The purpose of this guide is to assist Coop, County, District and State Extension personnel, and any other Laboratory users in the efficient and effective use of the OSU Soil, Water, & Forage Analytical Laboratory (SWFAL) testing services. This guide is designed for use as a resource for quick reference. Although detailed, this manual is not all-inclusive. This guide is an excellent source for training new personnel who work with SWFAL samples on a regular basis.
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SWFAL – General Information

Introduction to the Soil, Water, & Forage Analytical Laboratory

The Soil, Water & Forage Analytical Laboratory (SWFAL) works in conjunction with the Oklahoma Cooperative Extension Service to provide the public with the most commonly needed analytical testing of soil, water, forage, and animal waste for most agronomic purposes. This laboratory is managed to provide accurate, reliable testing services at a competitive price. In order to achieve these objectives all activities associated with testing have been standardized. This manual describes many of the various steps or procedures involved with handling samples before they are tested, as well as results and billing after analysis is finished. Proper preparation and submission of a sample assures the most rapid turn around time, test reporting and correct billing.

We hope this guide will help you better understand many of the changes that have taken place at the Laboratory. We also hope this guide will help us work together to provide a useful public service to your producers and patrons. We appreciate your support and cooperation. Please let us know if you have any suggestions or comments to improve our service to you and your clientele.

SWFAL Office Information

IMPORTANT PHONE NUMBERS

SWFAL Main Office ___________________________ 405-744-6630
Dr. Hailin Zhang – Lab Director ___________________________ 405-744-9566
Kendal Henderson – Lab Coordinator ________________ 405-744-7771
Plant and Soil Sciences Department ___________________ 405-744-6425
Debbie Porter - Secretary __________________________ 405-744-6414
SWFAL Fax # ___________________________________ 405-744-9575
Plant and Soil Sciences Department Fax # __________ 405-744-5269
SWFAL ADDRESS AND HOURS OF OPERATION

The SWFAL Laboratory is open Monday through Friday, 8 a.m. to 5 p.m. Often there is someone here during the noon hour. If you call and reach the answering machine, please leave a message and we will return your call as soon as possible. If you come by the lab to drop off samples or to pick up supplies, go to the SWFAL Office in room 045, basement of Agricultural Hall. If no one is there, check in room 046 - the lab, or room 048 - the lab supervisor’s office.

The laboratory is closed holidays when Oklahoma State University is closed. Sample processing will be delayed during these times. Please take this into consideration when submitting samples.

Holiday breaks are as follows:
- January – Martin Luther King day – closed Monday
- May - Memorial Day Weekend - closed Monday
- July - Fourth of July Holiday – closed the fourth
- September - Labor Day Weekend – closed Monday
- November - Thanksgiving Holiday – four-day break
- December - Christmas Holiday – two-week break

ADDRESS CHANGE

It is very important that addresses are corrected as soon as they change. Please login into your SWFAL Login at www.soiltesting.okstate.edu and click on MY PROFILE tab and correct the information. Also inform the OSU Bursar Office (405-744-5992) any address, phone number, or fax number changes. The lab needs to know the best address. Changes in personnel, county extension educators and secretaries, are also helpful to know.

CONFIDENTIALITY

SWFAL respects the privacy act. Results and information about samples will only be given to the client, unless released by client’s written notification. When samples are sent in by the county and individuals call about their samples, they will be directed back to the county extension office. Samples are logged in by means of numbers and not names; therefore, we do not know specifically whose sample is whose.

Laboratory Services and Information

"The limits of accuracy (of a soil's analysis) generally is determined by the sample, not by the analysis... A sampling tool should provide a sampling unit that is uncontaminated, approximately uniform in cross section to the desired depth, and reproducible.” - Dr. M. G. Cline, Professor of Soils, Cornell University.
DESCRIPTION OF TESTING SERVICES

Testing services provided by SWFAL include analysis of soil, water, forage, and animal waste samples. See Extension Leaflet 1-241 for details. Soil tests are divided into three categories, soil fertility tests, soil salinity tests, and a soil texture test. Water tests are limited to selected mineral or inorganic contaminants. SWFAL is not equipped to analyze water for organic contaminants such as bacteria, or pesticides. Other laboratories must be consulted for these types of analyses. Forage tests include measures of forage quality and nitrate toxicity. Mineral Analysis of forage (e.g. calcium, phosphorus, potassium, etc.) is also available through this laboratory. Animal Waste and Compost samples can be tested for nutrient value for land application. A description of each test follows.

SOIL FERTILITY TESTS

Results from soil fertility tests are used to determine appropriate rates of lime and fertilizer that must be applied to a soil to maximize yield for a specific crop.

ROUTINE FERTILITY Test

- Most common test
- Tested for pH, buffer index (for Lime recommendation), nitrate-nitrogen, phosphorus and potassium.
- Recommended that farmers perform this test on representative samples from their fields annually.

SUBSOIL NITRATE-NITROGEN Test

- Should be performed in conjunction with a routine fertility test for deep rooting crops, e.g., wheat, bermudagrass.
- Results assume the subsoil sample was collected from the 6 to 24 inch depth (e.g., 18 inches of subsoil.) If the subsoil sampling depth was different from 18 inches, it is best to correct the soil test report for the actual depth sampled.
- To make the correction, divide the subsoil nitrate-nitrogen value by 18, then multiply by the actual inches of subsoil sampled. (e.g. If the soil test report lists 24 lbs./acre of subsoil nitrate-nitrogen and the subsoil sample was collected from the 6 to 18 inch depth, i.e. 12 inches of subsoil, the formula is (12/18) x 24 = 16 lbs./acre of subsoil nitrate-nitrogen.

SECONDARY NUTRIENT and MICRONUTRIENT Test

- Generally need only be performed when a nutrient deficiency is suspected or attempting to diagnose an unidentified problem with a soil or crop.
- Secondary Nutrients include S, Mg, and Ca
- Micronutrients include Fe, Zn, Cu and B

SOIL ORGANIC MATTER Test

- Percentage calculated from the carbon analysis by LECO Instrument
- Analyzed directly by loss on ignition method.
- Organic carbon and total nitrogen by Leco method also available.
SOIL SALINITY TESTS

There are two types of salinity tests, SALINITY MANAGEMENT Test and COMPREHENSIVE SALINITY Test. Both are used to identify salinity and sodicity problems and determine salt content in soils. Results are commonly used to estimate the effect of excess salt on agricultural production or to assess the environmental impact of salt contamination.

SALINITY MANAGEMENT Test

- Uses a soil-water ratio of 1:1 for the extraction
- Test should be run when a farmer or homeowner suspects a salinity problem in the soil
- Used to determine the degree of the problem and the steps needed to correct it.

COMPREHENSIVE SALINITY Test

- Uses a saturated paste extraction.
- Test is more thorough and precise than the salinity management test.
- Designed to be used for environmental consulting purposes or if there is a chance the test results may be used in litigation.

SOIL TEXTURE TEST

SOIL TEXTURE Test

- Determines the percentage of sand, silt, and clay in a sample using the hydrometer method.
- The textural class is also reported (e.g., Sandy Clay, Clay Loam, Silt Loam, etc.)

WATER TESTS

SWFAL offers three types of water tests: LIVESTOCK, HOUSEHOLD, and IRRIGATION. The types of analyses performed for each test overlap somewhat; however, the report interpretations are specific for the type of test requested.

LIVESTOCK

- Test assesses the quality of water for consumption by livestock

HOUSEHOLD

- Test is a screening tool for home use water and should not be used to determine if the water is fit for human consumption
- Basic household analysis
- Does not check for bacteria, fecal matter, lead, or pesticides.

IRRIGATION

- Test assesses water quality for irrigation purposes with an interpretation specific to field agriculture production.
- Results can also be used to assess suitability of water for lawn, garden, or greenhouse use.
- Reports total alkalinity. This maybe useful for pond management.
FORAGE TESTS

(Information gathered from Fact Sheet F-2117, Forage Quality Interpretations)

High quality forages are crucial for the livestock industry and chemical analyses are useful tools in estimating certain forage quality factors. Direct chemical tests are usually accurate, but are somewhat slow and must be conducted in standard laboratory conditions. The listed analyses below are provided for forage and feed samples (Liquid feed is not included). Minerals and Minerals Plus analyses are provided for plant tissue as well. There are six types of forage tests available:

BASIC ANALYSIS
- Test includes - moisture and protein -calculated from total nitrogen concentration
- Protein is important in rations because it is usually the highest-priced nutrient

BASIC PLUS ENERGY
- Tests include - basic analysis plus ADF, total digestible nutrients, and net energy.
- ADF estimates forage digestibility

BASIC PLUS ENERGY PLUS RFV
- Test includes - basic plus energy plus NDF and relative feed value (RFV).
- NDF provides an estimate of forage palatability.
- RFV is only provided for ALFALFA SAMPLES.
- RFV combines into a single number the digestibility and palatability of the forage. This value has no specific nutritional meaning and is used only as an index of the relative feed value of forage.

NITRATE TOXICITY
- Test includes nitrate and moisture.
- Indicates if the level of nitrate is potentially harmful to livestock with interpretations specific for the level of toxicity.

MINERALS
- Test includes Ca and P analyses plus K, Mg, Cu, Fe, and Zn

ANIMAL WASTE AND COMPOST TESTS

(Information gathered from Fact Sheet F-2228, Nutrients in Animal Manure)

Manure is a by-product containing many plant nutrients and organic matter. Animal manure can be an asset rather than a liability for producers when effectively managed and properly used on field crops. Besides providing valuable macro- and micronutrients to the soil, manure supplies organic matter to improve the soil’s physical and chemical properties. It also increases infiltration of water and enhances retention of nutrients, reduces wind and water erosion, and promotes growth of beneficial organisms. Land application of animal manure recycles nutrients back to the land. It is the most economical and environmentally sound method to handle by-products in meat and milk production.

Test 1
- Test includes - moisture and TN, TC and Minerals

Test 2
- NH₄-N and NO₃-N

Test 3
- Water Soluble P
**PRICE LIST OF STANDARD CHARGES**

Following is a comprehensive price list showing the laboratory’s standard charge and the county extension office’s cost for each analysis. The list also shows the handling discount given to extension offices. This price list is subject to modification, and you will be notified of any changes in advance.

*Table 1: Price List of Standard Charges*

<table>
<thead>
<tr>
<th>Soil Property Analyses</th>
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<th>County</th>
<th>Discount</th>
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<td>Routine</td>
<td>pH (1:1), Lime requirement (SMP), NO₃-N, P (Mehlich 3), K (Mehlich 3)</td>
<td>$10.00</td>
<td>$9.00</td>
<td>$1.00</td>
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<tr>
<td>Subsoil Nitrate-N</td>
<td>NO₃-N (0.008M Calcium Phosphate)</td>
<td>$2.00</td>
<td>$2.00</td>
<td>-</td>
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<tr>
<td>Nitrate-N or Ammonium-N</td>
<td>NO₃-N or NH₄-N (1M KCl)</td>
<td>$4.00</td>
<td>$4.00</td>
<td>-</td>
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<tr>
<td>Nitrate-N and Ammonium-N</td>
<td>NO₃-N and NH₄-N (1M KCl)</td>
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<td>Secondary Nutrients</td>
<td>Mg, Ca (M3) and SO₄-S (0.008M Calcium Phosphate)</td>
<td>$4.00</td>
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<td>Micronutrients</td>
<td>Fe, Zn, B (DTPA-Sorbitol), Cu</td>
<td>$4.00</td>
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<td><strong>Salinity Management</strong></td>
<td>Na, Ca, Mg, K, B, EC, TSS, SAR, ESP, pH</td>
<td>$15.00</td>
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<td><strong>Comprehensive Salinity</strong></td>
<td>Na, Ca, Mg, K, B, EC, TSS, SAR, ESP, pH, Cl⁻, CO₃²⁻, HCO₃⁻, NO₃⁻, SO₄²⁻</td>
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<td><strong>Soil Texture</strong></td>
<td>Sand%, Silt%, Clay%</td>
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<td><strong>Organic Matter</strong></td>
<td>OM% (LECO or LOI)</td>
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<td><strong>Organic C &amp; Total N</strong></td>
<td>OC% and TN% (LECO)</td>
<td>$8.00</td>
<td>$8.00</td>
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**Water Quality Analyses**

<p>| Livestock Water       | Na, Ca, Mg, K, Cl⁻, NO₃-N, SO₄²⁻, pH, EC, TSS, Hardness | $15.00  | $14.00 | $1.00    |
| Household Water       | Na, Ca, Mg, K, Cl⁻, NO₃-N, SO₄²⁻, pH, EC, TSS, Hardness | $15.00  | $14.00 | $1.00    |
| Irrigation Water      | Na, Ca, Mg, K, B, Cl⁻, NO₃⁻N, SO₄²⁻, CO₃²⁻, HCO₃⁻, pH, EC, SAR, TSS, Hardness | $15.00  | $14.00 | $1.00    |
| Nitrate and Ammonium N| NO₃-N and NH₄-N | $4.00    | $4.00  | -        |</p>
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<th>Ortho-P (colorimetric)</th>
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**Forage Analyses**

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<td>Nitrate Toxicity</td>
<td>Nitrate and Moisture</td>
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<td>$6.00</td>
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<td>Basic Analysis</td>
<td>Protein (Dry combustion-LECO) and Moisture</td>
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<td>$8.00</td>
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<tr>
<td>Basic Plus Energy</td>
<td>Protein and Moisture, ADF, TDN, Net Energy for: Gain, Location, Maintenance</td>
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<td>$14.00</td>
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<tr>
<td>Basic Plus Energy Plus RFV</td>
<td>Protein, Moisture, ADF, TDN and Energy, NDF - Neutral Detergent Fiber, RFV - Relative Feed Value (Alfalfa only)</td>
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<td>$20.00</td>
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**Feed, Grain and Plant Sample Analyses**

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<td>Protein or TN</td>
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<td>Minerals</td>
<td>Ca, P, Mg, K, Cu, Fe, Zn and Moisture</td>
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<td>$12.00</td>
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<td>Plant Tissue Analysis</td>
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**Animal Waste**

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<td>Test 1 (Solid/slurry)</td>
<td>pH, EC, Moisture, TN, C, S, P, K, Ca, Mg, Na, Cu, Zn, Mn, Fe</td>
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<td>$20.00</td>
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<td>Test 1 (liquid)</td>
<td>pH, EC, Moisture, TN, C, S, P, K, Ca, Mg, Na, Cu, Zn, Mn, Fe</td>
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<td>Test 2</td>
<td>NH₄-N and NO₃-N</td>
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<td>Test 3</td>
<td>Water soluble P</td>
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**Total Petroleum Hydrocarbons (TPH)**

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<td>Soil Sample</td>
<td>TPH and Total Oil and Grease (TOG) Test</td>
<td></td>
<td>$50.00</td>
</tr>
<tr>
<td>Water Sample</td>
<td>TPH and TOG</td>
<td></td>
<td>$40.00</td>
</tr>
</tbody>
</table>

<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Chain of Custody form</td>
<td></td>
<td></td>
<td>$1.00 per report</td>
</tr>
<tr>
<td>Forage Sample Bags</td>
<td></td>
<td></td>
<td>$0.25 per bag</td>
</tr>
</tbody>
</table>

For Complete list – go to [www.soiltesting.okstate.edu](http://www.soiltesting.okstate.edu) and click on Services and Price List
LABORATORY TURNAROUND TIMES

Below are normal turnaround times for analyzing samples at the Soil, Water & Forage Analytical Laboratory. This chart reflects laboratory time only. Remember to allow extra time for samples to be mailed to the lab. Retrieving results from the Internet speeds up turnaround time. All results are found at your SWFAL Login at www.soiltesting.okstate.edu.

Table 2. Normal Turnaround Times

<table>
<thead>
<tr>
<th>Soil Fertility Tests</th>
<th>Test #</th>
<th>Lab Time (Days)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Routine Fertility</td>
<td>1</td>
<td>2-3</td>
</tr>
<tr>
<td>Subsoil Nitrate</td>
<td>S</td>
<td>2-3</td>
</tr>
<tr>
<td>Surface Nitrate</td>
<td>N</td>
<td>2-3</td>
</tr>
<tr>
<td>Secondary Nutrients</td>
<td>2</td>
<td>2-3</td>
</tr>
<tr>
<td>Micronutrient</td>
<td>3</td>
<td>2-3</td>
</tr>
<tr>
<td>Organic Matter</td>
<td>O</td>
<td>2-4</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Soil Salinity Tests</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Salinity Management</td>
<td>5</td>
<td>4-5</td>
</tr>
<tr>
<td>Comprehensive Salinity</td>
<td>6</td>
<td>4-5</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Soil Texture Tests</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Texture</td>
<td>T</td>
<td>3-4</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Water Tests</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Livestock</td>
<td>2</td>
<td>4-5</td>
</tr>
<tr>
<td>Household</td>
<td>3</td>
<td>4-5</td>
</tr>
<tr>
<td>Irrigation</td>
<td>1</td>
<td>4-5</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Forage Tests</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Basic</td>
<td>B</td>
<td>2-3</td>
</tr>
<tr>
<td>Basic Plus Energy</td>
<td>C</td>
<td>3-5</td>
</tr>
<tr>
<td>Basic Plus Energy Plus RFV</td>
<td>D</td>
<td>3-5</td>
</tr>
<tr>
<td>*Nitrate</td>
<td>N</td>
<td>2-3</td>
</tr>
<tr>
<td>Minerals</td>
<td>M</td>
<td>3-5</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Animal Waste/Compost Tests</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Test 1</td>
<td>1</td>
<td>4-5</td>
</tr>
<tr>
<td>Test 2</td>
<td>2</td>
<td>4-5</td>
</tr>
<tr>
<td>Test 3</td>
<td>3</td>
<td>4-5</td>
</tr>
<tr>
<td>TPH Samples</td>
<td>X or W</td>
<td>2 weeks</td>
</tr>
</tbody>
</table>

*Nitrates are not called to the county extension. They are posted to the Internet immediately after they are printed, which is usually the day after the sample is received. *If time is critical, send the sample by EXPRESS MAIL or Deliver it directly to the laboratory.*
QUALITY CONTROL AND INSTRUMENTATION

The Lab strives to provide top service. In order to provide this service, quality control must be in place. Equipment must be in top shape and personnel must be trained. SWFAL has set forth guidelines to be followed to assure proper training of technicians, to keep instruments maintained and to provide quality control.

QUALITY CONTROL

Accuracy and precision of test results are assured through daily analysis of quality control samples, a three-step internal data review process, and participation in external certification and sample exchange programs. All instruments are calibrated with certified standards and maintained according to specification.

Internal quality control standards listed below are included in each sample run. The permissible ranges are set at two times the standard deviation (mean ± 2 std.). If results are outside the permissible ranges, corrective actions will be taken.

1. One check sample is included in every 9 samples for soil pH, nitrate, phosphorus and potassium analyses
2. Alfalfa and orchard leaf check standards are part of forage analyses: protein, ADF and NDF
3. Salinity check samples and blanks are used for soil and water salinity analyses. Anion and cation balance is also used to ensure accuracy

External Certification or Sample Exchange Programs:

1. ALP – soil and plant sample analyses quarterly;
2. National Forage Testing Association's Forage Analysis Certification Program since 1993 - six times per year, certification has been granted every year since 1995
3. ERA – Water certification
4. MAP – Animal Waste Testing Certification

INSTRUMENTATION

SWFAL employs state-of-the-art facilities capable of handling a wide range of analytical tasks. The main instruments used in the lab include:

- 2 Lachat QuickChem 8500 Flow Injection Auto-analyzers
- Spectro Ciros ICP Spectrometer and Spectro Blue
- 2 Ankom A2000 Automated Fiber Analyzers
- 2 LECO CN628 Carbon and Nitrogen Analyzer
- Elementar Vario Max Carbon and Nitrogen Combustion Analyzer
- Labfit AS3010 Automated pH Analyzer
MEMBERSHIP

1. National Forage Testing Association
2. Agriculture Laboratory Proficiency
3. Soil and Plant Analysis Council
4. ERA – Environmental Resource Associates
5. MAP – Manure Analysis Proficiency Program
**SWFAL - SAMPLES**

Sample Information - Proper Handling and Submitting For Analysis

Proper sampling, handling and submitting samples to SWFAL is very important to every step in the analysis process. After getting a good representative sample, the first is proper labeling for analysis and sending to the lab. Second is logging in and analyzing the sample. Third stage is reporting the data and finally, report deliverance to clientele. The FIRST Stage is very important for the proper end results. This section will cover the instructions for packaging, marking, and submitting each type of samples.

**Submitting Soil Samples**

SOIL FERTILITY

*Please refer to the example of the sample tag on Page 15.*

How to Handle a Fertility Soil Sample

1. **Write** (with pencil or BALL POINT PEN ONLY) the customer code and sample number on the soil sample Tag.
   This is necessary with Barcodes as well. The back of tag is a great place to write information about the sample. The tag stays with the soil in the lab. It is HIGHLY recommended that sample logs be kept for all samples. This will help when retrieving the results from the Internet (*instructions in Section 3, p 25*)

2. **Clearly mark the appropriate Test(s) to be run on the tag.**
   Remember that a Routine test (I) and a Subsoil Nitrate test (S) test cannot be performed on the same bag of soil. Comprehensive Salinity Test has to have a full bag of soil for this test. Be sure that the soil bag is full. The lab will not accept anything less than a half of a bag for routine.

3. **Mark the Crop and Write the Yield Goal, if Necessary, in the blank provided next to the crop.**
   If these are marked, an interpretation will be printed for that particular crop based on the test results. (*See page 19 for a list of crops and the range of yield goals associated with each crop.*)
4. **Apply the Customer Code+Sender Number Barcode.**
   This Barcode is **Required**. If you are out, you have the ability to reprint them at [www.soiltesting.okstate.edu](http://www.soiltesting.okstate.edu) SWFAL LOGIN. This barcode helps with login tremendously. County Barcodes DO NOT go on special program samples, i.e. Soil Clinic and Hay Show or Master Gardeners. These samples require a special Customer Code Number. If the county barcode is used, then the sample is logged under that number and the county will be billed for it. **Writing a three in front of the county barcode number does not change what the barcode reader reads!**

5. **Send a FULL bag of correctly sampled soil to the Laboratory for analysis.** *(The lab will not accept anything less than half full!)*
   A full bag would consist of at least 1 ½ to 2 cups of soil. Please refer to Fact Sheet 2207 – How to Get a Good Soil Sample for more detailed information. Tie the sample bag securely so that a minimum of soil is lost in transit to the laboratory. If there are sub soils, please see information below.

6. **Write all pertinent information about each sample in the LOG Book at your office.**
   It is highly recommended that all samples are kept in a logbook. Since results are retrieved from the Internet, having a log will help you identify each sample.

**How to Handle a Subsoil Sample**

Subsoil sample handling is very similar to the Topsoil Fertility with a slight variation. It is very important to clearly mark the sample as subsoil and tie the subsoil bag to the corresponding topsoil sample bag.

1. **Write the customer code and sample number on tag, which is the same as the corresponding topsoil sample.**
   The topsoil bag should have the customer code + sender number barcode on it. You should write the same number on the corresponding subsoil sample bag. Assigning the same number allows the test results for both samples to be printed on the same report with the appropriate interpretation.

2. **Clearly mark the appropriate Test(s) to be run on the sample tag.**
   Subsoil Samples can be analyzed for Nitrate-N or Sulfate-S. The subsoil sample should be sent to the lab with corresponding topsoil. The two sample bags should be tied together. Be sure to mark the appropriate test on the bag.

3. **The two samples will be assigned a unique Lab ID number for each one, but only the topsoil Lab ID will be printed on the report. Both Lab IDs will appear on the invoice with the appropriate charge for each sample.**

**Helpful Hints for Submitting Soil Fertility Samples**

- Please use pencil to mark the sample tag. Moist soil will cause some inks to run and make it difficult to read the tags after the sample reaches the lab.
- Tie the Subsoil Sample Bag together with the topsoil sample bag if they are suppose to be analyzed as a topsoil and a sub soil, otherwise treat the Subsoil as an individual sample.
- Do not put any **PLASTIC** bags inside the sample bag! Samples are dried in an oven before being opened. This Plastic will melt and contaminate the sample. If a plastic bag is needed, put the entire sample bag and tag inside the plastic bag.
Do not send **ROCKS** in the soil sample! Rock will damage the grinding equipment.

- When mailing samples to the lab, please insert a county extension office flysheet in the box listing the range of sample numbers enclosed in the box. Having the note increases the speed with which we can process samples.

- **IMPORTANT:** Please use the correct postage when mailing samples to the lab. These samples cannot be mailed as Library rate or Book Rate. The Post office will add the remaining postage due on packages sent to our lab to the COOPERATIVE EXTENSION MAILING account. Please help prevent this from happening.

---

**Figure 1. Soil Sample Tag**

- **Put a check mark in the box of the test requested.** If the test you need is not listed and you have checked with the lab the availability – use the OTHER Space to write in the test.
- **Please place Barcode (Customer + Sender Number) in the space provided; clearly mark the crop.** If the crop is not listed, write in the crop and or select the best representative of the sample. A crop is needed for Interpretations. Be sure to write your Barcode and sample number on the tag as well. This is precaution if the label messes up in shipment.

---

**SOIL SALINITY**

*Please refer to the example of the sample tag above.*

**How to Handle a Salinity Soil Sample**

1. **Write the customer code and sample number on the soil sample tag.**
   This is necessary with Barcodes as well. The Tag stays with the soil in the lab. It is HIGHLY recommended that sample logs be kept for all samples. This will help when retrieving the results from the Internet (instructions in Section 3, p 25)

2. **Clearly mark the appropriate Test(s) to be run on the tag.**
   Salinity Management test is an approximation of Comprehensive Salinity test, and it should only be used for diagnostic purposes. Remember that a Routine test (1) and a
Comprehensive Salinity (6) test cannot be performed on the same bag of soil. Routine and Salinity Management can as long as there is a FULL bag of soil.

3. **Apply the Customer Code+Sender Number Barcode.**
   This Barcode is Required. If you are out, please go to www.soiltesting.okstate.edu and log into SWFAL Login. This barcode helps with login tremendously.

4. **Send a FULL bag of correctly sampled soil to the Laboratory for analysis.**
   A full bag would consist of at least 1 ½ to 2 cups of soil. Please refer to Fact Sheet 2207 – How to Get a Good Soil Sample for more detailed information. Tie the sample bag securely so that a minimum of soil is lost in transit to the laboratory.

5. **Write all pertinent information about each sample in the LOG Book at your office.**
   It is highly recommended that all samples be kept in a logbook. Since reports are retrieved from the Internet, having a log will help you identify each sample.

---

**Helpful Hints for Submitting Soil Salinity Samples**

- Comprehensive Salinity needs a FULL bag of soil for the complete test. If other analyses are needed, submit another bag of soil.
- If the soil is pretty sandy and Comprehensive Salinity is required – send two bags of soil. Tie both bags of soil together and mark 1 of 2 and 2 of 2 on the bags.
- Please use pencil to mark the sample tag. Moist soil will cause some inks to run and make it difficult to read the tags after the sample reaches the lab.
- Do not send OIL saturated samples! The lab cannot analyze them.
- When mailing samples to the lab, please insert a county extension office flysheet in the box listing the range of sample numbers enclosed in the box. Having the note increases the speed with which we can process samples.
- **IMPORTANT:** Please use the correct postage when mailing samples to the lab. These samples cannot be mailed as Library rate or Book Rate. The Post office will add the remaining postage due on packages sent to our lab to the COOPERATIVE EXTENSION MAILING account. Please help prevent this from happening.

---

**SOIL TEXTURE**

*Please refer to the example of the sample tag on Page 13.*

These samples should be submitted like the Soil Fertility samples as mentioned above. Follow same instructions found under SOIL FERTILITY. When it comes to marking the test, just be sure to mark Test T for Texture.
Submitting Water Samples

Please refer to the Example Water Test Request Label below.

1. Collect the water sample in a clean sample bottle provided by the laboratory.
   If one is not available, use a clean plastic container that will hold about 4 oz of water. The sample container should be rinsed (about 4 times) first with the water that is going to be tested. Fill completely, getting as much air out as possible. Be sure the lid is on TIGHT!

Figure 2. Water Test Request Label

<table>
<thead>
<tr>
<th>Place Barcode Here</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mark one Test:</td>
</tr>
<tr>
<td>_____ Livestock</td>
</tr>
<tr>
<td>_____ Household</td>
</tr>
<tr>
<td>_____ Irrigation</td>
</tr>
<tr>
<td>Special Requests:</td>
</tr>
<tr>
<td>__________________</td>
</tr>
<tr>
<td>County: ___________</td>
</tr>
<tr>
<td>Customer Code#: ___</td>
</tr>
<tr>
<td>Sample #: ________</td>
</tr>
<tr>
<td>Name: ____________</td>
</tr>
</tbody>
</table>

2. Mark the water test to be performed on the Water Test Request Label.

3. Write the Customer Code Number and Sample Number on the label.

4. Fill in the other pertinent information on the label.

5. Apply the Barcode to the label. This label should go vertical on the bottle. It should not wrap around the bottle.

6. Attach the label to the sample bottle

7. Write all pertinent information about each sample in the LOG Book at your office.
   It is highly recommended that all samples be kept in a logbook. Since reports are retrieved from the Internet, having a log will help you identify each sample.

Helpful Hints for Submitting Water Samples

- **DO NOT SEND GLASS Sample Containers!** These may break in transit to the lab if not packaged well.
- Water samples are held in the lab after initial analysis for about one to two months for any reruns or additional testing.
- Please DO NOT put TAPE on the lids of the water bottles. There is no benefit of putting the tape on the lids. During transit, the tape becomes unstuck to the lid and is a hassle in the long run.
- SWFAL does not test for Bacteria and trace metals. Please refer to the listing of Independent Laboratories for these analyses (page 39.)
- When mailing samples to the lab, please insert a county extension office flysheet in the box listing the range of sample numbers enclosed in the box. Having the note increases the speed with which we can process samples.
- **IMPORTANT:** Please use the correct postage when mailing samples to the lab. These samples cannot be mailed as Library rate or Book Rate. The Post office will add the remaining postage due on packages sent to our lab to the COOPERATIVE EXTENSION MAILING account. Please help prevent this from happening.
Submitting Forage (Feed) Samples

Please refer to the Example tag on page 17.

How to Handle a Forage (Feed) Sample

1. **Write the customer code and sample number on the forage sample tag.**
   This is necessary with Barcodes as well. The tag stays with the forage in the lab with the sample. It is HIGHLY recommended that sample logs be kept for all samples. This will help when retrieving the results from the Internet (instructions in Section 3, p 25)

2. **Clearly mark the appropriate Test(s) to be run on the tag.**
   With a full sample bag, all tests can be run from one sample bag.

3. **Mark the Crop to identify the type of forage, feed or plant tissue.**
   The lab personnel need this information in order to know how to analyze the sample. However, there will be no interpretation printed on the report for this crop. If there is more than one type of forage in the sample, write it somewhere on the front of the tag.

4. **Apply the Customer Code+Sender Number Barcode.**
   This Barcode is Required. If you are out, please order some today. This barcode helps with login tremendously.

5. **Send a FULL bag of correctly sampled forage to the Laboratory for analysis.**
   Please refer to Fact Sheet No. 2589 – Collecting Forage Samples for Analysis for detailed information on proper sampling procedures.

6. **Write all pertinent information about each sample in the LOG Book at your office.**
   It is highly recommended that all samples be kept in a logbook. This is helpful due to the fact results are retrieved from the Internet.

Helpful Hints for Submitting Forage (Feed) Samples

- **DO NOT PUT PLASTIC BAGS INSIDE THE FORAGE BAG!!** – If this is done and the sample is put in the oven after we receive it, the sample will be ruined and a new one requested. This only delays results.

- Nitrate results are not called to the county extension office anymore. They can be pulled off of the website the day the test is completed. This is usually about 24 hours after the sample is received.

- If accurate moisture results are needed, place the forage bag in a zip-lock bag and seal.

- AS with all samples, logs for every sample should be kept with producer name, address, phone number, description and whatever other pertinent information is needed. This will help when results are pulled from the SWFAL Website.

- When mailing samples to the lab, please insert a county extension office flysheet in the box listing the range of sample numbers enclosed in the box. Having the note increases the speed with which we can process samples.

- **IMPORTANT:** Please use the correct postage when mailing samples to the lab. These samples cannot be mailed as Library rate or Book Rate. The Post office will add the remaining postage.
due on packages sent to our lab to the COOPERATIVE EXTENSION MAILING account. Please help prevent this from happening.

Figure 3. Forage Sample Tag

Please write in your customer Code + Sender number on the tag as well as Barcode

Put a check mark in the box of the test requested. If the test you need is not listed and you have checked with the lab the availability – write in the test on the bottom part of the test column.

OSU SWFAL Plant Sample Test

Basic Analysis: Protein & Moisture B. □
Basic Plus Energy C. □
Protein & Moisture
Plus ADF, TDN, & Energy
Basic Plus Energy Plus RFV D. □
Protein & Moisture
Plus ADF, TDN, & Energy
Plus NDF & RFV
Nitrate Toxicity N. □

Minerals M. □
Ca, P, K, Mg, Cu, Fe & Zn
Plant Tissue TL. □
TN, Ca, P, K, Mg, S, Cu, Fe, Zn & B

Crop

Figure 4. Animal Waste and Compost Samples

Please refer to the Example Water Test Request Label below.

1. Collect the Animal Waste/Compost sample the proper container.

2. Mark the test to be performed on the Animal Waste/Compost Test Request Label.

3. Sample Number on the label.

4. Fill in the other pertinent information on the label. It is important to mark the correct type of sample and consistency of the sample. We do not like to guess and this information helps with analyzing.

5. Apply the Barcode to the label. This label should go vertical on the bottle. It should not wrap around the bottle.
6. Attach the label to the zip lock bag or plastic container.

7. Place the above sample bag/container in another zip lock bag for protection of leakage or spilling during mail transit.

8. Write all pertinent information about each sample in the LOG Book at your office.

   It is highly recommended that all samples be kept in a logbook. Since reports are retrieved from the Internet, having a log will help you identify each sample.

Helpful Hints for Submitting Animal Waste Samples

◆ **DO NOT SEND GLASS Sample Containers!** These may break in transit to the lab if not packaged well. Animal Waste liquid samples tend to expand and if in glass jars, these can explode
◆ Please only fill the liquid containers to the half mark. This allows for expansion
◆ We only need a quart size sample. Gallon bag size is not necessary.
◆ Only one sample per page when double bagging please.
◆ MARK SAMPLE TYPE

**Submitting Corporation Commission Samples**

Corporation Commission (Corp Comm.) samples are dropped off at county extension offices. These samples need special handling for proper processing. The county extension office acts as the liaison between the lab and Corp Comm. Correct handling prevents the county from being charged for these samples. These samples should come with a Chain of Custody form and should have their own special sample number. If this information is not obtained before mailing them in, they have not been properly handled.

Each county has a special Corp Comm. Customer Code number. This is a 12XX number, where your county number replaces XX. This number should be written on the Chain of Custody and on the sample itself. Without this number, the lab will not be able to reimburse your county for the mailing fees. A $1.00 per sample is refunded for each sample mailed in via county. This is called the Handling Discount found on the billing invoice.

Once the samples are mailed in and logged in to the Corp Commission customer code number, the county will not see any reports or billing for these samples. Everything is directed back to the Corporation Commission.

**How to Handle a Corporation Sample (Water or Soil) Sample**

1. **Write the appropriate customer code and sample number on tag and Chain of Custody(COC)**
   If you are unclear what customer code number to put on the sample, call the lab or just put a note on the sample that it is mailed in from your county. The customer code number is 12xx – Where xx is your county number; i.e., for Oklahoma County (55), the proper customer code number would be **1255**.
2. The sample number should match the sample number on the Chain of Custody

3. Have the Field Representative sign the Chain of Custody.

4. You, the receiver of the sample, sign and make a copy for your records. The field representative might need a copy of the Chain of Custody for their records as well.

5. Mail the sample to the lab with original COC.
   You do not have to log these samples in under your county number. If the county number is used, you risk being billed for these samples. All billing should go to the Corporation Commission. Once you have mailed the sample, you will not have any more contact with this sample. The reports are all mailed to the Corp Com

6. If you receive any of these samples and have questions, please call SWFAL and verify the procedure.
**Crop Codes and Yield Goals**

Below are the crop codes that are used in the SWFAL Data Manager System. Appropriate yield goal ranges are also listed for the crops that require a yield goal for nitrogen interpretation. Some crops do not have interpretations for our desktop application and are noted. For these crops, you can consult a specialist in that particular crop. If a crop is not listed, find a similar one – e.g., bermudagrass for warm season grass, and Fescue for cool season grass. For our ONLINE Application – there are up to 73 choices. These choices are not listed, but when you pull results up on the website, you can choose the Interpret option on the report before printing off the report.

**Table 3. Crop Code Informational Sheet**

<table>
<thead>
<tr>
<th>CC#</th>
<th>Crop</th>
<th>Possible Yield Goals</th>
<th>Units</th>
<th>Estab</th>
<th>NRCS Estab</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Wheat</td>
<td>15-100</td>
<td>bu\ acre</td>
<td></td>
<td></td>
</tr>
<tr>
<td>19</td>
<td>Wheat - Small grains for grazing</td>
<td>0.5-3</td>
<td>tons\ acre</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>2</td>
<td>Barley</td>
<td>15-100</td>
<td>bu\ acre</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Oats</td>
<td>15-100</td>
<td>bu\ acre</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Grain Sorghum (milo)</td>
<td>30-230</td>
<td>cwt\ acre</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>5</td>
<td>Corn</td>
<td>40-200</td>
<td>bu\ acre</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Sunflower</td>
<td>40-200</td>
<td>bu\ acre</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Cotton</td>
<td>0.5-3.5</td>
<td>bales\ acre</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>7</td>
<td>Corn Ensilage</td>
<td>5-30</td>
<td>tons\ acre</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>8</td>
<td>Sorghum Ensilage</td>
<td>5-30</td>
<td>tons\ acre</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>9</td>
<td>Fescue</td>
<td>1-5</td>
<td>tons\ acre</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>9</td>
<td>Any Cool Season Grass</td>
<td>1-5</td>
<td>tons\ acre</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>10</td>
<td>Orchardgrass</td>
<td>1-5</td>
<td>tons\ acre</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>11</td>
<td>Rye Grass</td>
<td>1-5</td>
<td>tons\ acre</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>12</td>
<td>Weeping Love Grass</td>
<td>1-5</td>
<td>tons\ acre</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>13</td>
<td>Bermudagrass</td>
<td>1-7</td>
<td>tons\ acre</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>13</td>
<td>Any Warm Season Grass</td>
<td>1-7</td>
<td>tons\ acre</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>13</td>
<td>Midland99 Variety</td>
<td>1-7</td>
<td>tons\ acre</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>14</td>
<td>Peanuts</td>
<td>No Yield Goal Required</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>Soybeans</td>
<td>No Yield Goal Required</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>Mungbeans</td>
<td>No Yield Goal Required</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>Cow Peas</td>
<td>No Yield Goal Required</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>Guar</td>
<td>No Yield Goal Required</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>19</td>
<td>Small Grains for Grazing</td>
<td>0.5-3</td>
<td>tons\ acre</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>19</td>
<td>Triticale</td>
<td>0.5-3 (40 bu=1.5T)</td>
<td>tons\ acre</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>20</td>
<td>Legumes in Pasture</td>
<td>No Yield Goal Required</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>21</td>
<td>Alfalfa</td>
<td>No Yield Goal Required</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>22</td>
<td>Sorghum Sudan Hay</td>
<td>1-15</td>
<td>tons\ acre</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>22</td>
<td>Haygrazer</td>
<td>1-15</td>
<td>tons\ acre</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>22</td>
<td>BMR</td>
<td>1-15</td>
<td>tons\ acre</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>23</td>
<td>Garden</td>
<td>No Yield Goal Required</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>23</td>
<td>Flowers or any vegetable specific</td>
<td>No Yield Goal Required</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>24</td>
<td>Lawn</td>
<td>No Yield Goal Required</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CC#</td>
<td>Crop</td>
<td>Possible Yield Goals</td>
<td>Units</td>
<td>Estab</td>
<td>NRCS Estab</td>
</tr>
<tr>
<td>-----</td>
<td>------------------------</td>
<td>-------------------------------</td>
<td>----------</td>
<td>-------</td>
<td>------------</td>
</tr>
<tr>
<td>25</td>
<td>Native Grass</td>
<td>1.0, or 1.5 or 1.6</td>
<td>tons/acre</td>
<td></td>
<td></td>
</tr>
<tr>
<td>26</td>
<td>Hairy Vetch</td>
<td>No Yield Goal Required</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>27</td>
<td>Other Clover</td>
<td>No Yield Goal Required</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>28</td>
<td>Millet</td>
<td>No Yield Goal Required</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>29</td>
<td>Wheat Silage</td>
<td>No Yield Goal Required</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>30</td>
<td>Feed Mix</td>
<td>No Yield Goal Required</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>31</td>
<td>Peanut Hay</td>
<td>No Yield Goal Required</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>32</td>
<td>Trees</td>
<td>No recommendations Given by</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Lab</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>33</td>
<td>Roses</td>
<td>No recommendations Given by</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Lab</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>34</td>
<td>Bluestem</td>
<td>1-5</td>
<td>tons/acre</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>35</td>
<td>Arrowleaf Clover</td>
<td>No Yield Goal Required</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>36</td>
<td>Jose Tall Wheatgrass</td>
<td>1-5</td>
<td>tons/acre</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>37</td>
<td>Canola</td>
<td>5-40</td>
<td>cwt/acre</td>
<td></td>
<td></td>
</tr>
<tr>
<td>*38</td>
<td>Grape</td>
<td>No Yield Goal Required</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>*39</td>
<td>Johnson Grass</td>
<td>No recommendations Given by</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Lab</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>*40</td>
<td>Wildlife Plot</td>
<td>No Yield Goal Required</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>*41</td>
<td>Peach Tree</td>
<td>No Yield Goal Required</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>*42</td>
<td>Pecan Tree</td>
<td>No Yield Goal Required</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>*43</td>
<td>Other Orchard</td>
<td>No Yield Goal Required</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Notes**

A  If Crop is marked Bermuda grass for Lawn, Lawn will be used
B  If no crop is provided and CRP is written on the tag, Login will use Bermuda and NRCS Estab
C  If crop needed is not listed, please use crop above with similar properties.
D  NRCS Estab (COST SHARE) will override Establishment when both are marked
E  Yield goals listed above give the possible range for recommendations given on reports.

* These options can not be used for Soil on our Desktop application. These are definite options online.

<table>
<thead>
<tr>
<th>Crop Conversion</th>
<th>Conversion</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cotton</td>
<td>480</td>
<td>lb/acre</td>
</tr>
<tr>
<td>Wheat</td>
<td>60</td>
<td>lb/bu</td>
</tr>
<tr>
<td>Barley</td>
<td>48</td>
<td>lb/bu</td>
</tr>
<tr>
<td>Corn</td>
<td>56</td>
<td>lb/bu</td>
</tr>
<tr>
<td>Oats</td>
<td>32</td>
<td>lb/bu</td>
</tr>
<tr>
<td>Sorghum (milo)</td>
<td>56</td>
<td>lb/bu</td>
</tr>
</tbody>
</table>

**Helpful Hints for Using Crop Codes**

For Soil Fertility Samples, the crop code identifies the crop to be grown in the sampled field. An interpretation is printed on the final testing report based on the crop code and yield goal and the results of the lab analysis. **If no crop code is marked, then no nitrogen and liming interpretation will be printed on the report.** If you want more than one crop code interpretation, the SWFAL Website provides a great tool for interpretations of all crops.
Instructions for use can be found on page 25. Also you can use the Soil Test Interpretation Program on our website – Information found on page 31.

- Ask the producer for a realistic yield goal instead of using the same one for the whole county. The ranges of crops needing yield goal are listed in Table 3.
- For Forage, feed or Plant Tissue samples, the crop is used to identify the sample so the laboratory technicians will know how to test the sample. No interpretation is printed on the final forage report except for a forage Nitrate Test.
- Soil Salinity and Texture tests do not require a crop code or yield goal for an interpretation.
- At this time, the SWFAL Data Manager program is not equipped with interpretations for any types of trees, roses, or specific vegetables and fruits. For assistance with these “crops,” contact the OSU Horticulture and Landscaping Architecture Department or your Area Extension Specialist.
- Please be aware of the difference between Establishment and ASCS Establishment or other NRCS cost share programs when marking yield goals. The ASCS Establishment yield goal is used to obtain lime and fertilizer interpretations for Government sponsored ACP-CRP-ECP cost share programs. The ASCS Establishment interpretation is different from the regular Establishment interpretation because the ASCS Establishment assumes the grass is being sown for purposes of conservation and erosion control while Establishment assumes the grass is being sown for production purposes.

Sample Information – Data Reporting of Analysis and Interpretations

Analysis Reports

DESCRIPTIONS

A report containing test results and an interpretation is generated for each sample submitted to the laboratory. After laboratory analyses are completed and test data is reviewed, a report is printed. If your county chose to participate in the Web Report Printing Program (which can be signed up for at any time, see Section 3, page 28 for Instructions,) a report will not be printed.

The following pages are examples of reports for Soil Fertility, Soil Salinity, Soil Texture, Water, and Forage Analysis. The report format for each type of analysis is basically the same. The report is divided into three sections: Heading, Test Results, and Interpretations.

HEADING

This section includes all of the information about the sample:

- Customer Address and phone number
- Sample Number
- Date Received
- A place for Producer Name and Location (SWFAL Program does not handle this)
TEST RESULTS

Results are printed in a table form within a box in the body of the report. A blank usually means the test was not performed. If you requested the test that is blank, notify the lab and request the analysis to be done.

INTERPRETATIONS

Interpretations and requirements are printed on the bottom half of the report. Interpretations for Soil Fertility and Forage Samples are partially based on the Crop and/or yield goal. Extra room is provided for the County Extension Agent to enter additional recommendations.

EXAMPLES

Figure 5. Computer Report Printout

Figure 6. Website Report Printout
Publications and Interpretation Guides

PUBLICATIONS

The following list of publications can be easily found on SWFAL’s website, www.soiltesting.okstate.edu, under Fact Sheets. If something is not listed that you are looking for, you can find the complete database of Fact sheets at http://pods.dasnr.okstate.edu/docushare/dsweb/HomePage. If you are not able to visit the given websites, then you can call University Mailing (405-744-5385) for any fact sheet to be mailed to you.

- PSS-2117 - Forage Quality Interpretations
- PSS-2207, How to get a Good Soil Sample
- PSS-2225, Soil Test Interpretations
- PSS-2236 - Knowing When to Fertilize
- PSS-2239 - Causes and Effects of Soil Acidity
- PSS-2401, Irrigation Water Quality
- PSS-2226, Salt Tolerance of Different Crops
- PT 97-37, Collecting Good Soil Samples by Reducing Spatial Variability
- PSS-2901 - Procedures Used by OSU Soil, Water, & Forage Analytical Lab
- CR-2274 Oklahoma Agriculture Soil Test Summary 2009-2013
- PSS-2589 - Collecting Forage Samples for Analysis
- OK NRCS Cost-Share Lime and Fertilizer Recommendation
The following chart contains which Fact Sheet to look at for a specific test for interpretations.

**TABLE 4. INTERPRETATION GUIDES**

<table>
<thead>
<tr>
<th>Test</th>
<th>Fact Sheet Number</th>
<th>Title of Publication or Guide</th>
<th>Other References</th>
</tr>
</thead>
<tbody>
<tr>
<td>Soil Fertility</td>
<td>PSS-2225</td>
<td>&quot;OSU Soil Test Interpretations&quot;</td>
<td>2000 Oklahoma Soil Fertility Handbook</td>
</tr>
<tr>
<td>Soil Salinity</td>
<td>PSS-2226</td>
<td>&quot;Reclaiming Slick-Spots and Salty Soils&quot;</td>
<td></td>
</tr>
<tr>
<td>Soil Texture</td>
<td></td>
<td>Self explanatory</td>
<td>2002 Oklahoma Soil Fertility Handbook</td>
</tr>
<tr>
<td>Livestock Water</td>
<td>L-256</td>
<td>&quot;Understanding Your Livestock Water Test Report&quot;</td>
<td></td>
</tr>
<tr>
<td>Household Water</td>
<td>FS-878</td>
<td>&quot;Drinking Water Testing&quot;</td>
<td>OCES Water Quality Handbook</td>
</tr>
<tr>
<td>Irrigation Water</td>
<td>PSS-2401</td>
<td>&quot;Classification of Irrigation Water Quality&quot;</td>
<td></td>
</tr>
<tr>
<td>Forage Quality</td>
<td>PSS-2117</td>
<td>&quot;Forage Quality Interpretations&quot;</td>
<td></td>
</tr>
<tr>
<td>Forage Nitrate Toxicity</td>
<td>PSS-2903</td>
<td>&quot;Nitrate Toxicity in Livestock&quot;</td>
<td></td>
</tr>
</tbody>
</table>
SWFAL - Website

**Website Address**

**Website**

We have worked hard to make possible the interactive tools and web report printing from our website. This website is geared towards our users. We want to make finding information as easy as a click of a button. From our home page, you should be able to navigate to any information you are looking for. From Reports to Fact Sheets to FAQ’s, it is all there! We are always open to suggestions. Feel free to contact us with any comments, complaints or suggestions.

**Website overview**

From your browser address line you will type in [www.soiltesting.okstate.edu](http://www.soiltesting.okstate.edu) and hit enter. This will bring you to the SWFAL homepage. At this point you can bookmark the website. Sometimes the Login page works best in GOOGLE CHROME and sometimes it works best in Mozilla Browser. Internet Explorer is not an option to use for our website.

Now that you are on the home page, you can explore the information, retrieve results, order supplies, and even take a tour of our lab. We hope you find this page a useful tool of information.

**NOTE:** If there are any errors that you do find, we would appreciate you letting us know. The page is frequently updated. We would also like any suggestions or comments that you see would better fit your needs or improve our service to you.
RETRIEVING TEST RESULTS

From the home page, you can CLICK on SWFAL Login and it will take you to the following page:

1. Here you will need to type in your Customer code number. Your number does not need a zero or letter in front of it. Example – Customer code 97 is seen as A97 on barcodes, but for internet purposes it is just 97; otherwise, an error will appear when trying to retrieve your results.

2. Next you will need to type in the assigned password. If you do not have this password – you will need to call (405) 744-6630 and ask for it.

3. The password is Case sensitive and has to be typed in exactly as given. If you have more than one account, such as a coop or the soil clinic/hay show customer code, just type in that customer code and the same password is valid for that customer code number. After the password is typed in, you will go to the following page:

Choose sample type:
- Fertility
- Salinity and Water
- Forage
- Texture
- Animal Waste
- Plant Tissue

Choose from the following:
- Most recent day – choose to only view the most recent data
- User defined day – chose the period with the format of 05/12/2016

- All the data – All the data from Jan 1, for the current year, will appear.
- One sample number – one sample will appear if in database

Then CLICK on DISPLAY RESULTS! This will bring up a new page with the results.

When you are looking for a sample and can not find it by means of One Sample Number – Please Choose “all Samples” This option will display all the samples that are logged under your account. This will also allow you to see if there is any sample that does not belong in your login or has a weird Sample number. (when the lab receives samples from your county that do not have any barcodes or identification on them, we log them in as the date for the sample number. For example, a sample received on May 23, 2016 will be logged in at 97-52316.

The lab results will appear in a spreadsheet table form. The lab ID numbers are the link to the sample report. Just click on the lab number and a report will appear on the screen. Now you can print the results. If there is any error on this report, please call right away.
All Reports can be *printed, emailed or saved*. Once you type in the customers information and enter comments, just click the Print/Save As button at the top of the page. This will bring the report up in PDF Format. You will need to print this report from the PDF Menu as opposed to the Web Menu. If you want to save the report, you can do the same by clicking the Disk/Save button.

To *email reports*, click the EMAIL button at the top of the report page. This will bring up a box right beside the button to enter the email address. Once this is done, click “Send Report as an Email”. A green box will pop up above to indicate this has been completed. If the email address is incorrect, it will bounce back to the soiltesting lab email. We will let you know when this occurs.

For FERTILITY Reports, we have included a *new feature*. You have the ability to change the crop code on any report at the touch of a button.

- Bring the Report up.
- Scroll to the middle of the page/Report
- Click Interpret
- Click on the drop down menu and choose the crop. There are over 70 crops to choose from. We have included many vegetables, Wildlife Plots and many others.
- Some crops require a yield goal. Type in the value and then click GO.
- For crops where you need NRCS Establishment or Establishment – this option will pop up once the crop is chosen.
- On recommendations you can have the traditional words or there is the option for BAR CHART. If you want to have a visual on the report, just click this button and a Barchart will appear.

For Salinity Reports, you have the ability to change the format to be Household, Livestock or Irrigation. Once you bring the report up, there is a dropdown menu to change this feature.

**WEBSITE FUNCTIONS**
The Website offers many other options, other than test results. Once you are logged in, you can see there are several tabs across the top of the page. Each tab has different features to make things easy and put more at your finger tips.

The Tabs and their Functions are:

- **Reports**
  - Print all types of sample analysis reports (instructions above.)

- **Crops/Yield Goal**
  - This lists crops with their possible Yield Goals.

- **Supply Order**
  - From here you can place your order and it is automatically emailed to the lab. This also gives you a receipt if there are any charges involved.
- Click on the **Supply Order** tab
- Enter email address (this needs to be entered in “My Profile” The information is automatically filled in the form.
- Choose what you want to order. There are units for each item.
- Click “**Review Order**” once you have marked everything you want to order. Note – by clicking the Review Button does not place your order.
- Review the order and then either click “**Confirm Order**” or “**Modify order.**”

Once you have clicked the “**Confirm Order**” you will get confirmation that the order was successful. You can print out a receipt at this time. You will also receive an email confirming the order. The lab receives the same email.

- We do our best to get supplies out in a timely manner. During busy season, this may be a little longer. If you are busy with sample handling, there is a good chance the lab is very busy with sample handling.
- You will notice that Barcodes are not an option to order anymore. This is because – you print them yourself now. See **BARCODES**

- **Barcodes**
  This is where you print the barcodes for your samples. If you handle more than one customer code, you will need to login for each customer code to print the barcodes. It is very helpful to have barcodes on your samples. It not only helps keep an order for you in your log book, but it keeps an order for us and they are scanned and automatically logged into the file as opposed to manually entering with the risk of transposing numbers.
- To Print Barcodes – Click on the **BARCODE** Tab
- Choose Label Type – either Avery 5167 or 5160
  - Avery 5167 or comparable labels are the return labels with 80 to a page.
  - Avery 5160 or comparable labels are the address labels with 30 to a page.
  - We do not care which labels you chose to print on.
- Click the number corresponding to the number of labels you want to print. Each button is 30, 60, 90 or 120 or 1 page, 2 pages, 3 pages or 4 pages for Avery 5160 and 80, 160, 240 or 320 or 1 page, 2 pages, 3 pages or 4 pages for Avery 5167
- Type in the beginning number – usually the website will remember your last number printed, but if this is not correct, just type in the next number you want to start with.
- Click “**Print/Save Barcodes**”
- Now Click – the orange words – “**Click here to retrieve the barcodes**”
• This will bring up the barcodes in a PDF Format. Verify that the beginning number is the correct Customer code + Sender Number.
• From the PDF Menu, Click Print or the Printer Icon
  o HINT – on the print menu – there is a section called Page Handling. Make sure this displays “Shrink to Printable Area” or “Fit to Printable Area”
  o Once you choose this printable area – the document view section should display in the bottom left – “Units: Inches Zoom: xx%” Where the XX should be some where around 89-91%. 91 is the common one I see.

➢ Test Codes
  This tab lists the code the lab uses for each test and the corresponding test for each type. When samples are pulled up under “Test Results”, the spreadsheet form displays the Test Codes. This is a good time to double check that the lab has properly logged in your samples.

➢ Invoices
  This tab displays the current month invoice as well as all past invoices dating back to 2008.
  ▪ Click on the tab “INVOICES”
  ▪ Click on the invoice you would like to display
  ▪ You can either Print/Save the invoice or email the invoice.

➢ My Profile
  This tab allows you to manage your account information. If any data changes, come to this page and change address, phone number and email.

➢ Logout
Any Questions, Suggestions or Complaints? Click on CONTACT US from SWFAL HOME PAGE and get the following links. Just click on the email address and type us a message. We look forward to hearing from you!

Helpful Hints and FYI’s

Common Errors –

a. When putting in your customer number to retrieve results – only put in the number such as 1 and not A1 or 01
b. When putting in your password, be sure to enter the password as given. Case sensitivity can cause an error when starting the search.
c. The password or the customer code number can be wrong and the same error is given when start search.
d. Printing Reports- the Lab ID is a link to the report page. When you click on this lab number – a report will show up on the next screen that you can print. If you have another report to print – just click on the back arrow and chose the next Lab ID.

Other helpful tools:

a. The sample data will be archived at the beginning of every new year. Just choose the “SELECT YEAR” to the year you want to print reports from.
b. You can save all of the data that is listed in the spreadsheet into Excel. After Clicking Display results – another button pops up – “EXPORT TO MS EXCEL”. Just click this button and everything that is below will open in excel. (You must
have excel on your computer for this to work.) If you want the complete year – be sure to chose the “All Samples”

c. Different Crops can be chosen for each Fertility report at your finger tips.

If at anytime you come across a problem, please feel free to give the lab a call at 405-744-6630. They are more than willing to help.

SOIL TEST INTERPRETATION

This tool or program is for anyone’s use. From the Client to the Ag agent, this tool was designed to be user friendly for interpreting the soil analysis and fertilizer decision support. This program provides fertilizer rates to meet the crop nutrient needs based on soil test results. It also calculates the value and application rates of animal manure as a nutrient source for specific field conditions.

Soil Test Interpretation program is a java web based program, which means that Java Web Start will need to be installed before the program is downloaded and installed. Once the program is up and running, the usage is very easy. It is user friendly and you just plug in your soil results in the appropriate blank and then click on the tabs to navigate through out the program. Instructions are below:

OVERVIEW AND INSTALLATION

Oklahoma Cooperative Extension Service
Soil Test Interpretation and Fertilizer Decision Support

Authors: Hailin Zhang and D. L. Nofziger

- To enable farmers to interpret and utilize results from the OSU – OCES Soil Testing Laboratory for managing crop nutrients using calibrations carried out in Oklahoma.

Purpose:
- To provide fertilizer rates to meet the crop nutrient needs.
- To calculate the value of animal manure as a nutrient source for specific field conditions.


The recommendations used in the software were taken from OSU Fact Sheet 2225, “OSU Soil Test Interpretations” by Hailin Zhang, Gordon Johnson, Bill Raun, Nick Basta, and Jeff Hattey. Related fact sheets can be found at the Soil, Water, and Forage Analytical Laboratory site

Documentation:
The software is written in Java and runs as a Web Start application. The Java run-time package and Web Start software are available free of charge from Sun Microsystems, Inc. The program was developed and tested on various Windows platforms as well as on Linux and MacOS X. We recommend 128 MB or more of Random Access Memory. Approximately 40 MB of disk space is required.

Computer Platform:

Link for Java Software:
Before a Java Web Start program can be used on a computer, the supporting software must be installed. This is needed only 1 time per computer no matter
how many different applications use it. Sun Microsystems Inc provides this package free of charge at http://java.sun.com/products/j2se or it can be downloaded here. If this is the first time you are using it, just download the file from the site above. Follow the instructions given there for installations. I recommend that you accept the default values proposed in the install process.

Download/Execute Program:
Click here to download and start the program. If you use the program more than one time, you will be given the option of storing it on your local computer. You can then start the program without coming to this page with a web browser.

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Contact:

E-mail: david.nofziger@okstate.edu

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OTHER POINTS OF INTEREST

HOME PAGE
From our home page you can navigate to any of the main topics listed below:

General Lab Information - Find information about Services, turnaround time, QA, etc.
Services and Price List – A listing of our services and the corresponding price
Benefits of Testing – benefits of Soil, Water and Forage Testing
Soil Test Interpretation – a useful tool for interpretations and Fertilizer decision support
Extension Fact Sheets – provides a link to the SWFAL Fact Sheets and PEARL
Other Useful Links – Links to other useful sites
People and Facilities – a tour of the Soils Lab
Frequently Asked Questions – Answers to reoccurring questions
Sensor-Based N Rate Calculator – Useful tool for the N Rate Calculation
A Sweatless Soil Sampler – Presentation of a soil probe you can build or purchase from the lab for $40.00

Need More Help? – Contains a list of names and their area of specialty
SWFAL – Other Useful Information

Accounting

The accounting system used for SWFAL works in conjunction with the Data Management program. Built in Access, the system allows changes, updates and check and balances needed for a billing system. All invoices are generated once a month. Included on the invoice will be all unbilled samples, supply orders, and additional requests. We try to be as accurate as possible, although sometimes things do happen. It is always important to check your itemized statement with your books. Once invoices are generated, they are uploaded into the OSU Bursar's Main Frame. Our statements are posted for accesson SWFAL Login by the last week of the month; where as, the Bursar's monthly statements go out after the first. If you notice a problem with the itemized statement, a correction can be made by the last day of the month to be reflected on the monthly statement, otherwise it will show on the next statement. You should wait to pay the invoice amount until you receive the OSU Bursar’s Statement of Account.

SWFAL does not mail itemized invoices anymore. Invoices have been available online for the past 10 years. These are easily accessed and are posted each month. If you have an invoice on your OSU Bursar’s statement that is not posted, please contact SWFAL as soon as possible. Being proactive on your billing statements, keeps records more accurate.

SWFAL INVOICE

DESCRIPTION

The Invoice lists each sample by the sample number assigned by the county extension office and gives the price for each sample test. Also listed are the lab identification number, the date the sample was received by the lab(LOGIN DATE), and the Test Description(e.g. soil fertility, salinity, water, forage, or Texture.) If a sample is not completed by the billing date, the sample will not appear on the current month’s statement; it will appear on the next month’s.

Refering to the Invoice Example below, the Invoice Number, Bursar Account Number, Invoice Date, and Customer Code Number are located in the upper right hand corner. The Customer Address is the county extension office, coop, or the individual who originally set up the account. The Billing Address is
the responsible party. The Billing Address is the Address on the account at the Bursar’s office. (You need to notify SWFAL and the Bursar’s office immediately of any changes to address or names on the accounts.)

Any Additional Charge, such as fax charge or forage bags, will appear on the invoice statement as an individual charge. Credits given for billing errors or Handling Discounts will also be added to the invoice statement as an individual credit on the statement, if it falls during the billing cycle. Price Adjustments will also appear on the invoice for the specific lab id or additional line with an explanation and the price should reflect the change.

EXAMPLE

Figure 7. Billing Invoice Example
PAYMENT ADDRESS

Payment should not come directly to SWFAL unless otherwise instructed. The payment should be mailed to:

OSU BURSAR’S Office
113 Student Union
Stillwater, OK 74078

The Bursar handles all monies for the lab and collections. If payment is mailed to the lab, this will only delay posting to your account.

BILLING PROBLEMS

Viewing your statement immediately will help with timely corrections if a problem does occur. Please contact the SWFAL Office with and inquiry as soon as possible (405) 744-6630. If adjustments are needed, a Sales Charge Invoice is created. Once the Invoice is created, it is posted to your account and goes affective, immediately. A copy will be sent out as soon as it is posted.

SWFAL can help with most inquiries on your account. If you have a problem with a check not posted or an inquiry about the account prior to the current Fiscal Year, then you will need to call the Bursar’s Office at 405-744-5992. Most teller’s should be able to help with inquiries.
Other Important Information about Samples

In this section you should find information about sample processing errors, to reruns to other laboratory testing services. Information on how to order supplies can also be found below.

SAMPLE PROCESSING ERRORS

Please call the laboratory office promptly if the wrong test was performed on a sample or if only part of the requested tests was performed. Mistakes do happen, but the county extension office will not be responsible for any errors made by the lab. Usually if there is a discrepancy on the tag, we will give the county a call to verify the test requested. We just ask that the tag information on the samples be clearly marked and completely filled out to avoid any misunderstandings.

When samples are logged into our system, the county is able to see these samples under SWFAL Login, Samples in process options. This is where you can see which test the sample has been logged in as. If this is incorrect, please notify the lab immediately so it can be changed and not delay the process. When samples are ready for report printing, the test code is still available to look at. If this code is wrong, do not print the report and notify the lab.

RERUNNING A SAMPLE

When sample results do not fit within a particular or normal range of values, the lab supervisor or director may decide to rerun certain element to check for accuracy. When this occurs, the sample will remain in process. After the rerun is completed, the data is analyzed and adjustments are made. The analysis report will then appear on the Internet as completed.

REQUESTING A RERUN

To request a rerun of any soil, water or forage sample, call SWFAL Office with the necessary sample information – Lab Id, Login date, customer code and sample number, and element to be analyzed. There will not be any charge for rerun analyses. The rerun analysis turnaround time should be about the same as the original analysis. If the original sample was too small, there may not be enough sample left to perform the rerun and another sample will need to be submitted; however, the extraction can be retested.
ADDITIONAL TEST REQUEST

To request an additional test to be performed on a sample, call the laboratory office as soon as possible with the sample number, the date of the original testing, the Lab ID number, and the test to be run. The charge for any additional test is based on the SWFAL Standard Price List.

It may not be possible to perform the additional test if too little sample was left after the original analysis or if the leftover sample has already been discarded from the lab. Generally, soil samples and water samples are held for one month and forage samples a while longer. However, during the spring and summer busy season, the lab only has enough room to store samples for 2 weeks.

ADDITIONAL INTERPRETATIONS

SOIL FERTILITY

Additional interpretations are done on the Internet. If a client would like more than one interpretation, the interactive tool will allow them to plug in the numbers and change the crops to their choice and configure the fertilizer. Instructions found on page 27, Sec 3. The SWFAL Data Management Database does not handle more than one crop on a report. If a second report is required, you print your reports from the Internet – Print the first report, change the crop code online, then reprint the report. If you have your reports mailed, be sure to flag your tag or call the office for a second report. For additional reports that the lab prints out, there is a $1.00 fee per report.

WATER SAMPLES

If additional interpretations or reports are needed for water samples, you will just choose the drop down box for which report format you want online.

CHAIN OF CUSTODY (COC) FORM

The laboratory does have a standard chain of custody form (found at http://soiltesting.okstate.edu/services-and-price-list and click on the link for Chain of Custody.) Customers can provide their own forms, if they are required. There is a $1.00 fee per chain of custody form processed, unless chain(s) of custody include all samples within the set, on one form; then there is not a fee.

These forms should be filled out correctly with the necessary sample numbers clearly marked on the form. The numbers on the COC need to have matching numbers on the samples. The form will be signed and dated by lab personnel. The chain of custody will be mailed with the reports when completed.
EDUCATIONAL TRAINING

SOIL FERTILITY CLINIC AND MASTER GARDENER SAMPLES

The lab offers samples for educational purposes at a reduced price at $5 per sample. To receive this reduced price, the county agricultural educators should submit a request to the director of the lab. A state soil extension specialist or an area agronomist should be involved in the educational program to obtain approval. Otherwise, the testing will be billed to the county. There is no limit as to how many samples are sent in per participant after approval. After approval, please be sure to obtain what customer code number should be used. If you use your County Barcodes, the charge will go to your county account.

COUNTY HAY SHOW SAMPLES

The lab offers a limited number of samples for a Hay Show at reduced prices. Call the laboratory and schedule forage analysis for summer hay shows at least one month in advance to ensure the laboratory can complete the analysis in a timely manner. With Internet this process has sped up tremendously. All hay show samples must be submitted in forage sample bags with the information clearly marked on the tag. IF MOISTURE IS IMPORTANT: PUT THE FORAGE BAG INSIDE A PLASTIC BAG – DO NOT PUT THE PLASTIC BAG INSIDE THE FORAGE BAG!!! IF a plastic bag is on the inside of the forage bag, when the sample is logged in, it goes into the oven. Melted plastic usually ruins the sample and a new one will be required – DELAY – 2 weeks plus.

Hay show samples also use the 3xx series customer codes and are half of the regular price of the forage Protein Analysis. These samples must be marked with a 3XX series; otherwise, the charge will go to the regular number. With the 3XX number, the discount will be provided.

A NOTE ABOUT BARCODES

Writing a change on the barcode sticker WILL NOT CHANGE the actual Barcode. Sometimes the login person does not catch these written in changes. Please do not write on the barcode; just do not attach the barcode. When barcodes are not available, write in the 3XX number and sample number on both sides of the tag. If you know well in advance about the Hay Show or Soil Clinic, please call the SWFAL Office and order Barcodes.
TESTS SWFAL DOES NOT PERFORM

There are several frequently requested tests SWFAL is not able to perform. On page 44 you will find a chart of Laboratories and the tests performed. The following list includes tests not performed by SWFAL:

- Tests for Bacteria, including fecal coliform
- Organics, including Oil
- Animal manure and fertilizers
- Prussic acid testing of forage
- Lead in drinking water
- Herbicides and pesticides

OTHER OKLAHOMA STATE UNIVERSITY LABORATORIES

The following laboratories are found on OSU Campus. This is not an endorsement of these labs, just a source of outside testing. Please contact the lab for current prices and testing information.

**Oklahoma Animal Disease Diagnostic Laboratory**
127 OADDL
Oklahoma State University
Stillwater, OK  74078
(405) 744-6623

**Call for a list of services**
(Prussic Acid)

**Plant Disease Diagnostic Laboratory**
Department of Entomology and Plant Pathology
119 Noble Research Center
Oklahoma State University
Stillwater, OK  74078
(405) 744-9961

**Call for a list of services**
(Nematodes, Plant Disease)
OTHER ANALYTICAL LABORATORIES

Be sure to call for a complete list of services offered and prices.

Oklahoma State Department of Agriculture, Food and Forestry
2800 N Lincoln Blvd
Oklahoma City, OK  73105
405-521-3864
Website: http://www.oda.state.ok.us/aghome.htm
Testing Include: Certification of Livestock Feed, fertilizer, ECCE Analysis of Liming Materials and other soil amendments.

Southwell Labs
PO Box 25001
1838 SW 13th
Oklahoma City, OK  73125
405-232-1966
Testing Include: Prussic Acid Testing, Environmental Testing, (range of inorganic and organic tests), PCB’s, Hydrocarbon scans, other oil contamination tests, pesticides, and herbicides

Porter Testing Lab
6 SE 4th Street
Oklahoma City, OK  73129
405-235-7985
Testing Include: Routine soil testing (pH, N, P, K), forage and soil salinity analysis

Green Country Laboratory
6825 E 38th St
Tulsa, Oklahoma 74145-3201
Phone: 918-828-9977 or 800-324-5757
Fax: 918-828-7756
Website includes: http://greencountrytesting.com/index.htm
Testing Include: accredited metals and polymers focused specializing in the provision of Materials Testing and Failure Analysis services.

Red River Laboratory
6510 S. Western Ave. Suite 207
Oklahoma City, OK 73139
Phone: 405-232-1966
Fax: 405-235-8234
Website includes: www.redriverelcc.com

Testing Include: Inorganics, Organics, Pesticides

Accurate Environmental Laboratories
505 S Lowry
Stillwater, OK  74074
405-372-5300
Website: http://www.accuratelabs.com/
Testing Include: Environmental Testing, (range of inorganic and organic tests), PCB’s, Hydrocarbon scans, other oil contamination tests, pesticides

Servi-Tech
1816 E Wyatt Earp
P.O. Box 1397
Dodge City, KS 67801
316-227-7123
Website: http://www.servi-techinc.com/
Tests include: Range of Environmental Tests, complete range of Soil, Water and Forage Tests.

Stover Groups
P.O. Box 2056
Stillwater, OK 74076
Phone: 405-624-0018
Fax: 405-624-0019
Tests include: Range of Analytical, and FETAX Services. Main area is wastewater, but analyze soil and air

Ward Laboratories, Inc.
4007 Cherry Avenue
PO BOX 788
Kearney, NE  68848-0788
1-800-887-7645
308-234-2418
Website: http://www.wardlab.com/
Tests include: Wide range of testing available – Soils, Feeds, NIR, Plants, Water, Herbicides, Fertilizers, Manures, Wastewater, and Animal Waste. Ag Consulting and testing.
LABORATORIES PROVIDING ANIMAL WASTE ANALYSIS

Be sure to call for a complete list of services offered and prices.

Accurate Environmental Laboratories
505 S Lowry
Stillwater, OK  74074
405-372-5300
Website: http://www.accuratelabs.com/
Testing Include: Total N, Total P, Total K, and Moisture

A & L Plains Agricultural Laboratories
302 34th Street
PO BOX 1590
Lubbock, TX  79404
806-763-4278
Website: http://www.al-labs-plain.com/
Testing Include: Moisture, Total N, Total P, Total K, Cations, Anions, and Trace Metals

University of Arkansas
Soil Test Diagnostic Laboratory
Agricultural Services Laboratory
008 Lee 214
Marianna, AR 72360
P.O. Drawer 767
Phone: 870-295-2851
Fax: 870-295-2432
Website: http://www.uark.edu/depts/soiltest/NewSoilTest/index.htm
Testing Include: Moisture, pH, N (Total N) P, K, Ca, Salts – Mail Liquids in a 1 pint jar that is ¾ full to allow for gas expansion

Galbraith Laboratories, Inc
2323 Sycamore Drive
Knoxville, TN  37921-1750
865-546-1335
Website: http://www.galbraith.com/
Testing Include: Call for a list

American Agricultural Lab, Inc (Olsen’s)
700 W D Street
McCook, NE  69001
308-345-3670
Website: http://www.amaglab.com/

Testing Include: Moisture, N (TKN), P, K, Na, S, pH, Zn, other Cations and Anions, and Sludge Test

Servi-Tech
1816 E Wyatt Earp
Dodge City, KS  67804
316-227-7123
Website: http://www.servi-techinc.com/
Tests include: Range of Environmental Tests, complete range of Soil, Water and Forage Tests.

Stover Groups
P.O. Box 2056
Stillwater, OK 74076
Phone: 405-624-0018
Fax: 405-624-0019
Tests include: Range of Analytical, and FETAX Services. Main area is wastewater, but analyze soil and air

Ward Laboratories, Inc.
4007 Cherry Avenue
PO BOX 788
Kearney, NE  68848-0788
1-800-887-7645
308-234-2418
Website: http://www.wardlab.com/
Tests include: Wide range of testing available – Soils, Feeds, NIR, Plants, Water, Herbicides, Fertilizers, Manures, Wastewater, and Animal Waste. Ag Consulting and testing.
STATE CERTIFIED LABS THAT TEST DRINKING WATER

Be sure to call for a complete list of services offered and prices.

Department of Environmental Quality
707 N Robinson
Oklahoma City, OK  73102
405-702-0100
Testing Include: Total Coliforms, lead, fluoride, Chlorides, Nitrates, Nitrites, Pesticide Scan, Hydrocarbon Scan, Radon, Other tests Available

Tulsa City County Health Department
5051 S 129th E Ave.
Tulsa, OK  74134
918-582-9355
Testing Include: Total Coliforms, Fecal Coliform, lead, Copper, Complete Water and Bacterial Analysis, Other tests Available

Oklahoma City County Health Department
921 NE 23rd
Room 319
Oklahoma City, OK  73105
405-425-4340
Testing Include: Drinking water analysis, Fecal Bacteria, Bacteria, Metals, Call for other tests available

Midwest Laboratories, Inc.
13611 B Street
Omaha, NE  68144-3693
405-334-7770 phone
402-334-7121 Fax
Tests include: Call for tests available
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<th>Fertilizers</th>
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<td>Animal Disease Diagnostic Lab(OSU Campus)</td>
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<td>Univ of Ar Soil Testing Diagnostic Lab</td>
<td>(479) 575-3908</td>
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<td>Ward Laboratories, IN</td>
<td>(800) 887-7645</td>
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<td>Terracon - Tulsa</td>
<td>(918) 250-0461</td>
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<td>Standard Testing - OKC</td>
<td>(405) 528-0541</td>
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<td>Standard Testing - Enid</td>
<td>(580) 237-3130</td>
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Please Note that this list is not an all inclusive Listing of Analyses performed by these laboratories

*No Liquid Feed
SUPPLIES

The following Supplies are available to anyone who sends samples to our lab. Supplies can be ordered by Internet at http://www.soiltesting.okstate.edu. Login into SWFAL LOGIN and click on the SUPPLY Tab at the top. Please do not send any written requests for supplies with the samples. The samples go to our login room and the login personnel do not always see the order forms. This will prevent any oversights.

SUPPLY LIST

Testing Services and Price List – Leaflet L-241

Soil Sample Bags – 50 bags/bundle, with an area on the sample tag for all pertinent information
Forage Sample Bags – 50 bags/bundle, with an area on the sample tag for all pertinent information
Extra-Small Mailing Boxes – 25 boxes/bundle, holds up to four soils or four 4 oz. water bottles
Small Mailing Boxes – 25 boxes/bundle, holds about 6 soil or water bottles, the width of a forage sample bag
Medium Mailing Boxes – 25 boxes/bundle, holds about 12 soil or water samples
Large Mailing Boxes – 25 boxes/bundle, holds about 22 soil or water samples
Water Bottles – 4 oz. Small mouth and screw on cap – max order is 50
Water Test Information Labels – 6 labels on a sheet
Sweatless Soil Probe – An innovative way to take a soil sample with ease – Drill not included
Animal Waste Bags – zip lock bags can be used – each sample needs to be double bags – sandwich size/quart size is plenty big enough
Animal Waste Liquid containers – 8 oz containers – For slurry and liquid ONLY Must be put in plastic bag as well.
Animal Waste labels – 6 labels on a sheet
TPH Bottles – These are for TPH liquid samples only

Oakfield Soil Probe – simple t-bar shape with a step for taking soil samples – We do not carry a large volume of these soil probes. You can contact Oakfield Apparatus at Ph: (920) 583-4114; Fax: (920) 583-4166; Email: info@soilsamplers.com or Nasco Farm Supply Catalog – 1-800-558-9595.

Cooperative Extension publications must be ordered through the University Central Mailing Services. University Mailing holds all fact sheets, pamphlets, and leaflets at their warehouse. To contact them for any of our publications or others, call 405-744-9037. They are located at the Printing and Publishing East Building, OSU, Stillwater, OK 74078. You can also print some publications from the Internet – http://www.soiltesting.okstate.edu/fact.html.