

WINTER RAPE WINTER HARDINESS AT DIFFERENT RATES OF MINERAL NUTRITION

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*A complex evaluation of mineral fertilizers dose rates and micronutrients topdressing of winter rape sowings on its winter hardiness and productivity was done. The best winter hardiness (81,4%) provides fertilization with rate $N_{30}P_{80}K_{140}$ and topdressing with *ПОСТОК Макро* micronutrients at rate 2 l/ha + *ПОСТОК Бор* 1 l/ha. Application of mineral fertilizers at rate $N_{30}P_{80}K_{140} + N_{60} + N_{30}$ Together with topdressing with «^{YA}ПОСТОК»[®] micronutrients provides formation yield at level of 4,92 t/ha.*

Winter rape, winter hardiness, mineral fertilizers, topdressing.

Rape (*Brassica napus* L.) plays a key role as a source of proteins and fats of vegetable origin countries of the northern part of the world, characterized by cold and humid climate. None of the crop does not create such a high oil yield and protein in the climatic conditions of the region. Rising demand for vegetable fats for human consumption and biodiesel production in the world leads to increased demand for seeds, and as a result - an increase of winter rape growing areas.

Modern varieties of oilseed family Brassicaceae, especially winter rape, have considerable potential yield. However, they require a differentiated approach to the region growing, growing technology and especially the level of availability of soil nutrients [5]. With oilseed rape cabbage family is the most sensitive to the level of mineral nutrition - high yield steel and it forms provided that the soil well supplied with nutrients [2]. The results of field experiments

established that the use of fertilizers increases yields an average of 70%, the rest are due to the growth of other farming practices. Among the environmental factors that determine the level of implementation of yielding potential of winter rape, are particularly important weather conditions in autumn-winter period [1]. However, significant mioyu rape hardiness depends on farming activities carried out in the autumn, including on the amount of chemical fertilizers. One of the determining factors of development and good performance is to provide plants of winter rape macro and micronutrients in the autumn. That is why the technology of growing winter rape, laying "the foundations wintering", ie the root system is even more crucial moment comparable to winter crops. It is well known that the higher the level of sugar in plants of winter rape in the root neck when entering it in the winter, the higher its hardiness.

The aim of our research was to determine the influence of norms of mineral fertilizers and foliar fertilization of winter rape crops micronutrients to its hardiness and productivity.

Terms and method of research. Studies conducted in the stationary grain-row crop rotation chair in NUBiP of Ukraine "Agronomic Research Station" during the 2011-2014 biennium. On the typical low-humus chernozems on loess krupnopyluvato lehkosuhlynkovyh that are typical for the research area - steppes of Ukraine. Arable soil containing 4.4% humus, pH - 6,9-7,3. Research Station is located in the temperate warm, moderately moist agro-climatic subdistrict Kiev region. Total rainfall for the year is 550 mm, for the period with temperatures over + 10 ° C - 320 mm. They are distributed during the growing season and the intensity is uneven. During the research there were some deviations from the main indicators of long-term weather data, yet they are in the majority culture to meet the demands of heat and moisture.

Accounting research area area - 25 m², repetition - fourfold. In carrying out investigations using conventional techniques for Derzhsortomerezhi and research institutions [3, 4].

The results of studies on the accumulation of sugars winter rape plants at different levels of mineral nutrition and foliar feeding fertilizers listed in Table. 3. The data obtained by us indicate that most of the sugars in the late autumn vegetation accumulates in plants rape fertilization variant N30P80K140, due contributed more phosphorus-potassium fertilizers. The smallest amount of sugar (20.05%) accumulated in the plant control option for fertilization N30P40K70. It should be noted that in this embodiment, the plant had the lowest rate wintering plants (67.8%).

Studies have shown that foliar application Autumn sowing winter rape fertilizers UAROSTOK® scheme ROSTOK Macro 2 l / ha + ROSTOK For "1 l / ha had a positive impact on the accumulation of sugars, due to a balanced mineral nutrition of plants during this period. There is a direct correlation between sugar content in plants and winter hardiness winter rape. Holding top dressing fertilizers UAROSTOK® increases hardiness rape 4.5-5.5%. It is known that one of the most effective and fast-acting factors increase the yield and improve the quality of products is fertilizer. The studies confirm that the level of yields is closely linked with the amount of chemical fertilizers (Figure).

The results of our studies yield the highest rate of rape seeds obtained by making N30P80K140 + N60 + N30, which was 4.35 t / ha. By reducing mineral nutrition standards to N30P60K105 + N30 + N30 seed yield fell to 3.86 t / ha. In control variant N30P40K70 + N30 seed yield was the lowest and amounted to 3.41 t / ha, because fewer nutrients listed.

It should be noted that the value of the yield greatly influenced pozakorenevi feeding fertilizers at critical periods of growth and development of winter rape. Under his influence increased revenues and utilization of nutrients from the soil and chemical fertilizers by 10-15%. The use of foliar fertilizers fertilizing UAROSTOK® rapeseed yields increased on 0,28-0,57 t / ha depending on the mineral nutrition. The highest yield for foliar feeding germs to

4.92 t / ha received on version N30P80K140 + N60 + N30, which is 0,57 t / ha higher than the same indicator option, but without foliar fertilizing.

Thus, on the basis of the results of research could be argued that a threefold conduct foliar fertilizing during the critical phase of growth and development of winter rape (socket-steblovannya-budding) chelate fertilizer brand UAROSTOK® provides optimal conditions for the formation of the crop.

Conclusions. Wintering of winter rape largely depends on the conditions of its development in the autumn. The largest number of sugar (28.96%) Rape accumulates on option N30P80K140 fertilization and top dressing fertilizers conduct Macro ROSTOK a dose of 2 l / ha + ROSTOK Bor at a dose of 1 l / ha. The highest level of yield (4.92 t / ha) provide fertilizing N30P80K140 + N60 + N30. Carrying triple-fertilizing foliar fertilizers UAROSTOK® in this variant increased the yield of winter rape seeds to 0.57 t / ha.

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