

# \*Example Agenda for Soil Quality Bucket Kit Educators Training

Insert Date & Location

| Time   | Session  | Description   |
|--|--|---|
| 8:00   | Registration open  | Refreshments Available  |
| 8:30   | <b>Welcome to Research Center</b>  | Show NRCS, Extension and other resources available such as people, websites, etc. |
| 8:35   | <b>Explanation of the Soil Health Education &amp; recognition of special guests</b><br>Split educators into 3 groups   | Introduce NRCS, Extension, steering committee, other key people in attendance     |
| <b>In Field Soil Quality Test Kit Exercises (Three Groups) 8:45-11:45 (50 minute sessions)</b>   |  |   |
| 8:45 – Session 1   | <b>Explanation of soil profile &amp; positioning of the landscape, sampling for soil quality, soil characterization, soil pit</b>  | 8:45 – 9:35 – Group 1<br>9:40 – 10:30 – Group 2<br>10:50– 11:40 – Group 3         |
| 9:40 – Session 2   | <b>Infiltration test, Soil Organic Matter estimate, and Bulk Density sampling</b>  | 8:45 – 9:35 – Group 1<br>9:40 – 10:30 – Group 2<br>10:50– 11:40 – Group 3         |
| 10:30 – Break  | <b>Soil temperature, Electrical Conductivity, pH, N &amp; P tests</b>  | 8:45 – 9:35 – Group 1<br>9:40 – 10:30 – Group 2<br>10:50– 11:40 – Group 3         |
| 10:50 – Session 3  |  |   |
| 12:00 to 1:00  | Lunch/Networking with organization contacts & resources (view soil quality demonstrations)<br><b>Luncheon Guest Speaker: Soil Microbiology</b>   |   |
| <b>Classroom Soil Quality Test Kit Exercises (Three Groups) 1:00 PM to 3:15 PM (40 minutes)</b>  |  |   |
| 1:00 – Session 1   | <b>Bulk Density, Compaction, Soil Water, Pore Space etc.</b>   | 1-1:40 – Group 1<br>1:45 -2:25 – Group 2<br>2:40 – 3:20 – Group 3                 |
| 1:45 – Session 2   | <b>Solvita Respiration tests, Soil Organic Matter Calculations, etc.</b>   | 1-1:40 – Group 1<br>1:45 -2:25 – Group 2<br>2:40 – 3:20 – Group 3                 |
| 2:25 Break   | <b>EC, pH, Nitrate, Phosphate, Aggregate stability comparison, etc.</b>  | 1-1:40 – Group 1<br>1:45 -2:25 – Group 2<br>2:40 – 3:20 – Group 3                 |
| 2:40 – Session 3   |  |   |
| 3:25   | Summarize overall soil health concepts and how individual tests tie soil health together, utilize and demonstrate State Soil Health Card. Wrap up field and classroom activities and discuss how educators or others can use materials to train others. Finally review contents of bucket, training materials, accessing training materials and who to contact for further assistance. |   |
| 3:55   | <b>Evaluation &amp; Head Home</b>  | <i>Next steps with Soils Education Project...</i>                                 |
| *This is an example to build your own program that was originally held in collaboration with Nebraska FFA Foundation, UNL Extension, & NRCS through the <b>Nebraska Ag Education Soils Project</b> sponsored by a <b>Nebraska Environmental Trust</b> grant. |  |   |

Program Partners:



**Soil Quality Bucket Kit Educators Training Details for Group Exercises -utilize educator guides and other materials found on website: <http://soils.usda.gov/sqi/assessment/educators.html>**

**In-Field Soil Quality Test Kit Exercises**

- 1. Explanation of soil profile & positioning of the landscape**
  - a. Review field map, soils interpretations and management history, in field characterization discussion based on field information provided in group session (using maps, management history, soil survey information, on site investigation and other information). Discussion on sampling for soil quality and agronomic soil tests
  - b. Soil Characterization (soil moisture and texture classification hand feel method)
  - c. Pit: Discuss compaction, soil horizons, root restrictions, biota and other features
  
- 2. Infiltration test & Organic Matter (discuss what impacts these tests)**
  - a. Small ring infiltration test (initial and secondary test when soil is at field capacity)
  - b. Gather samples for Bulk Density using cylinders (used for classroom and buckets, Water Content, Water holding Capacity, and Water filled pore space classroom activities)
  - c. Organic Matter in field color test
  
- 3. Soil temperature, Electrical Conductivity, pH, N & P tests (sampling for soil quality discussion tying back to group 1 exercise based on management history, soils, site conditions, etc.)**
  - a. Soil temperature test
  - b. Electrical-conductivity hand held test
  - c. pH hand held test
  - d. Soil Nitrate hand held (Nitrite only run if 1:1 EC level is > or = to 0.01 dS/m)
  - e. Water Nitrate test if applicable
  - f. Phosphate (P) hand held test.

**Classroom Soil Quality Test Kit Exercises**

- 1. Bulk Density, Soil Water calculations (use samples collected from morning field sessions, also need to use gram scale and microwave to determine weight and moisture content over lunch).**
  - a. Soil water content calculation and discussion
  - b. Water holding capacity calculation and discussion
  - c. Bulk Density calculation activity (include discussion questions and interpretations)
  - d. Water filled pore space calculation activity and discussion
  
- 2. Solvita Respiration tests, Soil Organic Matter Calculations**
  - a. Solvita Respiration tests (two example management systems started 24 hours prior)\*
  - b. Estimate N-Flush from respiration tests using educator guide
  - c. Soil Organic Matter Calculations (estimate soil organic matter and calculate total N, P, S and Carbon contained in OM)\*
  
- 3. EC, pH, soil and water Nitrate/Nitrite, Phosphate, Aggregate stability comparison, etc.**
  - a. EC 1:1 calculation and interpretations\*
  - b. pH 1:1 calculations and interpretations\*
  - c. Nitrate (Nitrite) 1:1 calculation evaluation convert N in PPM to pounds etc.\*
  - d. Water Nitrate test and interpretations\*
  - e. Phosphate 1:1 calculation evaluation and interpretations\*
  - f. Aggregate stability comparison and demonstration using slaking test\*

*\*These activities can be done in the field or classroom*