consider that they can be expanded in culture.
2. The highest oil content was registered at the cultivars Milena, Belini, Potomac.
3. The oil production had the highest values at cultivars Valesca, Milena, Potomac.
4. Analyzing the influence of nitrogen fertilization on fund $P_{80}K_{80}$ is noteworthy that although the nitrogen fertilizers decreased their oil content they have a favorable influence on the oil production, due to favorable influence on the seeds crop.

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