ISSN 1064-2293, Eurasian Soil Science, 2016, Vol. 49, No. 9, pp. 1033–1037. © Pleiades Publishing, Ltd., 2016.
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SOIL PHYSICS

Color Estimation of Forest-Steppe Soils by Digital Photography under Laboratory Conditions

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Received March 31, 2015

Abstract—Numerical values in the RGB, HSB, and L*a*b systems for the colors of structurally differentiated soils (Luvisols) in the Volga–Kama forest-steppe have been obtained using a digital camera. A high correlation has been revealed between the soil color and the content of humus in the range 0.39–6%. When the content of humus exceeds 6%, the color of humus horizon varies only slightly. A regression equation within the R_{RGB} range from 85 to 173 has been calculated for the rapid determination of humus content in low- and medium-humus texturally differentiated soils of the Volga–Kama forest-steppe.

Keywords: soil color, Munsell color chart, RGB system, forest-steppe soils, humus, Luvisols

DOI: 10.1134/S1064229316090131