

AGRICULTURAL RESOURCE MANAGEMENT SURVEY

OMB No. 0535-0218
 Approval Expires: 7/31/20XX
 Project Code: 906
 SMetaKey: 1312
 Phase II



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CORN PRODUCTION PRACTICES AND COSTS REPORT FOR 2020

VERSION 8	STATE ____	ID _____	TRACT 01	SUBTRACT ____	C-TYPE 105
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CONTACT RECORD		
DATE	TIME	NOTES

INTRODUCTION:
[Introduce yourself, and ask for the operator. Rephrase in your own words.]

The information you provide will be used for statistical purposes only. Your responses will be kept confidential and any person who willfully discloses ANY identifiable information about you or your operation is subject to a jail term, a fine, or both. This survey is conducted in accordance with the Confidential Information Protection provisions of Title V, Subtitle A, Public Law 107-347 and other applicable Federal laws. For more information on how we protect your information please visit: <https://www.nass.usda.gov/confidentiality>. Response is **voluntary**. You may skip any question(s) you prefer not to answer.

According to the Paperwork Reduction Act of 1995, an agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information collection is 0535-0218. The time required to complete this information collection is estimated to average 65 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

We encourage you to refer to your farm records during the interview.

BEGINNING TIME H H M M

[MILITARY]

SCREENING BOX

[Name, address and partners verified and updated if necessary]

POID _____	POID _____
PARTNER NAME	PARTNER NAME
ADDRESS	ADDRESS
CITY STATE ZIP PHONE NUMBER	CITY STATE ZIP PHONE NUMBER
POID _____	POID _____
PARTNER NAME	PARTNER NAME
ADDRESS	ADDRESS
CITY STATE ZIP PHONE NUMBER	CITY STATE ZIP PHONE NUMBER

CORN FIELD SELECTION

TOTAL PLANTED
ACRES

0050

1. How many total acres of corn did this operation plant for the 2020 crop year?

[If no acres were planted, review Screening Survey Information Form, make notes, then go to Item 4 on back page.]

a. Did you produce any acres of **CERTIFIED ORGANIC** corn?..... YES = 1

1064

b. Of the total (item 1) acres, how many were planted using/as --

	TOTAL ACRES		NUMBER OF FIELDS
(i) Conventional corn?	583	+	1065
(ii) Certified organic corn?	730	+	1066

I will follow a simple procedure to make a random selection from the corn fields planted for the 2020 crop.

TOTAL NUMBER
OF FIELDS
PLANTED

2. What is the **TOTAL** number of corn fields that were planted on this operation?

[If only one field, enter "1" and go to item 4.]

0020

3. Please list these fields according to identifying name/number or describe each field, then I will tell you which field has been selected. [If there are more than 18 fields, make sure item 2 is **TOTAL** fields planted, and list only the 18 fields closest to the operator's permanent residence. If respondent is unable to identify or describe the fields, use the Field Selection Grid Supplement.]

FIELD NAME, NUMBER OR DESCRIPTION
1
2
3
4
5
6
7
8
9

FIELD NAME, NUMBER OR DESCRIPTION
10
11
12
13
14
15
16
17
18

APPLY "RANDOM NUMBER" LABEL HERE

4. [ENUMERATOR ACTION: Circle the pair of numbers on the above label associated with the last numbered field in item 3. Select the field according to the number you circled on the label, and record the selected number. If only one field, enter 1.]

SELECTED FIELD NUMBER

0021

5. The field selected is _____ (field name/number/description).

During this interview, the corn questions will be about this selected corn field.

[Be sure the operator can identify the selected field.]

6. For the randomly selected field above, please provide the Farm Service Agency (FSA):

NUMBER

a. Farm Number.

1070

b. Tract Number.

1071

c. Field Number.

1072

OFFICE USE
OY Field Substituted

0022

B FIELD CHARACTERISTICS---SELECTED FIELD

B

1. How many acres of corn did this operation plant in this field for the 2020 crop? ACRES
1301

a. Are the acres in this field **CERTIFIED ORGANIC**? YES = 1 CODE
1300
 [If **YES**, continue. If **NO**, go to item 2.] DOLLARS & CENTS

b. What was the cost, per acre, for third party organic certification? 1891

2. Were the acres in this field--- 1 owned by this operation?
2 rented for CASH with the payment being a fixed cash amount?
3 rented for CASH with the payment being a flexible cash amount?
4 rented for a SHARE of the crop?
5 rented for some combination of CASH and SHARE of the crop?
6 used RENT FREE? CODE
1302

3. [If field is CASH RENTED (item 2 = 2, 3, or 5), ask item 3; else go to item 4.]
 What was the cash rent paid per acre for this 2020 corn field? DOLLARS & CENTS PER ACRE
1303

4. [If field is SHARE RENTED (item 2 = 4 or 5), ask---]
 What was the landlord's share of the crop from this field? PERCENT
1304

5. [If field is RENTED (item 2 = 2, 3, 4, or 5), ask---]
 What was the total cost for all inputs provided by any landlord for the 2020 crop on the selected field? (Include the costs for all inputs, such as seed, fertilizer, chemicals, technical services, custom operations, drying and irrigation. Exclude real estate tax expenses and lime costs paid by the landowner.) DOLLARS & CENTS PER ACRE
1305 OR TOTAL DOLLARS
1306

6. What was the total cost for all inputs provided by any contractor for the 2020 crop on the selected field? (Include the costs for all inputs, such as seed, fertilizer, chemicals, technical services, custom operations, drying and irrigation.) . . . DOLLARS & CENTS PER ACRE
1309 OR TOTAL DOLLARS
1310

7. What year did you (the operator listed on the label) start operating this field? YEAR
1312

MM DD YY

1308

8. On what date was this field planted?

UNIT CODES

- 1 Pounds
- 2 CWT
- 3 Tons
- 4 Bushels

UNITS PER ACRE

0216

0217

a. What was your yield goal at planting for this field?

9. Was the corn on this field planted with the intention of being harvested as

- 1 Grain
- 2 Silage
- 4 Seed
- 25 Other

CODE

3327

UNIT CODE

- 1 = Pound
- 2 = CWT
- 4 = Bushel
- 22 = Acre
- 23 = Approx. 80,000 Kernel Bag

DOLLARS & CENTS PER UNIT

1319

1320

10. What was the total cost per unit (including operator, landlord, and contractor costs) of purchased seed for this field? (Include cost of seed treatment and seed technology fee.)

INCHES

1322

11. What was the average corn row width for this field?

UNIT CODE

- 1 = Pounds/Acre
- 2 = CWT/Acre
- 4 = Bushels/Acre
- 25 = Kernels-Seeds/Acre
- 38 = Kernels-Seeds/Foot

UNITS

1313

1314

12. What was the seeding/planting rate per acre for this field? (If the field was replanted, report the seeding rate for the initial planting.)

ACRES

1315

13. How many acres in this field had to be replanted to corn? (Acres replanted = Number of acres x Number of times replanted)

2020
YES = 1

2019
YES = 1
N/A = 4
(No Corn in Field)

14. Did you plant GMO/GE seeds for the 2019 or 2020 crop years?

2300	2301
------	------

25. Please report what seed products were used in previous years.

	Seed Product Name	What seed product was used this year [Show product codes from Respondent Booklet.]
2020		
2019		
2018		
2017		
2016		

15. Did the CORN planted on this field have any of the following GMO/GE traits in 2019 or 2020? --

2020
YES = 1

2019
YES = 1

- a. Insect Resistance (Bt) to Corn Borer
 - (i) With multiple (pyramided) modes of action
- b. Insect Resistance (Bt) to Rootworm
 - (i) With multiple (pyramided) modes of action
- c. Insect Resistance (Bt) to Earworm
- d. Insect Resistance (Bt) to Armyworm
- e. Other BT Trait
- f. Herbicide Tolerance (HT) to Glyphosate
- g. Herbicide Tolerance (HT) to 2, 4-D.
- h. Herbicide Tolerance (HT) to Dicamba.
- i. Herbicide Tolerance (HT) to Glufosinate.
- j. Other HT Trait
- k. Drought Resistance
- l. Enzyme technology for ethanol (e.g. Enogen).

2501	2502
2503	2504
362	363
2507	2508
2509	2510
2511	2512
2513	2514
2306	2307
2308	2309
2310	2311
2312	2313
2514	2315
2515	2516

Note: Any genetically modified organism/genetically engineered HT trait other than Glyphosate tolerance, 2,4-D tolerance, Dicamba Tolerance, or Glufosinate Tolerance should be accounted for using the "Other HT train" column.

2020
YES = 1

2019
YES = 1
N/A = 4
(No Corn in Field)

16. Was a non-GMO/GE seed planted in

2316	2317
------	------

[If item 16=1 for either year, continue. Else, go to 19.]

17. Was this non-GMO/GE seed herbicide tolerant in --

2318	2319
------	------

18. Was the corn from this field sold (or will it be sold) through a market specifically for non-genetically modified corn?
 a. [If item 23 = YES, ask--] What was the price premium (or the expected premium if not yet sold) received for this non-genetically modified corn?

2518	2519
------	------

19. Was the CORN planted on this field drought tolerant?

CODE

YES - [Enter code 1 and continue] NO - [Go to item 21].

--

- a. Were these GMO/GE drought-tolerant seeds (e.g., Genuity® DroughtGard®)? YES = 1
- b. Were these non-GMO/GE drought-tolerant seeds (e.g., Optimum® AQUAmax®, Agrisure Artesian®)? YES = 1
- c. Since the time that drought-tolerant corn became available in your area, when planting corn, have you only planted drought-tolerant corn varieties? YES = 1

20. Was the decision to plant drought-tolerant corn on this field based on (enter code 1 for all that apply) –

RESOURCE CONCERNS	CODE
	YES = 1
a. Ability to bundle with one or more GMO/GE traits (e.g., insect resistance)?	
b. Price of this seed relative to seeds without drought tolerance?	
c. Price of irrigation water and/or irrigation water applications?	
d. Soil moisture is usually low due to frequent droughts?	
e. Field conditions other than soil moisture or seasonal forecasts at planting time?	
f. Drought last year that at least partially damaged last year's crop?	
g. Concerns about changing growing conditions?	

21 Did you use a genetically engineered, insect resistant seed variety for the 2020 crop?

YES = 1

2326

[If item 21 is yes, ask--]

a. Did you choose the resistant seed variety used on this field primarily to--

- | |
|---|
| 1 Increase yields through improved pest (weed or insect) control?
2 Decrease pesticide input costs?
3 Save management time or labor or improve ease of management?
4 Reduce refuge requirements
5 For some other reason(s)? [Specify _____] |
|---|

CODE

2327

b. Was this a refuge-in-the-bag product?

c. What percentage of the bag was conventional seed?

YES = 1

--

[If item 21 = YES continue. Else go to item 23.]

PERCENT

22. Was a refuge for insect pests planted on this field [If item 22 is yes, ask--., Else go to item DD]

2328

22. What percentage of the field was used as refuge for insect pests in order to comply with Bt corn insect resistance management guidelines?

--

a. Within this field.

b. DD. How many acres adjacent to, or as a separate block within 1/2 mile, of the selected field did you plant with conventional seeds as a refuge?

23. Did you purchase seed treated with---

CODE

a. a fungicide (e.g., Trilex, Allegiance, or other seed treatments)? YES = 1

b. an insecticide (e.g., Poncho, Gaucho or Cruiser seed treatment)? YES = 1

c. a nematicide (e.g., Acceleron or Avicta seed treatment)? YES = 1

23. What was the difference in yields in the Bt crop with the yields in the non-bt refuge crop?

UNITS PER ACRE

24. List the name of the seed treatment product. [If item 21a, 21b, or 21c is YES, ask—] Enter the appropriate product code from the Respondent Booklet, Page 2. (Enter 3 if a seed treatment was not applied, 999 if a seed treatment was applied but the product is not listed.)

CODE

[If item 21b is YES, ask--]

26. Did you use an "air delivery" or "vacuum (pneumatic) planter"? YES = 1

CODE

[If item 23 is YES, ask--]

a. Did you use a talc and/or graphite seed flow lubricant? YES = 1

CODE

b. Did you use an alternative seed flow lubricant (e.g. Bayer Fluency Agent) instead of talc and/or graphite? YES = 1

27. Has harvest of this field been completed? YES = 1

CODE

28. Please report the following information about the acres harvested (or to be harvested) and the yields from this field.

How many acres in this corn field were (or will be)---	1		2
	ACRES	UNITS PER ACRE	UNIT CODE
a. harvested for grain, first crop?	1346	1347	1348
b. harvested for silage or green chop?	1349	1350	TONS
c. harvested for seed?	1431	1432	1433
d. abandoned?	1351		
e. used for some other purpose?	1439		

29. Were the stalks/stover harvested from this field?

YES - [Enter code 1 and go to item 27]

NO - [Ask 26a, then go to item 28].

CODE

1754

a. [If the corn stalks/stover were not harvested, ask---]
What was the primary reason for not harvesting the corn stalks/stover?

- 1 No market/use for corn stalks/stover
 - 2 Harvesting was not profitable
 - 3 The corn stalks/stover were left as organic matter for the soil
 - 4 The stalks/stover were left for livestock grazing
 - 5 The stalks/stover were used for animal bedding . . .
 - 6 Other [Specify: _____] 1 . . .

CODE

1398

30. How many acres of corn stalks/stover were harvested from this corn field?

ACRES

1755

a. How many **tons** of corn **stalks/stover** were harvested from these corn acres (item 27)?

TOTAL TONS

1756

$$\frac{\text{---}}{\text{Tons per Acre}} \times \frac{\text{---}}{\text{Acres}} = \frac{\text{---}}{\text{Total Tons}} \quad \text{OR} \quad \frac{\text{---}}{\text{Bales}} \times \frac{\text{---}}{\text{Lbs per Bale}} \div \frac{2000}{\text{Lbs per Ton}} = \frac{\text{---}}{\text{Total Tons}}$$

CODE

1023

31. Did any livestock graze this corn field after harvest of the 2020 corn crop?

YES - [Enter code 1 and continue]

NO - [Go to item 30]

CODE

1024

32. What type of livestock grazed this corn field after harvest of the 2020 corn crop?

- 1 Cattle
- 2 Sheep
- 3 Other [Specify: _____]

HEAD

1027

a. About how many head of livestock (item 28) grazed this corn field?

DAYS

1028

b. How many days did this livestock graze on this corn field?

CODE

33. Was any of the residue from the prior crop (corn stover, wheat straw, etc.) removed post-harvest?

Yes=1

[If yes, ask --]

TONS

1328

34. How many tons per acre of residue were removed through harvest?

HEAD

1362

a. About how many head of cattle grazed the residue?

DAYS

1363

b. How many days did cattle graze on the residue?

c. How many days did any other livestock graze the residue?

CROP CODE LIST for item 35 – PREVIOUSLY PLANTED CROPS			
190 Barley	3 Dry Beans	21 Rice	193 Tobacco, burley
85 Canola	17 Dry Peas	22 Rye	196 Tobacco, flue cured
310 Clover	311 Grasses other than clover	98 Safflower	42 Vegetables
6 Corn for grain	1 Hay, alfalfa	25 Sorghum for grain	163 Wheat, durum
5 Corn for silage	11 Hay, all other	24 Sorghum for silage	164 Wheat, other spring
282 Cotton, Pima	94 Mustard Seed	26 Soybeans	165 Wheat, winter
281 Cotton, Upland	15 Oats	28 Sugarbeets	Perennial from previous year
302 CRP	16 Peanuts	30 Sunflowers	318 No crop planted during this period
320 Cultivated Fallow	20 Potatoes	31 Sweet Potatoes	

35. Please report what crops were previously PLANTED on the majority of this field, including cover crops.

1 What type of crop was grown on this field? 1 GE Herbicide Tolerant (HT) 2 GE Insect Resistant (Bt) 3 Stacked (HT and BT) 4 GE or Non-GE drought tolerant 5 Not GE			2	3	4	5	6
SEASON AND YEAR	CROP NAME	CROP CODE		Was this a cover crop? YES = 1	How did you manage this cover crop? CODE 1 Plowed-in 2 Chisel-disk 3 Chemical 4 Rolled 5 Cracked 6 Harvested 7 Dicked	Was this field irrigated? YES = 1	Was this field no-tilled or strip-tilled? 1/ YES = 1
a. SPRING/SUMMER of 2020	Corn		Needs a p code	Grey this out	Grey this out	Needs a p code	Needs a p code
a. FALL of 2019?		1343		1470	1471	2344	1345
b. SPRING/SUMMER of 2019?		1369		1472	1473	2370	1371
c. FALL of 2018?		1372		1474	1475	2373	1374
d. SPRING/SUMMER of 2018		1375		1476	1477	2376	1377
e. FALL of 2017?		1378		1478	1479	2379	1380
f. SPRING/SUMMER of 2017		1381		1480	1481	2382	1383
g. FALL of 2016?		1366		1482	1483	2367	1368
h. SPRING/SUMMER of 2016		1340		1484	1485	2341	1342

1/ No-till means leaving soil and previous crop residue undisturbed from harvest to planting. Strip-till means tilling a narrow strip over the row, leaving soil and previous crop residue between the rows undisturbed.

[If a cover crop was planted in Spring/Summer/Fall 2020, ask--]

DOLLARS & CENTS PER ACRE

1468	. __ __
------	---------

i. What was the seed cost per acre for the cover crop?

Conservation Practice/Conservation Plan List for question 36					
328	Conservation Crop Rotation	590	Nutrient management	332	Contour Buffer Strips
329	No-Till/Strip-Till	???	Livestock Waste Management	386	Field Border
345	Reduced (Conservation) Till	595	Integrated Pest Management	393	Filter Strip
330	Contour Farming	449	Irrigation Water Management	412	Grassed Waterway
340	Cover Crop			410	Grade Stabilization Structure
585	Strip cropping			603	Herbaceous Wind Barriers
				600	Terraces

36. List all conservation practices or plans that were used on this field over the past 5 years.

- 1
- 2
- 3
- 4
- 5

Have you ever received at any time--

What conservation practices have been used on this field at least once in the past 5 years?

Was this practice or plan used in 2020?

Technical or planning assistance?

Financial assistance?

Does this practice or plan help satisfy?

1

2

3

USDA including funding of Technical Service Providers

Other Sources of Outside Assistance

No Assistance Needed

1

2

3

4

5

EQUIP

CSP

CRP

Other

No Assistance Needed

1

2

A federal regulatory requirement?

USDA conservation compliance provisions?

Does not relate to any regulation or compliance requirement.

CODE
YES = 1
CODE
CODE
CODE

0706
0726
0736
0746

0707
0727
0737
0747

0708
0728
0738
0748

0709
0729
0739
0749

0702
0722
0732
0742

0703
0723
0733
0743

0704
0724
0734
0744

0705
0725
0735
0745

37. Is this field included in an existing conservation program contract through any of the following programs for which you or the landlord have received (or expect to receive) cost sharing payments, stewardship payments, or incentive payments?

PROGRAM	1 1/ YES = 1	2 How many practices or practice enhancements are included in the contract? NUMBER	3 Does the contract include livestock related practices? YES = 1	4 During the past 4 years, was this field included in an application that was rejected or has not yet been funded? YES = 1
a. Environmental Quality Incentive Program (EQIP)	2236	2237	2238	2239
b. Conservation Security or Conservation Stewardship Programs (CSP)	2240	2241	2242	2243
c. Conservation Reserve Program (CRP)	2244	2245	2246	2247
d. Other Federal, State, Local or non-government source	2248	2249	2250	2251

^{1/} [Include conservation program contracts that provide assistance for grass waterways, filter strips, riparian buffers, or similar practices on or adjoining this field.]

37. Have you ever applied for conservation funding, through any Federal, State, or local program, for this field?yes/no

[If item 37=1, go to Item 38-- if not, skip to question 40.]

38. Is this field (or has this field been) included in a conservation program contract through any of the following programs, for which you or your landlord received (or expect to receive) cost-sharing payments, stewardship payments, or incentive payments?

a. Environmental Quality Incentives Program.....	1=current contract 2=past contract	
b. Conservation Stewardship Program.....	1=current contract 2=past contract	
c. Conservation Reserve Program.....	1=current contract 2=past contract	
d. Other Federal, State, Local or non-government source.....	1=current contract 2=past contract	

39. Has this field been included in an application that was rejected or has not yet been funded?yes/no

42. Has the Natural Resource Conservation Service (NRCS) classified any part of this field as "Highly Erodible"? (Cropland identified as highly erodible is subject to highly erodible land conservation (HELC) requirements. Producers who receive farm program payments are required to have (and apply) a written soil conservation plan.) A "written plan" is a plan prepared in accordance with Federal, State, or district standards.. YES = 1

CODE
1404

43. Have you been notified by NRCS that this field contains a wetland? YES = 1

1405

44. What is the slope of this field?

- | |
|-------------------------------|
| Nearly level (0 - 2%) |
| Even, moderate grade (3 - 9%) |
| Variable, moderate grade |
| Even, steep grade (over 10%) |
| Variable, steep grade |

CODE
2400

45. **What is the primary soil type of this field?**

- Loam
- Clay
- Sandy
- Mixed



CODE
2401

46. Did the land use practices for this field include subsurface drainage?

[If YES, ask--]

CODE

YES = 1

YEAR

INCHES

HOURS

YES = 1

a. In what year was the subsurface drainage installed?

b. What is the average depth of your drainage system?

c. What is the diameter of your tiles?

d. On average, how many hours does it take your field to return to normal soil moisture levels following a heavy storm?

e. Does this system include a mechanism for controlled drainage (e.g. stop logs, risers, or float mechanisms)?

47. Report up to 3 sources that you received assistance from for each resource concern.

RESOURCE CONCERNS	CODE YES = 1	Have you received technical assistance from any of the following sources to evaluate this resource concern? (Report up to 3 sources that you received assistance from.)		
		Source 1	Source 2	Source 3
a. Water-driven erosion.	2407	2417	2427	2437
b. Wind-driven erosion.	2408	2418	2428	2438
c. Soil compaction.	2409	2419	2429	2439
d. Poor drainage.	2410	2420	2430	2440
e. Low organic matter.	2411	2421	2431	2441
f. Water quality.	2412	2422	2432	2442
g. Other concerns.	2413	2423	2433	2443
h. No significant concerns.	2414	2424	2434	2444

- 1 USDA – NRCS
- 2 Cooperative Extension Service
- 3 Other USDA staff, including Forest Service
- 4 Other (e.g. Soil and Water Conservation District, state agency)

48. Was the corn in this field covered by private crop insurance in 2020 (hail, wind, freeze, etc.)?

YES – [Enter code 1 and continue] NO – [Go to Section C].

CODE
1393

DOLLARS & CENTS PER ACRE OR TOTAL DOLLARS

a. What was the dollar amount of coverage for the private insurance policy covering this field in 2020?

b. What was the premium paid for private crop insurance for this field in 2020? (Exclude any sign-up fee).

1395	1396
------	------

c. What was the percent deductible for the private crop insurance policy covering this field? (Record no deductible as 0%)

PERCENT

d. Did you (or will you) collect an indemnity payment for this field from private crop insurance during 2020? YES = 1

CODE
1394

49. Was the corn in this field covered by Federal Crop Insurance in 2020?

YES – [Enter code 1 and continue.] NO – [Enter code 3 and go to Section C.].

CODE
1385

a. Which coverage did you obtain?

- | | |
|---|---|
| 1 | Federal CAT (basic catastrophic insurance) |
| 2 | Yield protection |
| 3 | Yield plus SCO (supplemental coverage option) |
| 4 | Revenue protection |
| 5 | Revenue plus SCO (supplemental coverage option) |
| 6 | Other Federal Crop insurance |

CODE
1386

i. [If item 49a = 2 or 3, ask--]

What was your yield level of your buy-up coverage for this field?

PERCENT
1387

What was your price level of your buy-up coverage for this field?

1388

ii. [If item 49a = 4 or 5, ask--]

What was the level of revenue coverage you obtained for this field?

PERCENT
1389

b. What type of unit coverage did you purchase for this field? (Basic = 1, Optional = 2, Enterprise = 3).

CODE

c. In what year did you (the operator listed on the label) first enroll this field in the Federal crop insurance program?

YEAR

d. What is the 2020 Approved APH (actual production history) yield for this field?

BUSHELS PER ACRE

e. What was the premium paid for Federal crop insurance for this field in 2020? (Exclude any sign-up fee).

DOLLARS & CENTS PER ACRE or TOTAL DOLLARS

f. Did you (or will you) collect an indemnity payment for this field from federal crop insurance during 2020?

CODE Yes = 1

C NUTRIENT or FERTILIZER APPLICATIONS---SELECTED FIELD C

<p>1. Were commercial nutrients or fertilizers applied to this field for the 2020 corn crop? (Include those from operators, landlords, and contractors.) YES = 1</p> <p>[If <i>COMMERCIAL</i> nutrient or fertilizer applied, continue; else go to item 6.]</p> <p>2. How many commercial nutrient or fertilizer applications were made to this field for the 2020 crop? (Include applications made by airplanes and custom applicators.)</p> <p>3. Now I need to record information for each application.</p>	<p>CODE</p> <p>0202</p>	<p>EDIT TABLE</p> <p>0200</p>
		<p>NUMBER</p> <p>0203</p>

CHECKLIST

<p><input type="checkbox"/> INCLUDE</p> <p><input type="checkbox"/> Custom applied nutrients and fertilizers</p> <p><input type="checkbox"/> Nutrients or fertilizers applied in the fall of 2015 and those applied earlier if this field was fallow in 2015.</p> <p><input type="checkbox"/> Commercially prepared manure or compost</p>	<p><input type="checkbox"/> EXCLUDE</p> <p><input type="checkbox"/> Micronutrients</p> <p><input type="checkbox"/> Unprocessed manure</p> <p><input type="checkbox"/> Nutrients or fertilizers applied to previous crops in this field</p> <p><input type="checkbox"/> Lime and Gypsum/landplaster</p>
--	---

Office Use Lines in Table	TABLE 001	0299
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APPLICATION CODES for COLUMN 6	
1 Broadcast, ground without incorporation	5 In irrigation water
2 Broadcast, ground with incorporation	6 Chisel/Injected or knifed in
3 Broadcast, by aircraft	7 Banded in or over row
4 In seed furrow	8 Foliar or directed spray

L I N E	2 MATERIALS USED [Enter percentage analysis or actual pounds of plant nutrients applied per acre.] [Show Common Nutrients or Fertilizers in Respondent Booklet.]				3 What quantity was applied per acre? [Leave this column blank if actual pounds of nutrients were reported.]	4 [Enter material code.] 1 Pounds 12 Gallons 19 Pounds of actual nutrients	5 When was this applied? 1 In the fall before seeding 2 In the spring before seeding 3 At seeding 4 After seeding	6 How was this applied? [Refer to code list above.]	7 How many acres were treated in this application? ACRES
	N Nitrogen	P ₂ O ₅ Phosphate	K ₂ O Potash	S Sulfur					
	01	31	32	33	34	36	37	38	39
02	31	32	33	34	36	37	38	39	40 _____
03	31	32	33	34	36	37	38	39	40 _____
04	31	32	33	34	36	37	38	39	40 _____
05	31	32	33	34	36	37	38	39	40 _____
06	31	32	33	34	36	37	38	39	40 _____
07	31	32	33	34	36	37	38	39	40 _____
08	31	32	33	34	36	37	38	39	40 _____

4. Were any nutrients or fertilizers applied by custom applicators?

YES - [Continue] NO - [Go to item 5]

a. Are you able to report the cost of nutrient or fertilizer materials and custom application separately?

YES - [Continue] NO - [Go to item 5]

OFFICE USE
0215

b. Excluding the cost of the nutrient or fertilizer materials, how much was spent for custom application of nutrients or fertilizers on this field? (Include operator, landlord, and contractor costs. Include costs for sulfur and micronutrients. Exclude custom application of lime, gypsum, purchased manure and purchased compost.) [If material and application costs can't be separated, exclude them here and record the total in item 5.]

DOLLARS & CENTS PER ACRE OR TOTAL DOLLARS
0219 0220

5. What was the TOTAL COST of all nutrient or fertilizer products applied to this field? (Include operator, landlord, and contractor costs, as well as the costs for sulfur and micronutrients. Include materials applied to this field if it was fallow in 2015. Exclude lime, gypsum, purchased manure and purchased compost.) [If custom applied and the cost of material can be separated from application costs, include the cost of materials ONLY; otherwise, include both the material and application costs.]

DOLLARS & CENTS PER ACRE OR TOTAL DOLLARS
0221 0222

6. Was gypsum applied to this field for the 2020 corn crop?

CODE
0218
YES = 1

7. Was a soil test for Soil Organic Matter performed on this soybeans field at some point in the last 10 years? [If item 7 = 1, ask--]

3225
YES = 1
PERCENT

a. What was the percentage of Soil Organic Matter on the field for the most recent test?

3226
NUMBER

b. How many times have you tested this field for Soil Organic Matter in the last ten years? [If item 7b is more than 1 ask--]

3227
CODE

c. Based on these tests, is your Soil Organic Matter content:

1 Increasing
2 Decreasing
3 Staying roughly the same
3228

7. Was a soil or plant tissue test performed on this corn field in 2019 or 2020 for the 2020 crop?

YES [Continue.]
 NO [Go to item 10.]

8. Was a soil test for phosphorus performed on this corn field in 2019 or 2020 for the 2020 crop?

YES = 1
0225
[If item 8 = 1, ask--]

a. How many pounds of phosphorus (per acre) were recommended (by the phosphorus test)?

POUNDS PER ACRE

9. Was a soil test for nitrogen performed on this corn field in 2019 or 2020 for the 2020 crop?

YES = 1
0227

CODE

[If item 9 = 1, ask--]

**POUNDS
PER ACRE**

a. How many pounds of nitrogen (*per acre*) were recommended (*by the nitrogen test*)?
0228

CODE

10. Was a soil test for Soil Organic Matter performed on this corn field at some point in the last 10 years?

YES = 1
3225

[If item 10 = 1, ask--]

PERCENT

a. What was the percentage of Soil Organic Matter on the field for the most recent test?
3226

NUMBER

b. How many times have you tested this field for Soil Organic Matter in the last ten years?
3227

[If item 10b is more than 1 ask--]

CODE

- c. Based on these tests, is your Soil Organic Matter content: . .
- 4 Increasing
- 5 Decreasing
- 6 Staying roughly the same

. . . .
3228

11. Was a plant tissue test or leaf analysis for nutrient deficiency performed on this field in 2019 or 2020 for the 2020 crop? YES = 1

	DOLLARS & CENTS PER ACRE	OR	TOTAL DOLLARS
12. How much was spent for these soil and plant tissue tests on this field in 2019 or 2020 for the 2020 crop ? [Include landlord and contractor costs].	0230 _____		0231

[If tests were done at no cost continue, otherwise go to Item 12b.]

a. What is the reason why tests were done at no cost?	1 Soil/plant tissue test provided free of charge by dealer, crop consultant, or extension service.	CODE 0232
	2 Soil/plant tissue test costs were included in the total fertilizer costs reported in item 5.		
	3 Some other reason.		

b. Did you receive a payment from the Conservation Stewardship Program for performing a stalk or leaf tissue test for nitrogen application? YES = 1

[ENUMERATOR ACTION: Refer to the Fertilizer Table, column 2. If nitrogen (N) was applied, complete item 13. If NO nitrogen applied, go to item 14.]

13. Was the amount of nitrogen you decided to apply to this field based on---	CODE
a. Results of a soil or plant tissue test? YES = 1	0233
b. Crop consultant recommendation? YES = 1	0234

c. Fertilizer dealer recommendation?	YES = 1	0235
d. Extension Service recommendation?	YES = 1	0236
e. Cost of nitrogen and/or expected commodity price?	YES = 1	0237
f. Contractor recommendation?	YES = 1	0238
g. Routine practice (<i>operator's own determination based on past experience, yield goal, etc.</i>)?	YES = 1	0239

14. Is lime ever applied to this field? YES = 1 CODE
0242

[If no lime applied, go to item 15; else continue.]

a. On average, how many years are there between applications of lime to this field? YEARS
0243

b. How many tons of lime were applied per acre the last time it was applied to this field? TONS PER ACRE
0244

c. Was lime applied to this field in 2019 or 2020 for the 2020 crop? YES = 1 CODE
0240

[If field is rented (Section B, item 2 = 2, 3, 4, or 5), ask---]

d. Considering the last time it was applied, what percent of the total cost of lime and its application was paid by the landlord(s)? PERCENT
0245

15. Was non-commercial manure (from own farm, from a neighbor's farm, etc.) or other organic material (excluding compost) applied to this field for the 2020 corn crop? (Exclude commercially prepared manure.) CODE
0246

YES - [Enter code 1 and continue] NO - [Go to item 17].

a. How many acres in this field was manure applied to? ACRES
0247

b. What was the amount of manure applied to this field? CODE
0248 AND UNITS PER ACRE
0249 OR TOTAL
0250

1 Tons
 2 Gallons
 3 Bushels

c. What is the distance between the manure storage/production location and this field? MILES
0251

d. What was the capacity of the manure spreader (or other vehicle) used to haul manure to this field? CODE
0252 AND TOTAL UNITS
0253

1 Tons
 2 Gallons
 3 Bushel

e. Of the total manure applied to this field for the 2020 crop, what was the percent of manure applied---

(i) in the fall before planting? + PERCENT
0254

(ii) in the spring before planting? + 0255

(iii) after planting? + 0256

100%

f. Was the manure---. CODE
0257

1 Lagoon liquid?
 2 Slurry liquid?
 3 Semi-dry or dr

g. Was the manure---. CODE
0258

1 Broadcast or sprayed without incorporation?
 2 Broadcast or sprayed with incorporation?
 3 Injected/knifed in?
 4 Sprayed using irrigation systems?

h. Was the major source of the manure from---. . . .

- 1 Beef cattle?
- 2 Dairy cattle?
- 3 Hogs?
- 4 Sheep?
- 5 Poultry?
- 6 Equine?
- 7 Biosolids (*municipal sludge*)?
- 8 Food waste?
- 9 Other? [*Specify: _____*]

CODE

0259

i. Was the manure---.

- 1 Produced on this operation?
- 2 Purchased?
- 3 Obtained at no cost off this operation?
- 4 Obtained with compensation? (*Operator received payment for accepting the manure.*)

CODE

0260

[If item 15i = 2, ask---]

(i) What was the total cost of the purchased manure applied to this field? (**Include** operator, landlord, and contractor costs. **Include** any payment made for transportation costs.)

DOLLARS & CENTS
PER ACRE

0284

OR

TOTAL DOLLARS

0285

CODE

0286

(ii) Did you hire someone to custom apply the manure?

YES = 1

[If YES, ask---]

(a) What was the total cost paid to have manure custom applied to this field? [*Do not report custom application cost if it was included with the purchased manure cost.*].

DOLLARS & CENTS
PER ACRE

0287

OR

TOTAL DOLLARS

0288

CODE

0261

YES = 1

j. Of the manure applied to this field, was any tested for nutrient content prior to application?

k. Was the application rate of commercial nitrogen fertilizer on this field reduced due to manure application?

YES = 1

0262

[If YES, ask---]

(i) By what percent did you reduce the commercial nitrogen fertilizer application rate on this field?

PERCENT

0263

CODE

0280

l. Did you adjust the corn harvest date for this field due to the application of manure?

YES = 1

16. Were the manure APPLICATION RATES to this field influenced by Federal, State, or local restrictions? YES = 1 CODE
0264

[If item 16 is YES, ask---]

a. What basis was used to determine these manure application rate restrictions--

(i) Nitrogen requirement of the crop? YES = 1 CODE
0265

(ii) Phosphorus requirement of the crop? YES = 1 0266

17. Was compost applied to this field for the 2020 corn crop?
 YES - [Enter code 1 and continue] NO - [Go to item 18]. CODE
0267

a. How many acres in this field was the compost applied to? ACRES
0268

b. What was the amount of compost applied to this field?

	CODE		UNITS PER ACRE	OR	TOTAL UNITS
1 Tons	0269	AND	0270		0271
2 Cubic Yards					

c. Were the major sources of the compost from---

		[Enter up to 3 source codes]
1 Beef cattle?		FIRST 0281
2 Dairy cattle?		
3 Hogs?		
4 Sheep?		SECOND 0282
5 Poultry?		
6 Equine?		
7 Biosolids (municipal sludge)?		
8 Food waste?		THIRD 0283
9 Crop? [Specify: _____]		
10 Other? [Specify: _____]		

d. Was the compost---

1 Produced on this operation?		CODE 0272
2 Purchased?		
3 Obtained at no cost off this operation?		
4 Obtained with compensation? (Operator received payment for accepting the compost)		

[If item 17d = 2, ask---]

(i) What was the total cost of the purchased compost applied to This field? (**Include** operator, landlord, and contractor costs and any payment made for transportation costs)

	DOLLARS & CENTS PER ACRE	OR	TOTAL DOLLARS
	0273		0274

(ii) Did you hire someone to custom apply the compost? YES = 1 CODE
0275

[If YES, ask---]

(a) What was the total cost paid to have compost custom applied to this field? (**Include** operator, landlord, and contractor costs.) [Do not report custom application cost if it was included with the compost cost].

	DOLLARS & CENTS PER ACRE	OR	TOTAL DOLLARS
	0276		0277

[If item 17d = 1, ask--]

(iii) What is the distance between the compost storage/production location and this field?

	MILES
	0291

18. Compared to the last time you planted corn, did you make any of the following changes to your cropping practices with the intent of reducing commercial fertilizer use?

CODE

a. Change the type of commercial fertilizer products applied on this field [e.g. less anhydrous ammonia and more urea].	YES=1	1226
b. Manage fertilizer use more closely, with such practices as soil testing, split applications, variable rate applications, or soil incorporation on this field?	YES=1	1228
c. Change your crop rotation [e.g. plant corn on this field rather than usual crop rotation]?.	YES=1	1227
d. Reduce the application of commercial nitrogen fertilizer?	YES=1	1224

[If YES, ask--]

PERCENT

(i) By what percent did you reduce the amount of commercial nitrogen fertilizer applied for 2020?	1225
---	------

NOTES

D BIOCONTROL or PESTICIDE APPLICATIONS---SELECTED FIELD

D

Now I have some questions about all the biocontrols or pesticides used on this field for the 2020 corn crop, including both custom applications and applications made by this operation.

1. Were any herbicides, insecticides, fungicides or other biocontrols or pesticides used on this corn field for the 2020 crop?

YES = 1

CODE	EDIT TABLE
0302	0300

[Probe for applications in the fall of 2015 (and those made earlier if this field was fallow).]

If no biocontrols or pesticides applied, go to Section E.

<p>Include defoliants, fungicides, herbicides, insecticides, and other pesticides.</p> <p>Include biological and botanical pesticides.</p>	<p>Exclude nutrients or fertilizers reported earlier and seed treatments.</p>
--	--

OFFICE USE LINES IN TABLE	TABLE 001	0399
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CHEMICAL PRODUCT NAME	LINE	2	3	4	5	6	OR	7	8
		What products were applied to this field? <small>[Show product codes from Respondent Booklet.]</small>	Was this product bought in liquid or dry form? <small>[Enter L or D]</small>	Was this part of a tank mix? <small>[If tank mix, enter line number of first product in mix.]</small>	When was this applied? 1 BEFORE planting 3 AT planting 4 AFTER Planting	How much was applied per acre per application?	What was the total amount applied per application in this field?	<small>[Enter unit code.]</small> 1 Pounds 12 Gallons 13 Quarts 14 Pints 15 Liquid Ounces 28 Dry Ounces 30 Grams	
	01	61		63	64	65		73	74
	02	61		63	64	65		73	74
	03	61		63	64	65		73	74
	04	61		63	64	65		73	74
	05	61		63	64	65		73	74
	06	61		63	64	65		73	74
	07	61		63	64	65		73	74
	08	61		63	64	65		73	74
	09	61		63	64	65		73	74
	10	61		63	64	65		73	74
	11	61		63	64	65		73	74
	12	61		63	64	65		73	74
	13	61		63	64	65		73	74
	14	61		63	64	65		73	74

2. [For biocontrols or pesticides not listed in Respondent Booklet, specify---]

LINE	Pesticide Type <small>(Herbicide, Insecticide Fungicide, etc.)</small>	EPA No. or Trade name and Formulation	Form Purchased <small>(Liquid or Dry)</small>	Where Purchased <small>[Ask ONLY if EPA No. cannot be reported.]</small>

3. Were any chemicals, biocontrols, or pesticides applied by custom applicators?

- YES – [Continue] NO – [Go to item 4]

OFFICE USE

a. Are you able to report the cost of chemical, biocontrol, and pesticide products and custom application separately?

0324

- YES – [Continue] NO – [Go to item 4]

b. Excluding the cost of the chemical, biocontrol, and pesticide products, how much was spent for custom application of such materials on this field? (*Include operator, landlord, and contractor costs.*)

DOLLARS & CENTS PER ACRE	OR	TOTAL DOLLARS
0331 . ____ ____		0332

4. What was the TOTAL COST of all chemical, biocontrol, or pesticide products applied to this field? (*Include operator, landlord, and contractor costs, defoliants, herbicides, insecticides, fungicides, surfactants, wetting agents, growth regulators, and materials applied before planting and during 2015 fallow period. Exclude seed treatments.*)

DOLLARS & CENTS PER ACRE	OR	TOTAL DOLLARS
0334 . ____ ____		0335

a. How much was spent for herbicide products applied to this field? (*Include operator, landlord, and contractor costs.*)

DOLLARS & CENTS PER ACRE	OR	TOTAL DOLLARS
3034 . ____ ____		3035

b. How much was spent for insecticide products applied to this field? (*Include operator, landlord, and contractor costs.*)

DOLLARS & CENTS PER ACRE	OR	TOTAL DOLLARS
3036 . ____ ____		3037

NOTE 1: If respondent cannot report TOTAL COST, itemize cost for each product in optional columns in Biocontrol or Pesticide Table.

NOTE 2: If custom applied and the costs for materials can be separated from application costs, include the cost for materials only.
Otherwise, report both the material and application costs in item 4.

E PEST MANAGEMENT PRACTICES---SELECTED FIELD E

Now I have some questions about your pest management decisions and practices used on this field for the 2020 corn crop. By pests, we mean WEEDS, INSECTS, and DISEASES.

[ENUMERATOR ACTION: Were PESTICIDE applications reported in Section D?]

- YES – [Continue]
- NO – [Go to item 6]

- | | | CODE |
|---|---------|------|
| 1. Was weather data used to assist in determining either the need or when to make pesticide applications? | YES = 1 | 0800 |
| 2. Were any biological pesticides such as Bt (<i>Bacillus thuringiensis</i>), insect growth regulators, neem or other natural/biological based products sprayed or applied to manage pests in this field? | YES = 1 | 0801 |
| 3. Were pesticides with different mechanisms of action rotated or tank mixed for the primary purpose of keeping pests from becoming resistant to pesticides? | YES = 1 | 0802 |

[ENUMERATOR ACTION: Were HERBICIDE (pesticide product codes 40000-49999) applications reported in Section D, item 1, column 2?]

- YES – [Continue]
- NO – [Go to item 6]

- | | | |
|---|---------|------|
| 4. Were herbicides applied to this corn field BEFORE weeds emerged? | YES = 1 | 0803 |
| 5. Were herbicides applied to this corn field AFTER weeds emerged? | YES = 1 | 0805 |

6. In 2020, how was this field primarily scouted for insects, weeds, diseases, and/or beneficial organisms?

1 By deliberately going to the field specifically for scouting activities [Enter code 1 and go to item 7.]

2 By conducting general observations while performing routine tasks [Enter code 2 and go to item 9.]

3 This field was not scouted. [Enter code 3 and go to item 15.]

CODE

0808

7. Was an established scouting process (systematic sampling, recording counts, etc.) used or were insect traps used in this field?	YES = 1	0809
--	---------	------

- | | | CODE |
|--|---------|------|
| 8. Was scouting for pests done in this field due to--- | | |
| a. a pest advisory warning? | YES = 1 | 0810 |
| b. a pest development model? | YES = 1 | 0811 |

		CODE
9. Were records kept for this field to track the activity or numbers of weeds, insects or diseases?	YES = 1	0823

10. Did you use published information on infestation thresholds to determine when to take measures to manage pests in this field?	YES = 1	0824
---	---------	------

11. Do you believe that rootworms damaged corn grown on this field?

YES = 1

[If Item 11 is YES, Continue. Else go to Item 12.]

a. If you believe that rootworm damage lead to lodging, approximately how many stalks were lodged?

COUNT

b. If you believe that rootworm damage stunted plant growth, approximately how many stalks were affected?

- | | |
|---|--|
| 1 | One node eaten back to 1.5 inches of the stalk |
| 2 | Two complete nodes eaten |
| 3 | Three or more nodes eaten |

CODE

1 12. Was this corn field scouted for--	YES = 1	2 [If YES, ask---] What was the infestation level for [column 1]?— 1 Worse than normal 2 Normal 3 Less than normal	3 [If column 1 = YES, ask---] Who did the majority of the scouting for [column 1]? 1 Operator, partner or family member 2 An employee 3 Farm supply or chemical dealer 4 Independent crop consultant or commercial scout
		CODE	CODE
a. Weeds?	0812	0813	0814
b. Insects or mites?	0815	0816	0817
(i) Corn borer	1731	1732	1733
(ii) Corn rootworm	1734	1735	1736
c. Other insects	1708	1738	1712
d. Diseases?	0818	0819	0820

[If scouted by crop consultant or commercial scout, ask item 13; else go to item 14.]

13. How much was charged for the scouting services for this field?

[Include operator, landlord and contractor cost].

DOLLARS & CENTS PER ACRE

.

OR TOTAL DOLLARS

OFFICE USE

a. [If scouting performed at no cost, explain: _____]

14. Did you use field mapping of previous weed problems to assist you in making weed management decisions?

YES = 1

15. **Did you do any of the following other type(s) of pest management practices for the specific purpose of managing or reducing the spread of pests in this field?**

[Enter code "1" for all that apply.]

CODE

- a. Use the services of a diagnostic laboratory for pest identification or soil plant tissue pest analysis for this field? YES = 1
- b. Plow down crop residue (*using conventional tillage*)? YES = 1
- c. Remove/burn down crop residue? YES = 1
- d. Rotate crops in this field during the past three years? YES = 1
- e. Maintain ground covers, mulches, or other physical barriers? YES = 1
- f. Choose crop variety because of specific resistance to a certain pest? YES = 1
- g. Use no-till or minimum till? YES = 1
- h. Plan planting locations to avoid cross infestation of pests? YES = 1
- i. Adjust planting or harvesting dates? YES = 1
- j. Chop, spray, mow, plow, or burn field edges, lanes, ditches, roadways, or fence lines? YES = 1
- k. Clean equipment and field implements after completing field work to reduce the spread of pests? YES = 1
- l. Adjust row spacing, plant density or row directions? YES = 1
- m. Have the seed treated for insect or disease control after you purchased the seed for this field? YES = 1
- n. Maintain a beneficial insect or vertebrate habitat? YES = 1
- o. Use a flamer to kill weeds? YES = 1
- p. Maintain buffer strips or border rows to isolate corn from non-organic crops or land, or did you take a buffer harvest? YES = 1
- q. Plant earlier or later to avoid weeds? YES = 1

0841
0842
0843
0844
0845
0846
0847
0848
0849
0850
0851
0852
0854
0855
0857
0856
0865

16. **Were any beneficial organisms (insects, nematodes, fungi) applied or released in this field to manage pests?**

0853

17. **Were floral lures, attractants, repellants, pheromone traps or other biological pest controls used on this field?**

0858

[If item 16 or item 17 is YES, ask--]

a. **What were the TOTAL materials and application costs for all biological pest controls for this field?**

Include operator, landlord, and contractor costs. Include cost for beneficial organisms (insects, nematodes, and fungi). Exclude biological pesticides previously reported.

DOLLARS & CENTS PER ACRE	OR	TOTAL DOLLARS
0859		0860

CODE

18. **Was a trap crop (excluding fallow) grown to help manage insects in this field?** YES = 1

0863

CODE

19. **Was this field left in fallow in 2015 to help manage insects on this field?** YES = 1

0864

20. Were water management practices such as irrigation scheduling, controlled drainage, or treatment of retention water used on this field to manage pests or toxin-producing fungi and bacteria? YES = 1 0861

21. Was protection of beneficial organisms a factor in your pest control decisions for this field? YES = 1 1765

[If Item 21 is YES, continue. Else go to Item 22.]

a. Did you change timing of, reduce application rate of, or eliminate a pesticide application? YES = 1 1766

b. Did you change to an alternative pesticide, biocontrol, or non-pesticide practice? YES = 1 1767

22. Did you cultivate this field for weed control? YES = 1 2453

[If YES, ask--]

a. How many times? 2454

24. Did you use a soil-insecticide or insecticidal seed treatment in the refuge in 2020? YES = 1 1765

UNIT CODES

- 1 POUNDS
- 2 CWT
- 3 TONS
- 4 BUSHELS

UNITS PER ACRE

25. If untreated (either with insecticide or Bt seed), how much yield loss (e.g. bushels per acre) do you think the CORN BORERS would most likely cause on this field? 2670 2671

26. If untreated (either with insecticides or Bt seed), how much yield loss (e.g. bushels per acre) do you think the CORN ROOTWORMS would most likely cause on this field? 2672 2673

27. If untreated (either with herbicides, tillage, or cultivation), how much yield loss (e.g. bushels per acre) do you think weeds would most likely cause on this field?

		CODE
28. Did pests (weeds, insects, pathogens, animals) cause any yield loss on this field in spite of your pest control efforts? [If YES, ask--]	YES = 1	0827

a. How much yield loss do you think was caused by all pests on this field in spite of the management practices you used to reduce those losses?

BUSHELS TONS	CODE	828	AND	UNITS PER ACRE	829	OR	TOTAL UNITS	830
-----------------	-------	------	-----	-----	-------------------	-----	----	-------------	-----

29. If you used genetically engineered, glyphosate resistant seeds on this field in 2020, indicate the number of consecutive years you have planted genetically engineered, glyphosate-resistant seeds. [Note: A producer who used HT corn in 2020 and 2015, but conventional corn in 2014, has used genetically engineered, glyphosate resistant seeds for "2" consecutive years.] NUMBER OF YEARS
1970

a. What year did you first plant any glyphosate resistant seeds on this field? YEAR
1971

CODE

30. **Have you noticed a decline in the effectiveness of glyphosate (e.g. Roundup) in controlling weeds in this field?** **YES = 1** 0834

[If item 27= YES, continue. If item 27 = NO, go to item 30.]

a. What was the first year you noticed a decline in effectiveness of glyphosate in controlling weeds on this field? YEAR
0835

31. **After noticing the decline in the effectiveness of glyphosate in controlling weeds on this field, did you--**

a. stop planting glyphosate resistant crops? **YES = 1** CODE
0837

b. change tillage practices? **YES = 1** 0839

32. Have any of the following herbicides been used since 2016?

	2020 Yes=1	2019 Yes=1	2018 Yes=1	2017 Yes=1	2016 Yes=1
Glyphosate					
Glufosinate					
Dicamba					
2, 4-D					

		CODE
33. Have Herbicide Tolerant seeds been planted on this field any time since 2016?	YES = 1	0834
[If item 33= YES, continue. If item 33 = NO, go to item 36.]		

	Have you noticed a decline in the effectiveness of this herbicide in controlling weeds in this field? Yes=1	What was the first year you noticed a decline in the effectiveness of herbicides in controlling weeds in this field?	After noticing the decline in the effectiveness of the herbicide in controlling weeds on this field, did you--		
			Stop planting herbicide resistant crops with this trait? Yes=1	Change tillage practices? Yes=1	Switch to an alternative herbicide? Yes=1
Glyphosate					
Glufosinate					
Dicamba					
2, 4-D					
Sulfonylurea (STS) (soybean)					

34. Considering each year you planted a glyphosate resistant crop on this field, have you ever used the following practices in order to reduce the rate that glyphosate resistance develops in weeds on this field?

1 RESISTANCE MANAGEMENT PRACTICE	2 YES = 1	3 How often did you use this practice on this field? 1 Every Year 2 Every Other Year 3 Multiple Years 4 One Year CODE	4 Did the cost of managing weeds on this field increase as a result of your use of the practice? 1 Yes 2 No 3 Don't Know CODE
a. Control weeds early	0886	2871	0878
b. Control weed escapes	0887	2872	0879
c. Clean equipment between moving from one field to the next	0888	2873	0880
d. Use herbicides other than glyphosate	0889	2874	0881
e. Use tillage	0890	2875	0882
f. Use the herbicide label recommended application rate	0891	2876	0883
g. Rotate crops	0892	2877	0884

[If item 30 column 2 contains at least one "1", ask: otherwise go to item 32.]

35. Considering the above practices (i.e. a-g) do you believe resistance management practices are or would be more effective in reducing the rate that herbicide resistance develops in weeds on this field if operators of nearby farms also use them?

- 1 - Yes
- 2 - No
- 3 - Don't Know
- 4 - The nearest farm is too far away to affect this field

CODE

0088

36. Did you plant genetically-engineered rootworm-resistant seed on this field in 2020? . YES = 1

2926

YEARS

a. How many consecutive years have you used rootworm resistant seeds on this field? . . .

2927

[If Item 32a is greater than 1, continue. Otherwise go to Section F.]

b. Have you ever switched from a rootworm resistant seed with one mode of action (MOA) to a pyramided rootworm resistant seed? Note: Pyramided seeds have multiple MOAs. YES = 1

2928

[If Item 32b is YES, ask--]

c. What year did you switch from a rootworm resistant seed with one MOA to a pyramided rootworm resistant seed?

YEAR

2929

Completion Code for Pest Management Data	
1 Incomplete/Refusal	0500

1. Including custom operations, I need to list field work performed by machines on this field for the 2020 corn crop. Please...

- ▶ begin with the first field operation after harvest of previous crop, including operations for a cover crop established since the previous crop harvested [if fallow during 2019, list operations starting with fall 2018];
- ▶ list the operations in order through harvest and hauling of this crop to storage or first point of sale; and
- ▶ maintain the order of tandem hook-ups.

CODES FOR COLUMN 5	
1	You (the Operator)
2	Partner
3	Unpaid Worker
4	Paid Part-time or Seasonal Worker
5	Paid Full-time Worker
6	Custom Applicator

OFFICE USE
LINES IN TABLE
0499

CHECK LIST	
Include all field work using machines for---	
<input type="checkbox"/>	Land Forming/Levee Building
<input type="checkbox"/>	Tillage
<input type="checkbox"/>	Preparing for Irrigation
<input type="checkbox"/>	Planting
<input type="checkbox"/>	Fertilizer & Pesticide applications
<input type="checkbox"/>	Harvesting & Hauling to storage or first point of sale
Exclude	
<input type="checkbox"/>	Lime & Gypsum/landplaster applications
<input type="checkbox"/>	Compost & Non-Commercial Manure applications

LINE No.	SEQUENCE No.	3 What operation or equipment was used?	4 [Record machine code from Respondent Booklet.] CODE	5 Who was the machine operator- [Enter code from above.] CODE	[IF CUSTOM (column 5 = code 6), skip columns 6-11]					
					6 What was the size or swath of the [machine] used? CODE	7 [Record size unit code.] 1 Feet 2 Row 3 Moldboard (bottoms) Hauling 4 Pounds 5 Bushels 6 Tons CODE	8 How many acres were covered? [Exclude land forming and hauling operations] ACRES	OR 9 How many TOTAL HOURS were spent on land forming, or hauling? [Example: backhoes, disk border maker, ditcher, rear mounted blade, trucks, wagons, forklifts, etc.] HOURS	10 Which Power Source was used? ^{1/} Tractors: 1= (<40 HP) 2= (40-99 HP) 3= (100-149 HP) 4= (150-199 HP) 5= (>=200 HP) Other: 66=Animal Drawn 77=Pick-up 99=Self Propelled 1/ CODE	11 What was the fuel type of the tractor? [Record fuel type only if Power code equals 1-5] 1=diesel 2=gasoline 3=LP gas 4=other CODE
01	87		88	89	90	91	92	93	94	95
02	87		88	89	90	91	92	93	94	95
03	87		88	89	90	91	92	93	94	95
04	87		88	89	90	91	92	93	94	95
05	87		88	89	90	91	92	93	94	95
06	87		88	89	90	91	92	93	94	95
07	87		88	89	90	91	92	93	94	95
08	87		88	89	90	91	92	93	94	95
09	87		88	89	90	91	92	93	94	95
10	87		88	89	90	91	92	93	94	95
11	87		88	89	90	91	92	93	94	95
12	87		88	89	90	91	92	93	94	95
13	87		88	89	90	91	92	93	94	95
14	87		88	89	90	91	92	93	94	95
15	87		88	89	90	91	92	93	94	95
16	87		88	89	90	91	92	93	94	95
17	87		88	89	90	91	92	93	94	95
18	87		88	89	90	91	92	93	94	95

^{1/} If trucks other than pick-ups are used as the power source, use truck codes in Respondent Booklet.

OFFICE USE
0400

2. **Now I need some additional information about your labor.**

Please report the paid and unpaid labor that worked on this field to produce the 2020 corn crop.
 (**Exclude** labor that was reported for field work performed by machines.)

TYPE OF WORKERS	How many hours did (type of worker) spend on this field---		
	1	2	3
	scouting for weeds, insects and diseases? HOURS	irrigating? HOURS	performing other work by hand? HOURS
You (the operator)	1101	1102	1103
Partner(s)	1104	1105	1106
Unpaid workers	1107	1108	1109
Paid part-time or seasonal workers (Exclude custom and contract labor)	1110	1111	1112
Paid full-time workers (Exclude custom and contract labor)	1113	1114	1115

3. **What was the average hourly wage rate paid to part-time or seasonal hired workers?**
 (**Exclude** custom and contract workers, payroll taxes and benefits.)

DOLLARS & CENTS PER HOUR

1119
. ____

4. **What was the average hourly wage rate paid to full-time hired workers?**
 (**Exclude** custom and contract workers, payroll taxes and benefits.)

DOLLARS & CENTS PER HOUR

1118
. ____

5. **Was any contract labor used on this field?** YES = 1

CODE

1116

[If YES, ask ---

a. **What was the average cost per acre for this contract labor?**
 (**Include** operator, landlord, and contractor costs.)

DOLLARS & CENTS PER ACRE

1117
. ____

6. **What percent of the total number of unpaid hours worked on this field was performed by workers under 16 years of age?** (*Estimates of labor costs for unpaid workers are based on off-farm wage rates, which are different for workers under 16 relative to those 16 and older.*)

PERCENT

1120

7. Now I need some information on how much was spent (or will be spent) for custom services used on this field for the 2020 corn crop.

1 CUSTOM SERVICE Which of the following services were performed for the 2020 corn crop on this field?	2 Including operator, landlord, and contractor costs, how much was spent for [column 1] on this field for the 2020 corn crop? DOLLARS & CENTS PER ACRE
✓ ← [Check box for each service performed; refer to item 1 if necessary.]	
a. Custom land preparation, shaping and/or leveling? _____ x _____ = _____ ÷ _____ = _____ (Cost per hour X Total hours = Total dollars ÷ Total acres in the field = Dollars & cents per acre) . . .	1121 _____
<input type="checkbox"/> b. Custom cultivating?	1122 _____
<input type="checkbox"/> c. Custom planting and/or reseeding?	1123 _____
<input type="checkbox"/> d. Custom harvesting?	1124 _____
e. Custom hauling from field to storage or point of first sale? _____ x _____ ÷ _____ = _____ (Dollars & cents per unit x Total units hauled from field ÷ Acres harvested in field = Dollars & cents per acre) .	1126 _____
f. Custom harvesting and hauling from field to storage or point of first sale? _____ x _____ ÷ _____ = _____ (Dollars & cents per unit x Total units hauled from field ÷ Acres harvested in field = Dollars & cents per acre) .	1127 _____

CODE

8. Was the corn harvested and hauled from this field dried (or will be dried) before it was sold or stored?
YES=1

9. Did you hire any technical or consultant services to make recommendations (such as for nutrient, pest control, irrigation, or precision farming) for this field?

YES – [Continue] NO – [Go to item 10]

Which of the following services did you obtain?

	CODE
a. Nutrient recommendations/management service? YES = 1	1129
b. Soil or tissue sample collection? YES = 1	1130
c. Pest control recommendations/management service? YES = 1	1131
d. Pest scouting? YES = 1	1132
e. Irrigation management service (i.e. irrigation scheduling)? YES = 1	1133
f. Yield map or remote sensing map development/interpretation? YES = 1	1134
g. Other custom or technical service? [Specify: _____] YES = 1	1135

10. If YES to any of these services, what was the cost for all of these services? (Include operator, landlord, and contractor costs. Exclude cost of soil/tissue tests or scouting cost reported earlier. Do not report costs for any of these services if they were previously reported as part of the costs of materials and/or application.)

DOLLARS & CENTS PER ACRE	OR	TOTAL DOLLARS
1136 _____		1137 _____

CODE

11. Were there (or will there be) any data collection tools (yield monitors, GPS mapping, etc.) used during field operations on this corn field?

YES = 1

2460

[If YES, continue; else go to Item 12]

Please report the data collection technologies you used on this field to produce this crop. Also indicate if the data is collected with Global Positioning System (GPS) coordinates and if the data will be used to create a map. (In the fifth column, report how much it would cost you to replace the data collection tool. In the sixth column, report the annual costs of using the data collection tool. Include custom service fees, data subscriptions, and online tool subscriptions. If the replacement cost or annual fee does not apply to a particular data collection tool, leave that row blank.)

1 Data Collection Tool	2 Tool Used YES = 1	3 Collected with GPS YES = 1	4 Data was/will be used to create a map Yes = 1	5 Replacement Cost Total dollars	6 Annual Fee total dollars
a. Yield monitor.	2461	2462	2463		
b. Soil tests on core sample (performed on-farm or sent out to a laboratory).	2464	2465	2466		
c. Soil sensor tests.	2467	2468	2469		
d. Hard-wired crop condition sensors.	2470	2471	2472		
e. Wireless crop condition sensors.	2473	2474	2475		
f. Drones, aircraft or satellites.	2476	2477	2478		
g. Custom service applications (data from completed work on your field).	2479	2480	2481		
h. Public data downloaded from online sources. . .	2482	2483	2484		

12. Please report how your farm data will be stored and accessed. [Enter code "1" for all that apply.]

a. Did you access the data collected from this field on a--

CODE

(i) Paper hard copy?

YES = 1

2485

(ii) Personal computer?

YES = 1

2486

(iii) Mobile device?

YES = 1

2487

b. Did you access the data collected from this field through an agricultural technology provider website?

YES = 1

2488

[If item 12b = 1 continue, otherwise go to item 13]

c. Did you opt-out of allowing your agricultural technology provider website to share data collected from this field with any third

YES = 1

2489

d. Did you share any of the data collected from this field with a third party through an agricultural technology provider website?

YES = 1

2490

13. **Did you obtain crop management recommendations** (data interpretation) **based on that data you collected from--**
 [Enter code "1" for all that apply.]

a. Input dealers?	YES = 1	2491
b. Integrated input providers?	YES = 1	2492
c. Custom service providers?	YES = 1	2493
d. USDA/University extension services?	YES = 1	2494

[If crop management recommendations were obtained, ask--]	DOLLARS & CENTS PER ACRE	OR	TOTAL DOLLARS
e. What was the cost for all of these services? (Include operator, landlord, and contractor costs. Do not report costs for any of these services if they were previously reported as part of the costs of materials and/or application).	3150		3151

14. **Did you use the yield monitor information to---** [Enter code "1" for all that apply.]

(i) monitor crop moisture content to determine need for crop drying?	YES = 1	1140
(ii) add/improve tile drainage?	YES = 1	1141
(iii) negotiate new crop leases?	YES = 1	1144
(iv) Help determine input use for management zones?	YES = 1	
(v) other uses [specify:] _____	YES = 1	1147

15. **Was any of the following GPS-enabled** (Global Positioning System) **equipment used to produce crops on this field?** [Enter code "1" for all that apply.]

		CODE
a. Light Bar?	YES = 1	2148
b. "Smart" technologies like Google Glass or other heads-up cab control displays?	YES = 1	2149
c. Other GPS-enabled equipment?	YES = 1	1158
d. Any farming-specific apps for phones and tablets?	YES = 1	1152

[If GPS-enabled, ask--]	DOLLARS & CENTS PER ACRE	OR	TOTAL DOLLARS
e. What was the cost to purchase and install all GPS-enabled equipment? (Include cost for GPS receiver and annual GPS subscription fee, and operator, landlord, and contractor costs. Do not report costs for any of this equipment if they were previously reported as part of the costs of materials and/or application.)			

16. Was guidance auto-steering (excluding Light Bar) used on this field? YES = 1

[If 16=1, ask--]

1	New
2	Used
3	Leased

a. Was the guidance auto-steering equipment:

b. Was the guidance auto-steering equipment: YES = 1

b. What year was guidance auto-steering first purchased?

c. What is the replacement cost for guidance auto-steering equipment? . . .

DOLLARS & CENTS PER ACRE	OR	TOTAL DOLLARS
. ____		

d. What is the annual fee for guidance auto-steering?

DOLLARS & CENTS PER ACRE	OR	TOTAL DOLLARS
. ____		

17. Was a variable rate applicator used on this field? YES = 1

[If YES, continue; else go to Section G]

Please report the variable rate applicator types you used on this field to produce this crop. If a particular row's variable rate applicator was not used, leave that row blank.

	1	2	3	4	5
Was a variable rate applicator used on this field for:		Was this applicator 1 Sensor-based 2 GPS-based 3 Both 4 Neither	Was this applicator 1 New 2 Used 3 Leased	What year was the applicator first used? Year	Premium paid for the applicator total dollars
a. Seeding					
b. Fertilizer/lime applications					
c. Pesticide applications					

ACRES

1. How many acres in this field were irrigated for the 2020 corn crop?

[If none, go to **Conclusion**].

1160	. ____
------	--------

2. Now, I have some questions about irrigation systems and water used on this field for the 2020 corn crop.

		UNIT	SYSTEM 1	SYSTEM 2
↓				
a. What type(s) of irrigation system(s) was (or were) used to irrigate this field? [Show System Type Codes in the Respondent Booklet. Enter System Type Code for up to two systems covering the most field acres].		SYSTEM TYPE CODE	1161	1175
b. What was the total quantity of water applied to this field during the entire growing season? (Include ALL water used from both on-farm and off-farm sources.)		INCHES PER ACRE	1162	1176
		OR TOTAL ACRE-FEET	1163	1177
[If operator cannot provide item 2b, ask (i) & (ii), else go to 2c]				
(i) What is the total number of hours this system was used to apply water to this field during the corn growing season?.		TOTAL HOURS	1164	1178
(ii) How many gallons per minute were applied?.		GALLONS PER MINUTE	1165	1179
c. What percent of the water used to irrigate this field through this system came from surface water sources?.		PERCENT	1166	1180
d. What was the number of times this field was irrigated during the corn growing season using this system? (Include any pre-plant irrigation.)		NUMBER OF IRRIGATIONS	1167	1181
e. Was the pump type--- [If more than one pump in the system, enter type for pump closest to water source.]	1 TURBINE? 2 SUBMERSIBLE? 3 CENTRIFUGAL? 4 BOOSTER? 5 SIPHON? 99 NO PUMP? [If code 99, go to item j.]	CODE	1168	1182
f. What was the average pumping rate?.		GALLONS PER MINUTE	1169	1183
g. [If item 2a = code 1-9 (PRESSURE SYSTEM), ask---] What was the system operating pressure?.		POUNDS PER SQUARE INCH	1170	1184
h. What was the primary motor type used to pump the water?	1 DIESEL 2 GASOLINE 3 LP GAS 4 NATURAL GAS 5 ELECTRICITY 6 SOLAR POWER	CODE	1171	1185
i. What was the average motor size?.		HORSEPOWER	1172	1186
j. [If NO PUMP was used (item 2e = 99), ask---] What was the average flow rate?.		GALLONS PER MINUTE	1173	1187
k. How many other acres on this operation were irrigated using this field's irrigation system during the 2020 growing season? (Exclude this field.)		ACRES	1174	1188

DOLLARS & CENTS
PER ACRE OR TOTAL DOLLARS

3. What was the cost of the fuel or electricity used to irrigate this field?

(**Include operator, landlord, and contractor costs.**)

1189	. ____
------	--------

1190	. ____
------	--------

4. **Was any water purchased to irrigate this field?** (*Include landlord's share and purchases from all sources.*) CODE

YES – [Enter code 1 and continue.] NO – [Go to item 5].

1191

a. What was the total cost for the water purchased for this field during the 2020 growing season? (*Include operator, landlord, and contractor costs and ditch maintenance costs for this field.*)

DOLLARS & CENTS PER ACRE OR TOTAL DOLLARS

1193 1194

[If SIPHON TUBES were used (item 2a = 10 or 11), ask---]

5. **What would be the total cost to replace all the siphon tubes used on this field?**

TOTAL DOLLARS

1201

[If POLY PIPE system was used (item 2a = 14) ask---]

6. **What was the total amount spent for poly pipe used on this field during the 2020 growing season?** (*Include operator, landlord, and contractor costs.*)

TOTAL DOLLARS

1202

[If GATED PIPE system was used (item 2a = 15 or 16), ask---]

7. **What was the average diameter of gated pipe used to irrigate this field?**

INCHES

1203

FEET

a. What was the total length of gated pipe used?

1204

8. **Were wells used to supply irrigation water for this field?**

YES – [Enter code 1 and continue] NO – [Go to item 9].

CODE

1205

a. How many wells were used to irrigate this field?

NUMBER

1206

b. What was the average diameter of the outer well casing?

INCHES

1207

c. What was the average pumping depth of these wells during the irrigation season? [*Pumping depth is the depth to water at the start of the irrigation season, plus an average decline in the water level caused by pumping during the irrigation season.*]

FEET

1208

d. Were other fields irrigated using water pumped from wells that supplied water to the selected field?

YES – [Enter code 1 and continue] NO – [Go to item 9].

CODE

1210

e. Excluding this field, how many other acres on this operation were irrigated using the same wells during the 2020 growing season?

ACRES

1211

9. **Was any additional mainline or lateral pipe used to carry water from the source to the system in this field?** (*Include underground pipe. Exclude any system pipe within the selected field.*)

YES – [Continue] NO – [Go to Conclusion]

a. What was the average diameter (*in inches*) of the most common type of this additional pipe used?

INCHES

1212

b. How many feet of this additional pipe were used to bring water to this field?

FEET

1213

CONCLUSION

LOCATION OF SELECTED FIELD

1. I need to locate the selected field of corn on this map.

2. What county is the selected corn field in?

COUNTY NAME	OFFICE USE COUNTY FIPS CODE
	0010

Field description.

FOR STATES WITH GPS UNITS ONLY

Field location. N

LATITUDE	LONGITUDE
0054 d d . m m s s	W 0055 d d d . m m s s

3. [ENUMERATOR ACTION: *Mark map to indicate where the selected corn field is located. Be sure the "X" marked on map is in the county identified above.*]

4. We will need additional information to complete this study. We will contact you in February or March 2017 to collect it. I'll call you then to set up a time that is good for you.

5. To receive the complete results of this survey on the release date, go to www.nass.usda.gov/results/. Would you rather have a brief summary mailed to you at a later date?

YES = 1	CODE 9990
	HH MM 0005

6. ENDING TIME [MILITARY].

RECORDS USE

7. [Did respondent use farm/ranch records to report---]

a. [fertilizer data?]. YES = 1

b. [pesticide data?]. YES = 1

c. [majority of this expense data?]. YES = 1

CODE
0011
0012
0013

SUPPLEMENTS USED

8. [Record the total number of each type of supplement used to complete this interview].

FERTILIZER APPLICATIONS	NUMBER 0041
PESTICIDE APPLICATIONS	0042
FIELD OPERATIONS	0043

Reported by: _____	9910 M M D D 16	9911 Telephone: ()
--------------------	---	---------------------------

OFFICE USE									
R. Unit	Ptr 1 Str	Ptr 2 Str	Ptr 3 Str	Ptr 4 Str	OPS	SSO 1	ADJ	Optional Use	
9921	9922	9923	9927	9928	923	9907	922	9906	9916
Response		Respondent		Mode		Enum.		POID	
1-Comp	9901	1-Op/Mgr	9902	2-Tel	9903	9998	9989		
2-R		2-Sp		3-Face-to-Face					
3-Inac		3-Acct/Bkpr							
4-Office Hold		4-Partner							
		9-Other							
								Eval.	Change
								9900	9985