Soil Testing for Pastures and Fields

Jonael Bosques

Small Farms Agent

UF/IFAS Extension Marion County

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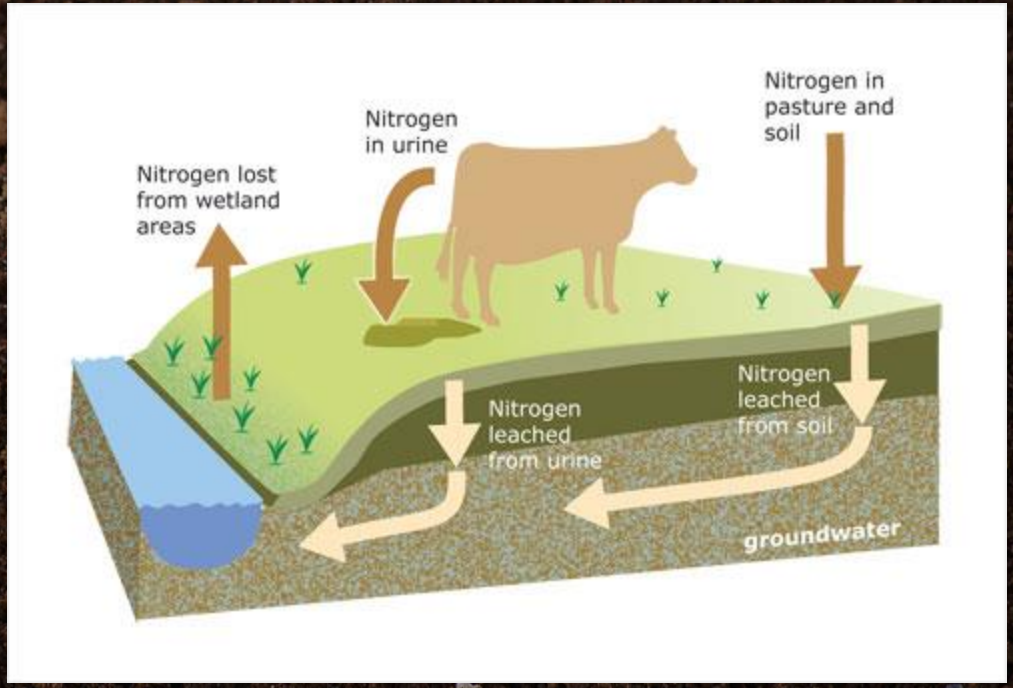
UNIVERSITY of FLORIDA

A Dynamic Relationship

Our Soil:

- Anchors our crops
- Holds limited amounts of nutrients
- Holds limited amounts of water

- Is affected by management
  - Plant:Soil interaction
  - Plant:Animal interaction



Soil Health = Plant Health

- As livestock owners we should view our selves as grass farmers

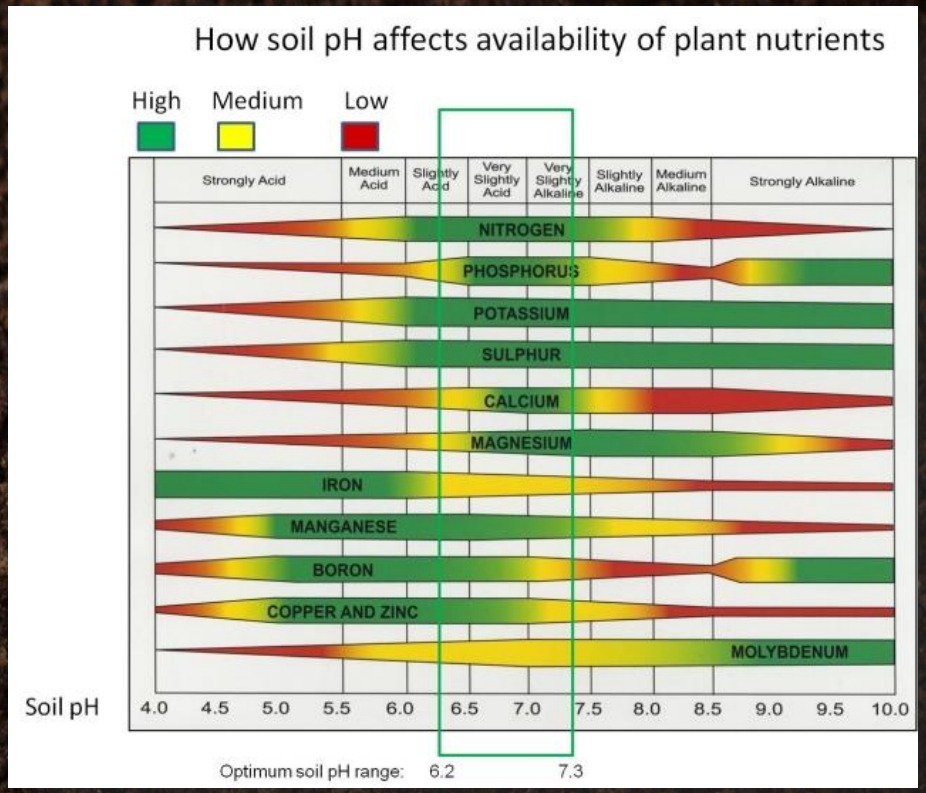
- Good soil management practices include:
  - Appropriate stocking rate
  - Appropriate use of nutrients
  - Timely soil monitoring
  - Proactive approaches to balance the interaction:
    - Animals:Plant
    - Plant:soil

Frequently Asked Questions

1. How can I control weeds in my pasture?
2. Why are my forages are receding?
3. What can I spray to get rid of my weeds?
4. Can you help me identify this weed? Is it poisonous?

Importance of Routine Soil Monitoring

- Nutrient amounts in the soil matches plant needs.
- Future nutrient applications match and do not exceed the needs of the plants.
- Monitor and correct soil acidity levels (pH) to ensure nutrient uptake.



When is the best time to take a soil sample?

Fall sampling

- Lab results and nutrient recommendations may be returned more quickly because fewer samples are submitted.
- Allows you to apply the fertilizer when prices are generally lower.
- A field should always be resampled at the same time of the year so you can make historical comparisons.

What tools should I use to take my soil sample?

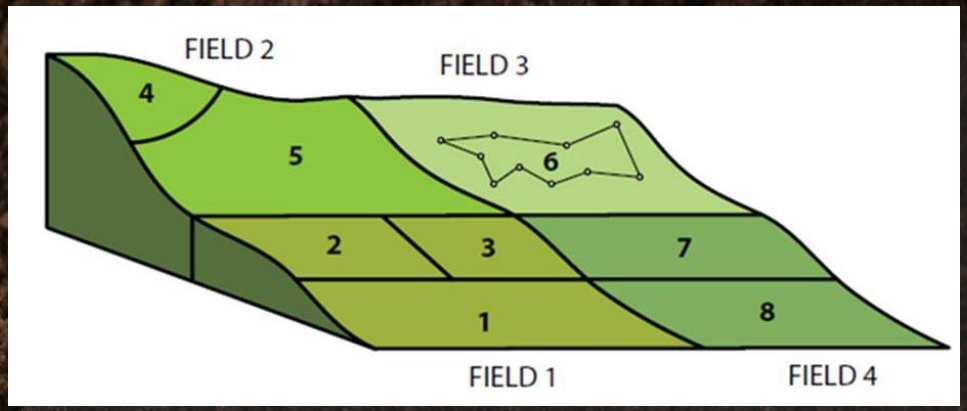
1. Soil Probe or trowel

2. Plastic Bucket

3. Soil Sample Kit

How do I sample my pasture?

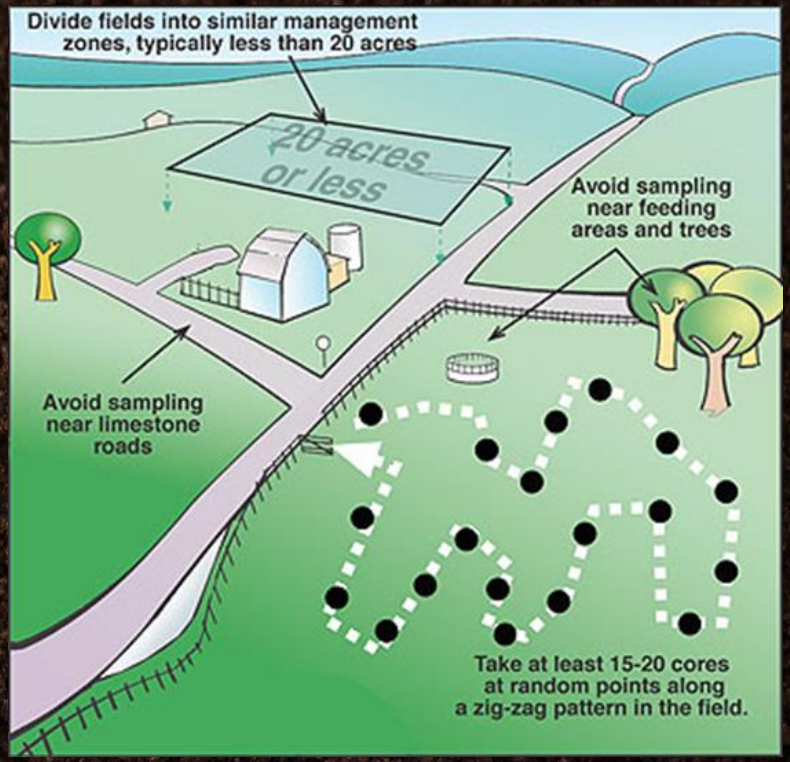
- An individual sample should represent no more than 10 acres.
  - Considerations for sampling specific areas:
  - Past management
  - Cropping history



- Individually sample areas that have received different management or vary in soil type, have suffered erosion or that are different in topography.

How do I sample my pasture?

- Soil sampling areas that are visually different can help you troubleshoot these areas and get information on the soil composition variations.
- Collect at least 20 soil cores for small areas and up to 30 cores for larger fields.
- Randomly take the soil cores throughout the sampling area and place them in a plastic bucket.



How do I sample my pasture?

Do not sample:

- Dung piles
- Old fencerows or under trees
- Areas used for manure or hay storage
- Livestock feeding areas where lime was previously stockpiled

How deep?

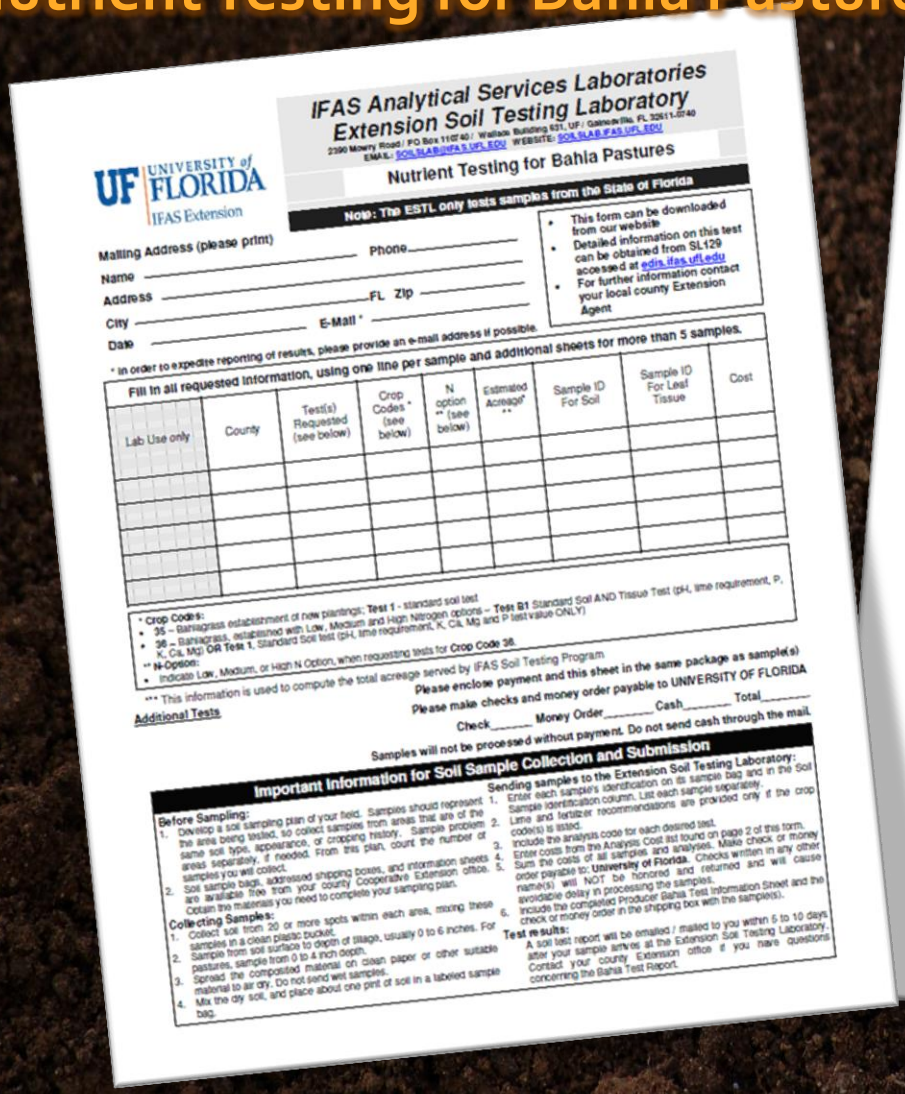
- Forages on average will utilize the first four (4) to six (6) inches of depth in our soil
- Take a core sample that is comprised of equal amounts of soil from zero (0) to six (6) inches in depth.

Now what?

- Mix your cores together and remove all plant material and stones.
- Collect about a quart bag of soil and let it dry off completely.
- Fill in your information on the bag **BEFORE** putting the soil in it.
- Match the information on your bag and the submittal form.

Submittal Forms

Nutrient Testing for Bahia Pastures form



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IFAS Extension

IFAS Analytical Services Laboratories
Extension Soil Testing Laboratory
2390 Mowry Road / PO Box 110740 / Wallace Building 631, UF / Gainesville, FL 32611-0740
EMAIL: SOILSLAB@IFAS.UFL.EDU WEBSITE: SOILSLAB.IFAS.UFL.EDU

Nutrient Testing for Bahia Pastures

Now: The ESTL only tests samples from the State of Florida

Mailing Address (please print) Phone
Name
Address FL Zip
City E-Mail *
Date

* in order to expedite reporting of results, please provide an e-mail address if possible.

- This form can be downloaded from our website
- Detailed information on this test can be obtained from SL129 accessed at edis.ifas.ufl.edu
- For further information contact your local county Extension Agent

Fill in all requested information, using one line per sample and additional sheets for more than 5 samples.

Lab Use only	County	Test(s) Requested (see below)	Crop Codes * (see below)	N option ** (see below)	Estimated Acreage ***	Sample ID For Soil	Sample ID For Leaf Tissue	Cost

* **Crop Codes:**
- 35 – Bahiagrass, established with Low, Medium and High Nitrogen options – **Test B1** Standard Soil AND Tissue Test (pH, lime requirement, P, K, Ca, Mg) **OR Test 1**, Standard Soil test (pH, lime requirement, K, Ca, Mg and P test value ONLY)
- 36 – Bahiagrass, established with Low, Medium and High Nitrogen options – **Test 1** - standard soil test

** **N-Option:**
- Indicate Low, Medium, or High N Option, when requesting tests for **Crop Code 36**.

*** This information is used to compute the total acreage served by IFAS Soil Testing Program

Additional Tests

Please enclose payment and this sheet in the same package as sample(s)
Please make checks and money order payable to UNIVERSITY OF FLORIDA
Check_____ Money Order_____ Cash_____ Total_____
Samples will not be processed without payment. Do not send cash through the mail.

Important Information for Soil Sample Collection and Submission

Before Sampling:
1. Develop a soil sampling plan of your field. Samples should represent the area being tested, so collect samples from areas that are of the same soil type, appearance, or cropping history. Sample problem areas separately, if needed. From this plan, count the number of samples you will collect.
2. Soil sample bags, addressed shipping boxes, and information sheets are available free from your county Cooperative Extension office. Obtain the materials you need to complete your sampling plan.

Collecting Samples:
1. Collect soil from 20 or more spots within each area, mixing these samples in a clean plastic bucket.
2. Sample from soil surface to depth of tillage, usually 0 to 6 inches. For pastures, sample from 0 to 4 inch depth.
3. Spread the composited material on clean paper or other suitable material to air dry. Do not send wet samples.
4. Mix the dry soil, and place about one pint of soil in a labeled sample bag.

Sending samples to the Extension Soil Testing Laboratory:
1. Enter each sample's identification on its sample bag and in the Soil Sample identification column. List each sample separately.
2. Lime and fertilizer recommendations are provided only if the crop code(s) is listed.
3. Include the analysis code for each desired test.
4. Enter costs from the Analysis Cost list found on page 2 of this form. Sum the costs of all samples and analyses. Make check or money order payable to: **University of Florida**. Checks written in any other name(s) will NOT be honored and returned and will cause avoidable delay in processing the samples.
5. Include the completed Producer Bahia Test Information Sheet and the check or money order in the shipping box with the sample(s).

Test results:
A soil test report will be emailed / mailed to you within 5 to 10 days after your sample arrives at the Extension Soil Testing Laboratory. Contact your county Extension office if you have questions concerning the Bahia Test Report.

Revised November 2012

Analysis Test Code	Analysis Name	Determinations Made	Analysis Cost
B1	Standard Soil and Tissue Test (for crop code 36)	pH, lime requirement, P, K, Ca, Mg	$15.00
1	Standard Soil Test (for crop code 36)	pH, lime requirement, K, Ca, Mg and P test value only	$7.00
1	Standard Soil Test (for crop code 35)	pH, lime requirement, P, K, Ca, Mg	$7.00
2	pH and Lime Requirement	pH and lime requirement	$3.00
3	Micronutrient Test	Cu, Mn, Zn	$5.00

Important Information for Bahiagrass (crop codes 35 and 36)

There are two types of tests available for Bahiagrass pastures in Florida (see Table above for details)

Phosphorus Testing and Recommendation for Bahiagrass
- Soil tests alone are not adequate for determining P fertilization needs of Bahiagrass.
- A tissue and soil test must be submitted together to determine P fertilization needs.
- Phosphorus should not be applied if tissue P is at or above 0.15% even if soil tests Very Low or Low for P.
- If P recommendations are not desired and the producer only is interested in K, Mg, Ca levels and pH then a Standard Producer Soil Test will apply. This WILL NOT include P fertilizer recommendations.

Bahiagrass testing for new establishment plantings
- For crop code 35, only 1, 2 and 3 can be requested.
- Decisions concerning liming and N fertilization of bahiagrass pastures are very sensitive to cattle productivity and prices.

How To Take, Prepare, and Submit Plant Tissue Samples (for Analysis B1)

1. Ensure that each sample contains at least a generous handful of plant material (around half a gallon).
2. Do not sample leaves contaminated with soil or sprays. If all tissue is dusty or spray contaminated, wash leaves gently with flowing distilled water.
3. Do not sample disease-, insect-, or mechanically damaged plant tissue.
4. Place tissue samples directly into a clean paper or cloth bag or envelope. Do not use plastic containers. If the plant tissue is wet or succulent, allow plant material to air dry for at least one day, before mailing.
5. When sampling suspected nutrient-deficient plants, two samples are recommended; one sample from normal plants, and another sample from abnormal plants.
6. When sampling, the plant part and plant maturity are important factors. Be sure to collect the proper plant part at the recommended time. A general rule of thumb is to sample the youngest, fully mature leaves during the growth cycle, or just prior to fruit set.
7. Please do not provide any roots along with the sample.

Submittal Forms

What should I test for?

Revised November 2012

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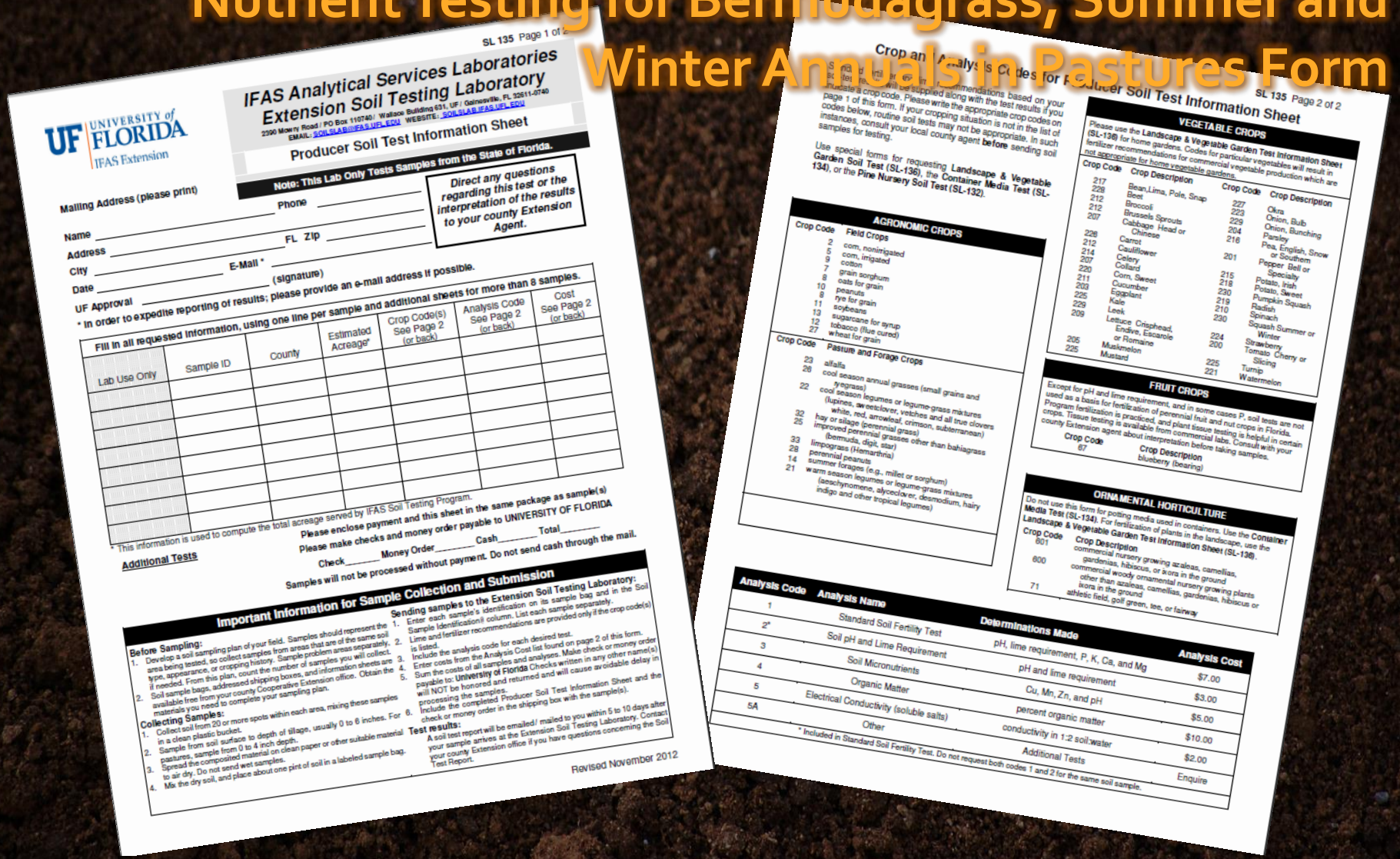
3	Micronutrient Test	Cu, Mn, Zn	$5.00

Submittal Forms

Nutrient Testing for Bermudagrass, Summer and Winter Annuals in Pastures Form



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Producer Soil Test Information Sheet

Note: This Lab Only Tests Samples from the State of Florida.

Direct any questions regarding this test or the interpretation of the results to your county Extension Agent.

Mailing Address (please print)

Name _____ Phone _____
Address _____ FL Zip _____
City _____ E-Mail * _____
Date _____ (signature)
UF Approval _____

* In order to expedite reporting of results; please provide an e-mail address if possible.

Fill in all requested information, using one line per sample and additional sheets for more than 8 samples.

Lab Use Only	Sample ID	County	Estimated Acreage*	Crop Code(s) See Page 2 (or back)	Analysis Code See Page 2 (or back)	Cost See Page 2 (or back)

* This information is used to compute the total acreage served by IFAS Soil Testing Program.

Additional Tests

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3. Include the analysis code for each desired test.
4. Enter costs from the Analysis Cost list found on page 2 of this form.
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6. Include the completed Producer Soil Test Information Sheet and the check or money order in the shipping box with the sample(s).

Test results:
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Revised November 2012

Crop and Analysis Codes for Producer Soil Test Information Sheet

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AGRONOMIC CROPS

Crop Code	Field Crops
2	corn, nonirrigated
5	corn, irrigated
9	cotton
7	grain sorghum
8	oats for grain
10	peanuts
8	rye for grain
11	soybeans
13	sugarcane for syrup
12	tobacco (flue cured)
27	wheat for grain

Crop Code	Pasture and Forage Crops
23	alfalfa
26	cool season annual grasses (small grains and ryegrass)
22	cool season legumes or legume-grass mixtures (lupines, arrowleaf clover, vetches and all true clovers white, red, arrowleaf, crimson, subterranean)
32	hay or silage (perennial grass)
25	improved perennial grasses other than bahiagrass (bermuda, digit, star)
33	limpograss (Hemarthria)
28	perennial peanuts
14	summer forages (e.g., millet or sorghum)
21	warm season legumes or legume-grass mixtures (aeschynomene, alyceclover, desmodium, hairy indigo and other tropical legumes)

VEGETABLE CROPS

Please use the **Landscape & Vegetable Garden Test Information Sheet (SL-136)** for home gardens. Codes for particular vegetables will result in fertilizer recommendations for commercial vegetable production which are not appropriate for home vegetable gardens.

Crop Code	Crop Description	Crop Code	Crop Description
217	Bean,Lima, Pole, Snap	227	Okra
226	Beet	223	Onion, Bulb
212	Broccoli	229	Onion, Bunching
212	Brussels Sprouts	204	Parsley
207	Cabbage Head or Chinese	216	Pea, English, Snow or Southern
226	Carrot	201	Pepper Bell or Specialty
212	Cauliflower	215	Potato, Irish
214	Celery	218	Potato, Sweet
207	Collard	230	Pumpkin Squash
220	Corn, Sweet	219	Radish
211	Cucumber	210	Spinach
203	Eggplant	230	Squash Summer or Winter
225	Kale	224	Strawberry
229	Leek	200	Tomato, Cherry or Slicing
209	Lettuce Crisphead, Endive, Escarole or Romaine	225	Turnip
205	Muskmelon	221	Watermelon
225	Mustard		

FRUIT CROPS

Except for pH and lime requirement, and in some cases P, soil tests are not used as a basis for fertilization of perennial fruit and nut crops in Florida. Program fertilization is practiced, and plant tissue testing is helpful in certain crops. Tissue testing is available from commercial labs. Consult with your county Extension agent about interpretation before talking samples.

Crop Code	Crop Description
67	blueberry (bearing)

ORNAMENTAL HORTICULTURE

Do not use this form for potting media used in containers. Use the **Container Media Test (SL-134)**. For fertilization of plants in the landscape, use the **Landscape & Vegetable Garden Test Information Sheet (SL-136)**.

Crop Code	Crop Description
601	commercial nursery growing azaleas, camellias, gardenias, hibiscus, or ixora in the ground
600	commercial woody ornamental nursery growing plants other than azaleas, camellias, gardenias, hibiscus or ixora in the ground
71	athletic field, golf green, tee, or fairway

Analysis Code	Analysis Name	Determinations Made	Analysis Cost
1	Standard Soil Fertility Test	pH, lime requirement, P, K, Ca, and Mg	$7.00
2*	Soil pH and Lime Requirement	pH and lime requirement	$3.00
3	Soil Micronutrients	Cu, Mn, Zn, and pH	$5.00
4	Organic Matter	percent organic matter	$10.00
5	Electrical Conductivity (soluble salts)	conductivity in 1:2 soil:water	$2.00
5A	Other	Additional Tests	Enquire

* Included in Standard Soil Fertility Test. Do not request both codes 1 and 2 for the same soil sample.

Submittal Forms

Crop Codes:

AGRONOMIC CROPS

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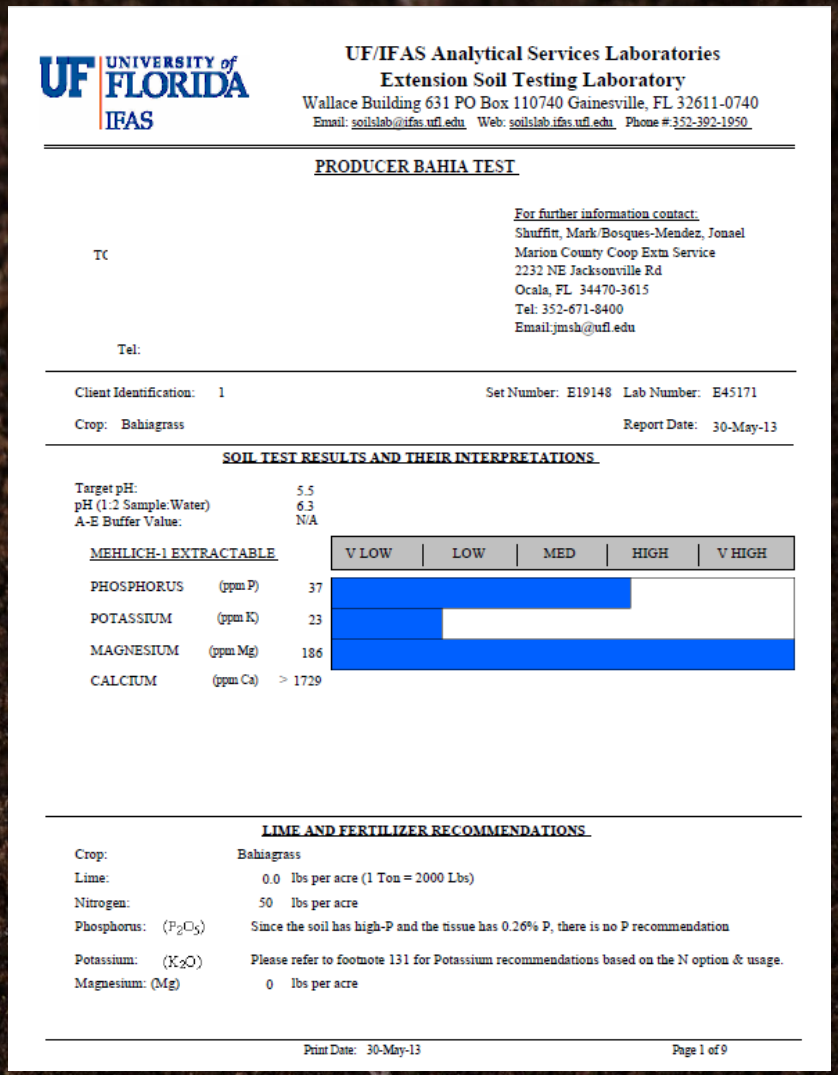
4	Organic Matter	percent organic matter	$10.00
5	Electrical Conductivity (soluble salts)	conductivity in 1:2 soil:water	$2.00
5A	Other	Additional Tests	Enquire

* Included in Standard Soil Fertility Test. Do not request both codes 1 and 2 for the same soil sample.

Basic Soil Test Report (Analysis code 1)

1. **Soil Test Results and their Interpretations**
   - Soil acidity (pH)
   - Nutrient levels
     - Phosphorus (P)
     - Potassium (K)
     - Magnesium (Mg)
     - Calcium (Ca)

2. **Lime and Fertilizer Recommendations**



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Wallace Building 631 PO Box 110740 Gainesville, FL 32611-0740
Email: soilslab@ifas.ufl.edu Web: soilslab.ifas.ufl.edu Phone #:352-392-1950

PRODUCER BAHIA TEST

TC

Tel:

For further information contact:
Shuffitt, Mark/Bosques-Mendez, Jonael
Marion County Coop Extn Service
2232 NE Jacksonville Rd
Ocala, FL 34470-3615
Tel: 352-671-8400
Email:jmsh@ufl.edu

Client Identification: 1 Set Number: E19148 Lab Number: E45171
Crop: Bahiagrass Report Date: 30-May-13

SOIL TEST RESULTS AND THEIR INTERPRETATIONS

Target pH:		5.5
pH (1:2 Sample:Water)		6.3
A-E Buffer Value:		N/A

MEHLICH-1 EXTRACTABLE			V LOW	LOW	MED	HIGH	V HIGH
PHOSPHORUS	(ppm P)	37					
POTASSIUM	(ppm K)	23					
MAGNESIUM	(ppm Mg)	186					
CALCIUM	(ppm Ca)	> 1729					

LIME AND FERTILIZER RECOMMENDATIONS

Crop:	Bahiagrass	
Lime:	0.0	lbs per acre (1 Ton = 2000 Lbs)
Nitrogen:	50	lbs per acre
Phosphorus: (P_2O_5)	Since the soil has high-P and the tissue has 0.26% P, there is no P recommendation	
Potassium: (K_2O)	Please refer to footnote 131 for Potassium recommendations based on the N option & usage.	
Magnesium: (Mg)	0	lbs per acre

Print Date: 30-May-13 Page 1 of 9

Contact your UF/IFAS Extension Agent

- The reports are easier to understand with experience.
- Your Extension agent can review them with you.

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