

**Office of the Chief
Weekly Report**

**Soil Science and Resource Assessment
Soil Science Division**

February 6, 2013

Deadline Reminders - None

Upcoming Meetings/Conferences - None

Soil Science Division Update -

Science of Interpretations distance learning training conducted – Thirty NRCS employees participated in the SSD's newest training course, "Science of Interpretations", January 28-31, 2013. The course was developed by NSSC staff and delivered via distance learning using a combination of half day sessions and mentor-led small group activities. The half-day format has been popular with employees. The training focus is on identification of soil and other properties important for an interpretation regardless of current database restrictions. Activities include online literature and staff interviews to gain knowledge and insight used in creation of an interpretation criteria table. The primary target audience includes ecological site specialists, resource soil scientists, assistant state soil scientists and state soil scientists. A reflection letter is used as a post-training assignment and serves as a documented discussion of the training between the supervisor and employee. NRCS mentor cadre helping with the training include Bob Dobos, Mike Kucera, Shawn McVey, Dr. Cathy Seybold, and Susan Southard of the NSSC. This is the third session of the training offered this fiscal year with 87 employees successfully completing the training.

Spatial Analysis Workshop – Ten soil scientists representing 7 states successfully completed the online training, Spatial Analysis Workshop, January 30th. Dwain Daniels, GIS specialist at the CNTSC and Tom D'Avello, soil scientists (GIS) at the NSSC GRU served as the online, distance learning instructors. This workshop trains participants to work with digital elevation data and use various tools to derive new soil survey products. In all, 3 sessions of the workshop are schedule this fiscal year. The workshop is the first in a 3-part training series on digital soil mapping techniques.

NSSC Concludes Successful 2012 CFC - Cindy Steufer-Powell and Linda Kruger represented the National Soil Survey Center (NSSC) at the Finale of the 2012 Lincoln and Lancaster County Area Combined Federal Campaign (CFC) held Jan. 30th, 2013. The local 2012 Campaign raised a total of \$255,740.69. Of this amount, 60% was donated to the local charitable organizations (Community Health Charities, the Local Independent agencies and the United Way of Lincoln agencies), 35% to National charitable organizations and 5% to International charitable organizations. Although overall donations to the CFC were lower than 2011, NSSC employees contributed over \$10,000 which was an 18% increase from 2011. In addition, NSSC employees had a significantly higher rate of participation in the CFC (43%) than the local average (20%). Thank you to everyone at the NSSC who donated for helping make the 2012 CFC "Reaching Out, Raising Hope" campaign a success!

Geospatial Research Unit Staff Speak at Purdue - On January 14, 2013, Sharon Waltman, NSSC Geospatial Research Unit (GRU) Soil Scientist and Dr. James Thompson (West Virginia University GRU Research Coordinator) presented a Seminar entitled “Soil Landscapes of the U.S.: A Scalable Framework for Soil Geographic Knowledge” to the Purdue University Department of Crop, Soils, and Environmental Sciences. The audience included about 60 Purdue University students, faculty as well as ARS and NRCS staff. Soil Landscapes of the United States (SOLUS) is envisioned as a national, scalable system of organizing soil geographic knowledge that helps partition soil parent material and soil climate variation into broad regions. Each region is further partitioned by nested, smaller regions sharing patterns of soil forming factors in space and time. Translation of legacy soil geographic databases and new digital soil mapping efforts into a SOLUS system was described and discussed. The joint presentation (slides with audio) was recorded and can be reviewed at <https://gomeet.itap.purdue.edu/p6sl2c71blu/>.

Waltman and Thompson also met with Purdue University graduate students and faculty (Soils and Library Sciences) to discuss future soil geographic education strategies related to the Integrating Spatial Educational Experiences (Isee) web application (<http://isee.purdue.edu/>).

Soil Respiration Test for Soil Health and Potential N-Mineralization Estimates - On February 4, 2013, Bill Kuenstler CNTSC agronomist hosted the Central SRC/Agronomists teleconference. Mike Kucera, Agronomist, Soil Quality and Ecosystems Branch (SQEB), NSSC, provided an overview of the potential uses of the Solvita respiration test for gauging soil health and estimating potential N-mineralization for nutrient management planning. Will Brinton, President of Woods End Laboratories, described Solvita’s basal respiration and CO₂ burst tests.

The basal or base respiration test can be done using a set volume of field-moist soil that is placed in an airtight jar with a Solvita CO₂ probe for 24 hours. This procedure is described in the Soil Respiration Soil Quality Kit Educator’s Guide http://soils.usda.gov/sqi/assessment/files/respiration_guide.pdf. The test is a semi-quantitative measure of carbon mineralization and soil biological activity, both of which relate to overall soil quality.

The most recent development with Solvita is the “CO₂-Burst” test, which is a quantitative, standardized laboratory protocol developed in collaboration with Dr. Rick Haney (USDA-ARS, Temple, TX). This method involves measuring the CO₂ flush after drying then re-wetting soil. A portable Digital Color Reader (DCR) with specific calibrations reads the color and quantitatively relates color to CO₂ mineralized. The results have been shown to be well-correlated with laboratory tests for potentially mineralizable nitrogen, which usually entails a 28-day incubation. This test, therefore, provides a rapid method to indirectly estimate nitrogen availability during the growing season.

Throughout the country, soil test labs are beginning to test and/or offer Solvita tests to their customers. Due to this mounting interest, the SQEB staff are developing detailed guidance on the use of these Solvita tests for the Soil Quality Test Kit Guide.

Personnel Highlights - None