2024 MAC | CCA POSTER QUESTIONS

Section 1 - Nutrient Management (1.0 CEU)

Lack of nitrate formation in side-banded urea treated with nitrification inhibitor nitrapyrin is linked to decreased N2O emission

1. Evidence that the nitrification inhibitor slows ammonium transformation was seen as:
    a. Less downward movement of nitrate
    b. Less upward movement of ammonium
    c. Ammonium levels remaining higher under the nitrification inhibitor treatment
    d. No nitrate accumulating in the nitrification inhibitor treatment

2. Highest nitrite (NO_2-) concentrations were found
    a. With urea on Day 15
    b. With urea and inhibitor on Day 15
    c. With urea on Day 5
    d. With urea and inhibitor on Day 8

3. The highest ammonium (NH_4+) concentrations were measured on
    a. June 3
    b. June 12
    c. June 19
    d. June 24

4. The highest N_2O emissions on June 17 were from:
    a. Urea on-band positions
    b. Urea mid band positions
    c. Urea off-band positions
    d. Urea and nitrification inhibitor on band position

5. Reduced N_2O emissions were linked to
    a. Less nitrate accumulation in sidebands with nitrapyrin
    b. Less nitrite accumulation in sidebands with nitrapyrin
    c. Less ammonium accumulation in sidebands with nitrapyrin
    d. Greater ammonia accumulation in sidebands with nitrapyrin

Optimal N Fertilizer Source and Placement for Canola Yield and N_2O Footprint Reduction in Manitoba

6. Which N placement option was not evaluated in the study?
    a. Broadcast urea
    b. Shallow side-banded urea
    c. Shallow mid-row banded urea
    d. Dee mid-row banded urea

7. Highest N_2O losses on the sandy soil occurred with:
    a. Broadcast urea
    b. Broadcast urea with eNtrench
    c. Shallow banded urea
    d. Deep banded urea

8. Measured cumulative N_2O emissions exceeded 0.5 kg N_2O-N/ha at which site and placement:
    a. Broadcast urea on sandy soil
    b. Deep banded urea and eNtrench on sandy soil
    c. Deep banded urea on clay soil
    d. Shallow banded urea on clay soil

9. Canola yields were:
    a. highest with shallow banding N
    b. highest with deep banding N
    c. highest with broadcast N
    d. unaffected by placement depth

10. Compared to normal, seasonal weather at the 2 sites in 2023 was:
    a. Cooler and drier
    b. Cooler and wetter
    c. Warmer and drier
    d. Warmer and wetter

Section 2 - Soil and Water Management (2.0 CEU)

Rebuilding the Fertility and Productivity of Eroded Knoll Soils in South-Central Saskatchewan: Third -Year Results

~~11. Crops tested in this study were:~~ DISREGARD THIS QUESTION

- ~~a. Canola, wheat, flax~~
- ~~b. Canola, peas, flax~~
- ~~c. Wheat, flax, oats~~
- ~~d. Canola, lentils, wheat~~

12. Zinc uptake in crops was greatest with
    a. Side-banded zinc sulphate
    b. Side-banded zinc sulphate with phosphorus
    c. Composted manure
    d. Adding topsoil

~~13. The lowest copper uptake resulted from:~~ DISREGARD THIS QUESTION

- ~~a. Side-banded copper sulphate~~
- ~~b. Side-banded copper sulphate and zinc sulphate~~
- ~~c. Char~~
- ~~d. MAP~~

14. The crop responding least in growth to fertility and amendment treatments was:
    a. Wheat
    b. Peas
    c. Canola
    d. Flax

15. Topsoil replacement increased:
    a. Water use efficiency and organic carbon
    b. Snowmelt and phosphorus runoff
    c. Soil K levels
    d. Compaction and weed growth

Crop and Soil Responses to Topsoil Replacement in Eroded Landscapes

16. Eroded soils tend to accumulate in:
    a. Concave slope positions
    b. Convex slope positions
    c. Shoulder slope positions
    d. Upper backslope positions

17. The soil deposition in lower slope areas was:
    a. 46 cm deep
    b. 68 cm deep
    c. 58 cm deep
    d. 130 cm deep

18. Adding soil to upper slopes increased:
    a. Bacteria numbers
    b. Infiltration time
    c. Inorganic carbon
    d. Grain yield

19. Removing soil from lower slopes reduced yields due to:
    a. Increased weed problems
    b. Reduced crop stands
    c. Excess water in wet years
    d. Increased fungi numbers

20. The soil property that changed the LEAST by topsoil addition was:
    a. Fungi population
    b. Organic carbon
    c. Soil phosphorus
    d. Infiltration time

Effects of Tile Drainage on Soil Salinity in Southwestern Manitoba

21. Favourable conditions for salt leaching and removal include:
    a. Dry conditions with soils near wilting point
    b. Large rains after a drought when soil is deeply cracked
    c. Prolonged saturated soil conditions followed by evaporation
    d. Multiple large rains when soil is at field capacity

22. Electromagnetic mapping of salinity was performed at depths of:?
    a. 0-6", 6-24"
    b. 0.75 and 1.5 m
    c. 0.15 and 0.6 m
    d. 150 cm

23. If a salinity reading was 5 dS/m, it would be classified:
    a. Non saline
    b. Slightly saline
    c. Weakly saline
    d. Moderately saline

24. The greatest change in salinity class over the 2 years was:
    a. Reduction in strongly saline areas
    b. Reduction in weakly saline areas
    c. Reduction in moderately saline areas
    d. Reduction in slightly saline areas

25. The greatest extent of strongly saline soil in 2020 was found in the _____ portion of the field.
    a. Northwest
    b. Northeast
    c. Southeast
    d. Southwest

Climate and Fall Shoulder Cover Crops: Where Do They Intersect?

26. The objective of the cover crop in this study was to:
    a. Reduce soil erosion through surface cover
    b. Reduce evaporation by providing surface cover
    c. Compete with herbicide resistant weeds
    d. Reduce excess soil moisture through transpiration and improved infiltration

27. In the study timeframe, how many times did rye achieve the required fall growth stage of anthesis?
    a. 0/9
    b. 3/9
    c. 6/9
    d. 9/9

28. The season of least possibility to establish a successful cover crop was:
    a. 2018
    b. 2019
    c. 2015
    d. 2021

~~29. The depths where soil moisture differences seemed affected by cover crop growth were:~~
    ~~a. 15 and 55 cm~~ DISREGARD THIS QUESTION
    ~~b. 25 and 35 cm~~
    ~~c. 35 and 45 cm~~
    ~~d. 5 and 55 cm~~

30. The minimal benefit in soil moisture movement was attributed to:
    a. High natural soil permeability
    b. Hilly topography of site
    c. Clay texture
    d. poor rye establishment

Section 3 - Crop Management (1 CEU)

Optimizing Pea Production in Manitoba Rotation

31. Pea yields were affected by rotation in 2021. Greatest yields were following a rotation of:
    a. Canola-wheat
    b. Pea - canola
    c. Pea-wheat
    d. Wheat-canola

32. The numerically least pea yield over 3 years resulted from which rotation:
    a. Soybean-wheat-canola-pea
    b. Canola-wheat-pea
    c. Soybean-canola-wheat -pea
    d. Pea-canola-pea-wheat

33. Manitoba guidelines recommend ___ years between pea crops to manage disease.
    a. 1
    b. 2
    c. 3
    d. 4

34. Wheat protein in 2022 was least following which crop:
    a. canola
    b. wheat
    c. soybeans
    d. peas

35. Peas did not follow soybeans directly in any rotation because of:
    a. Herbicide residues
    b. Similar root diseases
    c. Lack of wireworm control
    d. Pea contract requirements

Increasing soybean yield and protein under periodic moisture stress by prolonging nitrogen fixation

36. NDFA is short for:
    a. Nitrogen Denitrified From Atmosphere
    b. Nitrogen Derived From Air
    c. Nitrogen Derived From Atmosphere
    d. Naturally Determined Fixation from Air

37. RUN stands for
    a. Radioactive Ureide Nitrogen
    b. Relative Ureide Nitrogen
    c. Regenerative Usable Nitrogen
    d. Readily Usable Nitrogen

38. The soybean line with the highest irrigated yield in 2023 was:
    a. Non-nodulating check
    b. Nodulating check
    c. Line 2 (X5731-1-002-2-2-V)
    d. Line 11 (X8008-1-081-061-3-3-B)

39. Average seed protein yield was greatest in
    a. 2022, irrigated
    b. 2022, non-irrigated
    c. 2023, irrigated
    d. 2023, non-irrigated

40. The highest measured percentage of N derived from the atmosphere in this study was:
    a. 63.4%
    b. 70.8%
    c. 77.3%
    d. 90.4%

Section 4 - Pest Management (1.0 CEU)

Can Fall Rye Cover Crop Protect Canola from Flea Beetle Damage?

41. The highest number of flea beetles captured in 2022 was:
    a. Rye terminated before planting
    b. Rye terminated 1 day after planting
    c. Rye terminated at 2 leaf stage of canola
    d. No cover crop

42. The least number of flea beetle in 2023 in week 2 was:
    a. Rye terminated before planting
    b. Rye terminated 1 day after planting
    c. Rye terminated at 2 leaf stage of canola
    d. No cover crop

43. Both years canola yield was reduced the greatest by:
    a. Rye terminated before planting
    b. Rye terminated 1 day after planting
    c. Rye terminated at 2 leaf stage of canola
    d. No cover crop

44. The only significant difference in flea beetle defoliation of canola in 2022 occurred at:
    a. June 6
    b. June 9
    c. June 13
    d. June 16

45. The least canola defoliation in 2023 on June 9 was found with this treatment:
    a. Rye terminated before planting
    b. Rye terminated 1 day after planting
    c. Rye terminated at 2 leaf stage of canola
    d. No cover crop

The Effect of Integrated Crop Management on Weeds and Crop Yields of Wheat

46. The combination reducing weed biomass the greatest was:
    a. Standard weed management with broadcast fertilizer
    b. Standard weed management with sideband fertilizer
    c. IWM with broadcast fertilizer
    d. IWM with sideband fertilizer

47. There have been _____ cases of herbicide resistant in Canada
    a. 7.9% of acres
    b. 124 cases
    c. 523 cases
    d. 682 cases

48. IWM (Integrated weed management) includes
    a. Early seeding, narrow rows, low planting density
    b. Delayed seeding, wide rows, high seeding density
    c. Early planting, wide rows, high seeding density
    d. Early seeding, narrow rows, high seeding density

49. The greatest weed biomass in 2024 resulted from which management:
    a. IWM and full rate N side banded fertilizer
    b. Standard weed management and ½ rate N sidebanded
    c. Standard weed management and ½ rate N broadcast
    d. IWM and full rate N broadcast

50. The highest grain yield in 2024 resulted from:
    a. IWM and full rate N fall fertilizer
    b. Standard weed management and ½ rate N spring fertilizer
    c. Standard weed management and spring N fertilizer
    d. IWM and 1/2 rate spring N fertilizer