

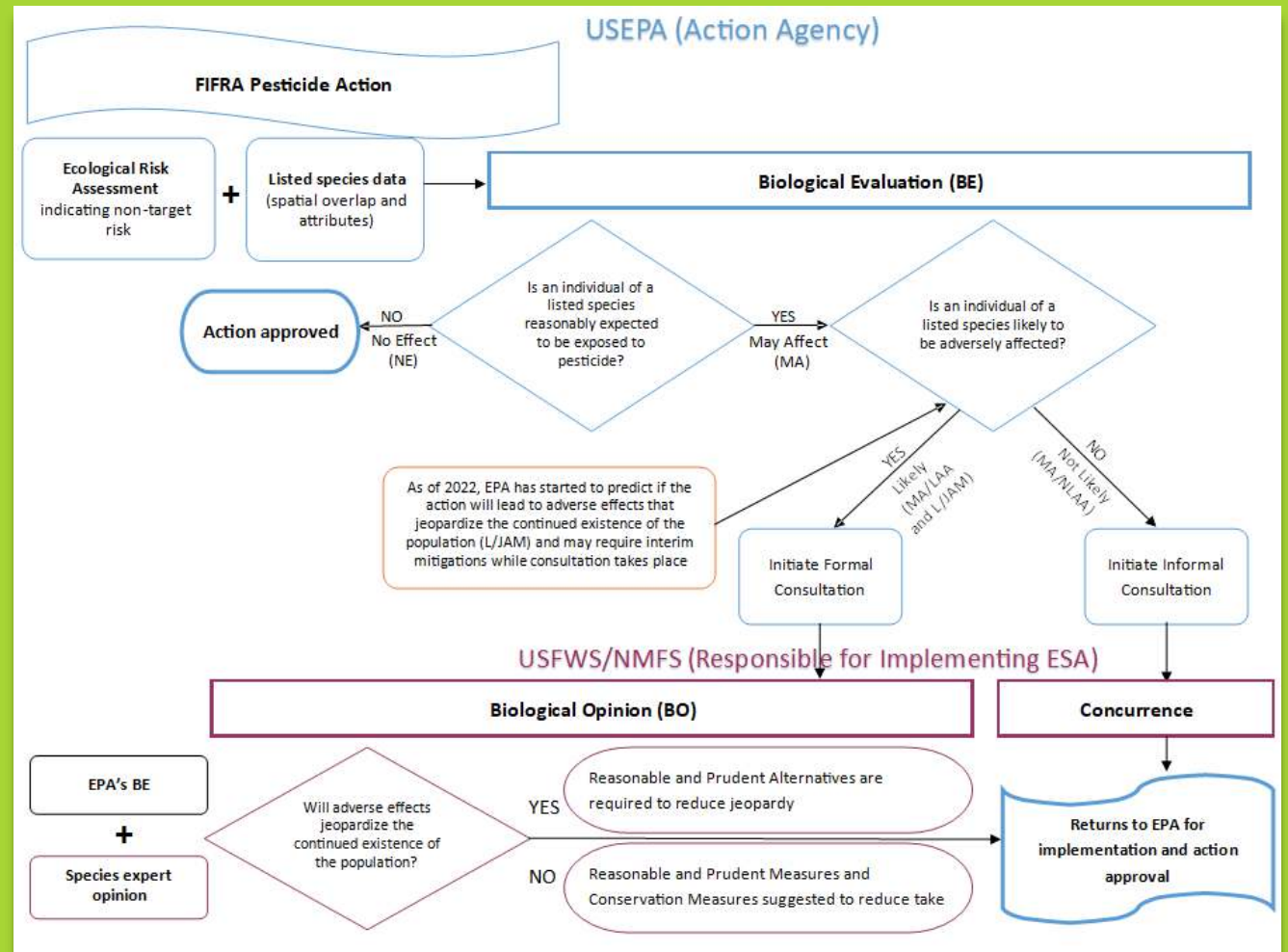
Crop Consultants Role in ESA Implementation

James Todd

Chairman, NAICC Government
Affairs Committee



Overview of FIFRA and ESA

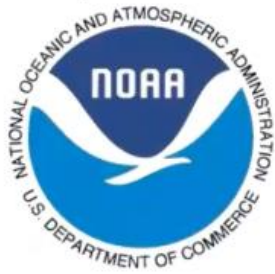


When will the ESA Evaluations be done?

- It is lengthy process that every registered product will go through.
- 10-15 years to complete?

The Endangered Species Act

- As of Oct. 28, 2022¹ there were 1672* listed species
- As of Oct. 28, 2022² 895 listed species had designated critical habitat
- If action may affect threatened or endangered species – requires consultation with the Services (NMFS and FWS)



¹ US FWS, <https://ecos.fws.gov/ecp/report/boxscore>

*13 species were listed more than once because they have distinct population segments with their own individual listing

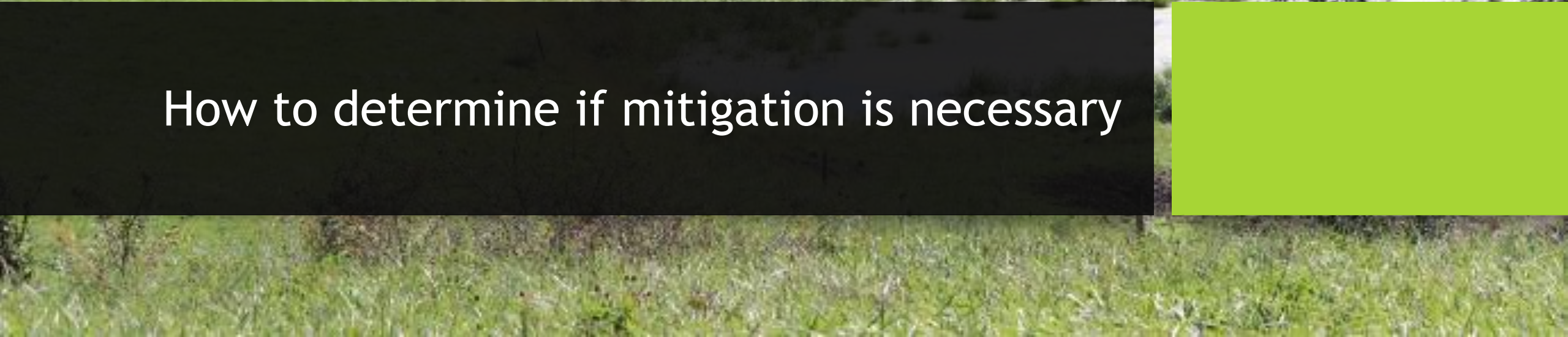
² US FWS, <https://ecos.fws.gov/ecp/report/critical-habitat>

Group	T&E total listings
Amphibians	39
Birds	99
Arachnids	11
Clams	93
Corals	7
Crustaceans	30
Fish	170
Insects	90
Mammals	96
Reptiles	46
Snails	51
Plants	940

Slide courtesy Mr. Reuben Paris



How to determine if mitigation is necessary



Liberty Ultra Herbicide Example





We create chemistry

Glufosinate-P-Ammonium

Group

10

Herbicide

SPECIMEN

Liberty[®] ULTRA

Herbicide – Powered by **Glu-L[™]** Technology

Liberty[®] ULTRA herbicide – Powered by Glu-L[™] Technology is a nonselective herbicide that provides control of a broad spectrum of broadleaf and grassy weeds in LibertyLink or glufosinate-resistant crops.

Active Ingredient:

Glufosinate-P-Ammonium* 18.7%**

Other Ingredients: 81.3%

Total: 100.0%

* CAS Number 73777-50-1

** Equivalent to 1.76 pounds of active ingredient per U.S. gallon; equivalent to 1.61 pounds per U.S. gallon acid equivalent, as glufosinate-P.

EPA Reg. No. 7969-500

EPA Est. No.

11.0 MANDATORY RUNOFF MITIGATION:

- **DO NOT** apply when soils are saturated or above field capacity.
- **DO NOT** apply during rain.

You must achieve a minimum of three points for the crop uses listed on this label unless otherwise stipulated below. Applicators must access and search Bulletins Live! Two (BLT) at <https://www.epa.gov/pesticides/bulletins> within six months of the application to determine whether the application site falls within a Pesticide Use Limitation Area (PULA) that has a Bulletin in BLT. If you are located inside a PULA, follow the instructions in the bulletin.

If the application site is located outside a PULA, runoff/erosion mitigation is required for this product unless certain field/application parameters are present at the time of application (i.e., subsurface or tile drains with controlled outlet, perimeter berm systems, irrigation tailwater return systems, spot treatment, etc). Access EPA's Mitigation Menu Website at www.epa.gov/pesticides/mitigation-menu for a full list of field/application parameters to evaluate whether your field is subject to runoff/erosion mitigation.

If the application does not meet the specified field/application parameters, a minimum of three points for the crop uses listed on this label must be achieved. The applicator must choose among the mitigation and/or mitigation relief measures on EPA's Mitigation Menu Website to meet or exceed these points before applying this product. The website includes the full menu of runoff/erosion mitigation and mitigation relief measures. The following are examples:

- Location in a very low, low, or medium runoff vulnerability county
- Field slope
- Soil incorporation
- Conservation tillage
- Vegetative strips
- Cover crop or continuous ground cover
- Irrigation water management
- Mulching
- Grassed waterway
- Vegetated ditch
- Constructed and natural wetlands
- Water retention systems
- Following recommendations from a runoff/erosion specialist or participating in a qualifying conservation program (see the www.epa.gov/pesticides/mitigation-menu for minimum elements).

To achieve mitigation points for the application, the mitigation and mitigation relief measures must be:

- Employed in accordance with the instructions and descriptions on EPA's Mitigation Menu Website.
- In place during the application unless a different timing (such as before or after application) is specifically provided in the measure's description on EPA's Mitigation Menu Website.
- EPA may periodically update the Mitigation Menu Website, for example, by adding new mitigation measures or updating a mitigation measure description.

12.0 ENDANGERED AND THREATENED SPECIES PROTECTION REQUIREMENTS

Before using this product, you must obtain any applicable Endangered Species Protection Bulletins (Bulletins) within six months prior to or on the day of application. To obtain Bulletins, go to Bulletins Live! Two (BLT) at <https://www.epa.gov/pesticides/bulletins>. When using this product, you must follow all directions and restrictions contained in any applicable Bulletin(s) for the area where you are applying the product, including any restrictions on application timing if applicable. It is a violation of Federal law to use this product in a manner inconsistent with its

12

labeling, including this labeling instruction to follow all directions and restrictions contained in any applicable Bulletin(s). For general questions or technical help, call 1-844-447-3813, or email ESPP@epa.gov.

Bullentins Live Two

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

Basics of Bulletins

- If limitations on pesticide use are necessary to protect listed species in an area, that information is relayed through a Pesticide Use Limitation Area
- A Bulletin consists of:
 - Spatial location of pesticide use limitations
 - Product/application/formulation information
 - Limitation/mitigation language
- Bulletins are an extension of the label
 - Allows for location-specific protections
 - Bulletins can be converted into a 'printable' pdf

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

Unpin

Location Search:

Find Place



Application Month:

July 2025



EPA Registration Number:

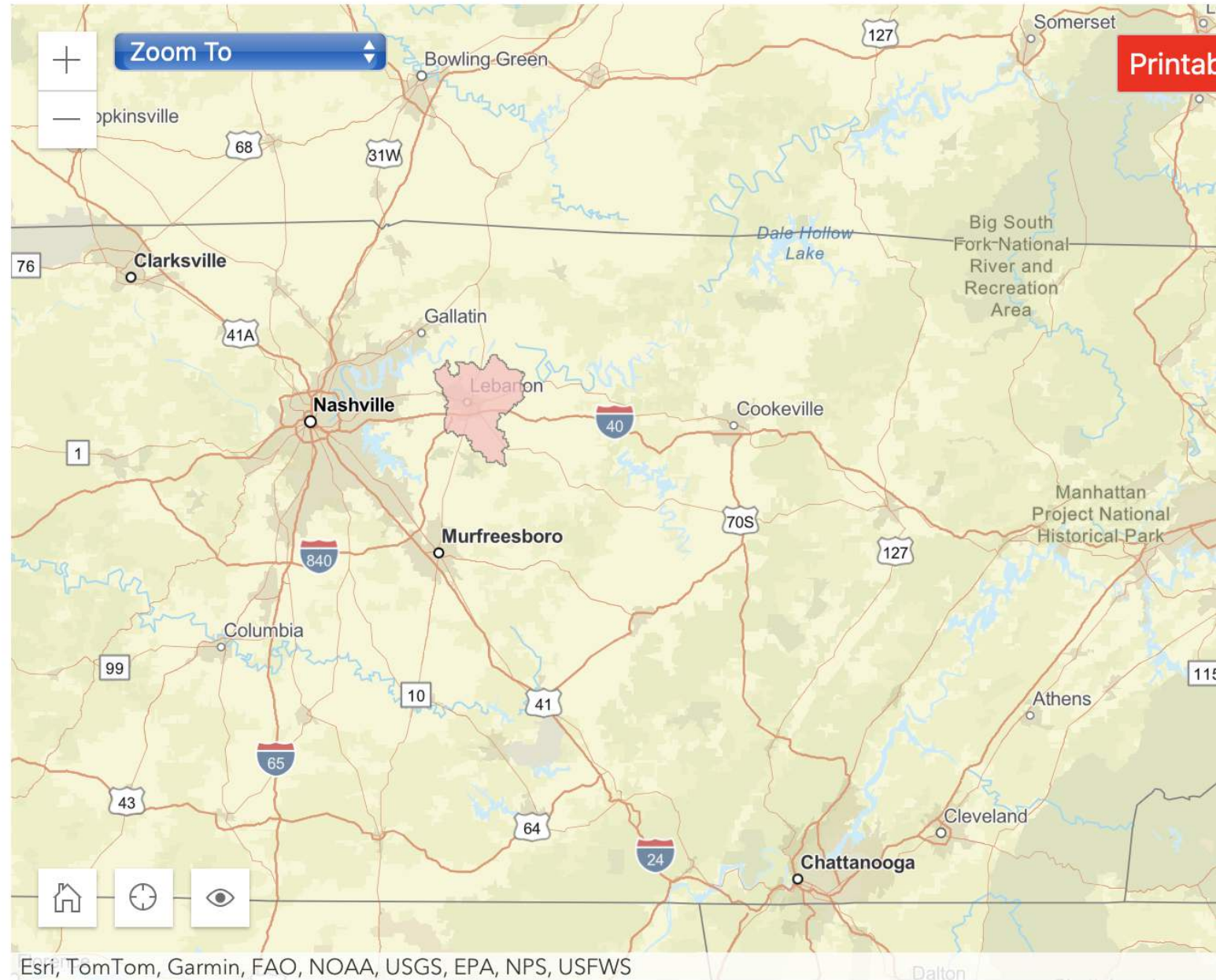


Product

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



2 Pula(s) Filtered

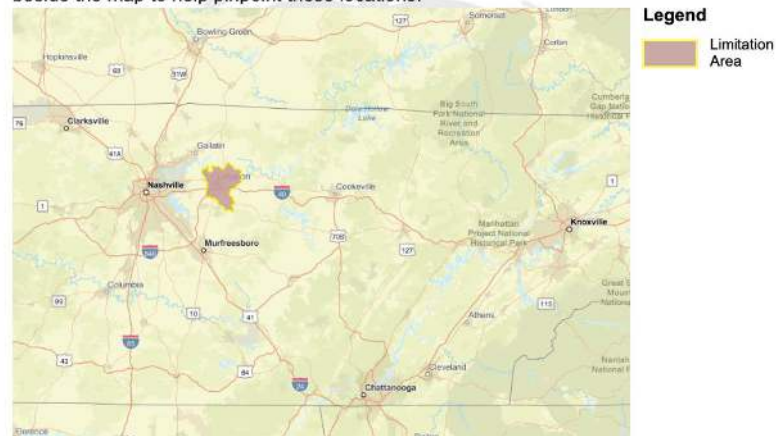


Endangered Species Protection Bulletin



Application Month: July 2025
Product: BASF L-Glufosinate-Ammonium 211 Herbicide
(7969-500)

- 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.



- 2 Look below at the Pesticide Use Limitation Summary Table. This table lists the user selected Active Ingredient(s) (ALs) or Product(s) with pesticide use limitations on the printed map. Locate the Active Ingredient (AI) or Product you intend to apply in this table and identify the code in the last column. This code indicates the specific limitation associated with that AI or Product. A limitation description for each code can be found below in the Codes and Limitations Table. If multiple Pesticide Use Limitation Areas (PULAs) are visible on the map, these tables provide information for the highlighted PULA.
If you are applying a pesticide that contains more than one Active Ingredient, or multiple Products, then multiple codes may apply. Follow the limitations for all codes when using this pesticide.

This document contains legal requirements for the use of certain pesticides.
Do not modify any text, graphics or coloration or otherwise alter this document.
ESPP Contact: ESPP@epa.gov Phone: 1-844-447-3813
Date Printed: 1/19/2025, 2:46:43 PM

Endangered Species Protection Bulletin

Pesticide Use Limitation Summary Table

Product	AI	Use	Method	Form	Code	Last Update
BASF L-Glufosinate -Ammonium 211 Herbicide (7969-500)	L glufosinate ammonium	Any Use	All Application Methods	Liquid	E223	1/25/2024

Codes and Limitations Table

Code	Limitation
E223	Do not apply within the use limitation area between September 15 and May 15.

EPA Mitigation Menu

- <https://www.epa.gov/pesticides/mitigation-menu>

The screenshot shows the EPA website's navigation bar with the EPA logo and the text "United States Environmental Protection Agency". A search bar is located in the top right corner. Below the navigation bar, there are four main menu items: "Environmental Topics", "Laws & Regulations", "Report a Violation", and "About EPA". The breadcrumb trail shows "Home / Pesticides".

Pesticides

- [A-Z Index](#)
- [Antimicrobial Pesticides](#)
- [Biopesticides](#)

[Contact Us About Pesticides](#)

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](#)

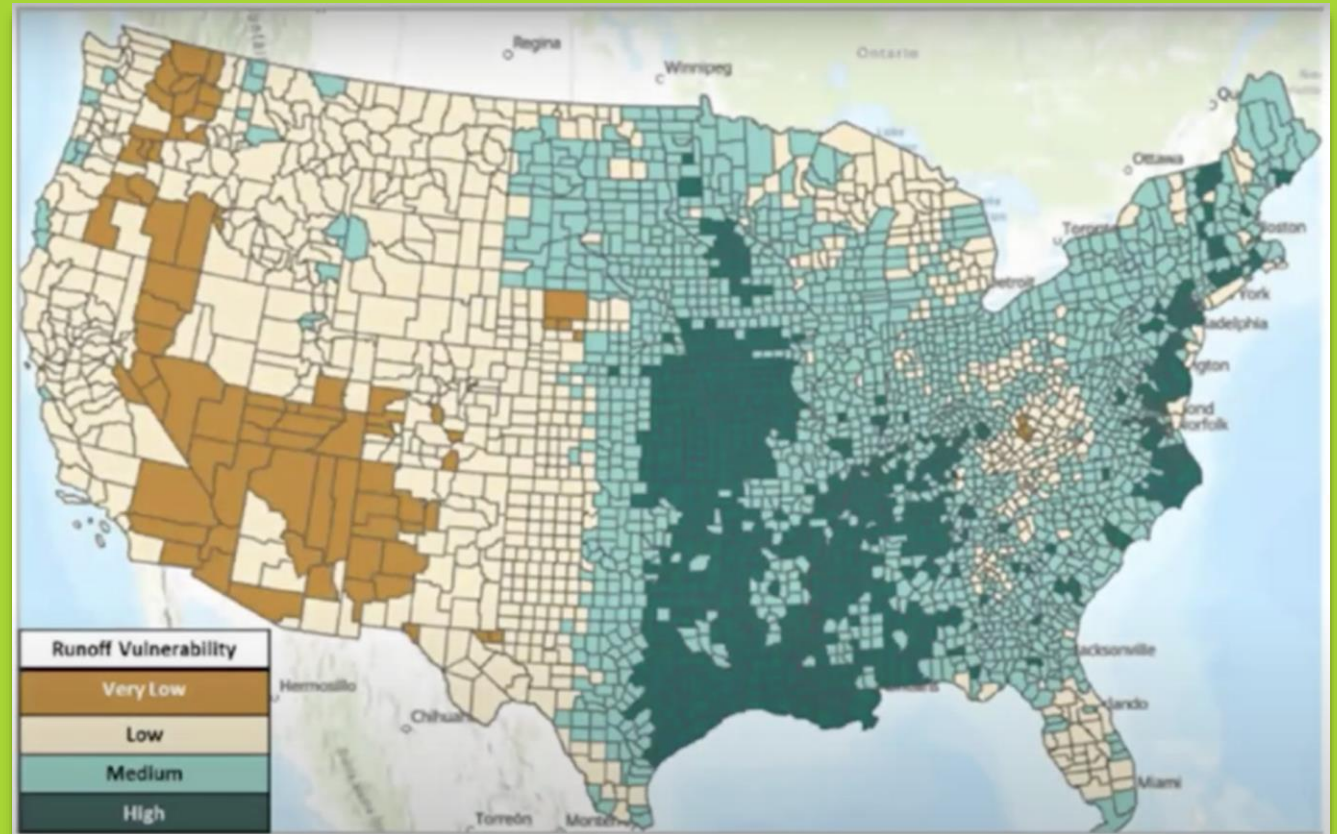
How do I know if Runoff/Erosion Mitigation is Required?

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

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 Vulnerability



Mitigation Relief Options

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 (pdf) (550.52 KB)]	Pesticide runoff vulnerability - very low	6
	Pesticide runoff vulnerability - low	3
	Pesticide runoff vulnerability - medium	2
	Select one option	Pesticide runoff vulnerability - high

Hypothetical Example



Pesticide Mitigation Strategies

Pesticide Rating

- Volatility
- Solubility
- Toxicity

PESTICIDE RATING

9

Location Points

- Soil type
- Precipitation
- Proximity to water
- Proximity to endangered species (PULAs)

Mitigation points based on drift and runoff risk

Pesticide Mitigation Strategies

Pesticide Rating

- Volatility
- Solubility
- Toxicity

PESTICIDE RATING

9

Location Points

- Soil type
- Precipitation
- Proximity to water
- Proximity to endangered species (PULAs)

FARM RATING

3

Mitigation points based on drift and runoff risk

Pesticide Mitigation Strategies

- Drift/Runoff Mitigation Practices
 - Conservation tillage (strip till) + 2
 - Cover crops (wheat cover) + 2
 - Water management (soil moisture sensors) + 2

PESTICIDE RATING

9

FARM RATING

3

Mitigation points based on drift and runoff risk

Pesticide Mitigation Strategies

- Drift/Runoff Mitigation Practices
 - Conservation tillage (strip till) + 2
 - Cover crops (wheat cover) + 2
 - Water management (soil moisture sensors) + 2

PESTICIDE RATING

9

FARM RATING

7

Mitigation points based on drift and runoff risk

Pesticide Mitigation Strategies

- Drift/Runoff Mitigation Practices

- Conservation tillage
- Contour farming
- Cover crops (ground cover)
- Water management
- Vegetative filter strips
- Hedgerows
- Filtering devices
- Water retention systems

PESTICIDE RATING

9

FARM RATING

7

Mitigation points based on drift and runoff risk

Pesticide Mitigation Strategies

- Drift/Runoff Mitigation Practices

- Conservation tillage
- Contour farming
- Cover crops (ground cover)
- Water management
- **Vegetative filter strips (25' wide)**
- Hedgerows
- Filtering devices
- Water retention systems

PESTICIDE RATING

9

FARM RATING

8

Mitigation points based on drift and runoff risk

Pesticide Mitigation Strategies

- Drift/Runoff Mitigation Practices

- Conservation tillage
- Contour farming
- Cover crops (ground cover)
- Water management
- Vegetative filter strips
- Hedgerow
- Farmstead devices
- Water retention systems

Cropped areas

Adjacent areas

PESTICIDE RATING

9

FARM RATING

8

Mitigation points based on drift and runoff risk

Pesticide Mitigation Strategies

- Application Practices
 - Larger droplet size
 - Wind speed during application
 - Drift reduction agent (DRA)

PESTICIDE RATING

9

FARM RATING

11

Mitigation points based on drift and runoff risk

Pesticide Mitigation Strategies

- Application Practices
 - Larger droplet size
 - Wind speed during application
 - Drift reduction agent (DRA)
 - Buffer strips
 - Reduced application rate
 - Targeted applications
 - Fewer applications

PESTICIDE RATING

9

FARM RATING

11

Mitigation points based on drift and runoff risk

Pesticide Mitigation Strategies

- Application Practices
 - Larger droplet size
 - Wind speed during application
 - Drift reduction agent (DRA)
 - Buffer strips
 - **Reduced application rate (25% not treated)**
 - Targeted applications
 - Fewer applications

PESTICIDE RATING

9

FARM RATING

13

Mitigation points based on drift and runoff risk

Easy Points

- Track your mitigation measures
- Technical specialist OR conservation program



Points with Minimal Behavior Changes

- Reduce your annual pesticide input
 - Fewer applications
 - Lower rates
- Reduce how much of the field you treat
 - Banding
 - Precision application
- Incorporate into soil
 - Watering
 - Mechanical
- Conservation Tillage
- Cover cropping
- Others?



Herbicide Example



- Enlist Duo
 - Which label-mandated runoff mitigations do you use to get to 4 or 6 credits?

Enlist label

Runoff Mitigation Credits

HSG Soils A&B require 4 credits

HSG Soils C&D require 6 credits

www.Enlist.com/MitigationMeasures

For land with **Hydrologic Soil Groups* A & B**: The land manager/applicator must effectively implement measures in the following tables to equal a **minimum of 4 credits**.

For land with **Hydrologic Soil Groups* C & D**: The land manager/applicator must effectively implement the measures in the following tables to equal a **minimum of 6 credits**.

Mitigation Measures		Credits	
Reduce number of applications - Reduced number of applications of Enlist products per year. Applications may be made at any time during crop development but must maintain a minimum 12-day retreatment interval.	3 applications	0	
	2 applications	2	
	1 application	4	
Residue Tillage Management: no-till, strip-till, ridge-till, and mulch-till		4	
Vegetative Filter Strips	30 ft off-field vegetative buffer on down slope	HSG A or B	2
		HSG C or D	0
	100 ft off-field vegetative buffer on down slope	HSG A or B	4
		HSG C or D	1
Field border: border with dense vegetative stands with a minimum width of 30 ft.		2	
Cover Crop		2	
Vegetative Barrier: Permanent strips of dense vegetation along the contours of the field with a minimum width of 3 ft.		2	
Contour Buffer Strips or Terrace		2	
Grassed Waterway		2	
Water and Sediment Basin		1	
Contour Farming or Contour Strip Cropping		1	

*Hydrologic Soil Group (HSG) definitions: A = Sand, loamy sand, or sandy loam; B = Sandy clay loam; C = Silt loam or loam; D = Clay loam, silty clay loam, sandy clay, silty clay or clay.

Applicators/Land Managers must meet minimum criteria described for each mitigation measure as outlined on Enlist.com/mitigationmeasures to receive credits.

Enlist One®

with COLEX·D® technology

HERBICIDE

™®Trademarks of Corteva Agriscience and its affiliated companies

This labeling expires on January 11, 2029.

Do not use or distribute this product after January 11, 2029.

For control of emerged annual and perennial broadleaf weeds, use as a preplant, preemergence and postemergence herbicide on Enlist® corn, soybeans and cotton. Enlist herbicides with Colex-D® technology are the ONLY 2,4-D containing products authorized and specifically labeled for use with Enlist crops.

Use as a non-selective burndown; chemical fallow; use as a preplant and preemergence herbicide on non-Enlist corn, and use as a preplant herbicide on non-Enlist soybeans.

Do not allow contact of herbicide with foliage of desirable plants and trees because severe injury or destruction may result.

Approved for use only in certain geographical areas. Read and follow all label instructions.

Active Ingredient(s):

2,4-Dichlorophenoxyacetic acid, choline salt	55.7%
Other Ingredients	44.3%
Total	100.0%

2,4-dichlorophenoxyacetic acid equivalent – 38% - 3.8 lb/gal

- Remove PPE immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

First Aid

If in eyes: Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control center or doctor for treatment advice.

If swallowed: Call a poison control center or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control center or doctor. Do not give anything by mouth to an unconscious person.

If on skin: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice.

Have the product container or label with you when calling poison control center (1-800-352-2222) or doctor, or going for treatment. You may also contact 1-800-992-5994, for emergency medical treatment information.

Environmental Hazards

This pesticide is toxic to fish and aquatic invertebrates. Do not apply directly to water, to areas where surface water is present, or to intertidal areas below the mean high-water mark. Do not contaminate water when disposing of equipment washwaters or rinsate. Drift or runoff may adversely affect aquatic invertebrates, sensitive wetland environments, and non-target plants. Drift and runoff may be hazardous to aquatic organisms in water adjacent to treated areas.

This product is toxic to plants and may adversely impact the forage and habitat of non-target organisms, including pollinators, in areas adjacent to the treated site. Protect the forage and habitat of non-target organisms by following label directions intended to minimize spray drift and runoff.

This product is moderately toxic to bees on an acute basis, and may cause chronic risk to pollinators or other terrestrial invertebrates. Do not apply this product to blooming vegetation or if bees or other pollinating insects are visiting the treatment area

This product may impact surface water quality due to runoff of rainwater. This is especially true for poorly draining soils and soils with shallow ground water. This product is classified as having high potential

the R1 growth stage. Make one to two applications with a minimum of 12 days between applications.

Precaution:

- Prior to application, follow all directions in Spray Drift Management and Management of Runoff sections for all applications.

Restrictions:

- These use directions are only for soybean identified as containing the Enlist trait.
- **Preharvest Interval:** Do not apply within 50 days of harvest.
- Do not graze treated soybean.
- Do not harvest for forage or hay.
- Do not apply more than one preemergence application and no more than two postemergence applications per year. Using fewer applications will result in credits to satisfy the mitigation requirements (see Management of Runoff section).
- Do not apply after R1 growth stage.
- Do not apply more than 3 lbs 2,4-D a.e. per acre per year.
- Do not apply more than 2.0 pints (1 lb a.e. 2,4-D) of Enlist One per acre per application.
- Do not apply more than 6.0 pints (3 lbs a.e. 2,4-D) of Enlist One per acre per year.
- Do not aerially apply this product.

Soybean - Not Containing the Enlist Trait

Carriers and Spray Volumes

Apply in a broadcast spray volume of water ranging from 10 to 15 gallons per acre for best results. Do not apply less than 10 gallons total spray volume per acre. Do not substitute water with nitrogen or other fertilizer solutions as carrier

Preplant (Burndown)

Apply up to 1.0 pints of Enlist One per acre no less than 7 days or up to 2.0 pints per acre, not less than 14 days prior to planting soybeans. See Precautions and Restrictions in this section. Refer to Weed Control section for specific weed height and use rate information.

Precautions:

Approved for use only in certain geographical areas. Read and follow all label instructions.

Active Ingredient(s):

2,4-Dichlorophenoxyacetic acid, choline salt	55.7%
Other Ingredients	44.3%
Total	100.0%

2,4-dichlorophenoxyacetic acid equivalent – 38% - 3.8 lb/gal

Postemergence

Apply 2.0 pints of Enlist One per acre. Apply when weeds are no larger than 6 inches and any time after cotton emergence up to first white bloom. Refer to Weed Control section for specific weed height and use rate information. Make one to two postemergence applications with a minimum of 12 days between applications.

Precaution:

- Prior to application, follow all directions in Spray Drift Management and Management of Runoff sections for all applications.

Restrictions:

- These use directions are only for cotton identified as containing the Enlist trait.
- **Preharvest Interval:** Do not apply within 30 days of harvest.
- Do not graze treated cotton.
- Do not harvest for forage or hay.
- Do not apply more than one preemergence application and no more than two postemergence applications per year. Using fewer applications will result in credits to satisfy the mitigation requirements (see Management of Runoff section).
- Do not apply after first white bloom.
- Do not apply more than 2 pts Enlist One per acre per application (1 lb a.e. 2,4-D per acre).
- Do not apply more than 6 pts of Enlist One per acre per year (3 lbs a.e. 2,4-D per acre per year).
- Do not apply more than 3 lbs 2,4-D a.e. per acre per year
- Do not aerially apply this product.

Fallow Systems to be Planted to Corn, Soybeans or Cotton

Fallow

This product may be applied during the fallow period prior to planting or emergence of any crop listed on this label. This product may be used as a substitute for tillage to control annual weeds in fallow fields. Broadcast treatments will control or suppress many perennial weeds in fallow fields. Apply 2 pints of Enlist One per acre. Do not apply more than 6 pints

per acre per application. Do not apply to any site. Protect the forage and habitat of non-target organisms by following label directions intended to minimize spray drift and runoff.

This product is moderately toxic to bees on an acute basis, and may cause chronic risk to pollinators or other terrestrial invertebrates. Do not apply this product to blooming vegetation or if bees or other pollinating insects are visiting the treatment area

This product may impact surface water quality due to runoff of rainwater. This is especially true for poorly draining soils and soils with shallow ground water. This product is classified as having high potential

Use Restrictions-Can we expect these for other Herbicides?

- Do not irrigate treated field within 48 hours of application.
- Don not apply this product when soil is saturated or at field capacity, or when a storm event likely to produce runoff from the treated area is forecasted
- BLT statement—Endangered Species Advisory/Protection Requirements



Who is responsible for ensuring the mitigation measures are met?

- Landowner?
- Farmer?
- Applicator?
- Crop Consultant?



Things to consider

Labels are more complex

- What must be done in addition to “traditional” practices
- More record keeping requirements

More complex regulations

- Where can it be applied/not applied
- Can it be applied if pollinators are present

More complex misuse investigations

- Picklist practices will be enforceable by State Departments of Ag
- Who is responsible for implementing picklist practices



Things to consider

The ecological “footprint” of product application may exceed the boundaries of the field.



Questions that remain unanswered/

- Who is legally responsible for implementing mitigation practices?
 - Commercial applicator does NOT seem practical, no one-size-all model for landowners (lease agreements, absentee, trust, etc.)
- What metrics will the agency/agencies use to measure success or lack of adoption?
 - Is adoption the “success” hoped for?
 - Pesticides are not the sole agents that potentially impact endangered species
- How will state regulatory agencies handle investigations or enforcement of proposed mitigation practices?
 - What types of new record keeping will be required.

Who is responsible?

Endangered Species Act

ESA - 1973: The government protects endangered and threatened (listed) species and the habitats upon which they depend.

Requires federal agencies to ensure that action they take will not:

- Jeopardize the continued existence of **any** listed species, or
- Destroy or adversely modify **any** critical habitat for those species.



The ecological “footprint” of product application may exceed the boundaries of the field.





Questions?

