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USE OF CAPSULATED MINERAL FERTILIZERS FOR OPTIMIZATION NUTRION OF POTATOES AND PRESERVATION OF NATURAL RESOURCES

The results of studying the influence of various types of mineral fertilizers on the potatoes in agroecosystem are presented. The research was conducted in field conditions. The influence of different types of newly created capsulated fertilizers (CF № 1, CF № 2, CF № 3) compared to conventional granulated (GF) on the change of growth and development of root crops, as well as on the general yield, was determined.

It has been established that all types of capsulated fertilizers provide better results due to uniform release of nutrition elements.

The content of nitrates did not change significantly in the case of the application various types of fertilizers, which is likely to be associated with a slight difference in the amount of nutrients assimilated by potatoes. An analysis of granular and capsulated mineral fertilizers distribution in the potato agroecosystem has shown that assimilation of fertilizers by plants in variants of capsuled fertilizers use increases by 4.4 %, which reduces the risk of "starvation" of plants during the period of active washing of fertilizers with groundwater and surface waters. At the same time losses in hydrosphere and atmosphere at application of capsulated fertilizers are reduced by 106,3 kg/ha that by 47,4 % less than for use of conventional mineral fertilizers.

The optimal supply of nutrients was created with help of capsulated fertilizer № 2 (the increase in yield compared to control was 31,02 t/ha (34 %)), in which the shell, except of polystyrene, included lignin and natural sorbent, which, in turn, supported not only the dynamic resistance of shell, but also contributed to the timely release of nutrients. Also, these types of fertilizers have improved the marketability of tubers (the amount of potato product fraction ≥ 35 mm increased by: the capsulated fertilizer № 1 – 23,9 %, capsulated fertilizer № 2 – 41,8 %, capsulated fertilizer № 3 – 17,9 % compared with to control).

It was established that coefficient of fertilizer use efficiency for encapsulated fertilizers significantly exceeds (and in some cases more than 2,6 times) the same indicator for granulated fertilizers, since the yield is

increasing due to application the lower amount of active ingredient. This indicates the high economic efficiency of using capsulated fertilizers in agrotechnologies of growing crops.