



# Concepts of Soil Fertility for Hunter Food Plots

## Importance of Soil Fertility

Plants can be thought of as nutrient-transfer agents to get nutrients from the soil into the game animal. The condition and quality of the soil affects how well plants can transfer nutrients. Managing soil fertility affects how well plants grow and how nutritious they are. The importance of testing your soil before planting food plots can make a difference in the quality and productivity of your plots.

## Interpreting Soil Test

Soil testing measures the plant-available portion of soil nutrients, and the soil test results form the basis for nutrient recommendations. A routine soil test report from the LSU AgCenter Soil Testing and Plant Analysis Lab will identify the type of soil texture and include a low, medium or high value rating for pH, calcium, magnesium, phosphorus, potassium, sodium, sulphur, zinc and copper. Recommendations on the fertilizer nutrient needs of the crop(s) you will be growing are included with each soil test result, which also will indicate the amount of lime or sulphur, if needed, to adjust pH.

## Adjusting pH

The pH of a soil can be influenced or adjusted by applying lime to raise the pH or by applying sulphur to lower the pH.

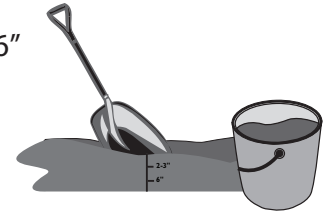
**Note:** Generally, one ton of lime per acre is applied to raise the soil pH one unit (for example, from a pH of 5 to a pH of 6), and ½ ton of sulphur per acre is applied to lower the pH one unit (for example, from a pH of 6 to a pH of 5).

## Available Forms of Lime

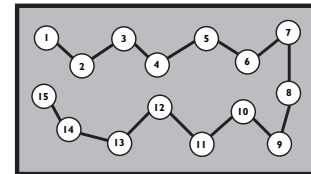
- Agriculture lime – calcium carbonate
- Dolomite lime – calcium and magnesium carbonate
- Pellet size lime – calcium and magnesium

## Method for Proper Soil Sampling

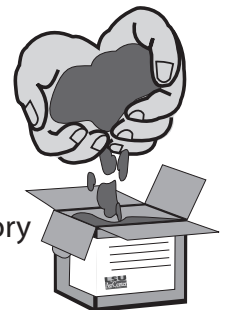
1. Sample to depth of 4" - 6"



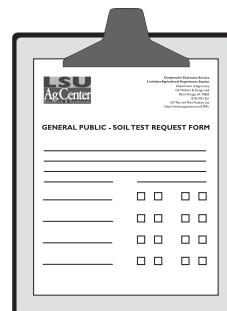
2. Take soil from multiple areas within the plot.



3. Mix soil thoroughly.



4. Remove one pint for laboratory sample. Label with identification number. Sample boxes are available from your county agent.



5. Fill out sample submitting form and take it to your county extension office or mail to LSU AgCenter Soil Testing Laboratory for analysis. Allow two to three weeks for results.

## Available Forms of Sulphur

- Elemental sulphur – sulphur
- Aluminum sulphate – aluminum and sulphur
- iron sulphate – iron and sulphur

## Example of Application

A soil test recommends that one ton of lime per acre be applied. Size of the food plot area is 30 feet by 70 feet.

1 acre = 43,560 sq. ft.

1 ton of lime = 2,000 lbs.

30 feet x 70 feet = 2,100 square feet

2,000 divided by 43,560 = .05 pounds of lime per one square foot area of the food plot.

2,100 square feet x .05 lbs. = 105 pounds of lime needed for plot area.

\*Use this same formula to figure soil test recommendation for sulphur application.

## Applying Fertilizer

The primary nutrients most typically used by plants in food plots are nitrogen, phosphorous and potassium.

**Note:** Fertilizer rate can be calculated by dividing the recommended (soil test) application rate by the fertilizer analysis (number on the bag for that nutrient) multiplied by 100.

## Available Forms of Nutrients

- Nitrogen – ammonium nitrate = 34% (N)  
urea = 46% (N)
- Phosphorous – super phosphate = 46% (P205)
- Potassium – muriate of potash = 62% (K20)

## Example of Application

A soil test recommends 150 pounds of actual nitrogen per acre be applied. Size of the food plot area is 30 feet by 70 feet.

150 pounds divided by 0.34 (ammonium nitrate @ 34 percent N) = 441 pounds ammonium nitrate

441 pounds divided by 43,560 = .01 pound of ammonium nitrate per square foot of plot area.

.01 pounds x 2,100 square feet = 22 pounds of ammonium nitrate needed for total food plot area.

\*Use this same formula to figure soil test recommendations for urea (N), P205 (P) and K20 (K) applications.



### Prepared by:

René G. Schmit, County Agent  
Agriculture & Natural Resources  
St. Charles Parish

For more information on wildlife and food plot management, visit the LSU AgCenter Web page at [www.lsuagcenter.com](http://www.lsuagcenter.com)

or contact

Dr. Donald Reed  
Forestry & Wildlife Specialist  
LSU AgCenter  
Idlewild Research Station  
225-683-5848  
([dreed@agctr.lsu.edu](mailto:dreed@agctr.lsu.edu))



### Louisiana State University Agricultural Center

William B. Richardson, Chancellor

### Louisiana Agricultural Experiment Station

David J. Boethel, Vice Chancellor and Director

### Louisiana Cooperative Extension Service

Paul D. Coreil, Vice Chancellor and Director

Pub. 3019

(?M)

11/07

Issued in furtherance of Cooperative Extension work, Acts of Congress of May 8 and June 30, 1914, in cooperation with the United States Department of Agriculture. The Louisiana Cooperative Extension Service provides equal opportunities in programs and employment.