

MINNESOTA BEST MANAGEMENT PRACTICES - 2022

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To be enumerated in July, 2023



United States
Department of
Agriculture



NATIONAL
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Please make corrections to name, address and ZIP Code, if necessary.

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General corn and soybean questions

1. How many acres of corn and soybeans did you plant in 2022 on your operation?
 - a. Corn:
 - b. Soybeans:

Corn fertilizer questions

2. Did you have any acres of corn in 2022 that were planted to soybeans in 2021?
Yes No
3. **Corn on soybean acres.** What was the AVERAGE nitrogen rate (units per acre) that was applied across all acres of corn that were planted to soybeans in 2021? Please include any Nitrogen from Phosphorus sources such as MAP/DAP/MEZ, sulfur sources such as thiosulfate and ammonium sulfate, and nitrogen in the stater in addition to the main source of nitrogen such as UAN solutions, urea, or anhydrous ammonia.

Total units (actual nitrogen) applied per acre (average per acre)

4. Did you have any acres of corn in 2022 that were planted to corn in 2021?
Yes No
5. **Corn on corn acres.** What was the AVERAGE nitrogen rate (units per acre) that was applied across all acres of corn that were planted to corn in 2021? Please include any Nitrogen from Phosphorus sources such as MAP/DAP/MEZ, sulfur sources such as thiosulfate and ammonium sulfate, and nitrogen in the stater in addition to the main source of nitrogen such as UAN solutions, urea, or anhydrous ammonia.

Total units (actual nitrogen) applied per acre (average per acre).

6. Which of the following precision agriculture tools do you use on the farm? (Circle all that apply)
 - a. Auto Steer
 - b. Precision planting
 - c. Variable rate fertilizer applications
 - d. Precision spraying, such as auto boom shutoff
 - e. Nitrogen applications based on zone management
 - f. Nitrogen applications based on aerial imagery
 - g. Nitrogen applications based on in field variables such as in season soil tests.
 - h. Nitrogen applications based on other in season variables not mentioned above.
7. Do you currently Plant cover crops?
Yes No
If **yes**.
 - a. On the crop previous to planting corn.
 - b. During the corn season or after the corn season in the fall after harvest.
8. With higher price of fertilizer did you reduce your N rate on your corn acres?
Yes No

9. Is manure used on any of your corn acres in 2022?

Yes No

a. If Yes, was the manure tested before application in 2022?

Yes/No

10. Do you know which of the following factors determine the nitrogen rate calculation in the UM nitrogen guidelines. – list factors? use same question as in 2020 BMP survey.

- a. Soil Organic Matter
- b. Price of nitrogen
- c. Yield Goal
- d. Previous Crop
- e. Variable Rate
- f. Price of Corn
- g. Cation exchange capacity (CEC)

11. The MDA has a vulnerable groundwater area map on its website that shows areas where fall nitrogen fertilizer applications are restricted:

- a. How many corn acres do you have in a vulnerable groundwater area or a drinking water supply management area as defined by the MDA vulnerable groundwater area map? _____ acres or don't know
- b. When was the last time you reviewed the MDA's Fall Nitrogen Fertilizer Restrictions map on the MDA website? Date: _____ or don't know or never.

12. Do you use a nitrogen inhibitor on your corn acres? Yes, No, Don't Know

13. Do you sidedress any nitrogen on your corn acre? Yes, No, Don't Know

14. Do you use a slow release product such as ESN, Super U or other such product?

Yes, No, Don't Know

15. How important are yields in determining your nitrogen rate on corn? 1 very important. 5 not important

- a. 1 2 3 4 5

Herbicide BMPs Adoption Survey 2022

16. On your 2022 corn and/or soybean acres, did you (choose one for each crop):

- | | <u>Corn</u> | <u>Soybeans</u> |
|------------------------------------|--------------------------|--------------------------|
| a. Apply herbicides yourself | <input type="checkbox"/> | <input type="checkbox"/> |
| b. Have herbicides custom applied? | <input type="checkbox"/> | <input type="checkbox"/> |
| c. Both a & b | <input type="checkbox"/> | <input type="checkbox"/> |
| d. Don't use herbicides | <input type="checkbox"/> | <input type="checkbox"/> |
- [conclude interview if both corn and soybeans are checked to d.]

For all the following questions, check box if you did that practice and you grew that crop in 2022.

17. Who scouted your fields for weeds in your corn and/or soybean fields in 2022? Check all that apply.

- | | <u>Corn</u> | <u>Soybeans</u> |
|---|--------------------------|--------------------------|
| a. Myself, family members, or my employee | <input type="checkbox"/> | <input type="checkbox"/> |
| b. Dealer/coop | <input type="checkbox"/> | <input type="checkbox"/> |
| c. Crop consultant | <input type="checkbox"/> | <input type="checkbox"/> |
| d. None of my fields were scouted | <input type="checkbox"/> | <input type="checkbox"/> |

18. Were any of the following precision application technologies used to apply herbicides on your corn and/or soybean acres in 2022? Check all that apply

- | | <u>Corn</u> | <u>Soybeans</u> |
|------------------------------|--------------------------|--------------------------|
| a. Auto steer | <input type="checkbox"/> | <input type="checkbox"/> |
| b. Auto boom shut off | <input type="checkbox"/> | <input type="checkbox"/> |
| c. Variable rate application | <input type="checkbox"/> | <input type="checkbox"/> |

19. Were any of these practices used to minimize herbicide spray drift on corn and/or soybean acres in 2022? Check all that apply

- | | <u>Corn</u> | <u>Soybeans</u> |
|---------------------------------|--------------------------|--------------------------|
| a. Low-drift spray nozzles | <input type="checkbox"/> | <input type="checkbox"/> |
| b. Spray boom height adjustment | <input type="checkbox"/> | <input type="checkbox"/> |
| c. Hooded or shielded sprayer | <input type="checkbox"/> | <input type="checkbox"/> |

20. How many acres of cover crops were planted in or grown after your corn or soybean fields were harvested in 2022? Yes/No

If yes,

- a. Corn: _____acres
- b. Soybeans: _____acres

21. What type of tillage did you use before planting on the **majority** of your corn and soybean fields in 2022 (Fall of 2021 and Spring of 2022)? Check **one** for each crop

- | | <u>Corn</u> | <u>Soybeans</u> |
|---------------------------------------|--------------------------|--------------------------|
| a. Conventional < 15% residue | <input type="checkbox"/> | <input type="checkbox"/> |
| b. Reduced Tillage 15% – 30% residue | <input type="checkbox"/> | <input type="checkbox"/> |
| c. Conservation Tillage > 30% residue | <input type="checkbox"/> | <input type="checkbox"/> |
| d. Strip Tillage | <input type="checkbox"/> | <input type="checkbox"/> |
| e. No Till | <input type="checkbox"/> | <input type="checkbox"/> |

22. Are there vegetative filter strips or vegetative buffers on any of your corn or soybean acres?

- a. Yes
- b. No
- c. Don't Know

23. On your corn acres applied with herbicides, did you use more than one mode of action (group) or a premix with more than one mode of action?

- a. Yes
- b. No
- c. Don't Know

Acetochlor Use in Corn

24. Was acetochlor applied on any of your corn acres in 2022, premixes included?

- a. Yes, (go to question 26)
- b. No (go to question 31)
- c. Don't Know (go to next question)

25. Were any of the following products that contained acetochlor applied on your corn fields? Check the box if product applied.

- a. Resicore
- b. Tripleflex
- c. Surestart
- d. Harness
- e. Staunch
- f. Surpass
- g. Volley
- h. Keystone
- i. Warrant
- j. Volley NXT

If you have selected one or more of the above products, acetochlor was applied on your corn acres and continue to question 26, if didn't select any of the above products on question 25, go to question 31.

26. Did you apply acetochlor on the **majority** of your corn acres as a

- a. Preemergence
- b. Post emergence (skip question to 28)
- c. Split application

27. Was acetochlor soil incorporated through tillage after the preemergence application?

- a. Yes, all corn acres with applied acetochlor
- b. Yes, most, 50% or more corn acres with applied acetochlor
- c. Yes, some, less than 50% acres corn acres with applied acetochlor
- d. None

28. What were the following factors considered besides cost when choosing the rate of your acetochlor application for your corn or soybean fields with in 2022? (Select all that apply)

- a. Soil Texture
- b. Soil Organic Matter
- c. Weed Species
- d. Weed Pressure
- e. Effectiveness

29. Were label setback distances used from nearby wells or sinkholes while mixing/loading and applying acetochlor on your corn fields in 2022?

- a. There are not any wells and sinkholes immediately next to or in my corn fields
- b. Yes, always
- c. Yes, sometimes
- d. No
- e. Don't Know

30. Were label setback distances used from lakes, rivers, or streams while mixing/loading and applying acetochlor on your corn fields in 2022?

- a. There are not any surface water sources immediately next to my corn fields
- b. Yes, always
- c. Yes, sometimes
- d. No
- e. Don't Know

Atrazine Use in Corn

31. Was atrazine applied on any of your corn acres in 2022, premixes included?

- a. Yes (Go to question 33)
- b. No (Go to question 39)
- c. Don't Know (Go to next question)

32. Were any of the following products that contained atrazine applied on your corn fields?

Check the box if product applied.

- a. Acruron
- b. Callisto Xtra
- c. Atrazine 4L or 90DF
- d. Keystone LA NXT
- e. Harness Xtra
- f. Aatrex
- g. Breakfree NXT ATZ
- h. Cadence ATZ or LA NXT
- i. Lumax EZ
- j. Volley ATZ

If you have selected one or more of the above products, atrazine was applied on your corn acres and continue to question 33, if none were selected on question 32, go to question 39.

33. Did you apply atrazine on the **majority** of your corn acres as a:

- a. Preemergence
- b. Post emergence (skip question to 35)
- c. Split application

34. Was atrazine soil incorporated through tillage after the preemergence application?

- a. Yes, all corn acres with applied atrazine
- b. Yes, most, 50% or more corn acres applied with atrazine
- c. Yes, some, less than 50% acres all corn acres with applied atrazine
- d. None
- e. Don't Know

35. Did you apply less than one pound per acre of the active ingredient (atrazine) on the majority of your corn acres in the 2022 crop year?

- a. Yes
- b. No
- c. Don't Know

36. What were the following factors considered besides cost when choosing the atrazine rate for your corn fields in 2022? (Select all that apply)

- a. Soil Texture
- b. Soil Organic Matter
- c. Weed Species
- d. Weed Pressure
- e. Effectiveness

37. Were label setback distances used from nearby wells or sinkholes while mixing/loading and applying atrazine on your corn fields in 2022?

- a. There are not any wells and sinkholes immediately next to or in my corn fields
- b. Yes, always
- c. Yes, sometimes
- d. No
- e. Don't Know

38. Were label setback distances used from lakes, reservoirs, rivers, or streams while mixing/loading and applying atrazine on your corn fields in 2022?

- a. There are not any surface water sources immediately next to my corn fields
- b. Yes, always
- c. Yes, sometimes
- d. No

- e. Don't Know

Acetochlor Use in Soybeans

39. Was Acetochlor applied on any of your soybean acres in 2022, premixes included?

- a. Yes, (go to question 41)
- b. No (conclude survey)
- c. Don't Know (go to next question)

40. Was Warrant or Warrant Ultra applied to your soybean fields?

- a. Yes
- b. No (conclude survey)
- c. Don't Know (conclude survey)

If you have selected 'a', acetochlor was applied on your soybean acres and continue to question 41, if you selected 'b' or 'c' on question 40, conclude survey.

41. Did you apply acetochlor on the **majority** of your soybean acres as a:

- a. Preemergence
- b. Post emergence (skip question to 43)
- c. Split application

42. Was acetochlor soil incorporated through tillage after the preemergence application

- a. Yes, all soybean acres with applied acetochlor
- b. Yes, most, 50% or more soybean acres with applied acetochlor
- c. Yes, some, less than 50% acres soybean acres with applied acetochlor
- d. None

43. On your soybean acres treated with acetochlor, did you apply products with different modes of action, premixes included?

- a. Yes
- b. No
- c. Don't Know

44. What were the following factors considered besides cost when choosing the acetochlor rate for your soybean fields with in 2022? (Select all that apply)

- a. Soil Texture
- b. Soil Organic Matter
- c. Weed Species
- d. Weed Pressure
- e. Effectiveness

45. Were label setback distances used from nearby wells or sinkholes while mixing/loading and applying acetochlor on your soybean fields in 2022?

- a. There are not any wells and sinkholes immediately next to or in my soybean fields
- b. Yes, always
- c. Yes, sometimes
- d. No
- e. Don't Know

46. Were label setback distances used from lakes, rivers, or streams while mixing/loading and applying acetochlor on your soybean fields in 2022?

- a. There are not any surface water sources immediately next to my soybean fields
- b. Yes, always
- c. Yes, sometimes
- d. No
- e. Don't Know

This completes the survey. Thank you for your help!

Respondent Name: _____

| | | | | |
|-------------------|------|----|----|----|
| 9911 | 9910 | MM | DD | YY |
| Phone: () | -- | | | |

| Response | 9901 | Respondent | 9902 | Mode | 9903 | Enum. | Eval. | Change | Office Use for POID | | | |
|------------------|------|-------------|------|----------------|------|-------|-------|--------|---------------------|---------------------|--|--|
| 1-Comp | | 1-Op/Mgr | | 1-Mail | | 9998 | 9900 | 9985 | 9989 | | | |
| 2-R | | 2-Sp | | 2-Tel | | | | | | | | |
| 3-Inac | | 3-Acct/Bkpr | | 3-Face-to-Face | | | | | | | | |
| 4-Office Hold | | 4-Partner | | 4-CATI | | | | | | | | |
| 5-R – Est | | 9-Oth | | 5-Web | | | | | R. Unit | | | |
| 6-Inac – Est | | | | 6-E-mail | | | | | 9921 | | | |
| 7-Off Hold – Est | | | | 7-Fax | | | | | | Optional Use | | |
| | | 8-CAPI | 9907 | 9908 | 9906 | 9916 | | | | | | |
| | | 19-Other | | | | | | | | | | |
| S/E Name | | | | | | | | | | | | |