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PHOTOMETRIC EXPRESS DIAGNOSTICS OF MINERAL NUTRITION AND PHYTOSANITARY CONDITIONS OF GRAIN CROPS

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Studies have shown that the normalized difference vegetation index (NDVI) enables to reliably identify the mineral nutrition conditions during the summer growing season of grain crops. Crops of spring barley and winter rye when plants required more nutrients, had low NDVI: in the stage of stem elongation, when foliar feeding was carried out, NDVI was less than 0.5. Data analysis showed a weak variability of the NDVI index depending on the phytosanitary condition of grain crops, which is explained by multi-directional influence of pests on the formation of the vegetative mass of cultivated plants and their spectral characteristics. Changes in the NDVI of winter rye were associated with the manifestation of snow mold while for spring barley it was weed contamination and zonate eyespot infestation. The rate of NDVI changes is defined by the level of manifestation of the phytosanitary situation. It is established that the dependence of grain yield on NDVI is high for winter rye in the period of stem elongation-earing, for spring barley - in the decades before, during and after earing.

Key words: grain crops, photometric diagnostics, NDVI, mineral nutrition, phytosanitary condition, crop protection.