Soil Organic Carbon Content and Soil Color in the Chariton Valley, Iowa. (S05-burras114727-Poster)

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Abstract:

Soil color often shows a strong correlation with soil organic carbon (SOC) content. Our objective was to expand this relationship into an equation that semi-quantitatively estimates SOC content. SOC content was measured to a 1m depth across 26 fields in south central Iowa's Chariton River Valley. Research sites included dominant land uses for the area: pasture, row crop, woodlot, and switchgrass. Two hundred fifty-two pedons were collected and described using standard pedologically nomenclature. Each horizon was then analyzed for SOC content and soil color using a Munsell color book and a chromameter. The soil color and SOC content data were separated into three populations for regression analyses: (a) all horizons, (b) only mollic colors, and (c) only non-mollic colors. The most significant relationship was found with value and chroma for all horizons. Results indicate that although chromameter for all horizons shows the best relationship with SOC content ($r^2 = 0.61$), the Munsell color book also estimated SOC content for all horizons well ($r^2 = 0.50$). Overall, our data suggests that an equation using either method could be a good estimate of SOC content.

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