

# Module 8: Soil pH and Organic Matter

## ROCKY MOUNTAIN CCA SELF-STUDY EXAMINATION

4449-8 Quiz

### DIRECTIONS

1. Clearly mark an "X" in the brackets next to the best answer to each question. Complete evaluation form and registration form.
  2. Tear out this page and place in envelope along with a \$15 check (processing fee) payable to the American Society of Agronomy (or fill out credit card information). Payment in U.S. funds only.
  3. Mail self-study exam and fee to: ASA c/o CCA Self-Study Exam, 677 S. Segoe Road, Madison, WI 53711.
- A passing exam score (70%) is worth 1.5 Rocky Mountain CEU's in nutrient management.

### QUESTIONS

1. A solution with a pH of 5 will have how many fold greater concentration of hydrogen ions than a solution with a pH of 9?  
 a. 10  
 b. 100  
 c. 1,000  
 d. 10,000
2. What factor causes many soils in Montana and Wyoming to be alkaline?  
 a. Humid conditions  
 b. Sandy textured soils  
 c. Presence of calcium carbonates  
 d. Parent material high in silica
3. More base cations will be on particle exchange sites in  
 a. Alkaline soils  
 b. Neutral soils  
 c. Acid soils  
 d. Flooded soils
4. At which of the following pH levels are soluble Ni concentrations expected to be the lowest in soil?  
 a. 5.5  
 b. 6.5  
 c. 7.5  
 d. 8.5
5. From Table 2, what crop will grow best in alkaline soils?  
 a. Oats  
 b. Potatoes  
 c. Sugar beets  
 d. Corn
6. What following application will acidify soils?  
 a. Phosphorus fertilizers  
 b. Lime material  
 c. Potassium fertilizers  
 d. Ammonium-based fertilizers
7. What soil pH test will generally result in the lowest pH reading?  
 a. 1:1 soil to water  
 b. 1:2 soil to water  
 c.  $\text{CaCl}_2$  solution  
 d. Saturated soil paste
8. Organic matter cycling is carried out by  
 a. Plants  
 b. Soil microorganisms  
 c. Fertilizers  
 d. Humus
9. The SOM fraction most resistant to decomposition is  
 a. Detritus  
 b. Humus  
 c. Plant residues  
 d. Earthworm residues
10. Arctic tundra climate (low temperature and precipitation) would likely result in  
 a. Rapid SOM decomposition  
 b. Increased microorganism activity  
 c. Rapid release of nutrients  
 d. Slow SOM decomposition
11. Tillage can increase SOM decomposition rates by  
 a. Reducing aeration and soil oxygen  
 b. Moving limestone closer to the surface  
 c. Increasing aeration and soil oxygen  
 d. Decreasing soil moisture levels
12. To increase plant uptake of metals, adding a chelating agent would be most effective in  
 a. Humid soils  
 b. Alkaline soils  
 c. Organic matter rich soils  
 d. Tilled soils

13. Cropping practices that contribute to soil carbon sequestration are  
 a. Reducing farm equipment emissions                       c. Minimum till and manure applications  
 b. Conventional tillage     d. Increasing frequency of summer fallow in
14. When collecting samples for a SOM test, duff and visible plants parts should be  
 a. Included     c. Calculated using a conversion factor  
 b. Excluded     d. Tested using a different method
15. Which of the following chelate stability constants should most increase metal availability?  
 a. 5     b. 15     c. 25     d. 35

## SELF STUDY EVALUATION FORM: Nutrient Management Module 8

**Rating Scale: 1 = Strongly Disagree    5 = Strongly Agree**

Information presented will be useful in my daily crop advising activities:	1	2	3	4	5
Information was organized and logical:	1	2	3	4	5
Graphics/tables were appropriate and enhanced my learning:	1	2	3	4	5
I was stimulated to think how to use and apply the information presented:	1	2	3	4	5
The article addressed the stated competency area and performance objective(s)	1	2	3	4	5

Briefly explain any "1" ratings:

Topics you would like to see addressed in future self-study materials:

### Self-Study Exam Registration Form-For Rocky Mountain CCA Credit

**Name:** \_\_\_\_\_

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Credit Card #: \_\_\_\_\_ Type of Card: Visa \_\_\_ Mastercard \_\_\_ Discovery \_\_\_ Am Express \_\_\_

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**A \$2.00 Processing Fee will be added to all credit card charges.**

I certify that I alone completed this self-study course and recognize that an ethics violation may revoke my CCA status.

\_\_\_\_\_  
Signature of Registrant as it appears on Code of Ethics

\_\_\_\_\_  
Date