

2024 ARMS 2 - Presentations

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Introduction and Purpose



Amber Elliott-Whisnant

Eastern Mountain Regional Field Office



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Introduction and Purpose

- Production Practices Report
 - Potatoes
- Production Practices and Costs Report
 - Wheat



Introduction and Purpose

- Basic guidance on ARMS II
- Will not cover all scenarios
- Study manual
- Work with supervisors
- Participate in schools
- Practice exercises



What is ARMS?

- Agricultural Resource Management Survey is a project conducted in cooperation with USDA's Economic Research Service (ERS)
- Primary source of information for agricultural resource use, costs, and farm finance
- Supports key uses of enterprise, farm, and household data that correspond with mandated activities required by the U.S. Congress.



Motivation for Collecting these Data

Agricultural and Consumer Protection Act of 1973

“The Secretary of Agriculture...shall conduct a cost of production study of the wheat, feed grain, cotton, and dairy commodities under the various production practices and **establish a current national weighted average cost of production**. This study shall be updated annually and shall include all typical variable costs, including interest costs, a return on fixed costs, and a return for management.”

Mandated reporting of these data is part of permanent Farm Bill legislation



ARMS: Data Collection Phases

- Phase I (May – July): Screens list frame operations for in-business status, operating arrangement, and presence of targeted commodities.
- Phase II: (Oct – Dec): Collects data on chemical use, production practices, and variable input costs for targeted commodities.
- Phase III: (January – April): Focuses on farm economics and risk management practices; typically includes the entire ARMS II sample and a general sample.



What is special about ARMS II?

- Two Main Versions
 - Production Practices Report (PPR – Short)
 - Production Practices and Cost Report (PPCR – Long)
- Provides Reported Data on Actual Pesticide Use
 - Crop Treated
 - Acreage Treated
 - Rates and Number of Treatments
 - Identify Alternatives Used



What is special about ARMS II?

- Provides ability to conduct economic and environmental analyses relating to:
 - Field crop chemical use,
 - Crop Production practices, and
 - Integrated Pest Management (IPM) practices and adoption levels.
- The need by data users for farm financial data corresponding with field crop chemical use, production practices, and IPM information has been increasing for a number of years.



What is special about ARMS II?

- Detailed field-level information...
- Tied to production outcomes, to commodity costs and returns, and to whole-farm finances and farm operator and household attributes
- Tied to program participation, and policies...
- With a large and nationally-representative sample of farms



EPA is the Primary User of ARMS Data

- The Water Quality Initiative
 - Data needed for assessing issue
 - Mandated development of database
- USDA Pesticide Data Program (PDP)
 - NASS & ERS responsibility
 - NASS begins chemical surveys
- Food Quality Protection Act
 - EPA mandated to review tolerance levels
 - NASS provides actual usage data



What is special about ARMS II?

- Without ARMS II Data:
 - Loss of minor uses of chemicals
- With ARMS II Data:
 - Changes in labeling and usage
 - Increased re-entry or pre-harvest intervals
 - Change protective equipment requirements
 - Reduce the use rate or number of sprays



Who Else Uses This Information?

- National and agricultural media
- Input providers
- Farmers and their advisors
- Policy stakeholders
 - Farm organizations and commodity groups



Who Else Uses This Information?

- **Policymakers**

- Policy Decisions Will be Made with or Without ARMS
- Some Policymakers have farm backgrounds, most don't
- Those that do can't - just rely on background, experience
- They're all busy, so they rely on others for information
- ARMS provides accurate data on U.S. agriculture
- Better information makes for better decisions



Benefits to Farms

- Farmers benefit indirectly
 - Extension advisors, magazines, newspaper, radio
 - Farm org., commodity groups, agribusiness
 - Congress, USDA
- Growers chance to tell their story
- Establish facts about chemical use
- Decision-making for Product re-registration
- Impact/Consequences of cancellation



How ARMS Phase II Data are Disseminated

- ERS reports on policy-relevant topics
 - And related Amber Waves magazine articles
 - And related daily ERS Charts of Note
- Data releases on our website
 - ARMS crop production practices
 - Commodity costs and returns
 - NASS Quick Stats (chemical use)
- Staff analyses for policymakers (not public)



ARMS II/Chemical Use Background

- Target commodities rotated:
 - 2015 – Cotton, Oats, Soybeans, Wheat, Fruit
 - 2016 – Corn, Potatoes, Vegetables
 - 2017 – Cotton, Soybeans, Wheat, Fruit
 - 2018 – Soybeans, Corn, Peanuts, Vegetables
 - 2019 – Wheat, Barley, Cotton, Sorghum, Fruit
 - 2020 – Soybeans, ~~Corn~~, ~~Rice~~, Vegetables
 - 2021 – Corn, Rice, Cotton, Fruit
 - 2022 – Wheat, Potatoes, Vegetables
 - 2023 – Soybeans, Peanuts, Oats, Barley
 - 2024 – Wheat and Sorghum
- Wheat – PPR (Short Form)



Additional Information

- The Phase II Interviewers Manual
- ERS website: www.ers.usda.gov
- Charts of Note: read and sign up for free distribution at
 - <http://www.ers.usda.gov/data-products/charts-of-note.aspx>
- ARMS Cropping Practices Data Summary
 - <http://www.ers.usda.gov/data-products/arms-farm-financial-and-crop-production-practices/tailored-reports-crop-production-practices.aspx>
- ERS Commodity Costs and Returns Estimates
 - <http://www.ers.usda.gov/data-products/commodity-costs-and-returns.aspx>



Thanks for Watching!



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Getting Started with the Survey

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What Did the Operator Receive?

- Pre-survey postcard
- No questionnaires will be mailed to respondents this year



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Introduction

- Introduce Yourself:
 - Practice your introduction to get comfortable
 - Include who you are and whom you represent
- Make sure you understand and can explain the purpose of the survey and why it is important
- Encourage participation
- Remind the respondent that the data are confidential and are used only to make state and national level estimates
- Be prepared to set up an interview time



Explaining the Process

- Get operator to agree to survey
- Explain the major sections (field selection, fertilizer, pesticides, pest management practices)
- Encourage the use of farm records



Using Interview Time Wisely

- Verify contact information, target crop acres
- Check Screening Survey Information Form
- Work through field selection process
- Collect what you can by phone
 - Only a refusal if they give us nothing
- Determine best way to get spray records



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How Long Should This Take?

- OMB expected time to complete one questionnaire
 - Target crop (PPCR) 65 minutes
- It is vital that the Phase II questionnaires to be completed for these operations
- Data from all phases provide the link between agricultural resource use and farm financial conditions



Data Recording Reminders

- Make all entries clear and easy to read in PENCIL
- Follow Instructions regarding “NO” or “NONE”
 - Most yes/no questions now require 1 = Yes and 3 = No
 - Watch for appropriate Yes/No Check Boxes
 - Enter a dash (–) if the answer to a question is “NONE”
- Don’t Know = DK, Refused = RF



Other Data Recording Reminders

- Read instructions and questions exactly as written
- Follow the Skip Instructions
- Don't forget Start Time and End Time!
- Make notes about answers in the margins
- Look for pre-printed decimal places
 - Acreage to one place, Chemical application to two places
- Notes about unusual situations should be complete
 - Put on Blank Page, Back Page, Comment Sheet, Other Inserts
- Please enter both yes and no responses into CAPI



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Face Page, ARMS I Acreage Insert Sheet and Section A



Lisa Prickett
Southern Plains Region



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Face Page

- Verify the name and address of the operator and any partners
- Record the starting time of the interview using military time
 - Example: 2:30 pm = 1430
 - Measures respondent burden



Burden Statement

The information you provide will be used for statistical purposes only. Your response 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 and Statistical Efficiency Act of 2018, Title III of Pub. L. No. 115-435, codified in 44 U.S.C. Ch. 35 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.

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 number 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.



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Screening

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
[MILITARY]

H	H	M	M
0	0	0	4

SCREENING BOX

0006	1
------	---

☐ Check if verified POID _____

Name: _____

☐ Check if verified POID _____

Name: _____



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Screening

- Verify if operator is still in business
 - Including CRP
- Verify if target name grew the target crop this year
 - Including all operations
- Out of Business of Landlord only
 - Conclude interview
- Record all acres operated including
 - Cropland in other states
 - Abandoned target crop acres
- Collect data for addition individual ops or partnerships
- Take good notes



ARMS I Acreage Insert Sheet

AGRICULTURAL RESOURCE MANAGEMENT SURVEY FOR *YEAR* SCREENING INFORMATION FORM

STATE	VERSION	ID	TRACT	SUBTRACT
99	77	999999990	01	01
			SAMPLE SEQUENCE NUMBER: 0105	
			OPDOM STATUS: 00	

B. A. FARMER
1234 DIRT RD
ANYWHERE, ST 56789
(987) 654-3210

INFORMATION FROM SCREENING:



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ARMS I Acreage Insert Sheet

INFORMATION FROM SCREENING:

TYPE OF OPERATION REPORTED: PARTNERSHIP WITH 3 PARTNERS
RESPONDENT: OPERATOR OR MANAGER

THIS OPERATION IS SELECTED FOR THE CROP :CROP – PPCR or PPR
THE SCREENING PHASE DATA ARE FROM COMPLETE RESPONSE.
DATA WERE COLLECTED BY ENUMERATOR: 99999

Sources of Data:

Operator
Spouse
Partner
Previously Reported Data

Total Acres Of Land Operated: 1,820.0

Total Acres Of Crop Land: 1,700.0

=====



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ARMS I Acreage Insert Sheet

=====

Total Acres Of CROP Planted For YEAR : 700.0

Sources of Data:

- Operator
- Spouse
- Partner

PLEASE WRITE A NOTE TO EXPLAIN IF DATA REPORTED IN SECTION A (FIELD SELECTION SECTION), ITEM 1 FOR TARGET CROP ACRES PLANTED IS LESS THAN 525.0 OR GREATER THAN 875.0.

Previously Reported Data



ARMS I Acreage Insert Sheet

THIS OPERATION IS SELECTED FOR THE CROP :CROP – PPCR or PPR
THE SCREENING PHASE DATA ARE FROM 7 RESPONSE.
DATA WERE COLLECTED BY ENUMERATOR:.

Total Acres Of Land Operated: UNKNOWN

Total Acres Of Crop Land: UNKNOWN

=====

Total Acres Of CROP Planted For YEAR 118.0

PLEASE WRITE A NOTE TO EXPLAIN IF DATA REPORTED IN SECTION A
(FIELD SELECTION SECTION), ITEM 1 FOR TARGET CROP ACRES PLANTED
IS LESS THAN 88.5 OR GREATER THAN 147.5.



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Section A: Field Selection

- Target crop acres planted
 - Compare to ARMS I Acreage Insert Sheet
 - If the acres differ by +/-25%, please leave a note
- Total number of targeted crop fields planted
- Target crop is printed on the label, and each questionnaire will only refer to that particular type of the target crop



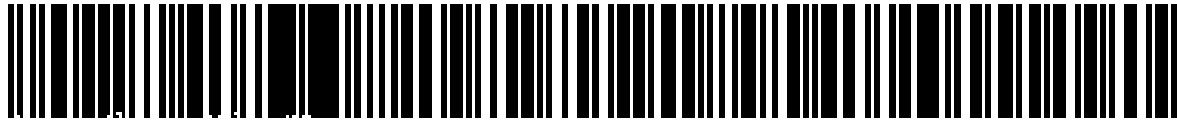
Section A: Field Selection

- **Cardinal & Inter-Cardinal Directions**

- Direction will be on the questionnaire label and CAPI
- For each operation, the field has already been randomly selected using the eight cardinal and inter-cardinal directions
- Field selection is irrespective of the location of the homestead on the operation



Section A: Field Selection



00 16020900 01 01 1312 549908 0

SURVEY CODE=1602-9909-0000

STR 70 420

East

20 13 #1

10000000 0000 0000 000 0000 0

FIELD NUMBER

0 10000

10000 0000 000

00000, 00 5/440-6000

Furthest target crop field
in the given direction

Northern-most target crop field

Southern-most target crop field

Eastern-most target crop field

Western-most target crop field

Northeastern-most target crop field

Southeastern-most target crop field

Northwestern-most target crop field

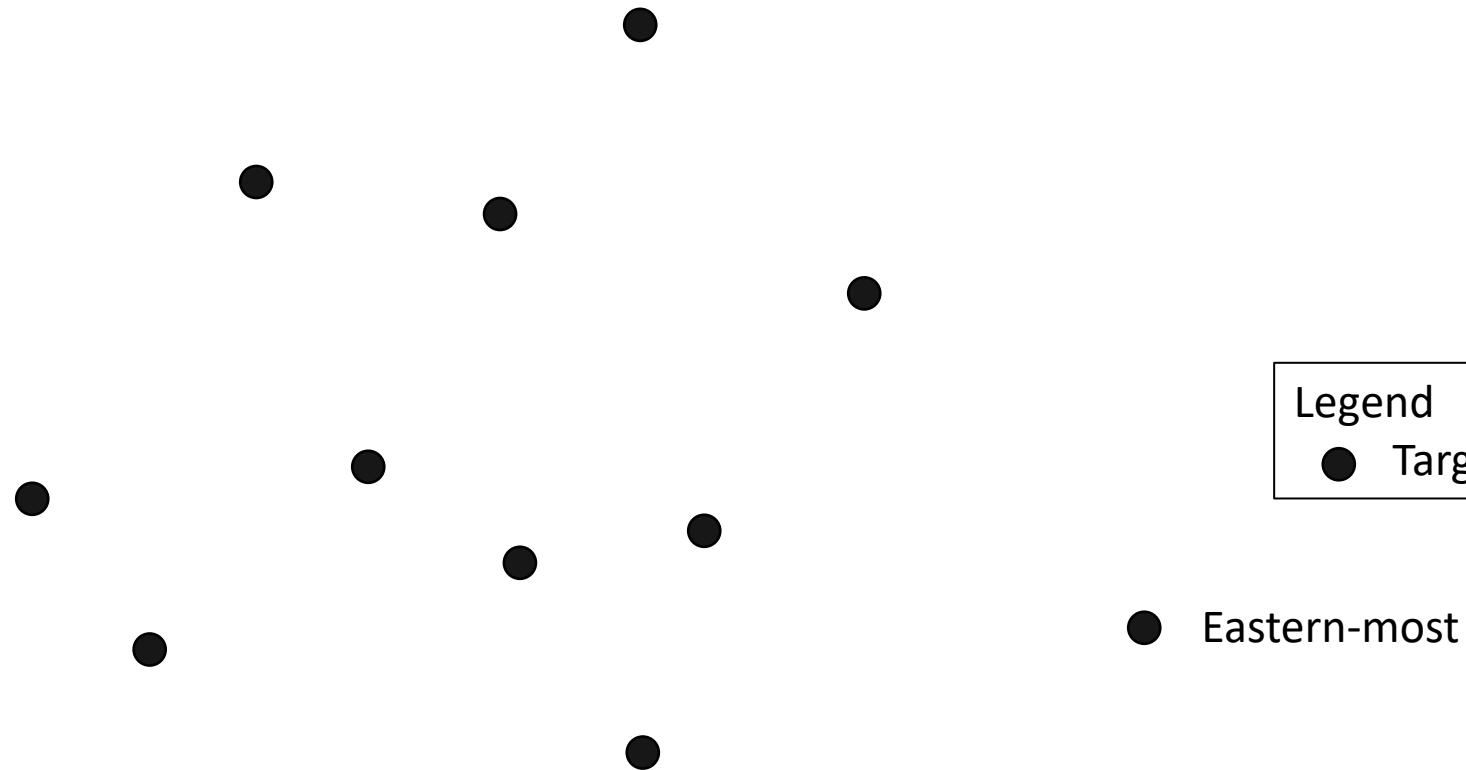
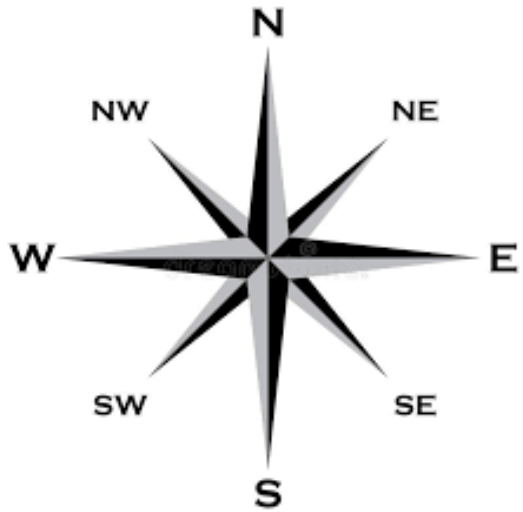
Southwestern-most target crop field



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Section A: Field Selection



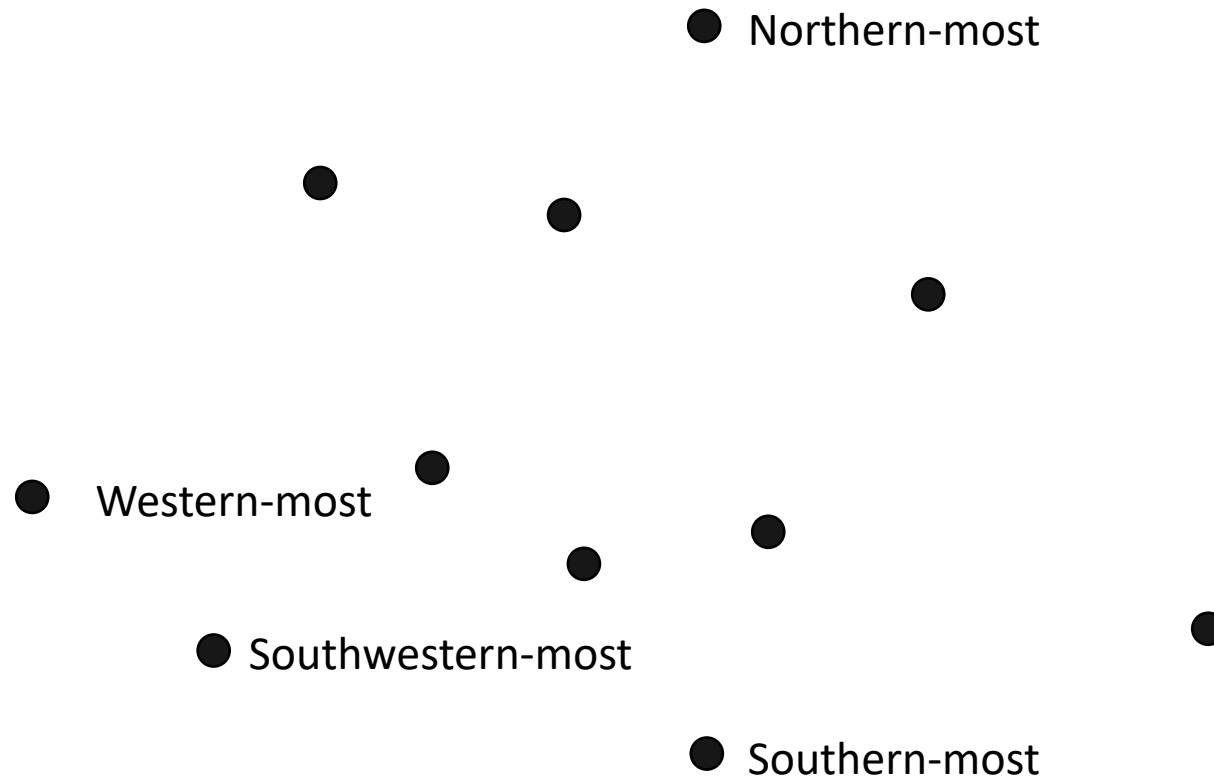
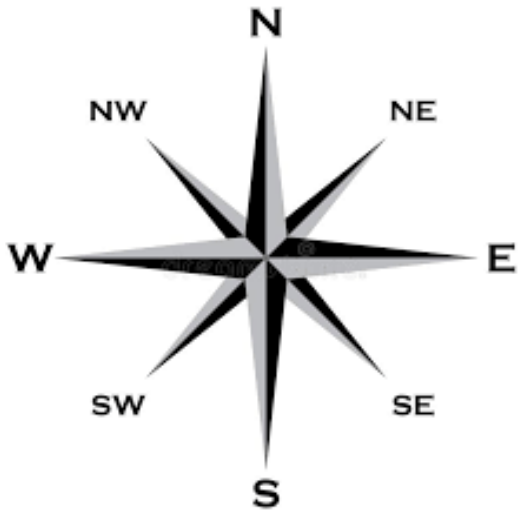
Legend
● Targeted Crop Field

● Eastern-most



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Section A: Field Selection



Legend

● Targeted Crop Field

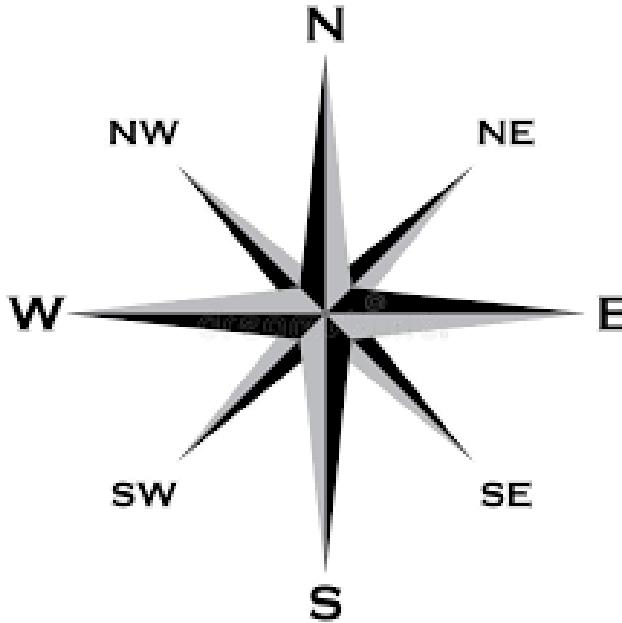


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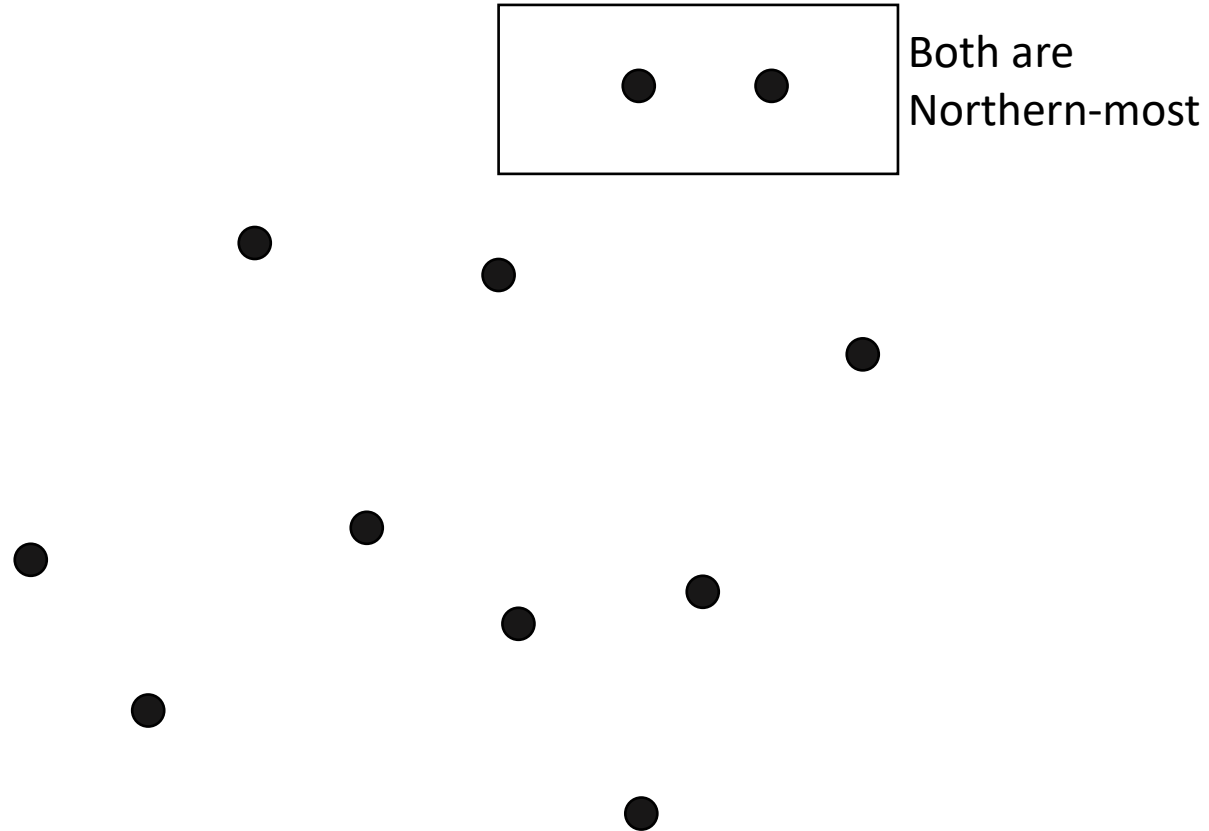
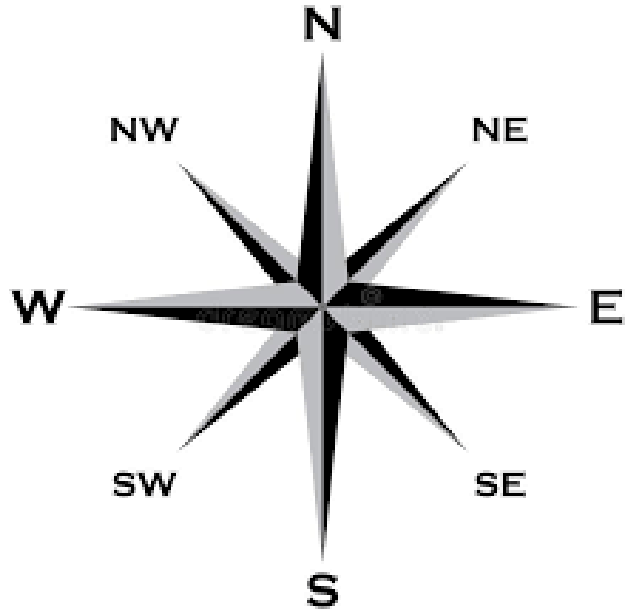


Section A: Field Selection

- Northern-most field?
 - no
- Northeastern-most field?
 - no
- Eastern-most field?
 - yes
 - Select field



Section A: Field Selection



Legend

● Targeted Crop Field



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Section A: Field Selection



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Nutrient or Fertilizer Applications

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David Biar
Northern Plains Region



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Section Purpose

- Identify nutrients or fertilizer used to produce the commodity of interest on the selected field.
- Fertilizer application data is used to analyze water quality and agricultural productivity issues and policies.
- Nutrient Management practices help farmers adjust fertilizer applications to crop needs and reduce costs and losses to the environment.



Getting Started In Section C

C		NUTRIENT or FERTILIZER APPLICATIONS — SELECTED FIELD		C
1.	Were commercial nutrients or fertilizers applied to the selected field for the 2023 soybean crop? INCLUDE those from operators, landlords, and contractors.....	Code	Office Use Edit Table	
		Yes=1 No=3	0202 0200	
[If item 1 = 1 continue. Otherwise go to item 6]				
2.	How many commercial nutrient or fertilizer applications were made to the selected field for the 2023 crop? INCLUDE applications made by airplanes and custom applicators.....	Number		
		0203		

Code Yes=1 if Applied Fertilizers and No=3
Record the number of applications



What is Included

INCLUDE

- ☐ Custom applied nutrients or fertilizers
- ☐ Nutrients or fertilizers applied in the fall of 2023 and those applied earlier if the selected field was fallow in 2023.
- ☐ Commercially prepared manure or compost



What is Excluded

EXCLUDE

- ☐ Micronutrients
- ☐ Unprocessed manure
- ☐ Nutrients or fertilizers applied to previous crops in the selected field
- ☐ Lime and gypsum/landplaster



Nutrient or Fertilizer Applications Table

Nitrogen Codes for Column 2						Application Codes for Column 6				
1 Anhydrous ammonia 6 Ammonia sulfate 2 Nitrogen solution (UAN) 7 Potassium nitrate, 3 Urea magnesium nitrate, and 4 Ammonium nitrate calcium nitrate 5 Sodium nitrate 8 Other nitrogen fertilizer material [specify: _____]						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				
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 ₂ O ₅ Phosphate	K ₂ O Potash	S Sulfur	Type of N Used					
01	31	32	33	34	35	36	37	38	39	40 _____
02	31	32	33	34	35	36	37	38	39	40 _____
03	31	32	33	34	35	36	37	38	39	40 _____

Fertilizer is made up of 2 things:

- **Actual Nutrients**

- N: Nitrogen
- P: Phosphorus
- K: Potassium
- S: Sulfur
- And many others

- **Carrier Material**

- Filler - other stuff



Example Nutrients to grow a crop

- 105 pounds of Nitrogen per acre
- 35 pounds of Phosphorus per acre
- 55 pounds of Potassium per acre



2 Ways to Record Nutrient or Fertilizer Applications:

- **Percent Analysis – most common & preferred**

- **Pounds of Actual Nutrients**

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 ₂ O ₅ Phosphate	K ₂ O Potash	S Sulfur	Type of N Used					
	01	31	32	33	34					
02	31	32	33	34	35	36	37	38	39	40 _____
03	31	32	33	34	35	36	37	38	39	40 _____



2 Ways to Record Nutrient or Fertilizer Applications:

- Percent Analysis – most common & preferred

- **A Complete Product**

- Pounds of Actual Nutrients

- **Individual Ingredients Of A Complete Product**



2 Ways to Record Nutrient or Fertilizer Applications:

- **Percent Analysis - A Complete Product**

- Urea 46-0-0
- 10-34-0
- MAP 11-52-0
- DAP 18-46-0

- **Pounds of Actual Nutrients - Individual Ingredients**

- Nitrogen
- Phosphorus
- Potassium
- Sulfur



It is written with numbers and dashes

- 26 - 5 - 10

N - P - K

- First number listed is Nitrogen
- Second number listed is Phosphorus
- Third number listed is Potassium
- If a Fourth number is present: 26 - 5 - 10 - 7 that is Sulfur



Numbers represent the Percentage

- 26-5-10
- For any given quantity of this fertilizer,
 - 26% of it will be Nitrogen
 - 5% of it will be Phosphorus
 - 10% of it will be Potassium
 - The remaining 59% will be carrier material



Percent Analysis Method

- 150 Pounds of 26-5-10:
 - $150 \text{ lbs.} \times 26\% = 39 \text{ pounds Nitrogen}$
 - $150 \text{ lbs.} \times 5\% = 8 \text{ pounds of Phosphorus}$
 - $150 \text{ lbs.} \times 10\% = 15 \text{ pounds of Potassium}$
 - The rest will be carrier material
 - $150 \text{ lbs.} \times 59\% = 88 \text{ pounds of carrier material}$



Peanut M&Ms



46%



54%



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Peanut M&Ms vs Urea



46%



54%



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Snickers



18%



46%



36%



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Snickers vs DAP



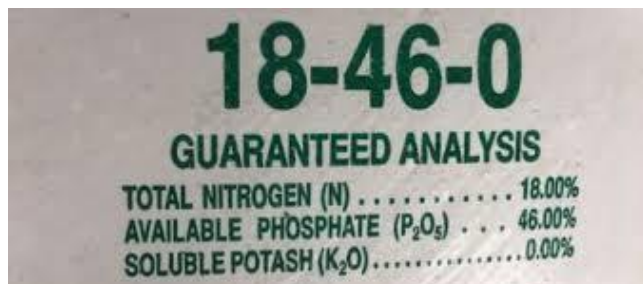
18%



46%



36%



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Sprite



10%



34%



56%



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Sprite vs 10-34-0



10%



34%



56%

10-34-0	
Guaranteed Analysis	
Total Nitrogen (N).....	10%
Available Phosphate (P ₂ O ₅).....	34%



Lemonade



32%



68%



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Lemonade vs UAN 32-0-0



32%



68%

32%

UAN SOLUTION



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Percent Analysis

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] [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 [Redacted] nutrients
	N Nitrogen	P ₂ O ₅ Phosphate	K ₂ O Potash	S Sulfur	Type of N Used		
01	31 11	32 52	33	34	35 4	36 85	37 1
02	31 10	32 34	33	34	35 4	36 5	37 12
03	31	32	33 60	34	35	36 120	37 1



Percent Analysis Method

- 10-34-0 11-52-0 18-46-0 28-0-0 46-0-0 82-0-0 0-0-60
- If you add the N-P-K together, it will not be greater than 85
 - If Sulfur is included in the mix, then this does not hold true.



Pounds of Actual Nutrients

L I N E	2					3	4
	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.]					What quantity was applied per acre? [Leave this column blank if actual nutrients were reported]	[Enter material code] 19 Pounds of actual nutrients
	N Nitrogen	P ₂ O ₅ Phosphate	K ₂ O Potash	S Sulfur	Type of N Used		
01	31 10	32 44	33 72	34	35 4	36	37 19
02	31	32	33	34	35	36	37
03	31	32	33	34	35	36	37



2 Ways to Record Nutrient or Fertilizer Applications:

- **Percent Analysis – most common & preferred**

- 5 gallons of 10-34-0
- 85 pounds of 11-52-0
- 120 pounds of 0-0-60

Complete Product

- **Pounds of Actual Nutrients**

- 10 pounds of Nitrogen
- 44 pounds of Phosphorus
- 72 pounds of Potassium

Ingredients of a Product



2 Ways to Record Nutrient or Fertilizer Applications:

- **Percent Analysis – most common & preferred**

- 5 gallons of 10-34-0
- 85 pounds of 11-52-0
- 120 pounds of 0-0-60
- **Column 3 must be complete**
- **Column 4 must be coded 1 or 12**

- **Pounds of Actual Nutrients**

- 10 pounds of Nitrogen
- 44 pounds of Phosphorus
- 72 pounds of potassium
- **Column 3 must be blank**
- **Column 4 must be coded 19**

3	4
What quantity was applied per acre?	[Enter material code]
[Leave this column blank if actual nutrients were reported]	1 Pounds 12 Gallons 13 Quarts 19 Pounds of actual nutrients
36	37

Types of Nitrogen Used



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

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.]					
	N Nitrogen	P ₂ O ₅ Phosphate	K ₂ O Potash	S Sulfur	Type of N Used	
	01	31	32	33	34	35

Thank You!

- Be sure to follow all skips
- Answer YES=1 NO=3



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Section D – Pesticide Applications

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Jessica Lemenager
Northwest Region



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Pesticide Applications

- Include:
 - Herbicides
 - Insecticides
 - Fungicides
 - Defoliants
 - Other Pesticides
- Exclude
 - Fertilizer Applications
 - Seed Treatments
 - Adjuvants/Surfactants
 - Applications to fence rows, ponds, canals, and ditches



Pesticide Applications

Time Frame: From the harvest of the last harvested crop until the harvest of the current crop.



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Pesticide Applications

D

BIOCONTROL or PESTICIDE APPLICATIONS - SELECTED FIELD

D

Now I have some questions about all the biocontrols or pesticides used on the selected field for the 20xx target 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 target crop field for the 20xx crop?.....

Yes=1
No=3

Code	Office Use Edit Table
0302	0300

[Probe for applications made in the fall of ^{Previous}Year and those made earlier if the selected field was fallow.]

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



Pesticide Applications Table

- Obtain the trade name and formulation
- Respondent Booklet
 - Formulation (Liquid or Dry)
 - Type or Class of each product

Chemical Product Name	L I N E	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 OR 7 How much was applied per acre per application? 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
	01	61	62	63	64	65 73	74
	02	61	62	63	64	65 73	74



Pesticide Applications Table

- Verify Product with EPA Number

L	H	41725	GF-3335	62719-695
L	H	41198	GLY STAR GRASS AND WEED KILLER CONCENTRATE	42750-67
L	H	41508	GLY-4 PLUS HERBICIDE	84009-12
L	H	41067	GLYPHO 648	34704-929
L	H	40910	GLYPHOMAX	62719-323
L	H	40950	GLYPHOSATE	34704-866
L	H	40977	GLYPHOSATE 4 HERBICIDE	51036-312
L	H	41180	GLYPHOSATE 4 PLUS	81927-9
L	H	41023	GLYPHOSATE 41%	42750-60
L	H	41420	GLYPHOSATE 41% HERBICIDE	87659-3
L	H	41053	GLYPHOSATE 41% PLUS	42750-61
L	H	41011	GLYPHOSATE 53.8%	42750-59

L	H	41306	LEXAR EZ HERBICIDE	100-1414
L	H	41052	LEXAR HERBICIDE	100-1201
L	H	41575	LIBERTY 2,4-D ESTER 6	89168-5
L	H	41817	LIBERTY 280 SL HERBICIDE	7969-448
L	F	71065	LIBERTY AZOXY-TET	89168-52
L	I	11399	LIBERTY BIFENTHRIN 2 EC	89168-19
L	H	41356	LIBERTY CLETHODIM 2EC	89168-11
L	H	41366	LIBERTY GLYPHOSATE PLUS	89168-17
L	H	41814	LIBERTY HERBICIDE	7969-447
L	H	41762	LIBERTY MESOTRIONE 4SC	89168-54
D	H	41484	LIBERTY METRIBUZIN 75DF	89168-30
L	H	41479	LIFELINE HERBICIDE	70506-310



Pesticide Applications Table

- Product Code
 - Found in the Respondent Booklet
 - Record each product on a separate line

Chemical Product Name	L I N E	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 OR 7 How much was applied per acre per application? 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
	01	61	62	63	64	65 • _ _ _	73 • _ _ _ 74
	02	61	62	63	64	65 • _ _ _	73 • _ _ _ 74



Pesticide Applications Table

- Product Form
 - Liquid or Dry
 - Key word “BOUGHT”

Chemical Product Name	L I N E	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
	01	61	62	63	64	65 •__		73 •__	74
	02	61	62	63	64	65 •__		73 •__	74



Pesticide Applications Table

- Tank Mix
 - Two products applied in a single application
 - Enter different products on a separate line.
 - Enter the line number of the first product in the mix for all products in the mix

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 OR 7 How much was applied per acre per application? 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	
	01	61	62	63	64	65 • _ _	73 • _ _	74
	02	61	62	63	64	65 • _ _	73 • _ _	74



Pesticide Applications Table

- Tank Mix
 - Two products applied in a single application
 - Enter different products on a separate line.
 - Enter the line number of the first product in the mix for all products in the mix

Chemical Product Name	L I N E	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 OR 7 How much was applied per acre per application? 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
Product A	01	61 40745	62 L	63 1	64 1	65 1.00 73 .	74 14
	02	61	62	63	64	65 . 73 .	74



Pesticide Applications Table

- Tank Mix
 - Two products applied in a single application
 - Enter different products on a separate line.
 - Enter the line number of the first product in the mix for all products in the mix

Chemical Product Name	L I N E	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 OR 7 How much was applied per acre per application? 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
Product A	01	⁶¹ 40745	⁶² L	⁶³ 1	⁶⁴ 1	⁶⁵ 1.00 ⁷³ .__	⁷⁴ 14
Product B	02	⁶¹ 41061	⁶² L	⁶³ 1	⁶⁴ 1	⁶⁵ 1.50 ⁷³ .__	⁷⁴ 14



Pesticide Applications Table

- When Applied

Chemical Product Name	L I N E	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 OR 7 How much was applied per acre per application? 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
Product A	01	⁶¹ 40745	⁶² L	⁶³ 1	⁶⁴ 1	⁶⁵ 1.00 ⁷³ .__	⁷⁴ 14
Product B	02	⁶¹ 41061	⁶² L	⁶³ 1	⁶⁴ 1	⁶⁵ 1.50 ⁷³ .__	⁷⁴ 14



Pesticide Applications Table

- Application Rate
 - Total amount OR amount per acre

Chemical Product Name	L I N E	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 OR 7 How much was applied per acre per application? 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
Product A	01	61 40745	62 L	63 1	64 1	65 1 0 0 73 .	74 14
Product B	02	61 41061	62 L	63 1	64 1	65 1 . 5 0 73 .	74 14



Pesticide Applications Table

- Unit Code
 - Must match the product form

Chemical Product Name	L I N E	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 OR 7 How much was applied per acre per application? 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
Product A	01	⁶¹ 40745	⁶² L	⁶³ 1	⁶⁴ 1	⁶⁵ 1.00 ⁷³ .	⁷⁴ 14
Product B	02	⁶¹ 41061	⁶² L	⁶³ 1	⁶⁴ 1	⁶⁵ 1.50 ⁷³ .	⁷⁴ 14



Pesticide Applications Table

- How Applied

Interviewer Manual gives a in-depth description of application methods.

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

	9	10	11	12
L I N E	How was this product applied? [Enter code from above.]	How many acres in the selected field were treated with this product? ACRES	How many times was it applied? NUMBER	Were these applications made by--- 1 Operator, partner or family member? 2 Custom applicator? 3 Employee/Other?
Product A 01	76 1	77 20.0	79 1	80 1
Product B 02	76 1	77 20.0	79 1	80 1



Pesticide Applications Table

- Acres Treated

		9	10	11	12
	L I N E	How was this product applied? [Enter code from above.]	How many acres in the selected field were treated with this product? ACRES	How many times was it applied? NUMBER	Were these applications made by--- 1 Operator, partner or family member? 2 Custom applicator? 3 Employee/Other?
Product A	01	76 1	77 20 0	79 1	80 1
Product B	02	76 1	77 20 0	79 1	80 1



Pesticide Applications Table

- Number of Applications
 - If everything else is the same (rate, who/when/how applied, etc)

	9	10	11	12
L I N E	How was this product applied? [Enter code from above.]	How many acres in the selected field were treated with this product? ACRES	How many times was it applied? NUMBER	Were these applications made by--- 1 Operator, partner or family member? 2 Custom applicator? 3 Employee/Other?
Product A 01	76 1	77 20 0	79 1	80 1
Product B 02	76 1	77 20 0	79 1	80 1



Pesticide Applications Table

- Who made applications

	9	10	11	12
L I N E	How was this product applied? [Enter code from above.]	How many acres in the selected field were treated with this product? ACRES	How many times was it applied? NUMBER	Were these applications made by--- 1 Operator, partner or family member? 2 Custom applicator? 3 Employee/Other?
Product A 01	76 1	77 20.0	79 1	80 1
Product B 02	76 1	77 20.0	79 1	80 1



Pesticide Applications Table

Chemical Product Name	L I N E	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 OR 7 How much was applied per acre per application? 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
Roundup Ultra	01	⁶¹ 41159	⁶² L	⁶³ —	⁶⁴ 4	⁶⁵ 4.00 ⁷³ .	⁷⁴ 15
Banvel+Atrazine	02	⁶¹ 41061	⁶² L	⁶³ 2	⁶⁴ 4	⁶⁵ 6.00 ⁷³ .	⁷⁴ 15
Clarity	03	⁶¹ 40570	⁶² L	⁶³ 2	⁶⁴ 4	⁶⁵ 2.00 ⁷³ .	⁷⁴ 15
Aztec 2.1	04	⁶¹ 11310	⁶² D	⁶³ —	⁶⁴ 5	⁶⁵ 2.00 ⁷³ .	⁷⁴ 28



Pesticide Applications Table

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

L I N E	9	10	11	12
	How was this product applied? [Enter code from above.]	How many acres in the selected field were treated with this product? ACRES	How many times was it applied? NUMBER	Were these applications made by--- 1 Operator, partner or family member? 2 Custom applicator? 3 Employee/Other?
01	76 3	77 50.0	79 1	80 2
02	76 8	77 50.0	79 1	80 1
03	76 8	77 50.0	79 1	80 1
04	76 1	77 50.0	79 1	80 1



Pesticide Applications Table

EXAMPLE

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

Line	Pesticide Type (Herbicide, Insecticide, Fungicide, etc.)	EPA No. or Trade Name and Formulation	Form Purchased (Liquid or Dry)	Where Purchased (Ask only if EPA No. cannot be reported)
06	<i>Insecticide</i>	<i>Danitol 2.4EC, EPA #39398-17</i>	<i>Liquid</i>	<i>Midland Chem Supply</i>

Some formulations (2, 3)

A	Aerosol
B	Bait
D	Dust
DF	Dry flowable
E, EC	Emulsifiable concentrate
FL	Flowable
G	Granule
M	Microencapsulated
P	Pellet
RTU	Ready-to-use
SP	Soluble powder
ULV	Ultralow-volume concentrate
WP	Wettable powder
WDG	Water-dispersible granule



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Things to help...

- Supplements
- Use of farm records
- Respondent Booklet



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Section D – Helpful Hints

- Restricted Use Pesticides (RUP's) - record keeping requirements for RUP's can help the respondent report pesticide applications.
- Please circle the pesticides that the farmer used on the specified field in a Respondent Booklet.
- Leave any marked up respondent booklets inside the questionnaire – no PII!
- **IMPORTANT:** We want to collect all pesticide applications through harvest.



Section D – Helpful Hints

- Do not record the spray volume applied to the field.
- Do not record the inclusion of adjuvants, etc.
- Do not record liquid fertilizer solutions applied in conjunction with a pesticide. Put this information in the fertilizer table.
- Use the conversion table in the respondent booklet, if necessary, if other units are offered.
 - (2 tablespoons = 1 ounce dry)
- Unit code and formulation code must be consistent.



Thanks for Watching!!



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Section E - Pest Management

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Christina Spellman
Heartland Regional Office



United States Department of Agriculture
National Agricultural Statistics Service



Section E: Purpose

- To provide data about pest management practices that growers use on their crops.
 - Alternative to pesticides
 - Practices which improve the effectiveness of pesticides



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Section E: Pest Management

- Important to Define Pests

- WEEDS
- INSECTS
- DISEASES
- FUNGUS



In this section, “Pests” refers to all FOUR.

Section E: Pest Management

- Prevention
- Avoidance
- Monitoring
- Suppression



Filling out the Questionnaire

- Skip codes!

8. In 2024, how was the selected 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 9.]

2 By conducting general observations while performing routine tasks [Enter code 2 and go to item 10.]

3 The selected field was not scouted. [Enter code 3 and go to item 12.]

Code

0808

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
No=3

0802

[Enumerator Action: Were herbicide (pesticide product codes 40000-49000) applications reported in Section D, item 1, column 2?]

☐ Yes – Continue ☐ No – Go to item 6



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“Specific Purpose” Questions: Intent of operator is key.

Did you do any of the following other types of pest management for the specific purpose of managing or reducing the spread of pests in the selected field?

- a. Use the services of a diagnostic laboratory for pest identification or soil plant tissue pest analysis for the selected field?.....
- b. Plow down crop residue using conventional tillage?.....
- c. Remove/burn down crop residue?.....
- d. Rotate crops in the selected field during the past three years?.....
- e. Maintain ground covers, mulches, or other physical barriers?.....

Code	
Yes=1 No=3	0841
Yes=1 No=3	0842
Yes=1 No=3	0843
Yes=1 No=3	0844
Yes=1 No=3	0845
Yes=1 No=3	0846



“Economic threshold?”

1	2	3
13. Do you believe that the selected field was infested with any of the following oat pests or diseases?	Yes=1 No=3	<p>[If column 2 = 1, ask—] Do you believe that the infestation/population level was higher than the economic threshold for treatment?</p> <p>1 Much higher (over 1.5 times the threshold) 2 Higher (between 1 and 1.5 times threshold) 3 Lower (between .5 and 1 times the threshold) 4 Much lower (between 0 and .5 times the threshold) 99 Don't Know</p> <p>Code</p>
a. Crown rust.....	4060	4061
b. Stem rust.....	4062	4063
c. Barley dwarf virus.....	4064	

Value of Destroyed Crop >
Cost of Pest Management



Section E: Key Points

- Remember how we define pest for this survey
- Be careful with your skip codes
- Leave detailed notes
- If you have questions, ask them

