



MANITOBA Soil Science Society 2021

POSTER QUESTIONS

Total possible CCA Credits available: 1.0 CEU's

There are **2 Sections** attached.

Section 1: 10 questions for 0.5 CEU's in Nutrient Management

Section 2: 10 questions for 0.5 CEU's in Soil and Water Management

TO RECEIVE CCA CREDITS YOU MUST:

- Print this page, write your name, signature and CCA # below
- Answer questions independently in the table below
- Correctly answer 7/10 questions in each section
- Scan this sheet and email to Megan.westphal@gov.mb.ca

NAME:

SIGNATURE:

CCA #: _____

Answer table: record you answers.

Section 1: Nutrient Management

1.	6.
2.	7.
3.	8.
4.	9.
5.	10.

Sec 2 Soil and Water Management:

11.	16.
12.	17.
13.	18.
14.	19.
15.	20.

Nutrient Management: 0.5 CEUs

Soil nitrogen and phosphorus were greater in overlapping areas of fields in Alberta, Saskatchewan, Manitoba, and Ontario

- 1. Over lapping of nutrient applications can result in:**
 - a) Greater nutrient use efficiency and lower nutrient loss
 - b) Nutrient build up and lower nutrient use efficiency
 - c) Greater nutrient use efficiency and greater nutrient loss
 - d) No difference from the rest of the field

- 2. What four soil parameters were monitored for?**
 - a) Nitrogen, Potassium, EC and pH
 - b) Nitrogen, Phosphorus, Organic Matter and EC
 - c) Nitrogen, Phosphorus, Organic matter and pH
 - d) Phosphorus, Organic Matter, Potassium and EC

- 3. What sampling recommendations does the poster suggest to best represent field conditions?**
 - a) Include areas of overlap with samples from the rest of the field
 - b) Only sample in areas of overlap
 - c) Avoid sampling in overlap areas
 - d) Only take one sample in overlap areas

- 4. What two soil parameters were present in greater amounts in overlap areas?**
 - a) Nitrogen and Phosphorus
 - b) Nitrogen and pH
 - c) Phosphorus and Organic Matter
 - d) pH and Organic Matter

- 5. What are two of the main factors that causes an increase in application overlap areas in a field?**
 - a) Field shape and obstacles in the field
 - b) The number of applications done in a year and field size
 - c) Field shape and amount of fertilizer applied
 - d) Field size and location with Canada

Developing a Soil-Based Method to Screen Soybean (*Glycine max*) Seedlings for Early Season Vigor and Iron Deficiency Chlorosis (IDC)

- 6. Under what soil conditions does IDC occur?**
 - a) High pH, calcareous soil
 - b) Saline soil
 - c) Low pH, acidic soil
 - d) Compacted soil

- 7. What are the visible symptoms of IDC in Soybeans?**
 - a) Purpling of the leaves
 - b) Bronzing and speckling of leaves
 - c) Chlorosis and reduction of greenness of the leaves
 - d) Irregular yellow border around the leaves

- 8. What level of soluble salts in the soil has a “high” or greater risk rating for IDC at any carbonate level?**
 - a. 0 to 0.25 mmhos/cm
 - b. >10 mmhos /cm
 - c. 0.50 to 1.0 mmhos/cm
 - d. >1 mmhos/cm

- 9. How many weeks did it take to detect visual chlorosis scores?**
 - a. 7 to 8 weeks
 - b. 1 to 2 weeks
 - c. 4 to 5 weeks
 - d. 12 to 15 weeks

- 10. What regions of Manitoba did this study look at that is commonly affected by IDC disorder?**
 - a. Pembina Valley and the Interlake
 - b. Red River Valley and the Interlake
 - c. Eastman and the Central Plains
 - d. Westman and the Northern Region

Soil and Water Management: 0.5 CEUs

Numerical modelling for soil moisture monitoring and forecasting

11. What is one of the sensors used to monitor soil moisture?

- a) Sentek
- b) Hydra-Probe
- c) Theta-Probe
- d) Wet2

12. What model is being evaluated to forecast real-time soil moisture?

- a) DRAINMOD
- b) HydroGeoSphere
- c) Hydrus
- d) Rosetta

13. What sub-watershed of the Red River basin is the study area located?

- a) Winnipeg
- b) Brunkild
- c) La Salle
- d) Wiliston

14. What are two of primary boundary conditions mentioned when using HGS?

- a) Soil type and fluid transfer
- b) Soil type and precipitation
- c) PET and precipitation
- d) Precipitation and liquid water influx

15. What can soil moisture forecasting help predict and help improve decision-making on?

- a) Pest outbreaks and crop yield information
- b) Application timing and pest outbreaks
- c) Natural disasters like floods and droughts and crop yield information
- d) Natural disasters like floods and droughts and saline areas

Simulation of water table depth using DRAINMOD under canola production in the Canadian Prairies

16. What does the DRAINMOD model evaluate?

- a. Impacts of different soil management
- b. Impacts of different water management
- c. Different crop inputs
- d. Weather and evapotranspiration

17. What two crops have been previously studied in the Canadian Prairies to assess the performance of DRAINMOD?

- a. Corn and potatoes
- b. Canola and corn
- c. Wheat and potatoes
- d. Wheat and soybean

18. What are two of the model inputs mentioned in this study?

- a. Soil properties and PET
- b. PET and pesticides
- c. Soil Properties and weather
- d. Weather and runoff

19. Why did runoff and drainage constitute little or no impact during the study period?

- a. Total precipitation was higher than average resulting in greater amounts of rainfall
- b. DRAINMOD did not accurately predict runoff and drainage
- c. The study area was too flat
- d. Total precipitation was lower than average resulting in low amounts of rainfall over the study period.

20. What observation was used to calibrate and validate DRAINMOD?

- a. Water table depth (WTD)
- b. ET
- c. Soil Properties
- d. Ks