

EPA Herbicide Strategy

How will this affect your operation?

Wesley Everman

Extension Weed Specialist and Assistant Professor

What is the Herbicide Strategy?

What is the Herbicide Strategy?

- Define the Endangered Species Act
- How will the ESA affect herbicide use?
- Why are we hearing about it now?
- How will it affect the herbicide I use today?

Endangered Species Act

- First passed in 1973
- Requires government agencies to ensure any actions they take do not jeopardize a species that is federally listed as endangered or threatened.
- Agency consults with US Fish and Wildlife Services or National Marine Fisheries Service.

Endangered Species Act

- EPA is the federal agency that regulates herbicide use through the Office of Pesticide Programs (OPP)
- Since herbicides can affect plants and animals (or their habitat), pesticide regulations are considered “actions”
- Requires an endangered species consultation with the Services

Where did this come from?

- The Endangered Species Act requires EPA to consider the impact of pesticides on listed species and their habitats when registering products.
- EPA wasn't doing this, they got called to the carpet on it.
- Courts annulled pesticide registrations, removing them from use.
- Herbicide Strategy is response to bring registrations into compliance and protect them from litigation.

Why are we hearing about this now?

- EPA is developing strategies to protect endangered species and their habitats from pesticides.
- Moving from registration decisions on chemical-specific basis (atrazine etc.) to pesticide groups (herbicides, insecticides, fungicides, etc.)
 - Some chemical-specific assessments will continue due to ongoing litigation

What is the Herbicide Strategy?

- Identifies runoff/erosion and spray drift mitigation to protect listed species and their habitats.
- EPA will consider and apply the Herbicide Strategy during product registration and re-registration.
- Labels will change, allowing growers to select mitigation options that work best for their situation.

Weather and the EPA Herbicide Strategy

- Runoff/erosion mitigation based on historical rainfall frequency and intensity data.
- Spray drift mitigation based on estimated herbicide impact on natural and non-managed areas.
- Labels will change, greater restrictions on application parameters.

What will change with the Herbicide Strategy?

- Labels will change
- Requirement to check Bulletins Live! Two
- Spray drift mitigation
- Requirement to adopt practices to accumulate mitigation points

What is Bulletins Live! Two?

- Provides up to date ESA restrictions
- Requirements of application restrictions
 - Herbicide-specific
 - Geography-specific
- Threatened or Endangered species areas
- Pesticide Use Limitation Areas (PULAs)

What is Bulletins Live! Two?

<https://www.epa.gov/endangered-species/bulletins-live-two-view-bulletins>

What is Bulletins Live! Two?

Directions

This tool displays Pesticide Use Limitation Areas (PULAs) for products with active Endangered Species Protection Bulletins. To generate a printable bulletin, please follow these steps:

1. Navigate to your intended pesticide application area by using the "Location Search" tool or panning and zooming on the map itself.
2. Select your Application Month from the Application Date dropdown.
3. Search specific pesticide product(s) by entering the EPA product registration

[Unpin](#)

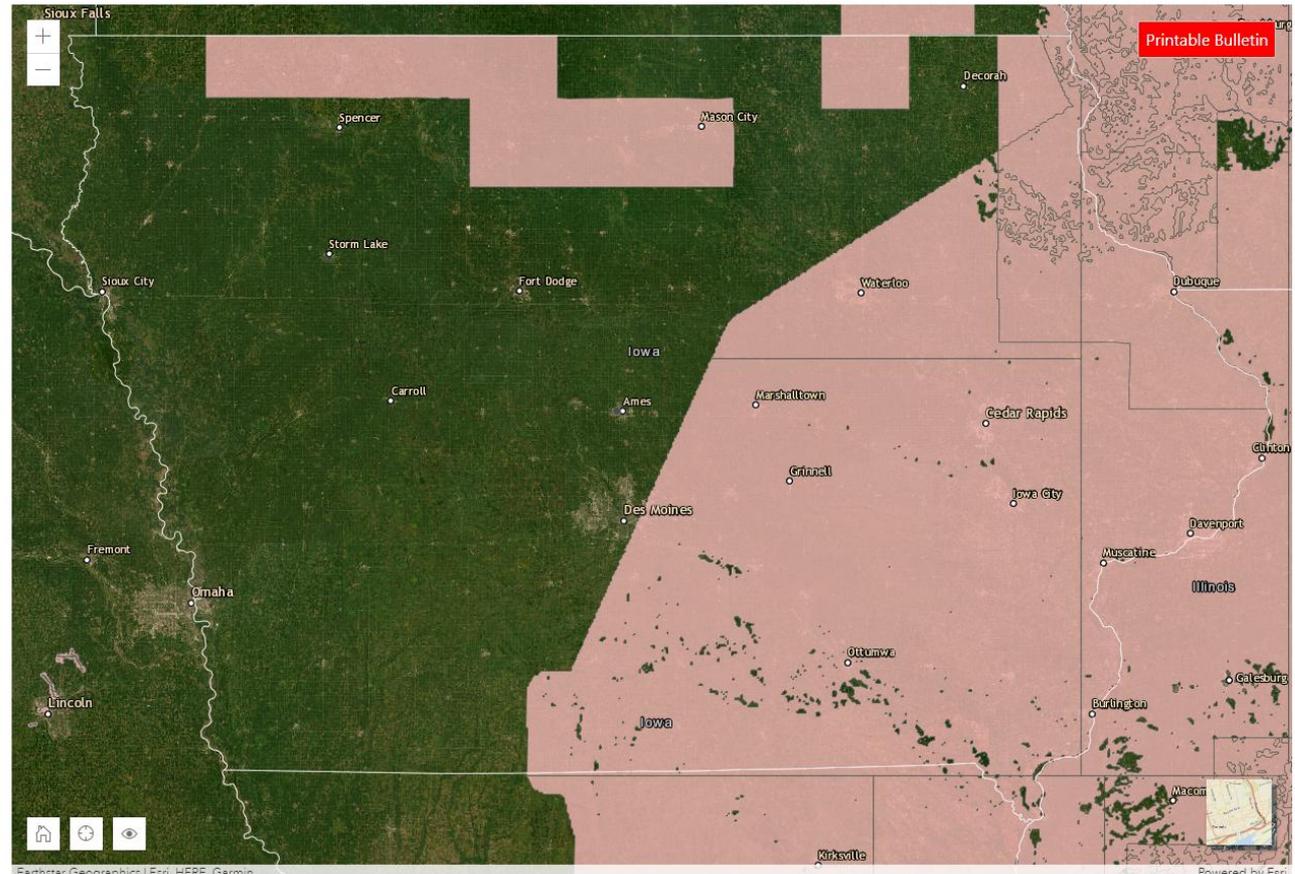
Location Search:

50011

Application Month:

December 2024

EPA Registration Number:



Bulletins Live! Two -- View the Bulletins

For assistance in using Bulletins Live! Two, [view the tutorial](#). Also see [background, notes and a quick start guide for BLT](#).

entering the EPA product registration number(s). If you need assistance finding the EPA product registration number, consult the [guide on the Bulletins Live! Two webpage](#). Once you have entered your selection, the Pesticide Use Limitation Areas (PULAs) associated with the product(s) will be displayed on the map. To remove any product(s) you selected, click on the "X" button on the right side of the product box(es).

4. If there are no limitations in the map area for the selected application date and product, a "Printable Bulletin" button will appear in the top right

Unpin

Location Search:

2270 220th St, Ames, IA, ! X Q

Application Month:

May 2025 V

EPA Registration Number:

V X

Product

BASF L-Glufosinate-Ammonium 211
Herbicide (7969-500) X

2 Pula(s) Filtered





Application Month: May 2025

Product: All products with limitations in selected area

- 1 Areas where pesticide use must be limited are identified on the map. A legend is located beside the map to help pinpoint these locations.



Currently, no pesticide use limitations exist within the printed map view for the month/year and product you selected, beyond the instructions specified on the pesticide label. Follow the use instructions on your label. Ensure that your pesticide application area is within the printed map view. If it is not, follow the directions on the Instructions Tab to ensure that your pesticide application area is captured within the printed map view. Please check back if you plan to apply your pesticide in an area outside the map view or in a month and year other than the one for which this Bulletin is valid.

Pesticide Use Limitation Summary Table

Product	AI	Use	Method	Form	Code
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Codes and Limitations Table

Code	Limitation
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How will this affect the pesticides I use?

- Requirement to check EPA websites
 - Bulletins Live! Two (PULAs)
 - EPA mitigation menu
- Measures to reduce spray drift
- Measures to reduce runoff/erosion
- Other measures to reduce pesticide exposure to listed species



Consult with the mitigation menu website



Pesticides

[A-Z Index](#)

[Antimicrobial Pesticides](#)

[Biopesticides](#)

[International Activities Related to Pesticides](#)

[Contact Us About Pesticides](#)

epa.gov/pesticides/mitigation-menu

Mitigation Menu

Date of last update: October 16, 2024

On this page:

- [How do I know if Runoff/Erosion Mitigation is Required?](#)
- [Runoff/Erosion Mitigation Options](#)



How do I know if Runoff/Erosion Mitigation is Required?

Pesticide users will need to plan their pesticide applications in advance to determine whether they are subject to runoff/erosion mitigation. These mitigation requirements

Helpful Links

- [Purpose and Background of Mitigation Menu](#)
- [Bulletins Live! Two](#)
- [USDA's Web Soil Survey tool to determine soil texture](#) 
- [EPA's ESA Workplan Update](#) 
- [Herbicide Strategy Docket](#) 
- [Insecticide Strategy Docket](#) 

Runoff/Erosion Mitigation Options

You may use the measures in Tables 1 and 2 unless you see more restrictive limitations on individual labels or bulletins. If you use these tables, you may select any combination of measures in the tables to achieve the minimum points required by the label or bulletin.

EPA's [runoff points calculator](#) and [Mitigation Calculator User Guide \(pdf\)](#) can help you calculate the number of points earned for practices already in place on the field.

Table 1. Mitigation relief options.

Mitigation Relief	Pesticide Runoff Vulnerability and Field Characteristics	Points
County-based mitigation relief (see runoff vulnerability map by county and county list) <i>Select one option</i>	Pesticide runoff vulnerability - very low	6
	Pesticide runoff vulnerability – low	3
	Pesticide runoff vulnerability – medium	2
	Pesticide runoff vulnerability – high	0
Field slope	Field slope ≤3% (naturally low slope or flat fields; flat laser leveled fields)	2
Predominantly sandy soils <i>This option can only be used if the product label does not prohibit application on sandy soils</i>	>50% sand, loamy sand, or sandy loam soil without a restrictive layer that impedes the movement of water through the soil	2
Mitigation tracking	Documented at the field or farm level, using paper or electronic format	1
	The technical specialist must meet the following characteristics:	

Mitigation Relief	Pesticide Runoff Vulnerability and Field Characteristics	Points
Working with and following recommendations from a technical specialist OR	<ul style="list-style-type: none"> Have technical training, education and/or experience in an agricultural discipline, water or soil conservation, or other relevant disciplines that provides training and practice in the area of runoff or erosion mitigation technologies/measures; and Participate in continued education or training in the area of expertise which should include runoff and erosion control; and Have experience advising on conservation measures designed to develop site specific runoff and erosion plans that include mitigation measures described in Table 2 below. 	1
Participating in a qualifying conservation program <i>Select one; points are not additive for doing both</i>	<p>The conservation program must meet the following characteristics:</p> <ul style="list-style-type: none"> Provides advice from individuals who meet the same characteristics provided above for technical specialists; and Provides <u>site-specific guidance</u> tailored to the grower/apPLICATOR's crop and/or location; and Focuses on <u>reducing or managing runoff and/or erosion</u> (including for example, soil loss, soil conservation, water quality protection) from agricultural fields or other pesticide use sites; and 	2

Mitigation Relief	Pesticide Runoff Vulnerability and Field Characteristics	Points
	<ul style="list-style-type: none"> Provides <u>documentation</u> of program enrollment for the program enrollee. This documentation does not need to be provided to EPA; and Includes verification of implementation of the recommended measures or activities (measures were established and maintained). Verification can be done through the conservation program and provided to the program enrollee. Verification is not required to be submitted to EPA. 	

Mitigation	Qualifying Practices	Points
	<ul style="list-style-type: none"> A 50% or greater chance of rainfall of 1 inch or more is expected to occur within 48 hours of the application as predicted by the NOAA/National Weather Service. AND, The precipitation potential is 50% or greater at any point during the 48-hr period. 	
In-field mitigation measures		
<u>Conservation tillage</u> <i>Select one option</i>	No-till, including perennial crops (e.g., orchards that are not tilled)	3
	Reduced tillage, strip tillage, ridge tillage, mulch tillage	2
<u>Reservoir tillage</u>	Reservoir tillage, furrow diking, basin tillage	3
<u>Contour farming</u>	Contour farming, contour tillage, contour orchard and perennial crops	2
<u>Vegetative Strips – In-Field</u>	Inter-row vegetated strips, strip cropping or intercropping, alley cropping, prairie strips, contour buffer strips, contour strip cropping, vegetative barrier (occurring in a contoured field)	2
<u>Terrace farming</u>	Terrace farming, terracing, field terracing	2
<u>Cover crop or continuous ground cover</u> <i>Select one option</i>	Cover crop or continuous ground cover; with tillage	1
	Cover crop or continuous ground cover; no tillage; short-term cover crop	2
	Cover crop or continuous ground cover; no tillage; long-term cover crop	3
<u>Irrigation water management</u> <i>Select one option</i>	Use of soil moisture sensors/evapotranspiration meters with center pivots & sprinklers; above ground drip tape, drip emitters; micro-sprinklers	2
	General irrigation management	

Table 2. Runoff/erosion mitigation options

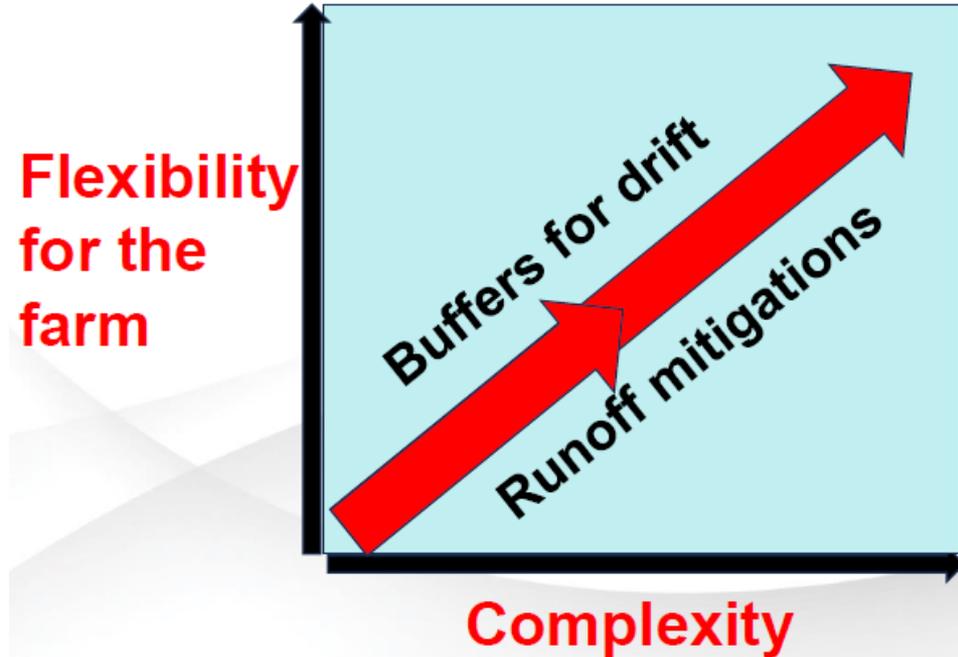
Mitigation	Qualifying Practices	Points
Application parameters		
<u>Annual application rate reduction</u> <i>Select one option</i>	Any application 10% to <30% less than the maximum labeled annual application rate	1
	Any application 30% to <60% less than the maximum labeled annual application rate	2
	Any application ≥60% less than the maximum labeled annual application rate	3
<u>Reduction in the proportion of field treated</u> (banded application, partial field treatment, ground precision sprayer, smart sprayer, or other specialized method) <i>Select one option</i>	Portion of field not treated: 10 to <30%	2
	Portion of field not treated: 30 to <60%	3
	Portion of field not treated: ≥60%	4
<u>Soil incorporation</u>	Watering-in or mechanical incorporation before a runoff producing event. A runoff producing event is considered as follows:	1

Mitigation	Qualifying Practices	Points
	Use of below tarp irrigation, below ground drip tape; dry farming, non-irrigated lands No irrigation	3
<u>Mulching</u>	Mulching with permeable artificial materials (i.e., landscape fabrics, synthetic mulches)	1
<i>Select one option</i>	Mulching with natural materials	3
<u>Erosion barriers</u>	Wattles, silt fences	2
Field-adjacent mitigation measures		
<u>Grassed waterway</u>	Grassed waterway	2
<u>Vegetative filter strips (VFS) or field border adjacent to field</u>	20 to 30 ft wide	1
	30 to <80 ft wide	2
	≥80 ft wide	3
<i>Select one option</i>		
<u>Vegetated ditch</u>	Vegetated ditch	1
<u>Riparian area; riparian forest buffer; riparian herbaceous cover</u>	20 to <30 ft	1
	30 to <80 ft	2
	≥80 ft	3
<i>Select one option</i>		
<u>Constructed and natural wetlands</u>	Constructed and natural wetlands, wetland and riparian landscape/habitat improvement	3
<u>Terrestrial habitat landscape improvement</u> (i.e., critical area planting, cross wind trap strips, hedgerow planting, herbaceous wind barriers, windbreak-shelterbelt establishment and renovation, tree shrub planting, forest stand improvement, upland wildlife habitat management)	20 to <30 ft	1
	30 to <80 ft	2
	≥80 ft	3
<i>Select one option</i>		

Mitigation	Qualifying Practices	Points
<u>Filtering devices</u>	Filters, sleeves, socks, or filtration units containing activated carbon	3
<i>Select one option</i>	Filters, sleeves, socks, or filtration units containing compost amendments	1
Systems that capture runoff and discharge		
<u>Water retention systems</u>	Sediment basins, catch basins, sediment traps, water retention ponds	2
<u>Subsurface drainages and tile drainage installed without controlled drainage structure</u>	Subsurface tile drains, tile drains <u>without</u> controlled drainage structure	1
Other mitigation measures		
<u>Using mitigation measures from multiple categories</u>	Practices must be used from <u>at least 2</u> of the following categories: in-field, field-adjacent, or systems that capture runoff and discharge Examples: 1 in-field measure + 1 field-adjacent measure OR 1 in-field measure + 1 system that captures runoff and discharge OR 1 field-adjacent measure + 1 system that captures runoff and discharge	1

EPA Herbicide Strategy Mitigations

- Decision by field
- Decision by product
- Decision by crop
- Runoff mitigation: **0-9 points**
- Spray drift buffers for ground rig: 0-230 ft
- Starts as products are registered or **reregistered**



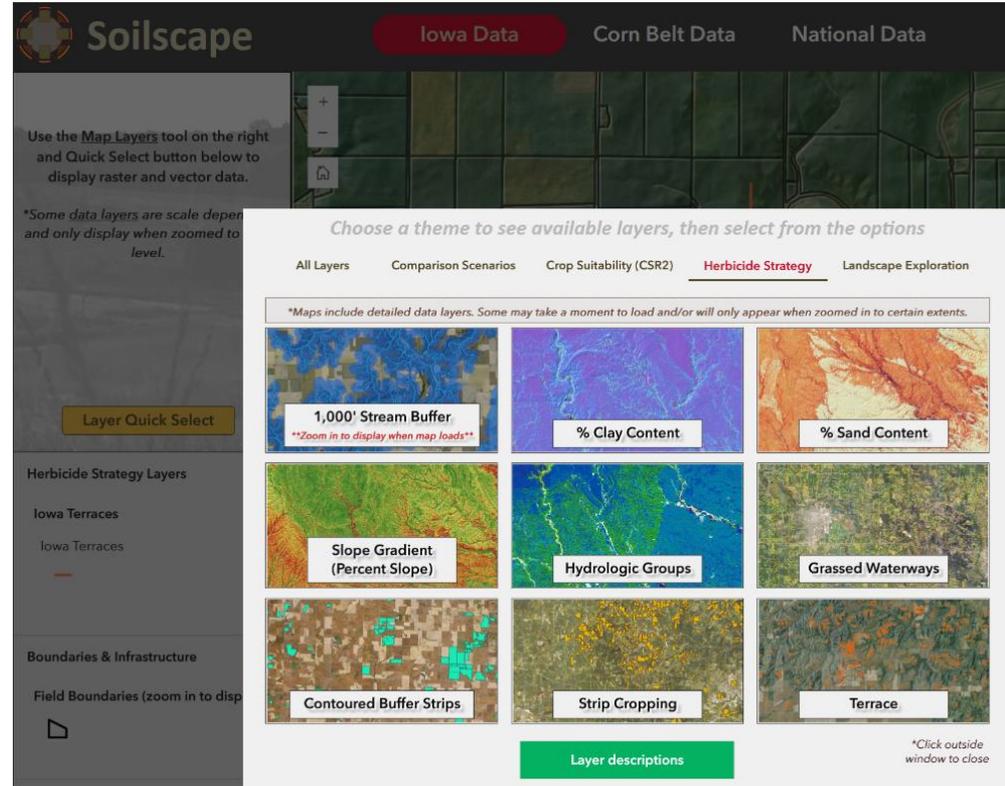
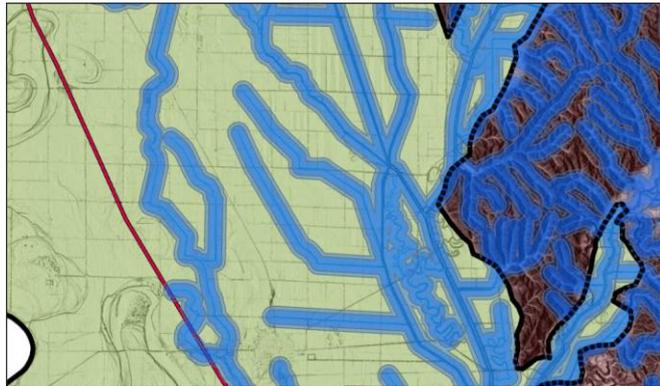
Evaluate fields being treated

if you answer “yes” to any of these questions, no additional runoff/erosion measures are needed for the application

- Does the treated field have a perimeter berm system present at the time of application and throughout the cropping season?
- Is there an irrigation tailwater return system in place?
- Does the treated field have subsurface or tile drains installed with a water control structure and controlled outlet?
- Is the application occurring:
 - as a soil injection?
 - as a tree injection?
 - via chemigation applied subsurface or under impermeable plastic mulch?
 - **as a spot treatment (<1,000 square feet being treated)?**
- Is the treated field less than 1/10th of an acre?
- Are the **areas within 1,000 ft down-gradient** from the treated field comprised entirely of managed areas (fields, roads, buildings, etc.)?

EPA Herbicide Strategy

- Runoff/erosion mitigation
 - Point website from EPA
 - Worksheets
 - Soilscape.org



The screenshot shows the Soilscape web application interface. At the top, there are navigation tabs for "Iowa Data", "Corn Belt Data", and "National Data". Below the map, there is a "Layer Quick Select" button and a list of "Herbicide Strategy Layers" including "Iowa Terraces" and "Boundaries & Infrastructure". The main content area displays a grid of data layers under the "Herbicide Strategy" theme. The layers include:

- 1,000' Stream Buffer
- % Clay Content
- % Sand Content
- Slope Gradient (Percent Slope)
- Hydrologic Groups
- Grassed Waterways
- Contoured Buffer Strips
- Strip Cropping
- Terrace

A "Layer descriptions" button is located at the bottom of the grid. A note at the bottom right states: "*Click outside window to close." The interface also includes a "Layer Quick Select" button and a "Layer Quick Select" button.

Use the [Map Layers](#) tool on the right and Quick Select button below to display raster and vector data.

**Some data layers are scale dependent and only display when zoomed to field*

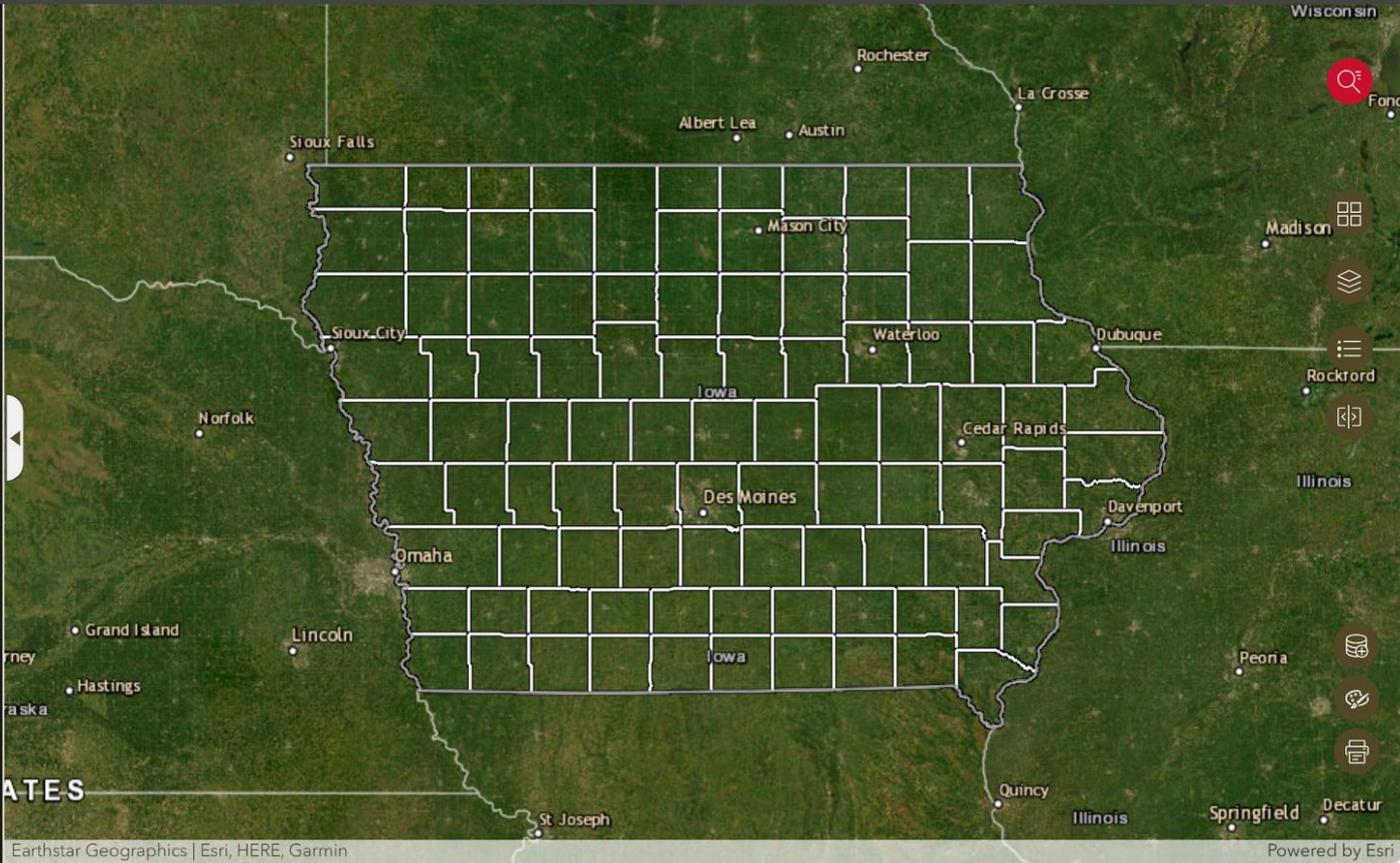
Layer Quick Select

Boundaries & Infrastructure

Iowa Counties



Facebook, Twitter, LinkedIn icons

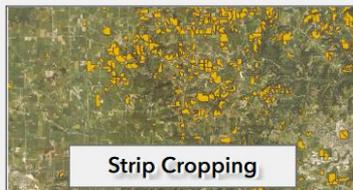
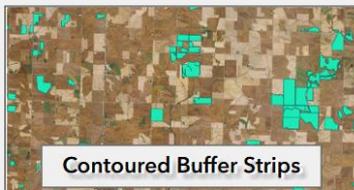
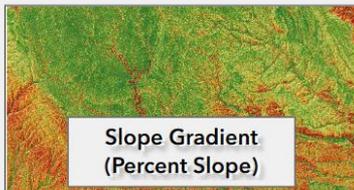
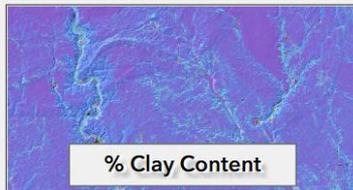


Map navigation and tool icons: search, layers, home, print, etc.

Choose a theme to see available layers, then select from the options

- All Layers
- Comparison Scenarios
- Crop Suitability (CSR2)
- Herbicide Strategy**
- Landscape Exploration

*Maps include detailed data layers. Some may take a moment to load and/or will only appear when zoomed in to certain extents.



Layer descriptions

*Click outside window to close

Use the **Map Layers** tool on the top right and the **Quick Select** button below to display raster and vector data layers.

*Some data layers are scale dependent and only display when zoomed in to certain extents.

- Layer Quick Select
- Boundaries & Infrastructure
- Iowa Counties

Use the **Map Layers** tool on the right and **Quick Select** button below to display raster and vector data.

**Some data layers are scale dependent and only display when zoomed to field*

Layer Quick Select

Herbicide Strategy Layers

Iowa Stream Centerlines (Iowa DNR)
- Zoom in to Display

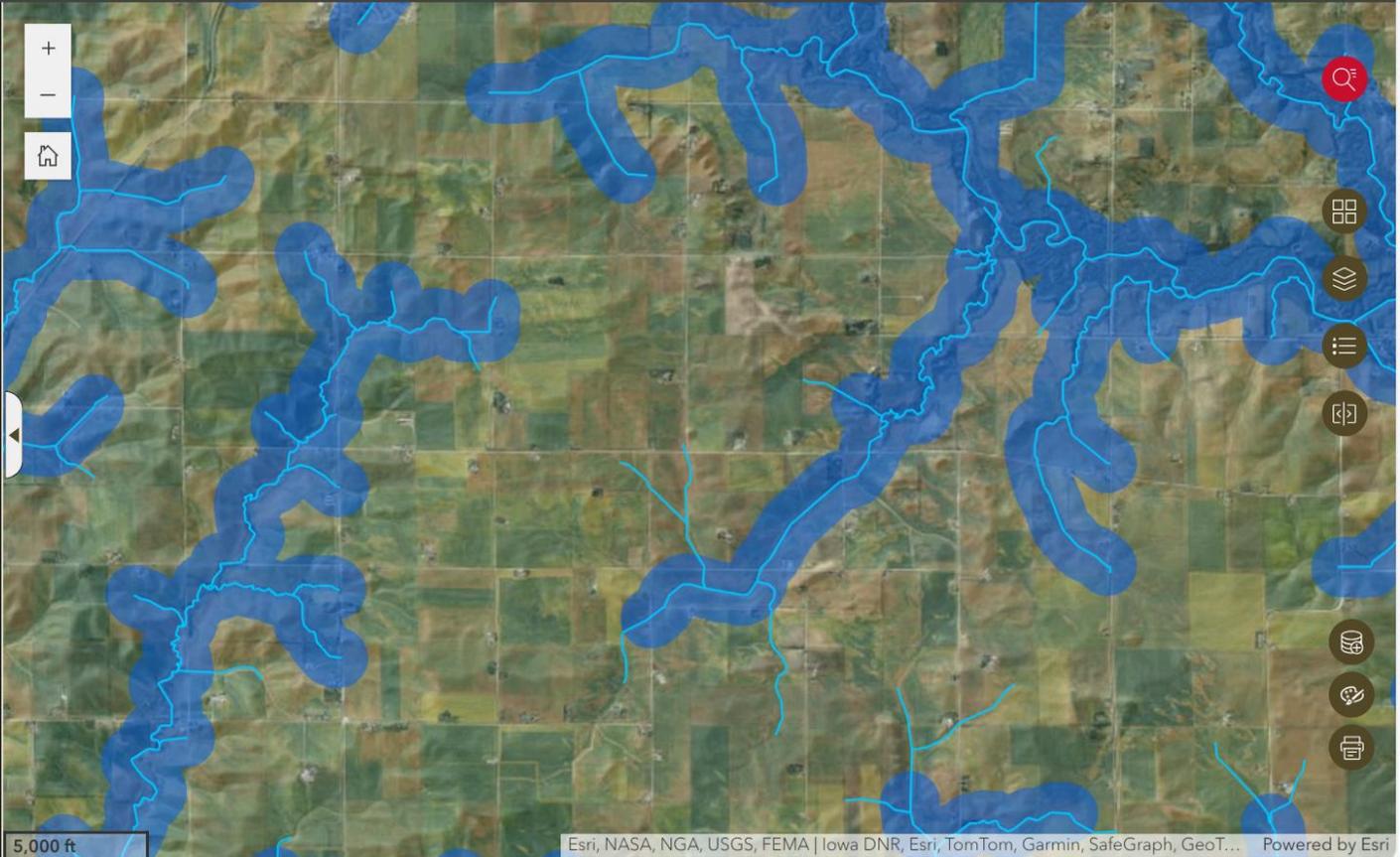
Imagery

Naip 2023 nc

Naip 2023 nc

- Red: Band_1
- Green: Band_2

f X in





Iowa Data

Corn Belt Data

National Data



About Resources Help Contact

Use the [Map Layers](#) tool on the right and Quick Select button below to display raster and vector data.

**Some data layers are scale dependent and only display when zoomed to field*

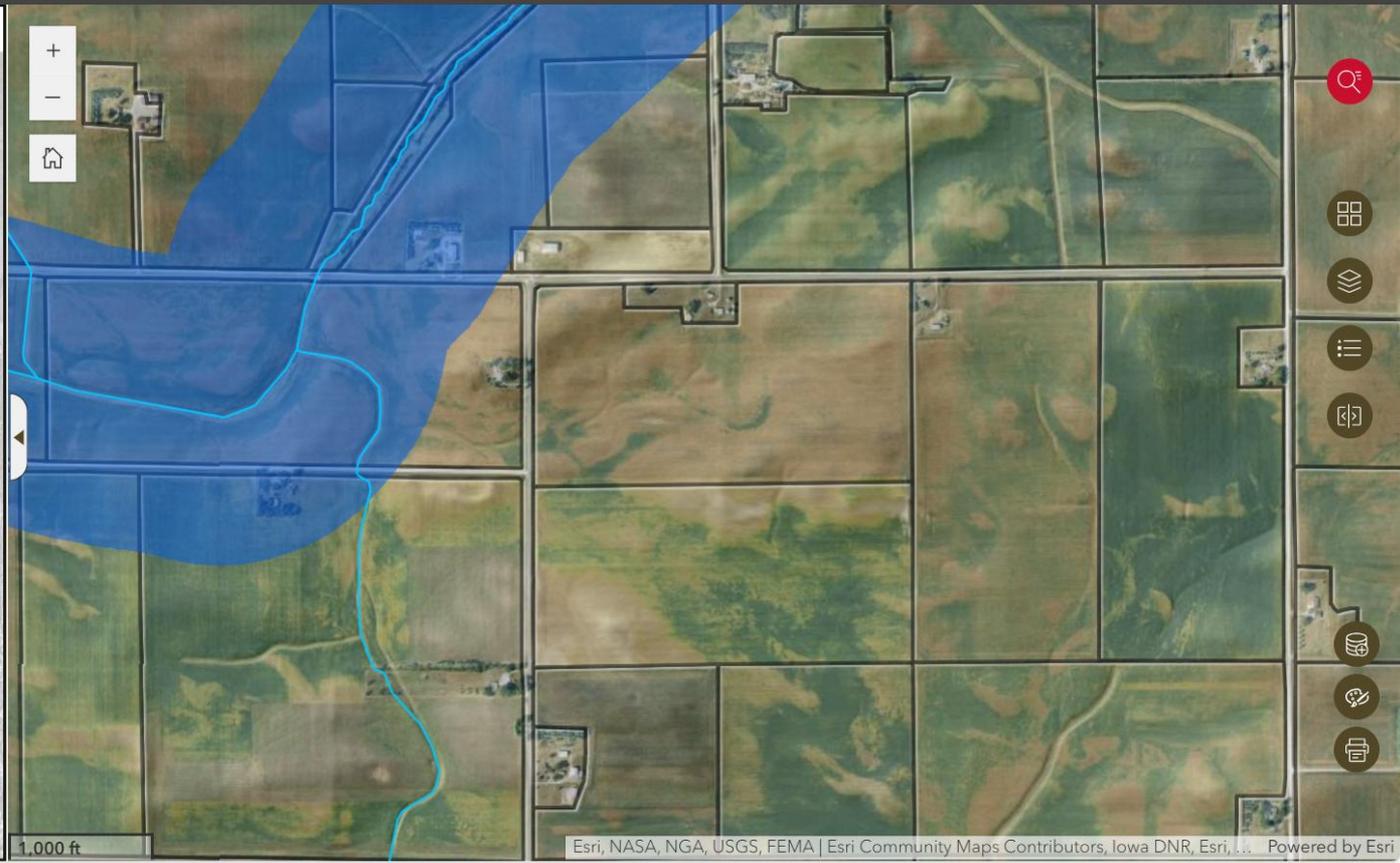
Layer Quick Select

Herbicide Strategy Layers

Iowa Stream Centerlines (Iowa DNR)
- Zoom in to Display

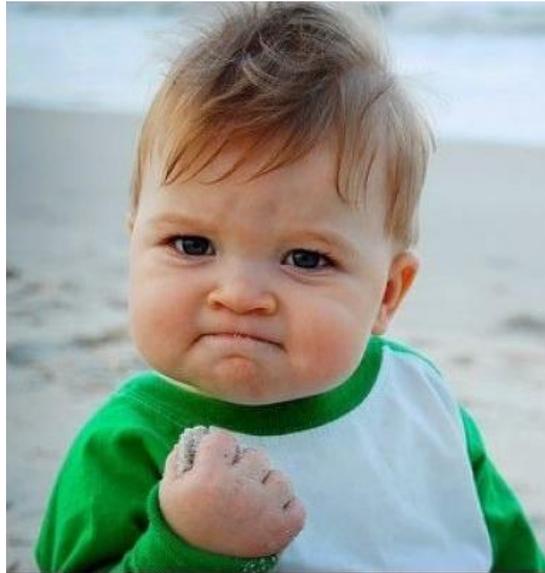
Boundaries & Infrastructure

Field Boundaries (zoom in to display)



EPA Herbicide Strategy Runoff/Erosion Mitigations

- If you are more than 1000 feet from a natural or non-managed area:



- **YOU DO NOT NEED TO TRACK RUNOFF/EROSION MITIGATION POINTS!!!!**

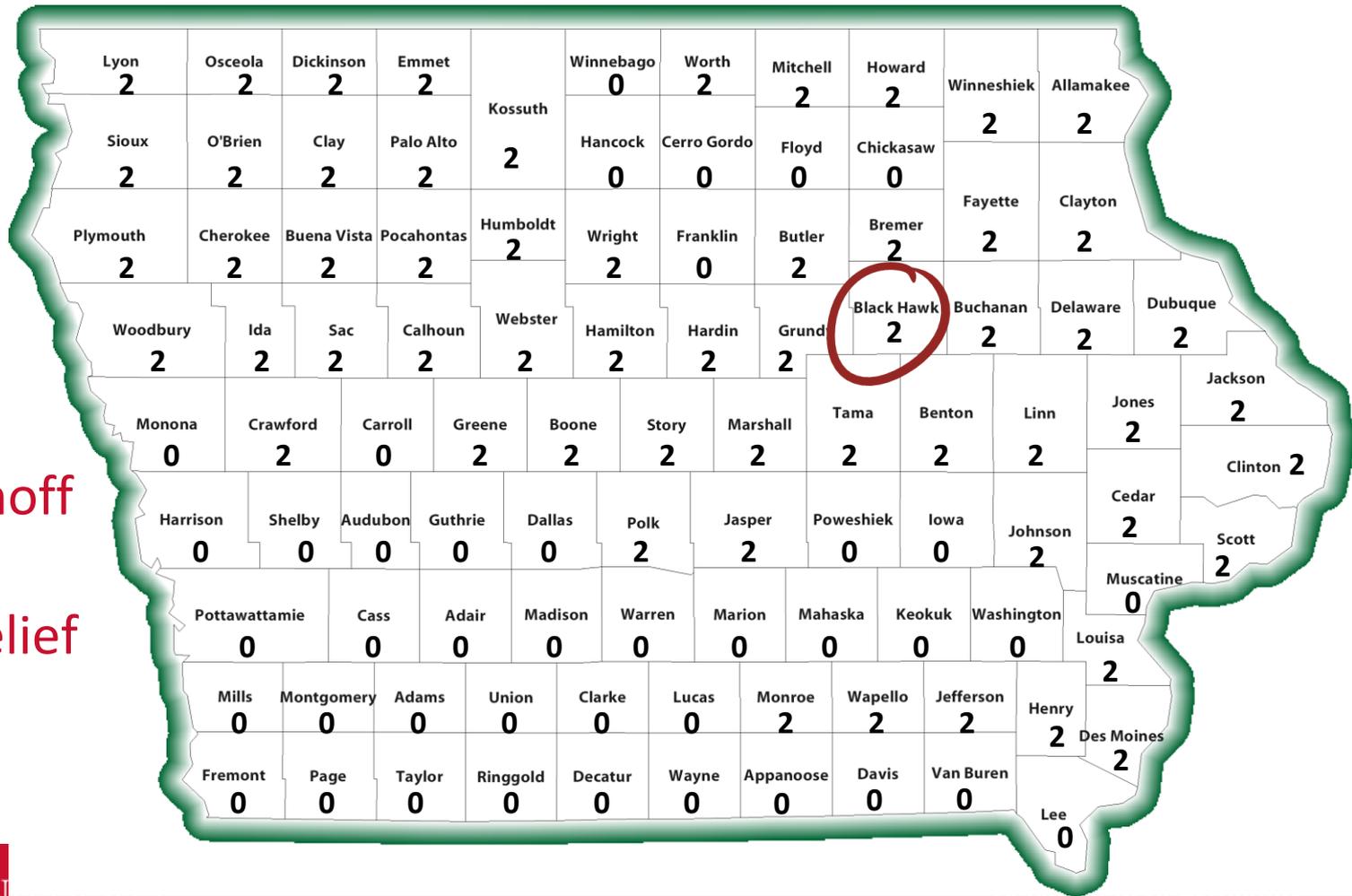
EPA Herbicide Strategy Runoff/Erosion Mitigations

- All fields must reach 9 points
- Keep it simple
- Approaches based on
 - relief points
 - tillage



0 = high vulnerability

2 = medium vulnerability



Pesticide runoff
vulnerability
mitigation relief
points

Conservation Tillage

Mitigation	Points
Mitigation relief points	2
Non-irrigated lands	3
Subsurface tile drains	1
Conservation tillage (No-till)	3
Contour farming	2
Vegetative Strips – In field	2
Grassed waterway	2
Total	15

- Does not include 1 pt for mitigation tracking
- Does not include Field adjacent mitigation (filter strips, ditches, buffers)

Conventional Tillage – no relief points

Mitigation	Points
Mitigation relief points	0
Non-irrigated lands	3
Subsurface tile drains	1
Contour farming	2
Vegetative Strips – In field	2
Grassed waterway or Terrace (if both = 4 points)	2
Field border of vegetation (20 ft = 1 pt, 30 ft = 2 pt)	1
Total	11

- Does not include 1 pt for mitigation tracking
- Does not include expert support (1 pt) or conservation programs (2 pt)

Pasture – No relief points

Mitigation	Points
Mitigation relief points	0
Non-irrigated lands	3
Conservation tillage (No-till)	3
Contour farming (strip cropping)	2
Cover crop/continuous ground cover, no till	3
Reduction in portion of field not treated: 30 to 60%	3
Subsurface tile drainage	1
Total	15

- Does not include 1 pt for mitigation tracking
- Does not include 1 pt using multiple categories (application, in field, adjacent)

Alfalfa/hay crop – No relief points

Mitigation	Points
Mitigation relief points	2
Non-irrigated lands	3
Subsurface tile drains	1
Contour farming (strip cropping)	2
Vegetative Strips – In field	2
Terrace	2
Field border of vegetation (20 ft = 1 pt, 30 ft = 2 pt)	1
Total	13

- Does not include 1 pt for mitigation tracking
- Does not include expert support (1 pt) or conservation programs (2 pt)

EPA Herbicide Strategy

- Runoff/erosion mitigation
 - Point app from EPA
 - Worksheets
 - Soilscape
- Drift mitigation
 - Biggest concern



EPA Herbicide Strategy – Drift Mitigation

- Buffers
 - Wind speed maximums
 - Droplet size
 - Nozzles
 - Boom height
 - Mixtures
 - Platforms
-
- There are mitigations to reduce the buffer



EPA Herbicide Strategy Drift Buffer Mitigations

- Label specific spray drift mitigations
- Worst case for ground rig = 230 ft downwind
- Managed areas adjacent
 - Can be included in buffer
 - Ag fields
 - Roads, grassy areas, bareground
 - Field borders, hedgerows, CRP



Spray Drift Ground Application – 0 to 230 ft

Mitigation measures	% reduction
Low boom, coarse droplets	75%
High boom, coarse droplets	65%
Low boom, fine to medium droplets	65%
Low boom, very fine to fine droplets	40%

Objective is to take 230 feet and make it workable

Spray Drift Ground Application – 0 to 230 ft

Mitigation measures	% reduction
Low boom, coarse droplets	75%
High boom, coarse droplets	65%
Low boom, fine to medium droplets	65%
Low boom, very fine to fine droplets	40%
DRA as influenced by droplet	15-30%
Relative humidity \geq 60%	10%

Low boom, coarse drops (75%) DRA (30%), RH: 230 feet down to 0 feet

Additional Methods to Reduce Spray Drift Buffer



Broadcast hooded 50%



Drop nozzles 50%

Downwind measures	% reduction
Rate of product	% below max
Windbreak – 4 ft wide, height of boom	50%
Windbreak – 8 ft wide, 2X boom height	75%
Forest/shrubland \geq 60 ft	100%

What steps should I take now?

1. Read the label each time you purchase a pesticide
2. Think about the land you currently farm
3. Talk with landowners on acres you rent
4. Follow news about ESA

1. Read the label each time you purchase a pesticide



- Labels are continually updated
- Follow any endangered species label statements
- New herbicide labels expected



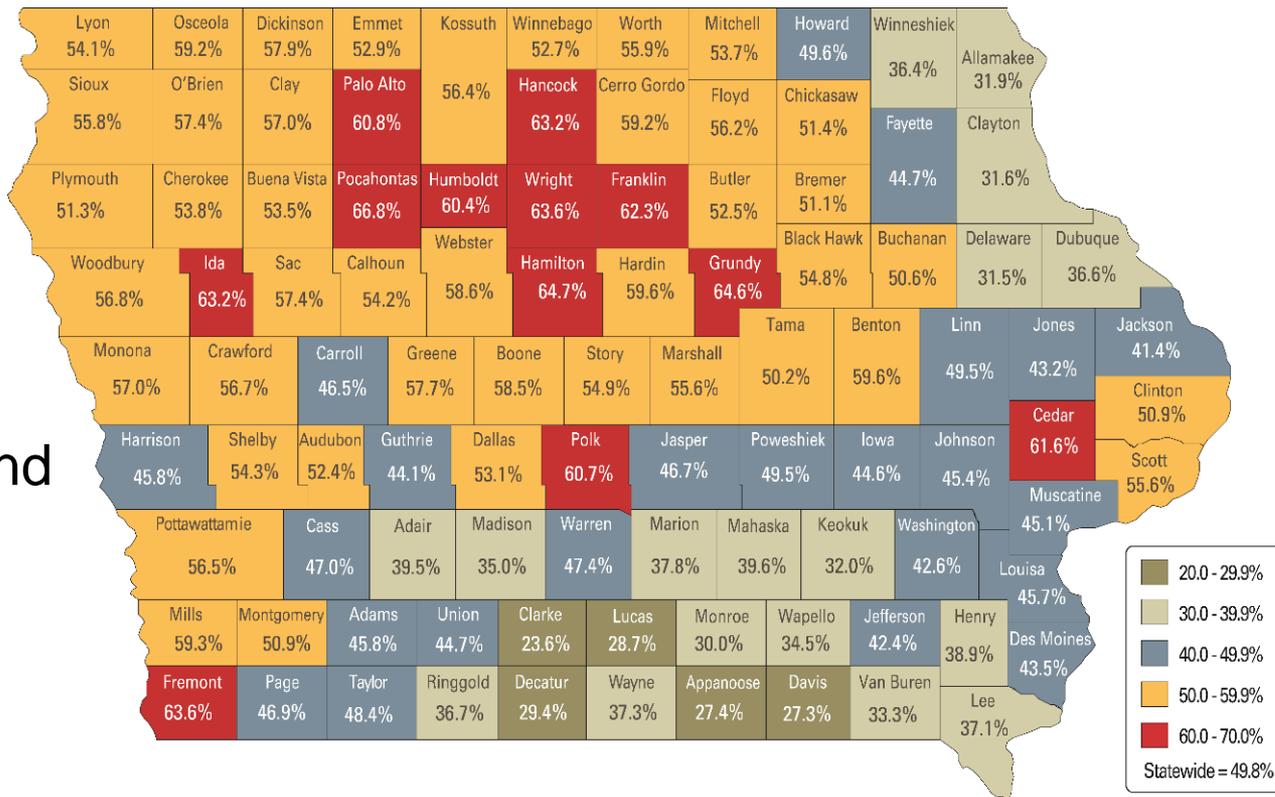
2. Think about the land you currently farm



- Any conservation practices in place?
- Any PULAs?
- Field slope?
- Soil type?
- Runoff potential?
- Distance to critical habitat?

3. Talk with landowners of acres you rent

Percent of Farmland Rented (2022)



Take home points

- Herbicide Strategy
 - Plan ahead
 - Runoff/erosion
 - Drift
- We have the knowledge and tools to get ahead of weeds and weather



Questions??



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