



Endangered Species Act Compliance: Grower Challenges and Ways Forward

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USDA Office of Pest Management Policy
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USDA's Role in Endangered Species Act (ESA) Consultations for FIFRA Actions

- ❖ Member of the FIFRA-ESA Interagency Working Group (IWG) created under the 2018 Farm Bill.
- ❖ USDA provides the grower perspective to help EPA and the Services understand:
 1. how pesticides are typically used (e.g., rates, timing, locations, application methods, target pests), and
 2. the implications of proposed mitigations (e.g., feasibility, alternatives, potential unintended consequences).
- ❖ Mitigations must be practical for growers so they can be effectively implemented for the protection of listed species.



Individual Consultations for Insecticides



NOAA
FISHERIES



Malathion
Diazinon
Chlorpyrifos
Methomyl
Carbaryl

Malathion
Methomyl
Carbaryl

Survey: Malathion
Vegetable Usage

EPA ESA Strategies

Herbicide Strategy

- Finalized Aug 20, 2024

Vulnerable Species Action Plan

- Finalized Sept 26, 2024

Rodenticide strategy

- Finalized Nov 22, 2024

Insecticide Strategy

- Final due by Mar 31, 2025

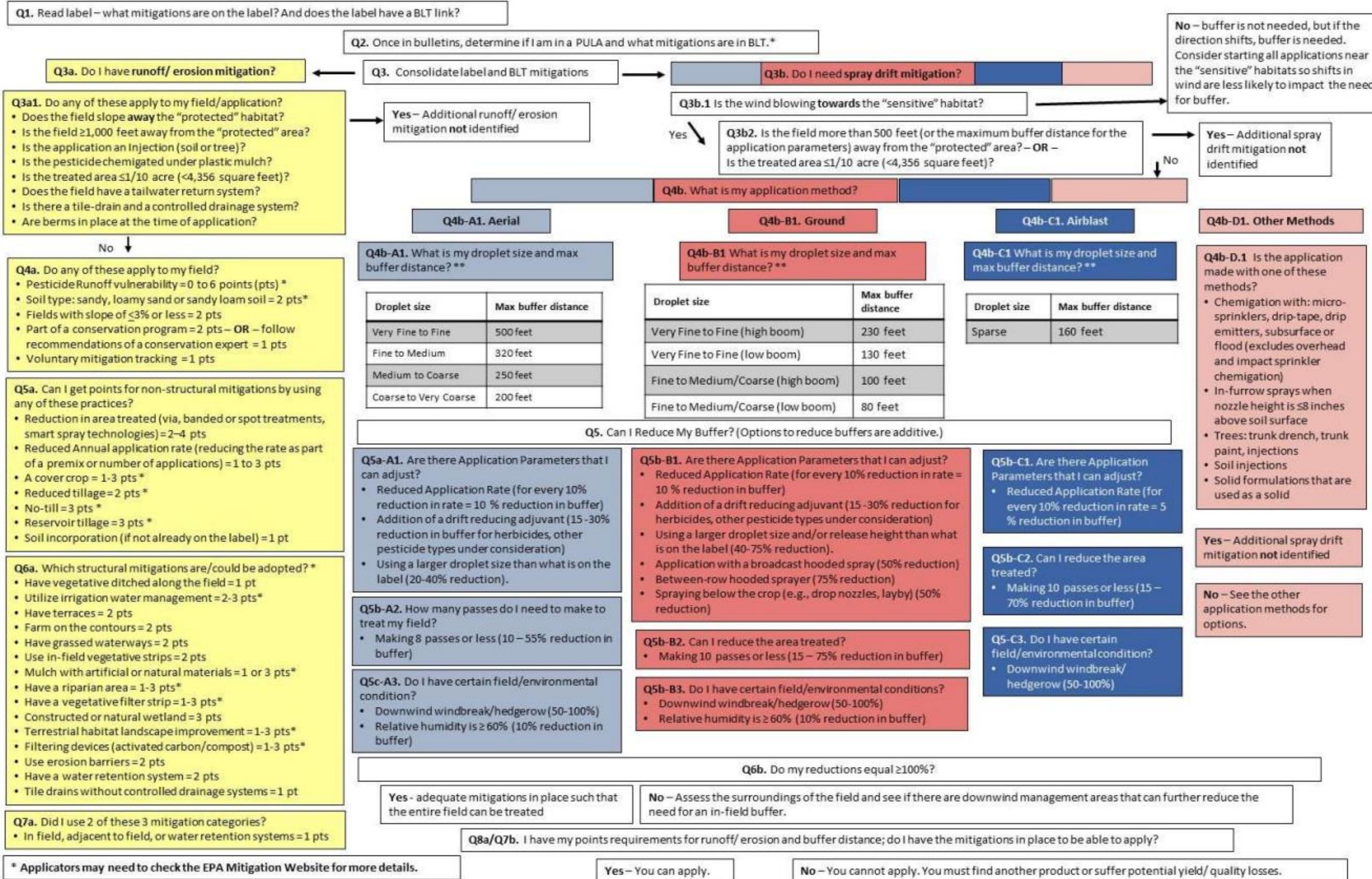
Fungicide Strategy

- Draft April 2026; Final Nov 2026

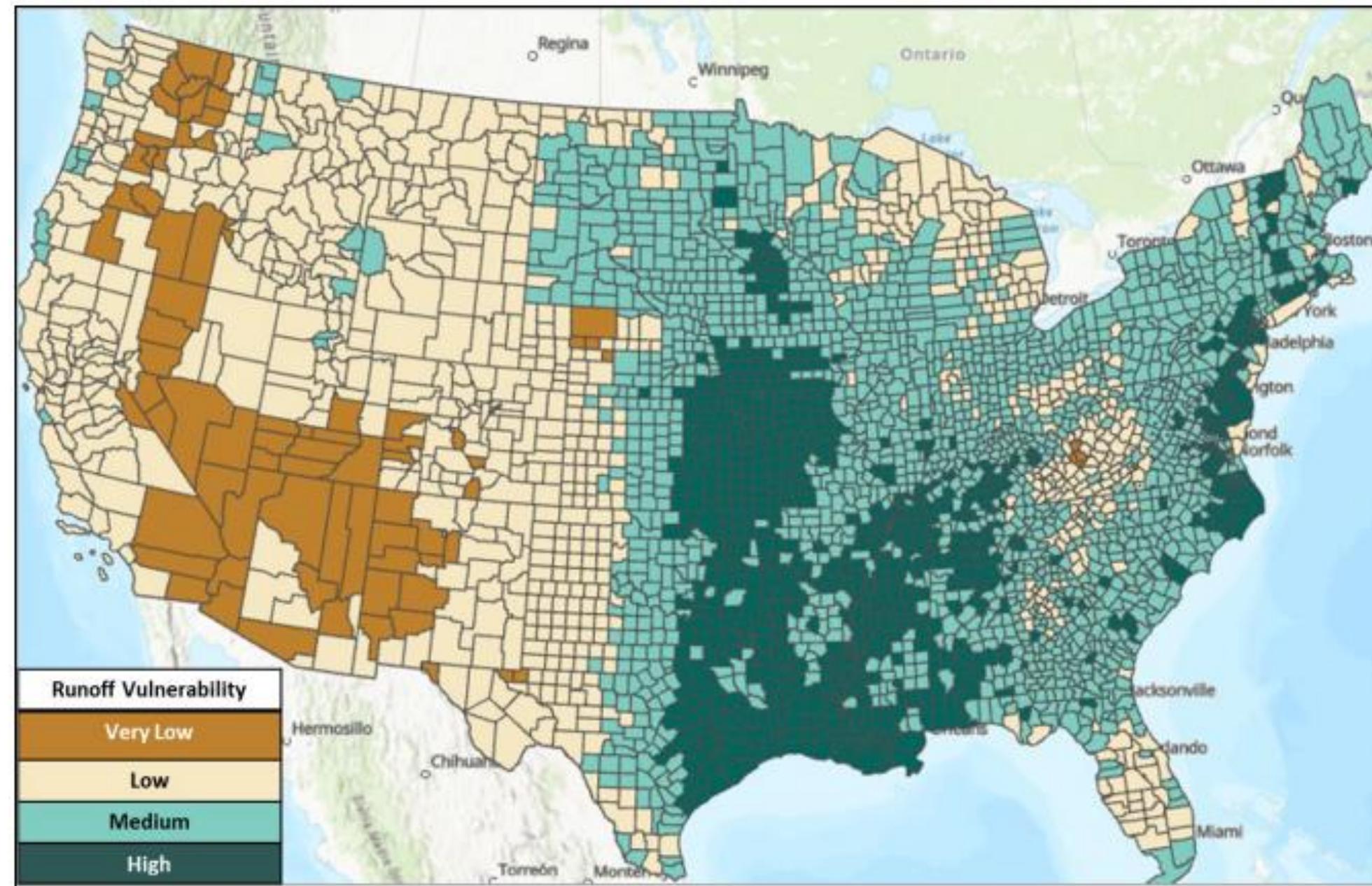
Implementation

- The Insecticide Strategy will be implemented through individual registration and registration review cases with an opportunity for public comment on each case.
- Lots of new resources to learn for growers and applicators:
 - Bulletins Live! Two
 - Mitigation Menu Website
 - Mitigation Calculator
- Growers will need technical and financial assistance.
- State Lead Agencies are figuring out how to enforce the new requirements.
- Substantial training, education, and outreach will be needed.
- Complexity is a major concern.

7.3 Appendix C. Flow Chart of Managerial Decisions



Runoff Vulnerability Points



Mitigation Measures: Runoff and Erosion Menu

Application Parameters

- Rate reduction (from annual max)
- Soil incorporation
- Proportion of field treated (banded/precision)

Field Management

- Conservation tillage
- Contour farming
- Cover crop/double crop/relay crop
- In-field vegetative filter strip
- Irrigation water management
- Mulching
- Terrace farming
- Erosion barriers

Field Characteristics

- Sandy soils
- Flat or low slope field ($\leq 3\%$ slope)

Adjacent to the Field

- Vegetative filter strip
- Grassed waterway
- Riparian area
- Vegetated ditch
- Constructed wetlands
- Habitat improvement
- Activated carbon or compost filters

Other Mitigations

- Water retention system
- Tile drains
- Conservation program participation
- Consulting with an expert
- Mitigation tracking

ESA Runoff/Erosion Mitigation Menu, Calculation of Points

The Goal: get growers to 9 or more



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A	B	C	D
	on selections above	Number of points	
52 Using mitigation measures from multiple categories (practices from at least two of the following categories: in-field, field-adjacent, or systems that capture runoff and discharge)	yes	1	
53			
54			
55 Resulting Mitigation Points for the Field will be Provided in Green Cells			
56 Does field/management unit need runoff/erosion mitigation?	No Additional Runoff/Erosion Mitigation Needed - Field/Management Unit Meets Runoff/Erosion		
57 Total mitigation points for field/management unit	20		
58			
59 Application Parameters			
60 Category	Enter or Select Value	Number of points	
61 Is the planned application a: soil injection; tree injection; chemigation applied subsurface or under impermeable plastic mulch; spot treatment (<1,000 square feet being treated); treatment of the farm/field less than 1/10th of an acre?	make selection	0	
62 Annual application rate reduction (enter % below the maximum labeled annual application rate)	0%	0	
63 Reduction in the proportion of field treated (enter % field area treated using banded application, partial field treatment, ground precision sprayer, smart sprayer, or other specialized method)	0%	0	
64 Soil incorporation (watering-in or mechanical incorporation before a runoff producing event; a runoff producing event is considered as follows: - 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.)	make selection	0	
65 Resulting Mitigation Points for the Field and Application Parameters will be Provided in Blue Cells			
66 Does field/management unit need runoff/erosion mitigation?	No Additional Runoff/Erosion Mitigation Needed - Field/Management Unit Meets Runoff/Erosion Mitigation Requirements		
67 Total mitigation points for product or chemical and field/management unit mitigation points	20		
68			
69			
70			
71			

Read Me Runoff Field ID-1

PNW (Palouse) Wheat Production

Common Practices and Allowances:

- 3-6 'relief points' from the vulnerability map (entire region)
- 1 point for tracking: anyone using the calculator gets this
- 3 points for non-irrigated land
- 2 points for contour farming
- 2-3 points, 'reduced tillage' or 'no-till'

9-15 total points (9 is the maximum needed)

Other possibilities:

- 1 point for vegetative filter strips or field border (headlands)
- 2 points for participation in a qualifying conservation program
- 2 points for predominantly sandy soils (sandy loam/loamy sand, no hard pan)
- 2 points for "terrace" farming
- 1 points for vegetative ditches
- 2 points for riparian forest/herbaceous buffer
- 3 points for constructed or natural wetlands
- 1-3 points for "filtering devices" such as runoff socks, more for compost or activated charcoal/biochar amendment
- 1 point, using measures from multiple menu categories
- 1 point, vegetative filter strips or field border (headlands)
- 1 point, using measures from multiple menu categories

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	on selections above	Number of points	
Using mitigation measures from multiple categories (practices from at least two of the following categories: in-field, field-adjacent, or systems that capture runoff and discharge)	yes	1	
Resulting Mitigation Points for the Field will be Provided in Green Cells			
Does field/management unit need runoff/erosion mitigation?	No Additional Runoff/Erosion Mitigation Needed - Field/Management Unit Meets Runoff/Erosion		
Total mitigation points for field/management unit	20		
Application Parameters			
Category	Enter or Select Value	Number of points	
Is the planned application a: soil injection; tree injection; chemigation applied subsurface or under impermeable plastic mulch; spot treatment (<1,000 square feet being treated); treatment of the farm/field less than 1/10th of an acre?	make selection	0	
Annual application rate reduction (enter % below the maximum labeled annual application rate)	0%	0	
Reduction in the proportion of field treated (enter % field area treated using banded application, partial field treatment, ground precision sprayer, smart sprayer, or other specialized method)	0%	0	
Soil incorporation (watering-in or mechanical incorporation before a runoff producing event; a runoff producing event is considered as follows: - 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.)	make selection	0	
Resulting Mitigation Points for the Field and Application Parameters will be Provided in Blue Cells			
Does field/management unit need runoff/erosion mitigation?	No Additional Runoff/Erosion Mitigation Needed - Field/Management Unit Meets Runoff/Erosion Mitigation Requirements		
Total mitigation points for product or chemical and field/management unit mitigation points	20		

Read Me Runoff Field ID-1

Eastern Tree Fruit Production

Common Practices and Allowances:

- 2 'relief points' from the vulnerability map (most areas)
- 1 point for tracking: anyone using the calculator gets this
- 3 points, 'perennial crop' conservation tillage/no-till
- 2 points, contour farming (or 2 points for flat ground <3% slope)
- 2 points, vegetative strips in-field (drive aisles)
- 3 points, cover crop or continuous ground cover (drive aisles)
- 1 point, vegetative filter strips or field border (headlands)
- 1 point, using measures from multiple menu categories

15 total points (9 is the maximum needed)

Other possibilities:

- 2 points for participation in a qualifying conservation program
- 2 points for predominantly sandy soils (sandy loam/loamy sand, no hard pan)
- 3 points for non-irrigated land or 2 points for drip-tape only
- 2 points for "terrace" farming
- 1 points for vegetative ditches
- 2 points for riparian forest/herbaceous buffer
- 3 points for constructed or natural wetlands
- 1-3 points for "filtering devices" such as runoff socks, more for compost or activated charcoal/biochar amendment
- 1 point for sub-surface tile drainage without controlled outlet

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		On selections above	Number of points
53	Using mitigation measures from multiple categories (practices from at least two of the following categories: in-field, field-adjacent, or systems that capture runoff and discharge)	yes	1
54			
55	Resulting Mitigation Points for the Field will be Provided in Green Cells		
56	Does field/management unit need runoff/erosion mitigation?	No Additional Runoff/Erosion Mitigation Needed - Field/Management Unit Meets Runoff/Erosion	
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58			
59	Application Parameters		
60	Category	Enter or Select Value	Number of points
61	Is the planned application a: soil injection; tree injection; chemigation applied subsurface or under impermeable plastic mulch; spot treatment (<1,000 square feet being treated); treatment of the farm/field less than 1/10th of an acre?	make selection	0
62	Annual application rate reduction (enter % below the maximum labeled annual application rate)	0%	0
63	Reduction in the proportion of field treated (enter % field area treated using banded application, partial field treatment, ground precision sprayer, smart sprayer, or other specialized method)	0%	0
64	Soil incorporation (watering-in or mechanical incorporation before a runoff producing event; a runoff producing event is considered as follows: - 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.)	make selection	0
65	Resulting Mitigation Points for the Field and Application Parameters will be Provided in Blue Cells		
66	Does field/management unit need runoff/erosion mitigation?	No Additional Runoff/Erosion Mitigation Needed - Field/Management Unit Meets Runoff/Erosion Mitigation Requirements	
67	Total mitigation points for product or chemical and field/management unit mitigation points	20	
68			
69			
70			
71			

Southern Row Crop Production

Common Practices and Allowances:

- 1 point for tracking: anyone using the calculator gets this
- 3 points for non-irrigated land
- 2-3 points, 'reduced tillage' or 'no-till'
(rice is already covered by "perimeter berm" requiring no further points)

- 2 points, contour farming (or 2 points for flat ground <3% slope)
- 1 points for vegetative ditches and/or 1 point vegetative filter strips/field border (headlands)

9-11 total points (9 is the maximum needed)

Other possibilities:

- 2 points for participation in a qualifying conservation program
- 2-3 points for cover cropping
- 2 points for predominantly sandy soils (sandy loam/loamy sand, no hard pan)
- 2 points for “terrace” farming
- 2 points for riparian forest/herbaceous buffer
- 3 points for constructed or natural wetlands
- 1-3 points for “filtering devices” such as runoff socks, more for compost or activated charcoal/biochar amendment
- 1 point for sub-surface tile drainage without controlled outlet

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55 Resulting Mitigation Points for the Field will be Provided in Green Cells			
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67 Total mitigation points for product or chemical and field/management unit mitigation points	20		

Read Me Runoff Field ID-1

Iowa Corn/Soybean Production

Common Practices and Allowances:

- 1 point for tracking: anyone using the calculator gets this
- 3 points for non-irrigated land (1-2 points for various irrigation management practices)
- 2 points flat ground <3% slope
- 1 point, vegetative filter strips or field border (headlands)
- 1 points for vegetative ditches or 2 for grassed waterway?
- 1 point for sub-surface tile drainage without controlled outlet?
- 1 point using practices from multiple categories

5, 6, 7-10 total points (9 is the maximum needed)

Other possibilities:

- 2 points for participation in a qualifying conservation program
- 2 points for contour farming on slopes
- 2 points for predominantly sandy soils (sandy loam/loamy sand, no hard pan)
- 2 points for “terrace” farming
- 3 points for “reservoir tillage”
- 2-3 points, ‘reduced tillage’ or ‘no-till’
- 2-3 points for cover cropping
- 2 points for riparian forest/herbaceous buffer
- 3 points for constructed or natural wetlands
- 1-3 points for “filtering devices” such as runoff socks, more for compost or activated charcoal/biochar amendment
- 1 point for sub-surface tile drainage without controlled outlet

Drift Becomes the Driver for Most Scenarios

- Default wind-directional drift buffers determined by risk likelihood
- Maximum worst-case buffers:
 - **Ground, 230'** (fine droplet high boom); **Reduced to 80'** (medium droplet low boom)
 - **Airblast, 160'**
 - **Aerial, 320'**
- Buffer reduction pathways—some are very commonly applied
 - Drift-reducing adjuvants (15-30%)
 - Droplet sizes and boom heights (20-75%)
 - Hooded sprayers (50-75%)
 - Wind-breaks, riparian vegetation (50-100%)
 - Relative Humidity $\geq 60\%$ (10%)
 - Rate reduction (from single application maximum—linear)
 - Reduced passes (oddly shaped fields, e.g., point rows on contours)

Drift Becomes the Driver for Most Scenarios

- **BUFFERS TO WHAT?** *The most key question of all for drift.*
- Managed vs. Un-managed lands.
- What is habitat vs. what is riparian vegetation??



On-field Mitigation

- EPA identified **9 butterflies** and **beetles** that may occur on agricultural fields.
 - *Assessment still ongoing, possibly fewer in the Final IS.*
- Mitigation plan is unclear and will be determined on a case-by-case basis.
- Timing / bloom restrictions are possible, discussions on-going.



Fenders blue butterfly



Karner blue butterfly



Bertram's scrub-hairstreak
butterfly



Mitchell's Satyr



Dakota Skipper

Grower Challenges

Feasibility, Affordability, Certainty

Impacts and Complications for IPM

- **Conflicting Goals Between Conservation and Compliance**
- **Vegetative Filter Strips: Can harbor pest populations like *Lygus***
- **No-Till/Cover Crops: Can lead to high soil pest pressure and necessitate more pre-plant or seed treatments**
- **Reduced application rates can exacerbate resistance concerns**
- **Droplet size is a complicated problem for some pests—adequate under-side leaf coverage and efficacy vs. adequate drift reduction**
- **Crop rotations: compliance varies depending on the chemical toolbox**
- **Complications of leased land: contractual limits and/or disincentives to some land improvements**

Regulatory Certainty?

- Still a very fluid process
- Strategies applied going forward: EPA comment periods are key

Early Implementation Learning Opportunity

- **Glufosinate-P (Liberty® ULTRA, L-glufosinate):**
 - Label directs users to BL!T; Point requirements for runoff; small PULAs in Tennessee, restricting use from Sept to May. Otherwise, mitigations are fairly low impact.
 - SLAs and Growers—identify questions and pain points, start to work out kinks and get better clarity.
 - Label and BL!T interpretation, documentation requirements, etc.
- **A change to practice the process with a relatively simple case**

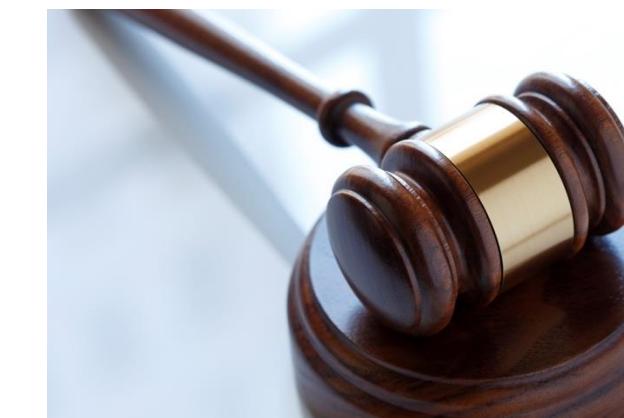
Monarch Listing (December 2024)

- Proposed listing published out for comment through March 12, 2025
- Proposes protections and flexibilities under Section 4(d)
- Listing isn't pesticide driven, but pesticides are discussed among multiple factors, particularly breeding habitat (milkweeds, insecticide use.)
- Listing highlights data needs. This is an opportunity.
- Helpful comments could focus on how existing ag practices, BMPs, habitat establishment, and strategies/label mitigations are protective of monarch exposure



Future Engagement and Learning Opportunities

- **No one will master these issues overnight**
- **SLAs have as steep a learning curve as consultants and growers**
- **USDA Co-op with Regional IPM Centers: developing regional ESA workshops for 2025-2026**
 - **Southern, Western, North Central, Northeastern**
- ***Ultimately, all parties want and NEED this process to work***



Questions? Reach Out!



- Learn more about pesticide registration:
<https://www.epa.gov/pesticide-registration/about-pesticide-registration>
- Learn more about pesticide reevaluation:
<https://www.epa.gov/pesticide-reevaluation/registration-review-process>
- Learn more about providing public comments:
<https://www.regulations.gov/help>
- **Contact us:** sm.opmp.pesticides@usda.gov
 - Clayton.Myers@usda.gov
 - Elyssa.Arnold@usda.gov