

Annotation

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Depth of main plowing and fertilizer systems as a factor of influence on the weediness of sugar beet sowings and its productivity

The paper presents the results of a study of the influence of the depth of the main plowing and fertilizer systems on the weediness of sugar beet sowings and its productivity. Investigations of the depth of plowing for sugar beet which were carried out with the long application of different fertilizer systems indicate that deep plowing influences the distribution of weed seeds both to the plow and to the submerged soil layer. Localization of weed seeds in the upper soil layer with plowing by 20 cm leads to a significant increase in the weediness of crops. The greatest amount of weeds in sugar beet crops was in organic and organo-mineral fertilizer systems with plowing by 20 and 30 cm. The total number of weeds in all variants was 50 and 62 pieces/m². When plowing at 40 cm they were half as small.

The yield of sugar beet roots was highly dependent on growing conditions. Long-term use of appropriate fertilizer systems in crop rotation increased the yield of root crops at different depth of basic plowing at 47–191 c/ha. As a result of an increase in the depth of the basic tillage of 30 to 40 cm in the average for three years the yield of sugar beet increased by 22–51 c/ha in all variants of the experiment. With an increase in plowing depth from 20 to 40 cm in insufficient precipitation the yield of root crops increased by 40–59 c/ha and in the more humid year by 62–85 c/ha. In the average for three years of research the sugar content of root crops in experiments was within 14.4–15.3 %. In our experiments the factory output of sugar was 36.3–56.6 c/ha. The increase in plowing under sugar beet from 20 to 40 cm after long-term use of different fertilizer systems allowed to increase the factory output of sugar by 3.6–7.5 c/ha or by 7–13 %.

Key words: plowing depth, fertilizer systems, weeds, sugar beet, factory output of sugar, yield.