

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

