Science Societies

Combatting Drought With Water-Absorbent Polymers

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The magazine for certified crop advisers, agronomists, and soil scientists.

Self-Study CEU Quiz

Earn 1 CEU in Nutrient Management by taking the quiz for the article at https://web.sciencesocieties.org/Learning-Center/Courses. For your convenience, the quiz is printed below. The CEU can be purchased individually, or you can access as part of your Online Classroom Subscription.

1. **Varying of fertilizer rate within a field is profitable when**
   a. crop yields vary within a field.
   b. crop yield benefits from fertilizer vary within a field.
   c. soil tests vary within a field.
   d. All of the above.

2. **Which of the following is the landscape unit in southern Alberta in which fertilizer rates could be reduced?**
   a. Upper slope positions.
   b. Midslope positions.
   c. Lower slope positions.
   d. Depressions.

3. **Differences in soil nutrient bioavailability among field management zones will not impact economic optimum fertilizer rate if**
   a. soil nutrient bioavailability is sufficient for maximum crop yield in all field management zones.
   b. soil nutrient bioavailability is positively correlated with crop nutrient requirement (i.e., management zones with higher soil nutrient bioavailability have higher crop nutrient requirements).

c. weather conditions control economic optimum fertilizer rate rather than soil nutrient bioavailability.
d. All of the above.

4. **Crops were more effective at utilizing soil moisture at upper than lower slope positions in this study because**
   a. soil moisture was greater at upper slope positions.
   b. soil salinity was elevated at upper slope positions.
   c. subsoil moisture was present and required by crops at upper slope positions.
   d. runoff increased soil moisture availability at upper slope positions.

5. **Validation of variable-rate fertilization requires**
   a. grid soil sampling.
   b. yield maps.
   c. repeated measurements of expected vs. actual fertilizer benefit among crop management zones.
   d. real-time kinematic (RTK) GPS.

Combatting Drought With Water-Absorbent Polymers

Drought can be a major problem for tomatoes, particularly in changing climates. Water-absorbent polymers help retain moisture in the soil, allowing tomatoes to thrive. However, high costs can make it difficult for farmers to use them.

In this episode, Dr. Sanandam Bordoloi discusses his research on developing more affordable and effective water-absorbent polymers using the waste material fly ash.

Self-Study CEU Quiz

Podcast CEUs

Combatting Drought With Water-Absorbent Polymers

Drought can be a major problem for tomatoes, particularly in changing climates. Water-absorbent polymers can help water stay in the soil to help tomatoes thrive, but costs can make it hard for farmers to use them. In this episode, Dr. Sanandam Bordoloi discusses his research into developing more affordable, effective water-absorbent polymers from the waste material fly ash.

Listen to the podcast by visiting https://fieldlabearth.libsyn.com or via your podcast platform of choice. Earn 0.5 CEUs in Soil & Water Management by taking the quiz at https://bit.ly/4dl7nWf.

1. **The water-absorbing polymers (WAPS) are used as a foliar spray in the field.**
   a. True.
   b. False.

2. **How do water-absorbing polymers help in drought stress for crop production?**
   a. They have a high affinity to water.
   b. They can absorb water and release it during drought periods.

c. They improve water retention capacity of soil.

d. All of the above.

3. **Water-absorbing polymers increase yield by increasing**
   a. soil water availability to plants.
   b. nutrient availability to plants.
   c. plant defense against disease.
   d. plant defense against insects.

4. **Water-absorbing polymers made from fly ash are better than traditional polymers because**
   a. they are made from waste materials.
   b. they are cheaper in cost.
   c. they are easy to use in the field.
   d. All of the above.

5. **Scientists found that these polymers significantly alter the soil microbiome.**
   a. True.
   b. False.
