

Module 5: Potassium Cycling, Testing and Fertilizer Recommendations

ROCKY MOUNTAIN CCA SELF-STUDY EXAMINATION

4449-5 Quiz

DIRECTIONS

1. Clearly mark an "X" 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. Plant available K refers to:
 a. Exchangeable K
 b. Extractable K
 c. Solution K
 d. Exchangeable K plus solution K
2. What is meant by "fixed" K?
 a. K within the plant
 b. K sorbed to clay surfaces
 c. Microbial incorporation of atmospheric K
 d. K bound between clay layers
3. Plants absorb potassium in the form of:
 a. K_2O
 b. K^+
 c. KCl
 d. K minerals
4. Which of the following soils would likely have the highest 'K supplying power'?
 a. Clay loam pH=5
 b. Sand pH=5
 c. Clay loam pH=8
 d. Sand pH=8
5. At which pH is sorbed K the highest relative to solution K?
 a. 4
 b. 6
 c. 7
 d. 8
6. What soil property is most important in supplying K to a crop over a single growing season?
 a. Organic matter CEC
 b. Mineral CEC
 c. Fixation capacity
 d. Mineral weathering
7. Potassium uptake in most 'high' test soils in Montana and Wyoming is limited by what factor?
 a. Exchangeable K
 b. Extractable K
 c. Diffusion of K
 d. NH_4^+ competition for plant uptake
8. Which of the following crops take up the greatest total amount of K based on Table 1?
 a. Alfalfa
 b. Sugar beets
 c. Wheat
 d. Corn
9. According to Figure 7, where will K accumulate most in wheat at maturity?
 a. Leaves
 b. Stem
 c. Grain
 d. Head
10. Plant roots access K in the soil primarily through which process?
 a. Diffusion
 b. Dispersion
 c. Mass flow
 d. Root interception
11. In calcareous soils, potassium deficiencies may occur even with high K concentrations because:
 a. high $[Ca^{+2}]$ inhibits K sorption
 b. high $[Ca^{+2}]$ increases K sorption
 c. high $[Ca^{+2}]$ inhibits plant K absorption
 d. high $[Ca^{+2}]$ fixes K in the soil

12. How do cool soil temperatures in spring affect K diffusion in the soil?
 a. Increase K diffusion, because of greater K uptake by crops in spring
 b. Decrease K diffusion, because random movement of water slows down
 c. Decrease K diffusion, because viscosity of water increases
 d. Decrease K diffusion, because K is insoluble in cold water
13. What is the most common soil test used for evaluating K?
 a. Resin capsules
 b. Ca⁺² exchange
 c. Bray-1
 d. NH₄OAc extraction
14. Testing the soil after _____ will provide a useful estimate for how much K is available for the crop.
 a. spring thaw
 b. crop maturity
 c. harvest
 d. fall tillage
15. If the soil test level for an alfalfa field is 150 ppm K, how much KCl should be applied based on Table 3?
 a. 0 lb/ac
 b. 25 lb/ac
 c. 60 lb/ac
 d. 70 lb/ac

SELF-STUDY EVALUATION FORM

NUTRIENT MANAGEMENT MODULE 5

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

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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