Services Provided by MU Soil and Plant Testing Program for Nutrient Management of Grape Vineyards

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Mission of MU Soil & Plant Testing Program

The mission of this program is to promote economically viable and environmentally sound nutrient management recommendations by providing unbiased, research-based recommendations to producers, homeowners, horticulturalists, golf course managers and Agra-industry.
Soil and Plant Testing Laboratory

http://soilplantlab.missouri.edu/soil/

Soil analysis
Plant analysis
Compost analysis
Greenhouse growing media analysis
Manure analysis
Water analysis
Tests and fees
Sample analysis information forms
Soil test results online
Soil test recommendations online
Soil test interpretations and recommendations
Missouri Soil Testing Association accreditation program
Importance of Soil Testing in Nutrient Management

A well-planned nutrient management plan begins with soil testing. It is used as a best management tool to help in decisions related to fertilizer and lime applications.
Importance of Soil Testing...

It provides a scientific basis for maintaining optimum soil fertility levels and proper pH values to help attain optimum plant growth and economic yields.
 Importance of Plant Testing

- Plant analysis is used as a diagnostic tool to detect nutrient related problems and to monitor nutrient status of high yielding and perennial crops.
  
- Confirms visual symptoms and finds “hidden hunger”
  
- Pinpoints potential soil problem areas
Importance of Plant Testing

- Tissue testing/plant analysis is the best way of predicting nutrient/fertilizer needs of perennial fruit crops.

- Nutritional status of grapevines and other perennial fruit crops can be monitored by sampling leaves or petioles during the mid season (July 15 to August 31).

- Used as a monitoring tool to assess the efficacy of the fertilizer program used.
Plant analysis and soil testing go hand-in-hand
Total number of samples analyzed by the University of Missouri Soil Labs

- Delta
- UMC

Sample No.

Year

Sources of Samples Received by MU Soil Testing Labs, 2012

- Field Crops: 23954
- Lawns & Gardens: 6586
- Commercial Fruits, Vegetables & Turf: 648
- Research: 5486
Special Tests UMC Lab 2012

- Environmental: 451
- Soil: 1451
- Plant: 104
- Water: 4775
- GHM: 52
- Compost: 223
- Manure: 2250

Legend:
- Soil
- Plant
- Water
- GHM
- Compost
- Manure
Soil pH
Crop | Preferred pH range
---|---
Most fruits and vegetables | 6.5 – 7.0
Blueberries and potatoes | 4.5 – 5.5
Asparagus, Beets and Cabbage | 6.0 – 8.0

MU soil testing lab measures salt pH
pHS 1:1  0.01 M  CaCl₂
pHS + 0.5=pHw
When is the best time to test your soil?

• Soil samples can be taken in the spring or fall for established sites.

• For new sites, soil samples can be taken any time when the soil is workable.

• Fall is a preferred time to take soil tests if one suspects a soil pH problem. This allow you ample time to apply lime to raise the soil pH. Sulfur should be applied if the soil pH needs to be lowered.
How to take a soil sample?

Most errors in soil testing occur when the sample is taken. Potential sources of errors include the following:

- Too few cores per sample
- Failure to properly divide the area to be sampled
- Failure to cover the whole area
- Contaminated sample
- Taking a representative sample is important in soil testing.
- Use a trowel, spade and sampling tube/core samplers.
Taking a representative sample is important:

• For an established vineyard- Sample multiple spots in a random manner covering the entire vineyard (10 -15 cores per every 20 ac) at the depth of 6 to 7 inches. Collect the samples in a clean bucket mix it well and submit 1 ½ cup full to the lab.

• For new establishment – take 6 to 7” deep samples for measuring the soil fertility and another 6 to 12” deep sample to estimate the sub soil pH and buffer pH to estimate the lime requirement.
What tests should be run?

• A regular fertility test is sufficient. This includes measurement of pH, neutralizable acidity (NA), phosphorus, potassium, calcium, magnesium, organic matter (OM) and cation exchange capacity (CEC) and provide nutrient recommendation.

• If you suspect micronutrients to be a problem, you can choose boron, copper, iron, manganese and zinc for an additional cost.
Soil and Plant Testing Laboratory

http://soilplantlab.missouri.edu/soil/

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### Guidelines for major horticultural crops codes

<table>
<thead>
<tr>
<th>Crop code</th>
<th>Fruits</th>
<th>Vegetables</th>
<th>Turf</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>Apples/pears</td>
<td>Asparagus, new</td>
<td>Turf establishment or renovation</td>
</tr>
<tr>
<td>02</td>
<td>Blueberries</td>
<td>Asparagus, established</td>
<td></td>
</tr>
<tr>
<td>03</td>
<td>Berries</td>
<td>Beans/peas</td>
<td></td>
</tr>
<tr>
<td>04</td>
<td>Grapes</td>
<td>Beets</td>
<td></td>
</tr>
<tr>
<td>05</td>
<td>Stone fruits (peaches, plums, apricots, cherries, nectarines)</td>
<td>Beans/peas</td>
<td></td>
</tr>
<tr>
<td>06</td>
<td>Strawberries</td>
<td>Asparagus, established</td>
<td></td>
</tr>
<tr>
<td>07</td>
<td>Apples/pears</td>
<td>Broccoli</td>
<td></td>
</tr>
<tr>
<td>08</td>
<td>Blueberries*</td>
<td>Brook (new)</td>
<td></td>
</tr>
<tr>
<td>09</td>
<td>Brambles (raspberries, blackberries, gooseberries)</td>
<td>Cabbage</td>
<td>Bluegrass, fescue, ryegrass</td>
</tr>
<tr>
<td>10</td>
<td>Grapes</td>
<td>Carrots</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Stone fruits (peaches, plums, apricots, cherries, nectarines)</td>
<td>Cucumbers</td>
<td>Brown grass, zosygrass, zoysgrass, buffalograss</td>
</tr>
<tr>
<td>12</td>
<td>Strawberries</td>
<td>Cucumbers</td>
<td>bluegrass, fescue, ryegrass,</td>
</tr>
<tr>
<td>21</td>
<td>Asparagus, new</td>
<td>Cucumbers</td>
<td>brown grass, zosygrass, zoysgrass, buffalograss</td>
</tr>
<tr>
<td>22</td>
<td>Asparagus, established</td>
<td>Radishes</td>
<td>golf courses</td>
</tr>
<tr>
<td>23</td>
<td>Beans/peas</td>
<td>Radishes</td>
<td>Putting green (bentgrass)</td>
</tr>
<tr>
<td>24</td>
<td>Beets</td>
<td>Radishes</td>
<td>Deep green (bentgrass)</td>
</tr>
<tr>
<td>25</td>
<td>Broccoli</td>
<td>Spinach</td>
<td>Fairways (cool season)</td>
</tr>
<tr>
<td>26</td>
<td>Brussels sprouts</td>
<td>Spinach</td>
<td>Fairways (warm season)</td>
</tr>
<tr>
<td>27</td>
<td>Cabbage</td>
<td>Squash</td>
<td>Fairways (warm season)</td>
</tr>
<tr>
<td>28</td>
<td>Carrots</td>
<td>Dates</td>
<td>Fairways (warm season)</td>
</tr>
<tr>
<td>29</td>
<td>Cauliflower</td>
<td>Dates</td>
<td>Fairways (warm season)</td>
</tr>
<tr>
<td>30</td>
<td>Cucumbers</td>
<td>Dates</td>
<td>Fairways (warm season)</td>
</tr>
<tr>
<td>31</td>
<td>Lettuce</td>
<td>Dates</td>
<td>Fairways (warm season)</td>
</tr>
<tr>
<td>32</td>
<td>Melons (watermelons, cantaloupes)</td>
<td>Dates</td>
<td>Fairways (warm season)</td>
</tr>
<tr>
<td>33</td>
<td>Onions, dry</td>
<td>Dates</td>
<td>Fairways (warm season)</td>
</tr>
<tr>
<td>34</td>
<td>Oranges, green</td>
<td>Dates</td>
<td>Fairways (warm season)</td>
</tr>
<tr>
<td>35</td>
<td>Peppers</td>
<td>Dates</td>
<td>Fairways (warm season)</td>
</tr>
<tr>
<td>36</td>
<td>Potatoes</td>
<td>Dates</td>
<td>Fairways (warm season)</td>
</tr>
<tr>
<td>37</td>
<td>Pumpkin/squash</td>
<td>Dates</td>
<td>Fairways (warm season)</td>
</tr>
<tr>
<td>38</td>
<td>Raddishes</td>
<td>Dates</td>
<td>Fairways (warm season)</td>
</tr>
<tr>
<td>39</td>
<td>Spinach</td>
<td>Dates</td>
<td>Fairways (warm season)</td>
</tr>
<tr>
<td>40</td>
<td>Sweet corn</td>
<td>Dates</td>
<td>Fairways (warm season)</td>
</tr>
<tr>
<td>41</td>
<td>Tomatoes</td>
<td>Dates</td>
<td>Fairways (warm season)</td>
</tr>
</tbody>
</table>

### Soil Sample Information for Commercial Fruits, Vegetables and Turfs

- **Name:**
- **Address:**
- **City:**
- **State:**
- **ZIP:**
- **Phone:**
- **Fax:**
- **Account No.:**
- **Serial No.:**

### Cropping options (1-3)

<table>
<thead>
<tr>
<th></th>
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<td></td>
</tr>
</tbody>
</table>

### For instructions, see back of form

- **Lab No. (lab use only):**
- **Sample:** No more than 12 letters or numbers
- **Field/Sample ID:**
- **Irrigated (Y/N):**
- **Topography:**
- **Soil Region:**
- **Soil Type:**
- **Soil pH:**
- **NO₃-N and NH₄-N:**
- **Sampling depth:**

### Send report by:
- **Hard copy**
- **Email**
- **CSV**

University of Missouri System, Lincoln University, U.S. Department of Agriculture and local University of Missouri Extension Councils cooperating in equal opportunity institutions

White copy – Lab  Yellow copy – File

MP727 (Revised 9/14)
Soil Test Report
For Commercial Fruits,
Vegetables and Turf

http://www.soiltest.oumissouri.edu/  
Serial No: A11048T-1  
Lab No: C1005936  
County: Jackson  
Region: 1  
Submitted: 3/11/2016  
Processed: 3/19/2016  

This report is for:
MICHELLE GANSER  
416 DORISON RD  
INDEPENDENCE, MO 64060  

SOIL TEST INFORMATION  
RATING  
SOIL TEST INFORMATION  
RATING

<table>
<thead>
<tr>
<th>pH</th>
<th>Medium</th>
<th>Sulfur (SO3)</th>
<th>ppm</th>
</tr>
</thead>
<tbody>
<tr>
<td>6.3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Phosphorus (P)</td>
<td>24 lbs/A</td>
<td>Low</td>
<td>Zinc (Zn)</td>
</tr>
<tr>
<td>Potassium (K)</td>
<td>141 lbs/A</td>
<td>Medium</td>
<td>Manganese (Mn)</td>
</tr>
<tr>
<td>Iron (Fe)</td>
<td>ppm</td>
<td>ppm</td>
<td></td>
</tr>
<tr>
<td>Magnesium (Mg)</td>
<td>372 lbs/A</td>
<td>High</td>
<td>Copper (Cu)</td>
</tr>
<tr>
<td>Sodium (Na)</td>
<td>ppm</td>
<td>ppm</td>
<td></td>
</tr>
<tr>
<td>Organic matter</td>
<td>1.5 %</td>
<td>Neutralizing acidity</td>
<td>1.0</td>
</tr>
<tr>
<td>Carbon</td>
<td>ppm</td>
<td>Subsoil</td>
<td>ppm</td>
</tr>
<tr>
<td>Nitrate (NO3-N)</td>
<td>Topsoil</td>
<td>ppm</td>
<td>Sampling Depth</td>
</tr>
</tbody>
</table>

NUTRIENT REQUIREMENTS

<table>
<thead>
<tr>
<th>Cropping options</th>
<th>N</th>
<th>P2O5</th>
<th>K2O</th>
<th>MgO</th>
<th>Zn</th>
<th>S</th>
<th>B</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>4 Grapes (new planting)</td>
<td>60</td>
<td>118</td>
<td>138</td>
<td></td>
<td>0</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

LIMESTONE SUGGESTIONS

| Effective Neutralizing Material (E-NM) | 0 | lb/ac |
| Effective Magnesium (E-Mg) | 0 | lb/ac |

--- Some herbicide labels list restrictions based on soil pH in water. Use the estimated pH in water of 6.3 as a guide to the label. If you wish to have soil pH in water analyzed, contact your dealer or local Extension specialist listed below.  
--- Apply the recommended nitrogen for Grapes (new planting) as follows: 1/2 broadcast and 1/2 sidedress in June.  
--- Nitrogen requirements may be reduced by 40 pounds per acre for the first crop grown following grass-legume-pasture production.
Evaluating the Nutritional Status of Grapevines

• Tissue testing is the effective means of monitoring the plant nutrient status and predicting fertilizer needs of perennial fruit crops (grapes, apples, peach, nectarine, blue berries, & strawberries).

• Fertilization practices can be monitored by sampling leaves (apples, peaches and nectarines) or petioles (grapes and blueberries) during mid season and making adjustments for the following year.

• Mid July to August is the best time to sample to test the nutrient status.
Evaluating the Nutritional Status of Grapevines

• Optimum nutrient ranges are based on samples collected at a particular growth stage. Since the results of the plant analysis will be compared to known standards, it is important that parts of plants are sampled at a certain stage of development.

• The leaf nutrient concentrations vary throughout the growing season. The general nutrient status of grapevines and orchards should be evaluated annually. This will help in evaluating the response for applied fertilizer.
<table>
<thead>
<tr>
<th>Crop</th>
<th>Stage of Growth</th>
<th>Plant Part /Location on Plant</th>
<th>Number of samples or Plant Part</th>
</tr>
</thead>
<tbody>
<tr>
<td>Apples</td>
<td>July 15 – Aug. 20</td>
<td>Fully-expanded leaf from middle of current terminal shoot</td>
<td>25 leaves and petioles</td>
</tr>
<tr>
<td>Blueberries</td>
<td>First week of harvest</td>
<td>Young mature leaf from current season’s growth</td>
<td>25 leaves detach petioles</td>
</tr>
<tr>
<td>Fruit Trees (Peach, nectarine, plums, etc.,)</td>
<td>July 15- Sept 1</td>
<td>Select shots at eye level from around the outside of the tree. Select shoots that make a vertical angle of 45-60 degrees to the ground. Remove 1 or 2 leaves from the mid portion of current season’s growth.</td>
<td>25 leaves and petioles</td>
</tr>
<tr>
<td>Grapes</td>
<td>Veraison</td>
<td>Petiole from most recently matured leaf on shoot (1 petiole per shoot)</td>
<td>30 petioles</td>
</tr>
<tr>
<td>Strawberries</td>
<td>Mid Aug.</td>
<td>Mature leaves from new growth at flowering</td>
<td>25 leaves</td>
</tr>
</tbody>
</table>
How?

• Collected plant tissue is very perishable and requires special handling to avoid decomposition.

• Fresh plant tissue should be placed in clean paper bags left open; partially air dried if possible or kept in a cool environment during shipment to the lab.

• Wash dusty plants before air-drying. Fresh plant samples should not be placed in closed plastic bags unless the tissue is either air-dried or bag and contents are kept cool.
How?

• Samples can be submitted with the duly filled sample information forms to the County Extension Center or directly to the lab.

• When submitting samples directly to the lab a duly filled sample information form and a check written in favor of MU soil Testing for the amount due should be sent along with the sample.
Where to Submit?

1. County Extension Centers

2. Soil and Plant Testing Laboratory
   23 Mumford Hall
   Columbia, Mo. 65211
   Phone 573-882-0623
   Email soiltestingservices@missouri.edu
   URL:http://soilplantlab.missouri.edu/soil/

3. Soil Testing Laboratory Delta Research Center
   P.O. Box 160
   Portageville, Mo. 63873
   Phone: 573-379-5431
Sample Submission form

### Plant Analysis Form

**Soil and Plant Testing Lab**
23 Mumford Hall, University of Missouri
Columbia, MO 65211

**Contact info:** 573-882-0623
Fax: 573-884-4286
Email: soiltestingextension@mizzou.edu
Web: http://soiltestinglab.missouri.edu

<table>
<thead>
<tr>
<th>Date sampled:</th>
<th>/</th>
<th>/</th>
<th>/</th>
<th>Date received:</th>
<th>/</th>
<th>/</th>
<th>/</th>
<th>Lab #:</th>
</tr>
</thead>
</table>

**Name:** 
**Address:**
**City/State/ZIP:** / / 
**Phone:** Fax: 
**Email:**
**County to be billed:** County code:
**Sample identification:**
**Crop:**
**Need to:** Prevent crop:
**Stage of growth:** Accomplished by soil sample? Yes ☐ No ☐
**Nutrients:** If yes, what is the serial number?
**When last蛭ed:** Soil test results:
**Position on landscape:** Mg, pH, OM, CEC
**Further updated:**
**Description of problem:**

<table>
<thead>
<tr>
<th>Number of samples</th>
<th>Cost</th>
<th>Total cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regular analysis: nitrogen, phosphorus, potassium, calcium and magnesium; drying and grinding</td>
<td>$17</td>
<td></td>
</tr>
<tr>
<td>Regular analysis plus micro nutrients: copper, iron, manganese and zinc; drying and grinding</td>
<td>$29</td>
<td></td>
</tr>
<tr>
<td>Complete nutrient analysis package: regular, micro, boron, molybdenum and sulfur; drying and grinding</td>
<td>$30</td>
<td></td>
</tr>
<tr>
<td>Micro nutrients only: copper, iron, manganese and zinc</td>
<td>$12</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Individual analysis (per nutrient)</th>
<th>Cost</th>
<th>Total cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nitrogen (N) as N₂O₃</td>
<td>$10</td>
<td></td>
</tr>
<tr>
<td>Phosphorus (P)</td>
<td>$5</td>
<td></td>
</tr>
<tr>
<td>Potassium (K)</td>
<td>$5</td>
<td></td>
</tr>
<tr>
<td>Calcium (Ca) or Magnesium (Mg)</td>
<td>$5</td>
<td></td>
</tr>
<tr>
<td>Check the box to test for those elements: ☐ Iron (Fe) ☐ Copper (Cu) ☐ Zinc (Zn) ☐ Manganese (Mn)</td>
<td>$5</td>
<td></td>
</tr>
<tr>
<td>Bone</td>
<td>$5</td>
<td></td>
</tr>
<tr>
<td>Chloride</td>
<td>$6.50</td>
<td></td>
</tr>
<tr>
<td>Nitrate-N</td>
<td>$8</td>
<td></td>
</tr>
<tr>
<td>Corn stalk Nitrate-N</td>
<td>$12</td>
<td></td>
</tr>
<tr>
<td>Total Nitrogen (N) by combustion</td>
<td>$9</td>
<td></td>
</tr>
<tr>
<td>Total Carbon (C) by combustion</td>
<td>$9</td>
<td></td>
</tr>
<tr>
<td>Total Sulfur (S) by combustion</td>
<td>$9</td>
<td></td>
</tr>
<tr>
<td>Total C and N by combustion</td>
<td>$16</td>
<td></td>
</tr>
<tr>
<td>Total N, C and S by combustion</td>
<td>$24</td>
<td></td>
</tr>
<tr>
<td>Sample grinding</td>
<td>$2</td>
<td></td>
</tr>
</tbody>
</table>

**Total due:**

*A sample grinding fee will be added to the tests marked with an asterisk.*

**To pay by check:** Make checks payable to MU Soil Testing for the total amount due. The check must be sent along with the sample unless you have an account set up with the lab. The lab also accepts purchase orders; contact the lab to discuss this process. Samples will be discarded after 30 days.

---

**Sample Submission form**
# Plant Analysis Report

## Soil Analysis

**Plant Analysis Report**

- **Crop:** Grapes
- **Sampling Time:** Verasion
- **Plant Part:** Petiole
- **Soil Sample Serial #:**

<table>
<thead>
<tr>
<th>Elements</th>
<th>Content</th>
<th>Sufficiency Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nitrogen (N)</td>
<td>1.04 %</td>
<td>0.90-2.00%</td>
</tr>
<tr>
<td>Phosphorus (P)</td>
<td>0.29 %</td>
<td>0.15-0.50%</td>
</tr>
<tr>
<td>Potassium (K)</td>
<td>1.46 %</td>
<td>1.40-4.50%</td>
</tr>
<tr>
<td>Calcium (Ca)</td>
<td>2.29 %</td>
<td>1.10-3.00%</td>
</tr>
<tr>
<td>Magnesium (Mg)</td>
<td>1.43 %</td>
<td>0.25-0.80%</td>
</tr>
<tr>
<td>Sulfur (S)</td>
<td>0.31 %</td>
<td>No data</td>
</tr>
<tr>
<td>Iron (Fe)</td>
<td>52 ppm</td>
<td>30-200 ppm</td>
</tr>
<tr>
<td>Manganese (Mn)</td>
<td>881 ppm</td>
<td>30-700 ppm</td>
</tr>
<tr>
<td>Boron (B)</td>
<td>14 ppm</td>
<td>25-100 ppm</td>
</tr>
<tr>
<td>Copper (Cu)</td>
<td>8 ppm</td>
<td>4-30 ppm</td>
</tr>
<tr>
<td>Zinc (Zn)</td>
<td>79 ppm</td>
<td>29-80 ppm</td>
</tr>
<tr>
<td>Molybdenum (Mo)</td>
<td>0.94 ppm</td>
<td>0.20-0.40 ppm</td>
</tr>
</tbody>
</table>

**Nutrient Level Position**

- Low
- Optimum
- High

## Recommendations

Based on the plant nutrient analysis, I do not see any problems in the nutritional status of the plant. Please use the attached Midwest Grapes Production Guide to follow the fertilizer recommendations.
Soil test recommendations online

Get recommendations for different crops by retrieving soil test results for samples submitted to the MU lab or by manually entering soil test data.

Retrieve results and change recommendations

- Agronomist and horticulturalists login
- County login
- Firm or company login
- Customer or farmer login
- Enter soil test results manually and get your recommendations
Enter soil test results manually and get your recommendations

Text in blue indicates value required.

☐ Field crops  ☐ Commercial horticulture and turf

Sample belongs to:

Name: John Doe  Address: 1000 University Ave

City: Columbia  State: MO  ZIP: 65211

**pH**: 5.3  ☐ sat. water

**Phosphorus (P)**: 26  ☐ pounds per acre  ☐ parts per million

**Potassium (K)**: 190  ☐ pounds per acre  ☐ parts per million

**Calcium (Ca)**: 2480  ☐ pounds per acre  ☐ parts per million

**Magnesium (Mg)**: 180  ☐ pounds per acre  ☐ parts per million

**Organic matter (O.M.)**: 2.0  ☐ percent

**Neutralizable acidity or CEC (N.A.)**: [ ] meq/100g  **CEC**: [ ] meq/100g

**Sulfur (S)**: [ ] parts per million

**Zinc (Zn)**: [ ] parts per million

**Manganese (Mn)**: [ ] parts per million

**Iron (Fe)**: [ ] parts per million

**Copper (Cu)**: [ ] parts per million

**Boron (B)**: [ ] parts per million

**Electrical conductivity**: [ ] mmho/cm

**Sodium (Na)**: [ ] ☐ pounds per acre  ☐ parts per million

**Nitrates (NO3-N)**

Top: [ ] parts per million

Bottom: [ ] parts per million

Top depth: [ ] inches

Bottom depth: [ ] inches
### Commercial Fruit, Vegetables, Turf

<table>
<thead>
<tr>
<th>Crop</th>
<th>Description</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>10 Grapes (Established)</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>4 Grapes (New-planting)</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>None Selected</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>None Selected</td>
<td></td>
</tr>
</tbody>
</table>

**Age (blueberries only):**
- Crop 1: [ ]
- Crop 2: [ ]
- Crop 3: [ ]
- Crop 4: [ ]

**Sample ID:** [ ]

**Last limed:** Unknown

**County:** Boone

**Soil region:** County Default

**Acres:** [ ]

**Irrigated:** Yes [ ] No [ ]

**Previous crop:** None Selected [ ]

**Submit**
### Soil Test Report

**John Doe**  
1006 University Ave  
Columbia MO 65211

<table>
<thead>
<tr>
<th>SOIL TEST INFORMATION</th>
<th>RATIO</th>
<th>OIL TEST INFORMATION</th>
<th>RATIO</th>
</tr>
</thead>
<tbody>
<tr>
<td>pH</td>
<td>5.3</td>
<td>Medium</td>
<td>Sulfur</td>
</tr>
<tr>
<td>Potassium (K)</td>
<td>35 lbs/acre</td>
<td>Low</td>
<td>Ca</td>
</tr>
<tr>
<td>Calcium (Ca)</td>
<td>245 lbs/acre</td>
<td>High</td>
<td>Mn</td>
</tr>
<tr>
<td>Magnesium (Mg)</td>
<td>182 lbs/acre</td>
<td>Very Low</td>
<td>Cu</td>
</tr>
<tr>
<td>Sodium (Na)</td>
<td>ppm</td>
<td>ppm</td>
<td>Zn</td>
</tr>
<tr>
<td>Organic Matter 2.0%</td>
<td>30%</td>
<td>Available Acidity</td>
<td>Anaeq 15ppm</td>
</tr>
</tbody>
</table>
| pH in Water           | 6.5   | Electrical Conductivity | ma  
|                      |       | Soil Test Test | Loam |

**Acreage (A)** | ppm | ppm | ppm | ppm | ppm |

**NUTRIENT REQUIREMENTS**

<table>
<thead>
<tr>
<th>Cropping Options</th>
<th>N</th>
<th>P2O5</th>
<th>K2O</th>
<th>Zn</th>
<th>S</th>
<th>Mg</th>
</tr>
</thead>
<tbody>
<tr>
<td>N (1st year)</td>
<td>50</td>
<td>50</td>
<td>50</td>
<td>50</td>
<td>50</td>
<td>50</td>
</tr>
<tr>
<td>K (2nd year)</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
</tbody>
</table>

**Comments:**  
- Some herbicide labels list restrictions based on soil pH or water. Use the estimated pH in water of 5.8 as a guide to the label. If you wish to have soil pH or water analyzed, contact your dealer or local Extension specialist listed below.  
- Apply the recommended nitrogen for Newly Established Grasses or for Established Grasses.  
- Apply the recommended nitrogen for Newly Established Grasses, as follows: 1/2 broadcast and 1/2 side dress in June.  
- Suggest using dolomitic limestone to increase magnesium in your soil. If dolomitic limestone is not available, under high management use a soluble source of magnesium fertilizer at a rate of 30 to 40 pounds Mg per acre.  
- To determine limestone needed to raise pH, divide your ENM requirement by the percentage of your limestone dealer.

**Extension Specialist:**

**Signatures:**

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4121 W. Dougherty
Columbia, MO 65211

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Columbia, MO 65211

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Columbia, MO 65211

4121 W. Dougherty
Columbia, MO 65211
Soil test interpretations and recommendations

Field crops:
Soil Test Interpretations and Recommendations Handbook (PDF)

Lawn and Garden:
MP733, Lawn and Garden Soil Test Interpretations and Fertilizer Recommendation Guide

Commercial fruit and vegetables and turf:
Soil Test Interpretations and Recommendations for Commercial Fruits, Vegetables and Turf (RTF)
Plant Analysis in Diagnosing Nutrient Problems

To Be a Good Diagnostician

- Use soil tests
- Use plant analysis
- Use diagnostic techniques
Boron Toxicity in Corn
Boron Toxicity in Corn
Boron Toxicity in Corn
Iron Chlorosis in Fuchsia