MINNESOTA BEST MANAGEMENT PRACTICES SURVEY - 2023

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**United States Department of Agriculture**

**NATIONAL AGRICULTURAL STATISTICS SERVICE**

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The Minnesota Department of Agriculture, in cooperation with the National Agricultural Statistics Service (NASS), will conduct periodic surveys of major crop producers that collect information on pesticide and fertilizer use. Survey respondents are randomly selected, and the reported results are based on advanced standardized statistical analyses conducted by Minnesota Department of Agriculture. Your response is necessary to help provide the best statistics possible. If there are any questions, contact the Minnesota Department of Agriculture at 651-201-6336.

1. How many acres of corn and soybeans did you plant in 2022 on your operation?

|  |
| --- |
| Acres |
| 101 |
| 102 |

* 1. Corn: ...................................................................................................................................................
	2. Soybeans: ...........................................................................................................................................
1. 201 Did you have any acres of corn in 2022 that were planted to soybeans in 2021?

1 ☐ Yes 3 ☐ No (**Go to question 4**)

1. **Corn on soybean acres.** What was the AVERAGE nitrogen rate (units per acre) that was applied across all acres of corn planted in 2022, 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 starter in addition to the main source of nitrogen such as UAN solutions, urea, or anhydrous ammonia.

202

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

1. 203 Did you have any acres of corn in 2022 that were planted to corn in 2021?

1☐ Yes 3 ☐ No (**Go to question 6**)

1. **Corn on corn acres.** What was the AVERAGE nitrogen rate (units per acre) that was applied across all acres of corn planted in 2022, that were also 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?...............................................................

204

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

1. Which of the following precision agriculture tools do you use on the farm? (**Check all that apply**).
	1. 205 ☐ Auto Steer
	2. 206 ☐ Precision planting
	3. 207 ☐ Variable rate fertilizer applications
	4. 208 ☐ Precision spraying, such as auto boom shutoff
	5. 209 ☐ Nitrogen applications based on zone management
	6. 210 ☐ Nitrogen applications based on aerial imagery
	7. 211 ☐ Nitrogen applications based on in field variables such as in season soil tests
	8. 212 ☐ Nitrogen applications based on other in season variables not mentioned above
2. 213 How many acres of cover crops were planted in or grown after your corn or soybean fields were harvested in 2022?

|  |
| --- |
| Acres |
| 214 |
| 215 |

* 1. Cover crop on corn acres: ............................................................................................................
	2. Cover crop on soybean acres: ......................................................................................................

**If you did not grow corn in 2022, go to question 16**

1. 216 With the higher price of fertilizer, did you reduce your N rate on your corn acres?

1 ☐ Yes 3 ☐ No 5 ☐ Don’t Know

1. 217 Was manure used on any of your corn acres in 2022?

1 ☐ Yes 3 ☐ No

218 **If yes**, was the manure tested within the last five years before application in 2022?

1 ☐ Yes 3 ☐ No

1. Which of the following factors determine the nitrogen rate calculation in the University of Minnesota nitrogen guidelines. – list factors?
	1. 219 ☐ Soil organic matter

220 ☐ Price of nitrogen

b.

221 ☐ Yield goal

c.

222 ☐ Previous crop

d.

223 ☐ Variable rate

e.

224 ☐ Price of corn

f.

225 ☐ Cation exchange capacity (CEC)

g.

f. 226 ☐ Don’t know

1. The Minnesota Department of Agriculture (MDA) has a vulnerable groundwater area map on its website that shows areas where fall nitrogen fertilizer applications are restricted:

234

Acres

* 1. 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?................................................................................. 233 ☐ Don't Know OR

* 1. 227 When was the last time you reviewed the MDA’s Fall Nitrogen Fertilizer Restrictions map on the MDA website?

1 ☐ Date:

3 ☐ Don't Know

7 ☐ Never

1. 228 Do you use a nitrogen inhibitor on any of your corn acres?

1 ☐ Yes

3 ☐ No

5 ☐ Don't Know

1. 229 Do you sidedress any nitrogen on your corn acres, including top dress or irrigation?

1 ☐ Yes

3 ☐ No

5 ☐ Don't Know

1. 230 Do you use a slow release product such as ESN, Super U or other such product?

1 ☐ Yes

3 ☐ No

5 ☐ Don't Know

1. 231 How important are yields in determining your nitrogen rate on corn? 1 very important. 5 not important [Select one]

**1** ☐ **2** ☐ **3** ☐ **4** ☐ **5** ☐

Herbicide Best Management Practices (BMP) Adoption Survey 2022

1. On your 2022 corn and/or soybean acres, did you (**choose one from the list for each crop**) If only one crop, check only in that column.

Corn Soybeans

* 1. Apply herbicides yourself....................................................................................... 301 ☐ 302 ☐
	2. Have herbicides custom applied?........................................................................... 303 ☐ 304 ☐
	3. Apply some myself and some custom applied....................................................... 305 ☐ 306 ☐
	4. Don’t use herbicides 307 ☐ 308 ☐

CONCLUDE interview if you did not use any herbicides on corn or soybeans in 2022.

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

1. Who scouted your corn and/or soybean fields for weeds in 2022? (**Check all that apply**.) If only one crop check only in that column.

Corn Soybeans

* 1. Myself, family members, or an employee............................................................. 309 ☐ 310 ☐
	2. Dealer/coop........................................................................................................... 311 ☐ 312 ☐
	3. Crop consultant...................................................................................................... 313 ☐ 314 ☐
	4. None of my fields were scouted............................................................................. 315 ☐ 316 ☐

(two questions dropped and removed here)

1. 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**. **If only one crop check only in that column.**]

Corn Soybeans

* 1. Conventional < 15% residue................................................................................... 331 ☐ 332 ☐
	2. Reduced Tillage 15% – 30% residue....................................................................... 333 ☐ 334 ☐
	3. Conservation Tillage > 30% residue........................................................................ 335 ☐ 336 ☐
	4. Strip Tillage............................................................................................................. 337 ☐ 338 ☐
	5. No Till..................................................................................................................... 339 ☐ 340 ☐

(one question dropped and removed here)

**If no corn acres, go to question 20**

1. On your corn acres applied with herbicides, did you use more than one mode of action (group). This could be from two or more products with different modes of action or a premix with two or more different modes of action?

342 ☐ All corn acres

343 ☐ Some corn acres

344 ☐ None of my corn acres

345 ☐ Don't Know

(New Questions Added)

1. Do you have surface water, such as a river, stream (intermittent or continuous), lake, or pond, in the field or within 50 feet of the outside border of any of your corn or soybean fields?

346 ☐ Yes [**Go to next question**]

347 ☐ No [**Go to question 23**]

1. Do you have non-crop vegetative buffers, such as grass or other permanent vegetation, next to the surface water?

348 ☐ Yes – All [**Go to next question**]

 349 ☐ Yes – Some [**Go to next question**]

350 ☐ No [**Go to question 23**]

1. How many feet is the average width of the non-crop vegetative buffer next to the surface water?

351 \_\_\_\_\_ft

1. Do you have a well or sinkhole in the field or within 50 feet outside the border of any of your corn or soybean fields?

352 ☐ Yes – All [**Go to next question**]

353 ☐ Yes – Some [**Go to next question**]

354 ☐ No [**Go to question 26**]

1. Do you maintain a setback (no herbicide application) or non-crop vegetative buffer for the areas around the well or sinkhole?

355 ☐ Yes – All [**Go to next question**]

356 ☐Yes – Some [**Go to next question**]

357 ☐ No [**Go to question 28**]

1. How many feet is the average width of the setback or non-crop vegetative buffer to the well or sinkhole?

358 \_\_\_\_\_ft

1. Do you mix or load herbicides in any of your corn or soybean fields?

359 ☐ Yes

360 ☐ No

361☐ Don’t Know

**Atrazine Use in Corn**

1. 401 Was atrazine applied on any of your corn acres in 2022, premixes included?

1 ☐ Yes - **Go to question 29.**

3 ☐ No - **Go to question 33.**

5 ☐ Don't Know – **Go to next question.**

7 ☐ No corn acres in 2022 – **Go to question 38.**

1. Were any of the following atrazine products applied to your corn fields? [**Check the box if the product was applied**]
2. 402 ☐ Acruron
3. 403 ☐ Callisto Xtra
4. 404 ☐ Atrazine 4L or 90DF
5. 405 ☐ Keystone LA NXT
6. 406 ☐ Harness Xtra
7. 407 ☐ Aatrex
8. 408 ☐ Breakfree NXT ATZ
9. 409 ☐ Cadence ATZ or LA NXT
10. 410 ☐ Lumax E
11. 411 ☐ Volley NXT

If you have selected one or more of these atrazine products, then **go to then next question.** If not, **skip to question 33**.

1. 412 When did you apply atrazine on the majority of your corn acres? [**Only check one**]

1 ☐ Crop preplant or preemergence

2 ☐ Crop post emergence - **Go to question to 31**

3 ☐ Split application (both pre and post on the same field)

1. 413 Was atrazine incorporated though tillage?

1 ☐ All corn acres

3 ☐ Some corn acres

4 ☐ None

5 ☐ Don't Know

1. 414 Did you apply one pound or less per acre of the active ingredient (atrazine) on the majority your corn acres in the 2022 crop year?

1 ☐ Yes

3 ☐ No

5 ☐ Don't Know

1. Which of the following factors were considered when choosing the rate of atrazine on your corn fields in 2022 besides cost? (**Select all that apply**)
2. 415 ☐ Soil Texture
3. 416 ☐ Soil Organic Matter
4. 417 ☐ Weed Species
5. 418 ☐ Weed Pressure
6. 419 ☐ Effectiveness
7. 420 ☐ Other
8. 421 ☐ Don’t Know

**Acetochlor Use in Corn**

1. 501 Was acetochlor applied on any of your corn acres in 2022, premixes included?

1 ☐ Yes - **Go to question 35**

3 ☐ No - **Go to question 38**

5 ☐ Don't Know – **Go to next question**

1. Were any of the following acetochlor products applied to your corn fields? [**Check the box if the product was applied.**]
	1. 502 ☐ Resicore
	2. 503 ☐ Tripleflex
	3. 504 ☐ Surestart
	4. 505 ☐ Harness
	5. 506 ☐ Staunch
	6. 507 ☐ Surpass
	7. 508 ☐ Volley or Volley NXT
	8. 509 ☐ Keystone
	9. 510 ☐ Warrant

If you have selected one or more of these acetochlor products, then **go to then next question**. If not, **skip to question 38**

1. 511 When did you apply acetochlor on the majority of your corn acres? [**Only check one**]

1 ☐ Crop preplant or preemergence

2 ☐ Crop post emergence - **Go to question 37**

3 ☐ Split application(both pre and post on the same field)

1. 512 Was acetochlor incorporated through tillage?

1 ☐ All corn acres

3 ☐ Some corn acres

4 ☐ None

5 ☐ Don't Know

1. Which of the following factors were considered when choosing the rate of acetochlor on your corn fields in 2022 besides cost? (**Select all that apply**)
	1. 513 ☐ Soil Texture
	2. 514 ☐ Soil Organic Matter
	3. 515 ☐ Weed Species
	4. 516 ☐ Weed Pressure
	5. 517 ☐ Effectiveness
	6. 518 ☐ Other
	7. 519 ☐ Don’t Know

**Acetochlor Use in Soybeans**

1. 601 Was Warrant or Warrant Ultra applied to your soybean fields?

1 ☐ Yes – **Go to next question**

3 ☐ No - **Conclude survey**

5 ☐ Don't Know - **Conclude survey**

1. 602 When did you apply acetochlor on the majority of your soybean acres? [**Only choose one**]

1 ☐ Crop preplant or preemergence

2 ☐ Crop post emergence - **Go to question to 41**

3 ☐ Split application (both pre and post on the same field)

1. 603 Was acetochlor incorporated through tillage?

1 ☐ All soybean acres

2 ☐ Some soybean acres

3 ☐ None

5 ☐ Don’t Know

1. Which of the following factors were considered when choosing the rate of acetochlor on your soybean fields in 2022 besides cost? (**Select all that apply**)
2. 604 ☐ Soil Texture
3. 605 ☐ Soil Organic Matter
4. 606 ☐ Weed Species
5. 607 ☐ Weed Pressure
6. 608 ☐ Effectiveness
7. 609 ☐ Other
8. 610 ☐ Don’t Know

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Response** | **Respondent** | **Mode** | **Enum.** | **Eval.** | **Change** | **Office Use for POID** |
| 1-Comp 2-R3-Inac4-Office Hold 5-R -- Est6-Inac --Est7-Off Hold --Est | 9901 | 1-Op/Mgr 2-Sp3-Acct/Bkpr 4-Partner9-Oth | 9902 | 1. PASI (Mail)
2. PATI (Tel)
3. PAPI (Face-to- Face)

6-Email 7-Fax19-Other | 9903 | 9998 | 9900 | 9985 | 9989 - -  |
| **Optional Use** |
| 9907 | 9908 | 9906 | 9916 |
| S/E Name: |  |