2024
CEAP, ARMS 2, and VCUS Workshop Booklet

Minnesota
(Supervisor Version)

October 29 – 30, 2024

USDA – NASS

Upper Midwest Regional Field Office

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Agenda

October 29:

08:00 - 09:50 **Morning Session – Part 1:**
- Welcome / Introductions
- CEAP Purpose & Data Uses
- CEAP Face Page
- CEAP Sections A – E

09:50 - 10:05 **Break**

10:05 - 11:40 **Morning Session – Part 2:**
- CEAP Sections F – I

11:40 - 12:40 **Lunch**

12:40 - 02:05 **Afternoon Session – Part 1:**
- CEAP Conclusion
- Administrative Items & Dates
- UMR Management
- State Stat Remarks
- Home Study Quiz (Kahoot!)

02:05 - 02:20 **Break**

02:20 - 04:50 **Afternoon Session – Part 2:**
- Supervisor Groups Breakout Session
- Assignment Handout

04:50 - 05:00 **Wrap Up**

October 30:

08:00 - 09:35 **Morning Session – Part 1:**
- Review Questions & Preview Day
- Veg Chem Overview & Purpose
- Veg Chem Questionnaire Differences & Special Situations
- ARMS 2 Overview & Purpose
- ARMS 2 Questionnaire Differences & Special Situations

09:35 - 09:50 **Break**

09:50 - 11:20 **Morning Session – Part 2:**
- Supervisor Groups Breakout Session

11:20 - 11:45 **Morning Session – Part 3:**
- Questions & Answers
- Evaluations
- Wrap Up

CEAP Practice Exercises

Section A – Field Characteristics

Instructions:

In 2024, the operator stated 25.9 acres of the selected field was planted.

- Looking at the FSA map, the operator identifies 0.1 acres in the selected field that is a grassed waterway.

A **FIELD CHARACTERISTICS** — SELECTED FIELD **A**

1. In 2024, how many acres in the selected field and conservation area containing the sample point were:

			Acres
a.	planted or cropped, EXCLUDING greenhouse and nursery crops (selected field)?	+	0017 25.9
b.	in field borders, grassed waterways, buffers, and other uses associated with conservation practices but not cropped?	+	0018 0.1
c.	idle cropland or summer fallow (selected field)?	+	0019
d.	greenhouse and nursery crops?	+	0020
e.	pasture (selected field)?	+	0021
f.	continuous conservation cover (selected field)?	+	0016
g.	non-ag (such as dwellings, buildings, structures, roads, woodland and wasteland not in a conservation practice)?	+	0022

			Acres
2.	The TOTAL acres in the selected field and conservation area (1a + 1b + 1c +1d + 1e + 1f + 1g) are	=	0023 26.0

Section A – Field Characteristics Continued

- The selected field is not enrolled in CRP, FWP, or CREP.
- The operator did not was to answer the organic questions.
- The majority of the acres were owned by the operation during the past three years.

3. During 2024, was any portion of the selected field and/or conservation area of interest enrolled in the continuous Conservation Reserve Program (CRP), the Farmable Wetland Program (FWP), or in the Conservation Reserve Enhancement Program (CREP)?

☐ Yes — Enter 1
☒ No — Enter 3 .....

Code
0732 3

4. Are the acres in the selected field certified organic or transitioning into certified organic production, as determined by the USDA National Organic Program (NOP) standards? ...

Yes, Certified Organic = 1
Yes, Transitioning = 2
No = 3

2024	2023	2022
3382 --	3381 --	3380 --

5. Were the majority of the acres in this field (reported in Items 1a or 1c) .....

1 Owned by this operation?
2 Rented for fixed CASH payment?
3 Rented for a flexible CASH payment?
4 Rented for a SHARE of the crop?
5 Rented for some combination of CASH and a SHARE of the crop?
6 Used RENT-FREE?
7 Not operated?

2024	2023	2022
0504 1	0503 1	0502 1

Section B – Conservation Plan

Instructions:

The operator reports having a written conservation plan.

- The plan includes practices to reduce soil erosion, nutrient management plan practices, and manure management and handling practices.
- There was no cost share or incentive payments for 2024, 2023, and 2022.
- Assistance for a conservation plan and conservation practices was provided by NRCS and a private consultant. The private consultant is the operations primary source of assistance and charges a fee.

B **CONSERVATION PLAN** — SELECTED FIELD/CONSERVATION AREA **B**

1. Do you have a written Conservation Plan(s) for the selected field and/or conservation area?
   [A "written plan" is a plan prepared in accordance with Federal, State, and/or Conservation District standards.]

This INCLUDES a Conservation Plan, Conservation Compliance (HEL) Plan, or Conservation Plan written as a result of participating in a conservation program, such as:

- Conservation Stewardship Program (CSP)
- Conservation Reserve Program (CRP)
- Conservation Reserve Enhancement Program (CREP)
- Environmental Quality Incentive Program (EQIP)
- Farmable Wetland Program (FWP)
- Agricultural Conservation Easement Program (ACEP)
- Regional Conservation Partnership Program (RCPP)

	Code	
[X] Yes — [Enter 1 and continue with Item 1a.]		
[ ] Don't Know — [Enter 2, then go to Item 2.]		
[ ] No — [Enter 3, then go to Item 2.]	0701	1

[Encourage the respondent to get their Conservation Plan to answer the following questions.]

a. Does the written plan include any of the following? (Select all that apply.)

		Code	
i. Practices to reduce soil erosion	Yes = 1 No = 3	0702	1
ii. Nutrient management plan practices	Yes = 1 No = 3	0703	1
iii. Pest management plan practices	Yes = 1 No = 3	0704	3
iv. Irrigation water management plan practices	Yes = 1 No = 3	0705	3
v. Wildlife habitat enhancement practices	Yes = 1 No = 3	0706	3
vi. Manure management and handling practices	Yes = 1 No = 3	0771	1
vii. Agricultural water management plan that meets state or local requirements	Yes = 1 No = 3	0742	3
viii. Soil health management plan practices	Yes = 1 No = 3	0785	3

2. Did you receive cost share or incentive payments in 2024, 2023, or 2022 for any conservation practices implemented on this field and/or conservation area?

[Be sure to include payments for establishing grassed waterways and filter strips or riparian buffers on or adjoining the field.]

Code

☐ Yes — [Enter 1 and continue.] ☒ No — [Enter 3, then go to Item 3.] 0707 3

a. If Yes, for what program? (Select all that apply.)

Code

i. CSP	Yes = 1 No = 3	0786
ii. CRP	Yes = 1 No = 3	0708
iii. CREP	Yes = 1 No = 3	0787

3. Did you receive any help or assistance with the development of:

a. Conservation Plan for this field/conservation area?
[Ask only if there is a written conservation plan for this field, Item 1 = 1 (Yes).]

0780 1 ☒ Yes 3 ☐ No

b. Conservation practices currently in place on this field/conservation area?

0781 1 ☒ Yes 3 ☐ No

c. If Yes to Item 3a or 3b, please identify who provided the assistance for the development of the Conservation Plan and/or conservation practice(s) on the field/conservation area.

INCLUDE:

- assistance for planning, installing, maintaining, or using conservation practices or systems for this land.
- grassed waterways and filter strips or riparian buffers on or adjoining this field.
- assistance from any source whether paid for or free.

Source	Select all that apply Yes = 1	Were you charged for the service? Yes = 1	Which of these was your PRIMARY source of assistance Select only 1 Yes = 1
NRCS	0714 1	0720 --	0726 --
Conservation District	0715	0721	0727
Technical Service Providers (NRCS certified)	0716	0722	0728
Private Consultant (Not NRCS certified)	0747 1	0760 1	0762 1
Trade Organizations	0751	0761	0763
University Extension	0717	0723	0729
State Agencies	0718	0724	0730
Other (Specify) 0792 _____	0719	0725	0731

Section B – Conservation Plan Continued

Instructions:

- Grassed waterways were the only conservation practice in the selected field for 2024.
- The operator reported NO to using continuous no-till.

4. In 2024, did the selected field and/or conservation area have any of the following conservation practices? [May or may not be included in the conservation plan.]

Enumerator Action : If the respondent reports "Yes" to any practice, complete the additional questions about that practice. Otherwise, Go to the next practice.

a. Terraces?	Yes = 1 No = 3	1328	3
i. Were these terraces? (1 = primarily grassed; 2 = primarily cropped)	Code	1329	
b. Riparian (stream side) forest buffer?	Yes = 1 No = 3	1333	3
i. Width of buffer	Feet	3320	
ii. Species (1 = evergreen; 2 = deciduous; 3 = mixed)	Code	3321	
c. Riparian (stream side) herbaceous non-woody plants buffer?	Yes = 1 No = 3	1334	3
i. Width of buffer?	Feet	3322	
ii. Is the buffer maintained, for example, by fertilizing, mowing, or repairing any gullies?	Yes = 1 No = 3	3323	
iii. Is the buffer designed to capture —			
(a) sediment?	Yes = 1 No = 3	3330	
(b) nutrients?	Yes = 1 No = 3	3331	
(c) pesticide residue?	Yes = 1 No = 3	3332	
d. Field borders?	Yes = 1 No = 3	1337	3
i. Width of field border?	Feet	3333	
ii. Is the field border maintained, for example, by fertilizing, mowing, or repairing any gullies?	Yes = 1 No = 3	3334	
iii. Is the field border designed to capture —			
(a) sediment?	Yes = 1 No = 3	3341	
(b) nutrients?	Yes = 1 No = 3	3342	
(c) pesticide residue?	Yes = 1 No = 3	3343	

e.	Filter strips?	Yes = 1 No = 3	1338	3
i.	Width of filter strip?	Feet	3344	
ii.	Is the filter strip maintained, for example, by fertilizing, mowing, or repairing any gullies?	Yes = 1 No = 3	3350	
iii.	Is the filter strip designed to capture —			
	(a) sediment?	Yes = 1 No = 3	3352	
	(b) nutrients?	Yes = 1 No = 3	3353	
	(c) pesticide residue?	Yes = 1 No = 3	3354	

				Code
f.	Grassed waterways?	Yes = 1 No = 3	1330	1
g.	Vegetative barriers (in-field)?	Yes = 1 No = 3	1331	3
h.	Hedgerow plantings?	Yes = 1 No = 3	1332	3
i.	Windbreak?	Yes = 1 No = 3	1335	3
j.	Herbaceous wind barrier?	Yes = 1 No = 3	3360	3
k.	Contour buffers (in-field)?	Yes = 1 No = 3	1336	3
l.	Critical area planting?	Yes = 1 No = 3	1339	3
m.	Grade stabilization structure?	Yes = 1 No = 3	1340	3
n.	Drainage water management?	Yes = 1 No = 3	3361	3
o.	Irrigation tailwater recovery system?	Yes = 1 No = 3	3373	3
p.	Contour farming?	Yes = 1 No = 3	3362	3
q.	Strip cropping?	Yes = 1 No = 3	3363	3
r.	Alley cropping?	Yes = 1 No = 3	0793	3
s.	Use continuous no-till?	Yes = 1 No = 3	0794	3

[If Yes — Continue with Item (i.). If No — Go to Item t.]

(i.)	How many years has the land been continuously managed as a no-till system?	Years	0795

[Go to Item u.]

t.	Use reduced, mulch till, or seasonal no-till?	Yes = 1 No = 3	0796	3

[If Yes — Continue with Item (i.), If No — Go to Item 5].

(i.)	How many years has the land been continuously managed as a reduced, mulch till, or seasonal no-till system?	Years	0797

Section B – Conservation Plan Continued

- The operator has not modified or added any conservation practices to the selected field to improve habitats of any kind.
- No vegetative cover was managed for wildlife.
- No practices have been installed to restore, enhance, or create wetlands.

5. Have you modified or added any conservation practices for the selected field SPECIFICALLY to improve the quality of fish or wildlife (including pollinators) habitat?

☐ Yes = 1 ☒ No = 3 ☐ Not Applicable = 4

Code: 3364 **3**

6. Do you manage the vegetative cover for wildlife (including pollinators) purposes?

☐ Yes = 1 ☒ No = 3 ☐ Not Applicable = 4

Code: 3370 **3**

7. Have you installed practices to restore, enhance, or create wetlands?

☐ Yes = 1 ☒ No = 3 ☐ Not Applicable = 4

Code: 0799 **3**

Section C – Cropping History & Conservation Practices

Instructions:

Here is the cropping history for the selected field in 2024:

- The operator planted 25.9 acres of oats for grain on April 5, 2024. He also planted 25.9 acres of alfalfa for hay on April 5, 2024
- The field was harvested on August 4, 2024; he expected 60 bu/acre, but the final yield was 70 bu/acre. The stubble was also harvested on August 4, 2024.
- He expected a yield of 2 tons/acre for the alfalfa. The alfalfa hay was baled on November 5, 2024 and got 2.5 tons/acre.
- If the question is not addressed above, then the answer is “No”.
- For both the oats and alfalfa, livestock didn’t graze the field.

C CROPPING HISTORY & CONSERVATION PRACTICES — SELECTED FIELD C

1. Now I'd like to ask you about the field where the point is located and obtain the cropping and land use history for the past 3 years. (Please include all crops planted for cover crop, double crop, multiple crop, replanting of same crop and if strip cropped, all crops in the strip crop scheme. [Use a separate column for each use of the field in each year.])

		1	2	3
Let's begin with the 2024 crop year. What was/were the:		**2024**	**2024**	**2024**
Crop(s) planted or Land Use?	Crop	oats	alfalfa	
a. Crop(s) code or Land Use Code. [See Respondent. Booklet pgs. 4 - 7 for codes.]	Code	1005 110	1037 101	1069
b. Intended use of Crop(s). [See Respondent Booklet pg. 7 for codes.]	Code	1006 2	1038 6	1070
c. Acres planted? [Include previous planted crops.]	Acres	1007 25.9	1039 25.9	1071 .___
d. Date planted, transplanted, or established? (MM DD YY)	Date	1008 040524	1040 040524	1072 _ _ _ _ _ _
e. Row Width (for row crops)?	Inches	1011 _ _ _.__	1043 .___	1075 .___
f. Was precision technology used to change seeding rate within the field?	Yes = 1 No = 3	0800 3	0801 3	0802
g. Was precision technology used to change crop variety within the field?	Yes = 1 No = 3	0803 3	0804 3	0805
h. Was a soil test performed on this field prior to planting (anytime from harvest of previous year's crop to planting of current year's crop) to determine crop nutrient or soil health needs?	Yes = 1 No = 3	0806 3	0807 3	0808
i. Did you apply soil carbon amendments (e.g., biochar, compost, compost teas, etc.) to improve soil health?	Yes = 1 No = 3	0809 3	0810 3	0811
j. Was this crop irrigated?	Yes = 1 No = 3	1029 3	1061 3	1093
k. EXPECTED yield/acre at planting (yield goal)?	Number	1012 60.0	1044 2.0	1076 .___
(1) Unit: [See Respondent Booklet pg. 7 for codes]	Code	1013 4	1045 3	1077
l. Acres harvested?	Acres	1015 25.9	1047 25.9	1079 .___
(1) Date harvested? (MM DD YY)	Date	1016 080424	1048 110524	1080 _ _ _ _ _ _
m. ACTUAL yield at harvest/acre?	Number	1017 70.0	1049 2.5	1081 .___
(1) Unit: [See Respondent Booklet pg. 7 for codes.]	Code	1018 4	1050 3	1082
n. Acres Abandoned or NOT harvested?	Acres	1019 -- .___	1051 -- .___	1083 .___
o. Was the grass vegetation, straw, or stubble harvested?	Yes = 1 No = 3	1020 1	1052 3	1084
p. Was the field grazed? [If Yes — Enter 1 and continue. If No — Enter 3, then Go to Item t.]	Yes = 1 No = 3	1023 3	1055 3	1087
q. What type of livestock grazed the field (primarily)? [See Respondent Booklet pg. 7 for codes.]	Code	1024	1056	1088
r. Regardless of ownership, how many head of _____ grazed this field BEFORE harvest or termination?	Head	1025	1057	1089
(1) How many TOTAL days was the field grazed BEFORE harvest or termination?	Days	1026	1058	1090
s. Regardless of ownership, how many head of _____ grazed this field AFTER harvest or termination?	Head	1027	1059	1091
(1) How many TOTAL days was the field grazed AFTER harvest or termination?	Days	1028	1060	1092
t. Was any forage intentionally left behind for wildlife use, cover, and/or shelter?	Yes = 1 No = 3	2610 3	2611 3	2612

Completion Code for 2024 Cropping History	
1 = Inaccessible/Refusal	1004

Section C – Cropping History & Conservation Practices Continued

Instructions:

Here is the crop rotation plan for the selected field:

- The operator has a 6-year crop rotation plan by planting alfalfa for 3 years then corn for silage in year 4 followed by corn for grain in year 5. In year 6, it's a oats and alfalfa.
- No cover crops were planted in 2022 – 2024.
- If the question is not addressed above, then the answer is "No".

2. Do you have a planned crop rotation for this field?

1343 1 [X] Yes — Continue 3 [ ] No — Go to Item 3.

a. Let's record your crop rotation plan. Use the crop codes from the Respondent Booklet pgs. 4-7. Use multiple codes to capture strip cropping, double cropping, and cover crops in a planned rotation.

Enter the crop name and crop code for the crops in rotation [only use as many years as are in the rotation scheme.]	Crops	Crop Code	Crop Code	Crop Code
i. 1st year of rotation	alf	1344 101	1351	1358
ii. 2nd year of rotation	alf	1345 101	1352	1359
iii. 3rd year of rotation	alf	1346 101	1353	1360
iv. 4th year of rotation	corn	1347 189	1354	1361
v. 5th year of rotation	corn	1348 188	1355	1362
vi. 6th year of rotation	oats/alf	1349 110	1356 101	1363

3. Was a cover crop planted on this field for the 2024, 2023, or 2022 crop years?

1471 1 [ ] Yes — Continue 3 [X] No — Go to Item 4.

4. Is the field adjacent (within 100 feet up slope) to a water body, including a stream, intermittent stream, wetland, drainage ditch, or irrigation canal/ditch? ..... Yes = 1 No = 3 — Code 1327: 3

5. Are irrigation/drainage ditches lined or vegetated to maintain a stable channel? ..... Yes = 1 No = 3 — Code 1364: 3

6. Does this field have subsurface (tile) drainage? — Code 1341: 3

   1 ☐ Yes — Continue 3 ☒ No — Go to Item 7. 2 ☐ Don't Know — Go to Item 7.

   a. Are the drainage tiles organized in a pattern? ..... Yes = 1 No = 3 — Code 1781:

      [If Yes — Continue. If No — Go to Item 6c.]

   b. What is the approximate subsurface (tile) drain spacing? ..... Code 1782:

      1 — less than 30 ft. **2** — 30-59 ft. **3** — 60-100 ft. **4** — Greater than 100 ft.

   c. Are the surface inlet pipes connected to the subsurface (tile) drains in this field? ..... Yes = 1 No = 3 — 1783:

   d. What depth are the subsurface tile drains installed at? ..... Inches — 0854:

7. Does this field have surface drainage structures? ..... Yes = 1 No = 3 — 1342: 3

Section D – Commercial Fertilizer Application

Instructions:

The operator applied two fertilizers to the selected oat field in 2024 and provide the following data about those applications:

- Application 1
  - Percent analysis was 60% potassium and 5% sulfur at a rate of 200 lbs/acre.
  - On April 3, 2024, fertilizer was applied to 25.9 acres by ground broadcast with incorporation.
  - VRT was used on the selected field; nitrogen breakdown products were not used; and fertilizer was not ammonia based.
- Application 2
  - Percent analysis was 21% nitrogen and 24% sulfur at a rate of 50 lbs/acre.
  - On April 3, 2024, fertilizer was applied to 25.9 acres by ground broadcast with incorporation.
  - VRT was used on the selected field; nitrogen breakdown products were not used; and fertilizer was not ammonia based.

11a. Now I need to record information for each fertilizer application for the 2024 crop.
[Probe for applications made in the fall of 2023 (and those made earlier if this field was fallow) for the 2024 crop year.]

CHECKLIST	
INCLUDE	EXCLUDE
☐ Custom applied fertilizers	☐ Micronutrients
☐ Sulfur	☐ Commercially prepared manure
	☐ Unprocessed manure
	☐ Lime and gypsum

Lines in Table	Table 100	0299
		2

LINE	1 Crop Year	2 Primary crop for which nutrients were intended	3 Crop Code [Enter crop code from Respondent Booklet pgs. 4 - 7.]	4 MATERIALS USED — Enter actual pounds of plant nutrients applied per acre and indicate "19" in column 6 (leave column 5 blank). If only fertilizer analysis is known, enter percent analysis in this column, quantity applied per acre in column 5, and the material code in column 6. [Show Common Fertilizers in Respondent Booklet pgs. 8 - 9.]				5 What quantity was applied per acre? [Leave the column blank if pounds of actual nutrients were reported in column 4.]	6 Enter material unit. 1 Pounds 3 Tons 12 Gallons 13 Quarts 19 Pounds of actual nutrients
				Nitrogen N	Phosphorus P_2O_5	Potassium K_2O	Sulfur S		Code
01	28 24	oats	110	31 --	32 --	33 60	34 5	36 200	37 1
02	28 24	oats	110	31 21	32 --	33 --	34 24	36 50	37 1

APPLICATION CODES FOR COLUMN 8	PRODUCT USED TO SLOW BREAKDOWN OF NITROGEN FOR COLUMN 11	FERTILIZER FORM FOR COLUMN 12
1 Broadcast, ground without incorporation	1 Nitrification inhibitor	1 Ammonia-based
2 Broadcast, ground with incorporation	2 Urease inhibitor	2 Not ammonia-based
3 Broadcast by aircraft	3 Chemical-coated fertilizers (such as sulfur-coated and polymer-coated urea)	
4 In seed furrow	4 Other Inhibitors (specify) 0907 _____	
5 In irrigation water (fertigation)	5 None	
6 Chiseled/injected or knifed in		
7 Banded/side-dressed on the soil surface		
8 Foliar or directed spray		

LINE	7 When was this applied? MM DD YY	8 How was this applied? [Enter code from box above.]	9 How many acres were treated in this application? Acres	10 Was variable rate technology (VRT) used? [Include "on-the-go" sensing.] Yes = 1 No = 3	11 Nitrogen slow-breakdown product [Enter code from box above.]	12 Fertilizer form [Enter code from box above.]	NOTES
01	30 040324	39 2	40 25.9	29 1	26 5	27 2	
02	30 041024	39 2	40 25.9	29 1	26 5	27 2	

Section E – Manure Applications

Instructions:

Manure was applied to the selected in 2023 and 2022:

- In 2023
    - Corn for sileage was planted in the selected field.
    - The operator reported that 4000 gallons per acre of liquid manure that was produced on this operation was applied on this field.
    - The manure was not tested, and nitrogen inhibitors were not applied.
    - The manure was sourced from dairy cattle on this operation and was not composed before being applied.
    - It was applied to 25.9 acres on April 15, 2023, by liquid broadcast without incorporation.
- In 2022
    - Corn for grain was planted in the selected field.
    - The operator reported that 4000 gallons per acre of liquid manure that was produced on this operation was applied on this field.
    - The manure was not tested, and nitrogen inhibitors were not applied.
    - The manure was sourced from dairy cattle on this operation and was not composed before being applied.
    - It was applied to 25.9 acres on April 15, 2022, by liquid broadcast without incorporation.

1. Was manure or manure compost applied to this field for the 2024, 2023, or 2022 crop year?

Manure application includes solids and effluents from waste lagoons, waste holding ponds, and waste runoff storage ponds. (Include commercially prepared manure.)

[Probe for applications made in the fall of 2021, 2022, and 2023 (and those made earlier if this field was fallow) for the 2022, 2023, and 2024 crop years.]

1 [X] Yes — [Enter 1 and continue.]

3 [ ] No — [Enter 3, then Go to SECTION F.].....

Code: 0418 1

2. Now I need to record information for each manure application.

Lines in Table	Table 001	0599 2

LINE	1 Crop Year (YY)	2 Primary crop for which nutrients were intended	3 Crop Code [Enter crop code from Respondent Booklet pgs. 4 - 7.] (Code)	4 What quantity of manure was applied per acre?	5 Unit (column 4 only) (Code)	6 Where was the manure produced? (Code)	7 How was the manure handled? (Code)	8 Was manure tested before application? (Code)	9 Nitrogen inhibitor applied with manure (Code)
					1 Pounds 3 Tons 4 Bushels 12 Gallons 14 Acre - inches	1 On this operation 2 Purchased 3 Obtained at no cost off the operation 4 Obtained with compensation 5 Commercially prepared manure	1 Solid 2 Liquid 3 Slurry	1 Yes 2 Don't Know (DK) 3 No	1 Nitrification inhibitor 2 Urease inhibitor 3 None
01	42 23	corn-s	189	44 4000.0	45 12	46 1	47 2	48 3	59 3
02	42 22	corn-g	188	44 4000.0	45 12	46 1	47 2	48 3	59 3

CODES FOR UNIT COLUMN 11

15 lbs/acre-inch
19 lbs of actual nutrients/acres
29 % by weight
31 lbs/ton
121 lbs/1000 gallons

CODES FOR MANURE SOURCE COLUMN 12

1 Beef cattle
2 Dairy cattle
3 Hogs
4 Sheep/goats
5 Broiler
6 Layer
7 Poultry Breeder
8 Turkey
9 Poultry (other)
10 Equine
11 Bio solids
12 Other (specify) 0911 _____
13 Don't Know

CODES FOR APPLICATION COLUMN 16

1 Dry broadcast, without incorporation
2 Dry broadcast, with incorporation
3 Liquid broadcast, without incorporation
4 Liquid broadcast, with incorporation
5 Chiseled/injected or knifed in
6 Furrow or basin irrigated
7 Sprinkler irrigated

LINE	10 Results from manure analysis test OR actual amount of nutrients applied [Leave this column blank if column 8=2 or 3.] Nitrogen N	Phosphorus P_2O_5	Potassium K_2O	11 Unit (column 10 only) [Enter code from box above.] (Code)	12 Major source of manure [Enter code from box above.] (Code)	13 Was manure composted before application? (Code)	14 Composting Method? [Leave this column blank if column 13 = 2 or 3.] (Code)	15 When was this applied? (MM DD YY)	16 How was this applied? [Enter code from box above.] (Code)	17 How many acres were treated in this application? (Acres)
						1 Yes 2 DK 3 No	1 Windrow 2 Static pile 3 In-Vessel 4 Other			
01	49 .__ __	50 .__ __	51 .__ __	52	53 2	54 3	55	56 041523	57 3	58 25.9
02	49 .__ __	50 .__ __	51 .__ __	52	53 2	54 3	55	56 041522	57 3	58 25.9

Section F – Pest Control Applications

Instructions:

The operator applied pesticides to the selected field in 2023 and 2022.

- No pesticides were applied in 2024.

		2024	2023	2022
1. In which of the following years (2024, 2023, and/or 2022) were any products applied to this field to control weeds, insects, or diseases? [INCLUDE herbicides, insecticides, fungicides, bio-control agents, bio-pesticides, seed treatments, and other conventional or organic products.]	Yes = 1 No = 3	0315 3	0345 1	0346 1

- In 2023 on the corn silage
  - Applied a tank mix of Cornerstone Plus (L) and Status Herbicide (D) on June 20, 2023.
  - Cornerstone Plus – 26 liquid ounces per acre were applied to the entire field of 25.9 acres by ground broadcast, not incorporated.
  - Status Herbicide – 4 dry ounces per acre were applied to the entire field of 25.9 acres.

control products.

					Lines in Table	Table 200	0399 2
PRODUCT NAME	LINE	1 Crop Year	2 Primary crop for which control agent was intended.	3 Crop Code [Enter crop code from Respondent Booklet pgs. 4 -7.]	4 What products were applied to this field? [Enter product code from Respondent Booklet pgs. 10 - 36.]	5 Was this product bought in liquid or dry form? [Enter L or D.]	6 Was this part of a tank mix? [If tank mix, enter line number of first product in mix.]
Cornerstone Plus	01	60 23	corn-s	189	61 40520	L	63 1
Status Herbicide	02	60 23	corn-s	189	61 41110	D	63 1

APPLICATION CODES FOR COLUMN 11

4 Seed furrow	21 Broadcast, ground, incorporated
5 Chemigation (in irrigation water)	31 Broadcast, by aircraft
6 Chisel/injected or knifed in	32 Broadcast, foliar, by aircraft
8 Direct spray, foliar	71 Banded/side-dressed
10 Seed treatment by producer prior to planting	73 Banded/side-dressed, foliar
11 Broadcast, ground, not incorporated	76 T-Banded (combo of banded and injected)
13 Broadcast, ground, foliar	77 Broadcast, by drone
	78 Broadcast, foliar, by drone

LINE	7 When was this applied? MM DD YY	8 OR 9 How much was applied per acre per application?	9 What was the total amount applied per application in this field?	10 [Enter unit code] (col. 8 or 9 only) 1 Pounds, 12 Gallons, 13 Quarts, 14 Pints, 15 Liquid Ounces, 28 Dry Ounces, 30 Grams, 40 Kilograms, 41 Liters Code	11 How was this product applied? [Enter code from box above.] Code	12 Was this product applied to the entire field, to only a portion of the field, or as a spot treatment? 1 Entire field, 2 Part of field, 3 Spot Treatment, 4 Entire field plus borders and buffers Code	13 How many acres in this field were treated with this product? Acres
01	83 062023	65 26.00	73	74 15	76 11	84 1	77 25.9
02	83 062023	65 4.00	73	74 28	76 11	84 1	77 25.9

Section F – Pest Control Applications Continued

- In 2022 on the corn for grain
  - Applied a tank mix of Cornerstone Plus (L) and Status Herbicide (D) on June 22, 2022.
  - Cornerstone Plus – 26 liquid ounces per acre were applied to the entire field of 25.9 acres by ground broadcast, not incorporated.
  - Status Herbicide – 4 dry ounces per acre were applied to the entire field of 25.9 acres.

INCLUDE biological and botanical pest control products.					Lines in Table	Table 300	0399 2
PRODUCT NAME	LINE	1 Crop Year	2 Primary crop for which control agent was intended.	3 Crop Code [Enter crop code from Respondent Booklet pgs. 4 - 7.]	4 What products were applied to this field? [Enter product code from Respondent Booklet pgs. 10 - 36.]	5 Was this product bought in liquid or dry form? [Enter L or D.]	6 Was this part of a tank mix? [If tank mix, enter line number of first product in mix.]
cornerstone plus	01	60 22	corn-g	188	61 40520	L	63 1
status herbicide	02	60 22	corn-g	188	61 41110	D	63 1

APPLICATION CODES FOR COLUMN 11	
4 Seed furrow 5 Chemigation (in irrigation water) 6 Chisel/injected or knifed in 8 Direct spray, foliar 10 Seed treatment by producer prior to planting 11 Broadcast, ground, not incorporated 13 Broadcast, ground, foliar	21 Broadcast, ground, incorporated 31 Broadcast, by aircraft 32 Broadcast, foliar, by aircraft 71 Banded/side-dressed 73 Banded/side-dressed, foliar 76 T-Banded (combo of banded and injected) 77 Broadcast, by drone 78 Broadcast, foliar, by drone

LINE	7 When was this applied? MM DD YY	8 OR 9 How much was applied per acre per application?	9 What was the total amount applied per application in this field?	10 [Enter unit code] (col. 8 or 9 only) 1 Pounds, 12 Gallons, 13 Quarts, 14 Pints, 15 Liquid Ounces, 28 Dry Ounces, 30 Grams, 40 Kilograms, 41 Liters Code	11 How was this product applied? [Enter code from box above.] Code	12 Was this product applied to the entire field, to only a portion of the field, or as a spot treatment? 1 Entire field, 2 Part of field, 3 Spot Treatment, 4 Entire field plus borders and buffers Code	13 How many acres in this field were treated with this product? Acres
01	83 062222	65 26.00	73	74 15	76 11	84 1	77 25.9
02	83 062222	65 4.00	73	74 28	76 11	84 1	77 25.9

Section I – Field Operations

Instructions:

The following are the field operations for the selected field:

- In 2024
  - Oats were planted as a nurse crop for alfalfa that was also planted.
  - In the Fall of 2023, (November 10, 2023) a disk chisel plow was used with a depth of 6 inches.
  - In the spring of 2024 (April 5, 2024) a field cultivator was used with a depth of 3 inches.
  - Both oats and alfalfa were planted on April 5, 2024, with a depth of 1 inch. After the seeds were planted a culti-packer was used across the field.
  - On August 1, 2024, a PTO swather was used for the oats.
  - After they had dried for a couple days, a self-propelled 2wd combine was used for the oats on August 3, 2024.
  - The following day on August 4, a PTO small baler was used for the oat, then a hay wagon was used to haul it out of the field.
  - On November 5, 2024, a disk drum mower was used for the alfalfa.
  - Two days later on November 7, 2024, a silage harvester was used to chop the hay, then a forklift was used to haul it away.

a. Let's start with the 2024 crop year

Lines in Table	Table 100	0499 15

CHECK LIST

INCLUDE all field work done by hand or using machines for

☐ Land Forming ☐ Planting ☐ Hauling within field
☐ Tillage ☐ Harvesting ☐ Residue Management
☐ Preparing for Irrigation before seeding
☐ Custom Operations ☐ Pruning, hedging, topping

EXCLUDE all field work done by hand or using machines for

☐ Lime & Gypsum applications
☐ Fertilizers, Manure & Pesticides applications
☐ Hauling from field edge to storage

LINE	1 Crop Year Year	2 Sequence Number Number	3 What crop was associated with this operation? Crop Name	4 Crop Code [Record from Respondent Booklet pgs. 4 - 7.] Code	5 What operation or equipment was used on this field?	6 Machine Code [Record from Respondent Booklet pgs. 39 - 41.] Code	7 Was this operation used to incorporate a fertilizer or manure application? Yes = 1 No = 3 Code	8 What was the timing of the field operation? MM DD YY	9 What was the depth of tillage for tillage/planting operations? Inches
01	86 24	87 1	oats	110	chisel	88 9	99 3	96 111023	97 6.0
02	86 24	87 1	alf	101	chisel	88 9	99 3	96 111023	97 6.0
03	86 24	87 2	oats	110	fld cult	88 21	99 3	96 040524	97 3.0
04	86 24	87 2	alf	101	fld cult	88 21	99 3	96 040524	97 3.0
05	86 24	87 3	oats	110	plant	88 107	99 3	96 040524	97 1.0
06	86 24	87 3	alf	101	plant	88 107	99 3	96 040524	97 1.0
07	86 24	87 4	oats	110	pack	88 51	99 3	96 040524	97 .
08	86 24	87 4	alf	101	pack	88 51	99 3	96 040524	97 .
09	86 24	87 5	oats	110	swath	88 126	99 3	96 080124	97 .
10	86 24	87 6	oats	110	combine	88 122	99 3	96 080324	97 .
11	86 24	87 7	oats	110	bale	88 147	99 3	96 080424	97 .
12	86 24	87 8	oats	110	haul	88 195	99 3	96 080424	97 .
13	86 24	87 9	alf	101	mow	88 152	99 3	96 110524	97 .
14	86 24	87 10	alf	101	chop	88 204	99 3	96 110724	97 .
15	86 24	87 11	alf	101	haul	88 224	99 3	96 110724	97 .

Section I – Field Operations Continued

- In 2023
  - In the spring of 2023 (April 15, 2023), a disk chisel plow was used with a depth of 6 inches.
  - A couple days later on April 17, 2023, a field cultivator ran through the field with a depth of 3 inches.
  - The corn was planted on April 20, 2023, at a depth of 1.5 inches.
  - On October 20, 2023, a silage harvested was used to harvest the corn silage.
  - A forage wagon was used to haul it out of the field.

b. Now let's continue with the 2023 crop year.

- Begin with the first field operation for the 2023 crop (after harvesting of 2022 crop.)

Lines in Table	TABLE 200	0499 5

CHECK LIST

INCLUDE all field work done by hand or using machines for

☐ Land Forming ☐ Planting ☐ Hauling within field
☐ Tillage ☐ Harvesting ☐ Residue Management
☐ Preparing for Irrigation before seeding
☐ Custom Operations ☐ Pruning, hedging, topping

EXCLUDE all field work done by hand or using machines for

☐ Lime & Gypsum applications
☐ Fertilizers, Manure & Pesticides applications
☐ Hauling from field edge to storage

LINE	1 Crop Year Year	2 Sequence Number Number	3 What crop was associated with this operation? Crop Name	4 Crop Code [Record from Respondent Booklet pgs. 4 -7.] Code	5 What operation or equipment was used on this field?	6 Machine Code [Record from Respondent Booklet pgs. 39 - 41.] Code	7 Was this operation used to incorporate a fertilizer or manure application? Yes = 1 No = 3 Code	8 What was the timing of the field operation? MM DD YY	9 What was the depth of tillage for tillage/planting operations? Inches
01	86 23	87 1	corn-s	189	chisel	88 9	99 1	96 041523	97 6.0
02	86 23	87 2	corn-s	189	cult	88 21	99 3	96 041723	97 3.0
03	86 23	87 3	corn-s	189	plant	88 115	99 1	96 042023	97 1.5
04	86 23	87 4	corn-s	189	chop	88 204	99 3	96 102023	97
05	86 23	87 4	corn-s	189	haul	88 227	99 3	96 102023	97

- In 2022
  - In the fall of 2021, (November 5, 2021) a disk chisel plow was used with a depth of 6inches.
  - In the Spring of 2022, (April 15, 2022) a field cultivator was used with a depth of 3 inches.
  - Corn was planted on April 18, 2022.
  - On November 15, 2022, corn was harvested using a self-propelled 2wd combine was used.
  - A grain cart with auger was also used.
  - On November 18, 2022, a stalk shedder ran through the field.
  - A large PTO baler ran through the field to bale the stalks on November 19, 2022.
  - On November 20, 2022, those bales were picked up using a large bale mover.

c. Now let's continue with the 2022 crop year.

- Begin with the first field operation for the 2022 crop (after harvesting of 2021 crop.)

Lines in Table	TABLE 300	0499 8

CHECK LIST

INCLUDE all field work done by hand or using machines for

☐ Land Forming ☐ Planting ☐ Hauling within field
☐ Tillage ☐ Harvesting ☐ Residue Management
☐ Preparing for Irrigation before seeding
☐ Custom Operations ☐ Pruning, hedging, topping

EXCLUDE all field work done by hand or using machines for

☐ Lime & Gypsum applications
☐ Fertilizers, Manure & Pesticides applications
☐ Hauling from field edge to storage

LINE	1 Crop Year Year	2 Sequence Number Number	3 What crop was associated with this operation? Crop Name	4 Crop Code [Record from Respondent Booklet pgs. 4 - 7.] Code	5 What operation or equipment was used on this field?	6 Machine Code [Record from Respondent Booklet pgs. 39 - 41.] Code	7 Was this operation used to incorporate a fertilizer or manure application? Yes = 1 No = 3 Code	8 What was the timing of the field operation? MM DD YY	9 What was the depth of tillage for tillage/planting operations? Inches
01	86 22	87 1	corn-g	188	chisel	88 9	99 3	96 110521	97 6.0
02	86 22	87 2	corn-g	188	cult	88 21	99 1	96 041522	97 3.0
03	86 22	87 3	corn-g	188	plant	88 115	99 1	96 041822	97 1.5
04	86 22	87 4	corn-g	188	combine	88 122	99 3	96 111522	97 .__
05	86 22	87 5	corn-g	188	grn cart	88 209	99 3	96 111522	97 .__
06	86 22	87 6	corn-g	188	shred	88 205	99 3	96 111822	97 .__
07	86 22	87 7	corn-g	188	bale	88 146	99 3	96 111922	97 .__
08	86 22	87 8	corn-g	188	bale move	88 161	99 3	96 112022	97 .__

ARMS 2 Practice Exercises

Section C – Nutrient or Fertilizer Applications

Instructions:

Mr. Farmer's selected spring wheat field is 45.0 acres. He applied the following fertilizer:

- Nitrogen solution 28% (28 - - -)
- Applied that solution at 60 pounds per acres.
- It was applied after seeding by foliar spray to the entire field.

Nitrogen Codes for Column 2

1 Anhydrous ammonia
2 Nitrogen solution (UAN)
3 Urea
4 Ammonium nitrate
5 Sodium nitrate
6 Ammonia sulfate
7 Potassium nitrate, magnesium nitrate, and calcium nitrate
8 Other nitrogen fertilizer material [specify:_____]

Application Codes for Column 6

1 Broadcast, ground without incorporation
2 Broadcast, ground with incorporation
3 Broadcast, by aircraft
4 In seed furrow
5 In irrigation water
6 Chisel/injected or knifed in
7 Banded in or over row
8 Foliar or directed spray

LINE	2 Materials Used [Enter percentage analysis or actual pounds of plant nutrients applied per acre.] [Show Common Nutrients or Fertilizers in Respondent Booklet] [Refer to nitrogen list above for type of nitrogen used.]					3 What quantity was applied per acre? [Leave this column blank if actual nutrients were reported]	4 [Enter material code] 1 Pounds 12 Gallons 13 Quarts 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 in the selected field were treated in this application? Acres
	N Nitrogen	P_2O_5 Phosphate	K_2O Potash	S Sulfur	Type of N Used					
01	31 28	32 ---	33 ---	34 ---	35 2	36 60	37 1	38 4	39 8	40 45.0
02	31	32	33	34	35	36	37	38	39	40 .___
03	31	32	33	34	35	36	37	38	39	40 .___

Section D – Biocontrol or Pesticide Applications

Instructions:

Mr. Farmer applied two pesticides to the selected spring wheat field.

- PerfectMatch
  - Was applied at the rate of 16 liquid ounces per acre
- 2,4-D LV Ester 4
  - Was applied at the rate of 16 liquid ounces per acre
- Make sure to use the respondent booklet for the product code
- Both were only applied once each after seeding by Joe Farmer with directed spraying.
- Both pesticides were applied to the entire 45.0-acre field.

Chemical Product Name	LINE	2 What products were applied to the selected field? [Show product codes from Respondent Booklet.]	3 Was this product bought in liquid or dry form? [Enter L or D]	4 If this was part of a tank mix, enter line number of first product in mix.	5 When was this applied? 1 Before planting 3 At planting 4 After planting 5 Defoliation prior to harvest	6 How much was applied per acre per application?	OR 7 What was the total amount applied per application in the selected field?	8 [Enter unit code] 1 Pounds 12 Gallons 13 Quarts 14 Pints 15 Liquid Ounces 28 Dry Ounces 30 Grams
PerfectMatch	01	01 41642	02 L	03	04 4	05 16.00	73 .__	74 15
2,4-D LV Ester 4	02	01 40378	02 L	03	04 4	05 16.00	73 .__	74 15

Applications Codes for Column 9

1 Broadcast, ground without incorporation
2 Broadcast, ground with incorporation
3 Broadcast, by aircraft
4 In seed furrow
5 In irrigation water
6 Chiseled/injected or knifed in
7 Banded in or over row
8 Foliar or directed spray
9 Spot treatments

LINE	9 How was this product applied? [Enter code from above.]	10 How many acres in the selected field were treated with this product? Acres	11 How many times was it applied? Number	12 Were these applications made by— 1 Operator, partner, or family member? 2 Custom applicator? 3 Employee/Other?
01	76 8	77 45.0	79 1	80 1
02	76 8	77 45.0	79 1	80 1

Notes