# Soil Fertility and Fertilizer

**Course Title:** Soil Fertility and Fertilizer  
**Course Number:** 2203  
**Number of Credits:** 3  
**Lecture:** 2  
**Lab:** 1  
**OJT:** 0

## Catalog Description:
Soil Fertility and Fertilizer explores the chemical elements in the soil and plants. Soil testing, tissue testing, fertilizer nutrients, fertilizer products, and fertility recommendations are studied.

## Prerequisites or Necessary Entry Skills/Knowledge:
None

## Fulfills MN Transfer Curriculum Area(s)
- **Goal 1:** Communication: By meeting the following competencies:
- **Goal 2:** Critical Thinking: By meeting the following competencies:
- **Goal 3:** Natural Sciences: By meeting the following competencies:
- **Goal 4:** Mathematics/Logical Reasoning: By meeting the following competencies:
- **Goal 5:** History and the Social and Behavioral Sciences: By meeting the following competencies:
- **Goal 6:** The Humanities and Fine Arts: By meeting the following competencies:
- **Goal 7:** Human Diversity: By meeting the following competencies:
- **Goal 8:** Global Perspective: By meeting the following competencies:
- **Goal 9:** Ethical and Civic Responsibility: By meeting the following competencies:
- **Goal 10:** People and the Environment: By meeting the following competencies:

## Topics to be Covered

- Characteristics of Soil
- Plant Nutrients
- Characteristics of Clay
- Macro Nutrients – Nitrogen, Phosphorus, & Potassium
- Secondary Nutrients – Sulfur, Calcium, Magnesium
- Micro Nutrients
- Soil pH and Salinity
- Soil Organisms
- Organic Matter
- Soil & Plant Tissue Testing
- Reading a Soil Test
- Fertility and Lime Recommendations
- Fertilizer Products
- Manure as Fertilizer
- Site Specific Applications
**Student Learning Outcomes**

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<tr>
<th>Description</th>
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<tr>
<td>Describe soil origin and physical properties of soil.</td>
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<td>Classify essential elements required by plants.</td>
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<td>Describe how plants absorb nutrients.</td>
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<td>Describe the interaction of plant nutrients and soil.</td>
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<td>Differentiate the effects of fertilizer elements on plant growth and development.</td>
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<td>Identify nutrient deficiencies</td>
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<td>Analyze a soil test report.</td>
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<td>Calculate fertilizer and lime recommendations with costs.</td>
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<td>Describe major fertilizer products and their analysis.</td>
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<td>Describe the effects of pH on nutrient interaction and plant uptake.</td>
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<td>Explain the benefits of organic amendments and manure for soil fertility and plant nutrition.</td>
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<td>Collect soil samples on a grid</td>
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**Is this course part of a transfer pathway:** Yes ☐ No ☒

Revised Date: 6/2021