

# ESTIMATION OF THE SUSCEPTIBILITY OF WINTER RAPE VARIETIES AND STRAINS TO SOIL ACIDITY

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In a pot experiment carried out on soil a mechanical composition of loamy sand the reaction of varieties and strains of winter rape to the soil acidification degree at two nitrogen doses was estimated. Wagner's pots with the soil mass of 9 kg/pot were applied.

The basic fertilization amounted to 0.6  $P_2O_5$ , to 0.8  $K_2O$  and 0.2 g  $MgO$ . Also microelements in the amounts of 10 Mn, 8 B, 2 Zn, 0.5 Cu and 0.2 mg Mo, were added.

The nitrogen fertilization in the form of  $NH_4NO_3$  amounted to 0.4 and 0.8 g N per pot.

The comparison of the reaction of varieties to the soil acidification was based on changes of dry matter of plants in the phase of rosette.

Lowering to the soil pH within the interval of 5.6-4.8 caused relatively small changes in the yield of rape dry matter at the nitrogen dose of 0.4 g N/pot, whereas at the dose of 0.8 g N/pot the pH value change resulted in distinct differences in the growth of plants and led to a lowering of yields in a part of varieties.

Relatively less changes of dry matter were found in the Jet Neuf, Jantar and Beryl varieties, while relatively greater ones occurred in the Hercules and MAH-281 varieties /Tab. 1/.

Also the susceptibility of winter rape varieties in a hydroponic experiment on the Steinberg's nutrient medium at different  $Al^{3+}$  concentration on the basis of the root mass changes was estimated as well /Tab. 2/.

A relatively least reduction of the mass of roots was found in the Jet Neuf and Jantar varieties and the greatest one in the Hercules and MAH-281 varieties.

The comparison of the data quoted in the Tables 1 and 2 reveals that the varieties in which a relatively great reduction of dry matter of above earth parts of plants followed of the lowering of the pH value, responded also to a high degree by a reduction of the mass of roots in connection with a growth of the concentration of  $Al^{3+}$  ions in the nutrient medium.

The results obtained suggest that the varieties tested would be adapted to a different degree to higher acidification conditions of soil.

Table 1

Yields of dry matter of winter rape plants /above earth/  
in the phase of rosette g/pot

Variety	pH <sub>KCl</sub> of soil		Index of $\frac{b}{a} \cdot 100$
	5.6	4.8	
	a	b	
Jet Neuf	14.7	13.3	90
Jantar	12.4	11.0	89
Beryl	12.8	11.4	89
Skrzeszowicki	14.7	13.0	88
Herkules	13.9	12.0	86
MAH-281	13.2	11.2	85
LSD /P=0.05/	1.74		

Table 2

Effect of the concentration of  $\text{Al}^{3+}$  ions  
on the mass of roots of winter rape seedlings

Variety	Dry matter in mg/plant		Index of $\frac{b}{a} \cdot 100$
	Al concentration in ppm		
	0	1.5	
	a	b	
Jet Neuf	27.5	23.7	86
Jantar	28.7	23.1	80
Beryl	35.2	24.2	69
Skrzeszowicki	45.2	32.5	72
Herkules	26.2	12.5	48
MAH-281	24.6	12.6	59