

**ON THE ISSUE OF CREATING A UNIVERSAL ALGORITHM FOR ANALYZING AND DIAGNOSING  
SOILS BY COLOR**

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Methods of measuring the color of soils are being improved, with the appearance of portable photocolormeters, tablet scanners, smartphones, digital cameras that allow quantifying the color of horizons and soil samples. The paper presents the results of work on the creation and testing of digital algorithms for determining and analyzing the color characteristics of soils in order to further classify them. There is a technique for field quantitative description of soil color in the CIE-L\*a\*b\* system created by the International Commission on Illumination. The color of the horizon is used as a quantitative diagnostic criterion. The paper shows the results of comparison and criteria for the WRB color for the CIE-L\*a\*b\* system. Currently, the International Reference Base of Soil Resources (WRB-2015) is used as a standard, the main task of which is the correlation between the national soil classifications. Based on the WRB and the Mansell Atlas, universal electronic reference tables for the transition from color standards to color indicators of the CIE L\*a\*b\* system have been compiled. By combining the reference tables for individual criteria, the final ColCritAll for each criterion was obtained.

The software module «T-color» has been created, the functions of which include automatic verification of the data entered by the user to the color criteria of WRB-2015. For trial sections of sod-podzolic soils, compliance with the color criterion of the diagnostic material albic was checked, which showed the adequacy of the work of the «T-color» module, which is an add-on to the digital solution - the Soil Determination Program in accordance with the World Reference Database of Soil Resources (2021).

**Keywords:** methodology, field quantitative description, soil color, WRB, Mansell Atlas, software module.