

**DIAGNOSTICS OF NUTRIENT AVAILABILITY FOR CORN CROP BASED ON GROUND MONITORING
AND REMOTE SENSING IN THE CONDITIONS OF THE YENISEI REGION OF SIBERIA**

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The purpose of the work was to evaluate the possibility to use remote sensing tools (the multispectral aerial photography from UAV) in combination with the data of ground monitoring for diagnostics of the corn crop nutrient availability. The field studies were carried out on the test site of the experimental station, located in the conditions of the typical forest-steppe of the Yenisei Siberia (N56,430°, E92,915°). The results of the correlation and regression analysis revealed no correlation between the content of mineral nitrogen compounds and the analyzed vegetation indices in the 3–4 leaf stage of corn. During the period of increased nitrogen demand in the crop, there was an increase in the correlation between the values of the reflection indices and the content of nitrate nitrogen in the 10–20 cm layer in the experimental treatments. In contrast, the values of N-NO₃⁻ content in the 0–10 cm layer of the soil always had weak correlations. There was no significant correlation between the content of ammonium nitrogen and the values of the studied vegetation indices. The vegetation indices characterizing the chlorophyll content in the leaves (CI_{Gr} and CI_{Re}) had the highest correlation with the level of corn productivity, the greatest value of which was formed under the influence of nitroammophoska fertiliser. The presence of a reliable relationship between the vegetation indices and the productivity of corn was manifested at later stages of the crop development. The use of N-tester for the diagnosis of the nitrogen supply of corn reflects the real situation at later stages of the crop development (phase 9–11 leaf). A strong inverse correlation was found between the studied vegetation indices and the P:NO₃ ratio.

Keywords: corn, mineral fertilizers, vegetation indices