

INFLUENCE OF SOIL PROPERTIES ON GRAIN QUALITY

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Abstract: The article describes the influence of some properties of irrigated meadow soils of the Mirzachul oasis on the yield and quality of corn crops. With an increase in the level of soil salinity, a decrease in corn yield was observed. Also, salts in the soil had a negative effect on the quality indicators of grain, especially this was clearly manifested in the amount of starch in the grain.

Keywords: soil salinity, dry matter, chlorine, sulfate, sodium, calcium, magnesium, gluten, oil, starch.

INTRODUCTION. It is important to study the factors affecting the yield and quality of agricultural crops. Because depending on the amount of influence of these factors, it is possible to form crop yields. Factors affecting the yield and quality of crops vary in different regions and depend on soil and climatic conditions. In addition, they are directly related to the biological properties of crops.

V.M. Garmashov et al. [1] studied the dependence of winter wheat yield and quality on soil physical properties. Soil hardness had a significant effect on the amount of gluten in the grain. Ye.V. Pismennaya, M.Yu. Azarova [2] studied the correlation between phosphorus, potassium and calcium in the soil and technological indicators of grain. The properties of irrigated meadow and pasture soils of the Mirzachul oasis, their changes, reclamation status and morphological characteristics were extensively studied by Sh.M. Turdimetov and others [3-8]. Recommendations were given to improve soil properties and increase fertility.

Research object and methods. Irrigated meadow and pasture soils widespread in Mirzachul were used as the research object. Areas planted with corn were selected and observation work was carried out. Soil sections were laid, morphological characteristics of the soil were studied, soil samples were taken and chemical analysis was performed. Correlations between soil properties and the quality of corn grain were studied.

Results and their discussion. We conducted special scientific observations to study the factors affecting the quantity and quality of corn crop yields.

The selected soils consisted of irrigated meadow and meadow soils, located on different terraces of the Syrdarya River. The correlation between the degree of soil salinity and the chemical composition of corn was studied and found to be 0.77. The grain nature in non-saline conditions was 15.0 g/l, in weakly saline conditions it was 13.1, and in moderately saline conditions it was 13.8 g/l. The protein content in the grain was 5.8% in non-saline soils, 4.5% in weakly saline soils, and 4.2% in moderately saline soils, and the carbohydrate content in the grain was 63.1%; 61.3% and 52.4%, respectively.

With increasing soil salinity, a decrease in corn yield was observed. While corn yield in non-saline soils was 124.5 t/ha, in weakly saline soils it was 93.75 t/ha and in moderately saline soils it was 59.62 t/ha.

Conclusion. Soil properties directly affect crop yield. Observations revealed that corn yield also varies depending on the level of soil salinity. It was found that the yield of corn in moderately saline soils is reduced by almost 50% compared to non-saline soils.

References:

1. Garmashov V.M. i dr. Vliyanie sposobov obrabotki pochvy, mineralnyx udobreniy, herbicides i regulatorov rosta na fizicheskie svoystva pochvy, urozaynost i kachestvo zerna ozimoy pshchenitsy. Zernovoe farm Rossii. 2015;(4):103-112.
2. Pismennaya E.V., Azarova M.Yu. Vliyanie pochvenno-klimateskikh usloviy na urozaynost ozimoy pshenitsy v usloviyax zasushlivoy zony Stavropolskogo kraya. J. Science and education. 2019 No. 4 and S. 135.5.
3. Turdimetov Sh., Khudoyberdiyeva Z., Tadjibayev A. Quality Assessment of Gypsum Soils of Mirzachol Oasis. Journal of Population Therapeutics and Clinical Pharmacology, 2023. 30(12), pp. 295–301.
4. Turdimetov Sh., Urazalieva M., Esonboeva N. PROPERTIES AND QUALITY ASSESSMENT OF HYDROMORPHIC SOILS OF MIRZACHOL OASIS. Eur. Chem. Bull. 2023,12 (Special Issue 1, Part-B), 3992-4000.
5. Turdimetov Sh.M., Goipova S.A. Agrochemical properties and characteristics of pomegranate. // Ethiopian International Journal of Multidisciplinary Research. Volume11, Issue 03, 2024. pp. 138-141.
6. Turdimetov Sh.M., Musurmanova M.M., Urazalieva M.D., Khudayberdieva Z.A., Esanbayeva N.Y. MORPHOLOGIS