JUNE 2015

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **SampleNumber** | **Pedon** | **pHw** | **pHs** | T0-N | T7-N | 7d PMN (mg/kg) | WSA (%) | Active Carbon (mg/kg) |
| (mg/kg) | (mg/kg) |
| 15-0270 | MO-101-SJ-SARE-HLR-05062015 (HALLAR) | 6.6 | 6.2 | 4.2 | 40.5 | 36.3 | 60 | 325.4 |
| 15-0271 | MO-037-SJ-SARE-STK-05062015 (WMS-STARK) | 5.8 | 5.3 | 5.4 | 95.7 | 90.3 | 40 | 409.7 |
| 15-0272 | MO-095-SJ-SARE-DRM-05062015 (DRUMM) | 7.5 | 7.1 | 1.6 | 40.8 | 39.2 | 15 | 429.1 |

NOVEMBER 2015 (preliminaries>>T0-N & T7-N not complete yet)

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **SampleNumber** | **Pedon** | **pHw** | **pHs** | 7d PMN (mg/kg) | WSA (%) | Active Carbon (mg/kg) |
|
| 15-1859 | MO-101-SJ-SARE-HLR-10062015 (HALLAR) | 6.9 | 6.4 | 52.5 | 36 | 583.2 |
| 15-1860 | MO-037-SJ-SARE-STK-10062015 (WMS-STARK) | 6.2 | 5.7 | 240.0 | 82 | 636.5 |
| 15-1861 | MO-095-SJ-SARE-DRM-10062015 (DRUMM) | 7.3 | 6.9 | 72.0 | 20 | 928.8 |

June/2015 interpretation

|  |  |  |  |
| --- | --- | --- | --- |
| Pedon |   | Relative Strength | Relative Weakness |
| MO-101-SJ-SARE-HLR-05062015 |   | WSA | PMN |
| MO-037-SJ-SARE-STK-05062015 |   | PMN | slightly low pHs |
| MO-095-SJ-SARE-DRM-05062015 |   | Active Carbon | WSA |

November/2015 interpretation

|  |  |  |  |
| --- | --- | --- | --- |
| Pedon |   | Relative Strength | Relative Weakness |
| MO-101-SJ-SARE-HLR-05062015 |   | WSA | PMN |
| MO-037-SJ-SARE-STK-05062015 |   | PMN | slightly low pHs |
| MO-095-SJ-SARE-DRM-05062015 |   | Active Carbon | WSA |

SEE DEFINITIONS BELOW on page 2

**Potentially Mineralizable Nitrogen (PMN)**

**Importance.** It is a measure of soil nitrogen that will be available to plants over the next growing season and a measure of soil biological activity. In the West, PMN results have been used to adjust crop nitrogen recommendations by taking credit for the organic N that will be mineralized during the growing season.

**Method.** Soil samples are in flasks with distilled water and are incubated at 40° C for 7 days. Under anaerobic conditions microbes mineralize organic nitrogen into plant-available ammonium. At the end of the week incubation potassium chloride is added to the sample and mixed. Ammonium concentration is determined by color change and a spectrophotometer.

**Active Carbon (AC)**

**Importance.** Easily oxidized carbon (C) compounds are likely to be mineralized, or decomposed, by soil microbes over the next growing season. Changes or differences in AC are easier to measure than small, but important, changes in Percent Total Organic Carbon due to changes in management

**Method.** A potassium permanganate solution is used to oxidize soil organic matter to determine AC. A solution of purple potassium permanganate is reacted with soil by shaking the solution. The solution is allowed to settle, and then a subsample is diluted and analyzed by a UV-VIS spectrophotometer. The more easily oxidized carbon in the sample, the lighter the color of the sample. Soil AC is given in mg/Kg soil which is equivalent to ppm.

|  |  |  |  |
| --- | --- | --- | --- |
|  | Rating  | Alfalfa | All Other Crops  |
|  |  | ------------------- pHs Range----------------- |
|  | Very low | < 5.0 | < 4.5 |
|  | Low | 5.0-5.8 | 4.5-5.3 |
|  | Medium | 5.8-6.5 | 5.3-6.0 |
|  | High | 6.5-7.5 | 6.0-7.5 |
|  | Very High | > 7.5 | > 7.5 |
| Buchholz, Daryl D., et al. *Soil test interpretations and recommendations handbook*. University of Missouri-College of Agriculture, Division of Plant Sciences, 2004. |
|

**Soil pH in Water and Salt (pHw, pHs)**

**Importance. S**oil pH measures the concentration of hydrogen ions in soil solution. Soil pH affects the solubility of plant nutrients in the soil and the soil nutrient holding capacity or cation exchange capacity (CEC) of the soil. Other soil properties are indirectly affected by soil pH. Low pH can also result in toxic levels of soil aluminum.

**Method.** Soil samples (10 g) are mixed with 10 ml of deionized water. A calibrated glass electrode selective for hydrogen ions determines soil pH. A second measurement is taken after 10 ml of 0.01 M CaCl2 is added. The second measurement is referred to as “salt pH” because the added salt (CaCl2) helps reduce variability in pH measurements due to differing salt concentrations in soils.

**Percent Water Stable Aggregates (%WSA)**

**Importance.** Soil wet aggregate stability indicates how well soil particles are bound together and their resistance to water breaking them apart. Increased aggregate stability indicates reduced erosion, decreased surface crusting and sealing, and increased soil biological activity, infiltration, soil porosity and water holding capacity.

**Method.** Soil samples are air dried, gently ground and sieved to retain aggregates between 1 and 2 mm in diameter. Aggregates (3 g) are distributed on a 0.5 mm sieve, soaked overnight, and then mechanically agitated. Aggregated that remain on the sieve are weighed and deemed stable and are reported as a percentage.