2023 MAC | CCA POSTER QUESTIONS

Section 1 - Nutrient Management

On-farm Evaluation of Soybean Inoculant Strategies

1. Soybeans with at least ____ nodules are considered adequately nodulated for full yield.
    a. 5
    b. 10
    c. 15
    d. 20

2. Granular in-furrow inoculants may be advantageous under situations of:
    a. Excessive moisture
    b. Cool springs
    c. Soybeans following corn
    d. Rented land

3. Double inoculation improved yields over single inoculation in _____.
    a. 10/42 trials
    b. 10/56 trials
    c. 3/42 trials
    d. 3/56 trials.

4. On fields with 3 or more previous crops of soybeans, inoculation was advantageous in _____.
    a. 0/42 trials
    b. 3/42 trials
    c. 3/56 trials
    d. 11/56 trials

5. A yield increase of ____ is necessary to justify the cost of liquid inoculant
    a. 0.02 bu/ac
    b. 0.25 bu/ac
    c. 1.5 bu/ac
    d. 3.0 bu/ac

Farm-scale Research on Stabilization of Fall Anhydrous Ammonia in Manitoba

6. Centuro and N-Serve are inhibitors of:
    a. Urease enzymes
    b. Denitrification
    c. Immobilization
    d. Nitrification

7. N-Serve application rates are:
    a. 0.95 L/t of NH_3
    b. 0.95 L/ac
    c. 0.95 L/ha
    d. 0.95 L/lb N applied

8. Nitrification inhibitors maintained higher NH_4^+ levels in application bands until :
    a. Late fall
    b. Early spring
    c. Late spring
    d. Harvest

9. Nitrification inhibitor effectiveness was measured as:
    a. Increased NH_4^+ retention within bands
    b. Increased NO_3^- retention in bands
    c. Reduced NO_3^- retention within bands
    d. Increased accumulation of NO_3^- between bands

10. Soil temperatures when NH_3 application was made at Manitou was:
    a. 0 C
    b. 5 C
    c. 10 C
    d. 20 C

Section 2 - Soil and Water Management

A field study comparing N_2O concentrations with surface fluxes under different farming practices

11. The modified silicon diffusive equilibrium sampler was used to sample:
    a. Atmospheric N_2O
    b. Dissolved gas
    c. Soil gasses
    d. Soil N levels

12. Soil N_2O concentration increased with _____.
    a. Increasing temperature and moisture
    b. Fertilizer N use
    c. Manure application
    d. Cover crop planting

13. The highest N_2O concentrations occurred at the _____ depth.
    a. 5 cm
    b. 15 cm
    c. 30 cm
    d. 60 cm

14. Cover crops reduced N_2O concentrations _____.
    a. During growing season
    b. During post harvest
    c. During spring thaw
    d. Over winter

15. Fertilizer N affected N_2O concentrations greatest at the _____ depth.
    a. 5 cm
    b. 15 cm
    c. 30 cm
    d. 60 cm

Meta-analysis of 4R Nitrogen Management on Direct Nitrous Oxide Emissions from Croplands in Cold Climate

16. The reduction in N_2O emission with use of polymer coated urea (PCU) was greatest for which crop?
    a. Barley
    b. Canola
    c. Corn
    d. Potatoes

17. The reduction in N_2O was greatest for which practice?
    a. Fall vs spring application
    b. PCU vs urea
    c. Band vs broadcast application
    d. Urea plus inhibitor vs urea alone

18. Use of inhibitors with UAN reduced N_2O emissions _____.
    a. On clay soils
    b. On wheat
    c. Where pH <7
    d. When precipitation was < 350 mm

19. Band placement of N increased N_2O emissions _____.
    a. On wheat
    b. When pH >8
    c. Precipitation > 350 mm
    d. Sand texture soils

20. N_2O emissions were less with fall than spring application when _____.
    a. Soil pH <7
    b. Clay soil texture
    c. Under wheat
    d. When precipitation was < 350 mm

Section 3 - Crop Management

Agronomic response of field pea to preceding crop, tillage strategy and phosphorus fertilization in Southern Manitoba

21. Pea yields were significantly higher than canola at which sites?
    a. Roblin in 2021 and 2023
    b. Carman in 2021 and 2023
    c. Carman in 2021, 2022 and 2023
    d. Robn in 2022

22. Pea yields following canola were greater when direct-drilled in _____.
    a. Carman in 2021
    b. Carman in 2022
    c. Carman in 2023
    d. Roblin in 2023

23. The highest numerical pea yield resulted from:
    a. Peas after wheat, tilled with seed-placed P
    b. Peas after wheat, tilled with side banded P
    c. Peas after canola, tilled with side banded P
    d. Peas after canola, direct drilled with seed placed P

24. The greatest factor affecting pea yield was:
    a. P rate
    b. P placement
    c. Tillage
    d. Previous crop

25. Based on soil test values, which site would most likely respond to Phosphorus fertilizer?
    a. Roblin
    b. Carman 2021
    c. Carman 2022
    d. Carman 2023

Can hairy vetch be a worthwhile companion in grain corn and silage corn strategies or is it just another big hairy monster?

26. Which corn population produced the highest corn yield?
    a. 20 lb/ac
    b. 20,000 plants per acre
    c. 26,000 plants per acre
    d. 32,000 plants per acre

27. Vetch was sown:
    a. Before corn in 9.5” rows at ½” seed depth
    b. In 30” rows at ½” depth at 20,000 plants/ac
    c. At 3 leaf stage of corn in 9.5” rows at 40 lb/ac
    d. Before corn at ½” depth in 30” rows

28. Vetch impacted corn yield by
    a. Increased silage corn yield by 15%
    b. Reduced grain corn yield by 16%
    c. Had no effect on corn yield
    d. Reduced silage corn yield by 30%

29. Addition of vetch affected silage feed quality by:
    a. Increasing ADF
    b. Increasing NDF
    c. Reducing calcium and potassium
    d. Increasing protein

30. The nitrogen benefits of the vetch companion appeared as:
    a. 11 lb greater soil test N
    b. 21 lb greater soil test N
    c. 11-21 lb greater soil test N plus biomass N
    d. 11-21 lb greater biomass N

Section 4 - Pest Management

Predicting Prairie Weed Community Emergence During Drought: A 1030's Dust Bowl Case Study

31. Weed emergence simulations were made for:
    a. Moist climate and loam soil
    b. Moist climate and sandy soil
    c. Arid climate and sandy soil
    d. Arid climate and loam soil

32. Which weed emergence was least affected by drought?
    a. Kochia
    b. Cleavers
    c. Wild oats
    d. Volunteer wheat

33. "Step-like" emergence patterns were caused by:
    a. Warm soils
    b. Rainfall events
    c. Herbicide decomposition
    d. Spray misses

34. Simulated drought shifted the 50% emergence date by 50 days for _____
    a. Kochia
    b. Cleavers
    c. Wild oats
    d. Volunteer wheat

35. A risk of late emerging weeds is _____.
    a. Yield loss in the crop
    b. Troublesome swathing
    c. Reduced crop quality
    d. Increasing herbicide resistance

Manitoba survey of herbicide resistant weeds in 2022

36. Weeds were assessed for resistance to:
    a. Group 1 herbicide
    b. Group 2 herbicide
    c. Group 1 and 2 herbicides
    d. Glyphosate and auxinic herbicides

37. Herbicide resistant weeds cost Manitoba farmers _____ in increased costs and reduced yield and quality in 2022.
    a. $32 million
    b. $68 million
    c. $73 million
    d. $81 million

38. The greatest prevalence of Group 1 yellow foxtail was in which ecoregion?
    a. Aspen Parkland
    b. Lake Manitoba Plain
    c. Interlake Plain
    d. SW Manitoba Uplands

39. The % of surveyed fields occupied by herbicide-resistant weeds in the 2016 survey was:
    a. 30%
    b. 50%
    c. 65%
    d. 80%

40. The frequency of wild oats that were resistant to ALS inhibiting herbicides among the fields tested was:
    a. 30%
    b. 37%
    c. 82%
    d. 100%