Pesticide Updates What's Coming Down the Pike

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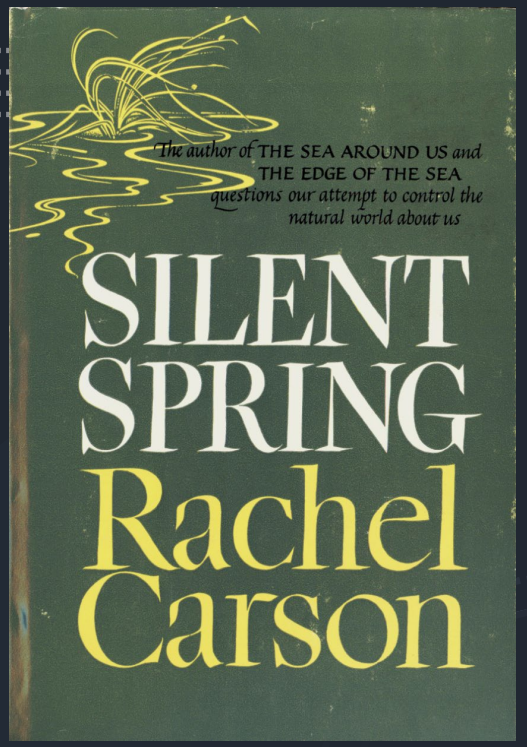
The Federal Insecticide Act (FIA) of 1910

- first pesticide legislation enacted
- ensured quality pesticides by protecting farmers and consumers from fraudulent and/or adulterated products by manufacturers and distributors
- set standards for chemical quality and provided consumers protection but did not address the growing issue of potential environmental damage and biological health risks associated with such widespread use of insecticides

USDA established by Morrill Act May 15, 1862

- 1889 the Department of Agriculture was given cabinet-level status
- New Deal era – 1933 – Division of Crop and Livestock Estimates created to assist farmers on sampling techniques
- 1946 National School Lunch Act
- Federal Insecticide, Fungicide, and Rodenticide Act of 1947
  - law assigned the United States Department of Agriculture responsibility for regulating pesticides.
- 1970 Environmental Quality Improvement Act



A change in perspective

- Silent Spring by Rachel Carson. 1962.
  - Effects of pesticides on non-target organisms
  - Health effects on people
  - Pesticide resistance
  - Secondary pests
  - Started a movement that changed how pesticides were reviewed and regulated.

Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA)

- 1972 Congress Amend FIFRA with the Federal Environmental Pesticide Control Act (FEPCA)
  - The 1972 amendment transferred responsibility from USDA to the NEW Environmental Protection Agency and shifted emphasis to protection of the environment and public health
- Following President Richard Nixon's 'Reorganization Plan No. 3' issued in July 1970, EPA is officially established on December 2, 1970.
- Oct. 1972 Clean Water Act passed by Congress

What FIFRA was tasked to do:

- Amendments required the EPA to assess potential risks the pesticides posed to humans, the environment, and wildlife and weigh these against their benefits, taking action against those for which the risks outweighed the benefits.
- In 1988, Congress amended the pesticide registration provisions requiring re-registration of many pesticides that had been registered before 1984.
- The act was amended again in 1996 by the Food Quality Protection Act.
- More recently the act was amended in 2012 by the Pesticide Registration Improvement Extension Act of 2012

IPM Program Creation Timeline

1970’s

The term Integrated pest management was first used

- Due to growing knowledge of the potential side-effects of pesticide overuse

1972

IPM was formulated into a national policy by President Richard Nixon

1979

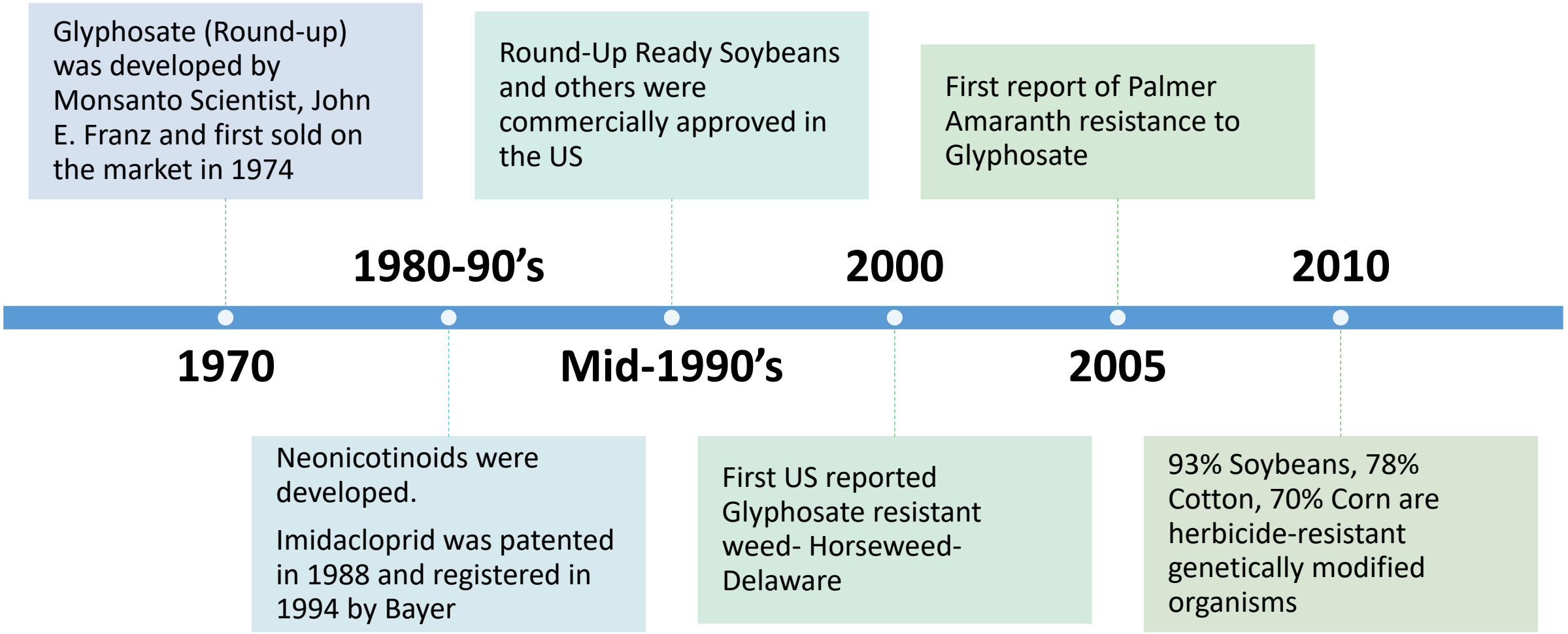
President Jimmy Carter established an interagency IPM coordinating committee to develop and implement IPM principles

1980’s

First literature on IPM in non-agricultural sites

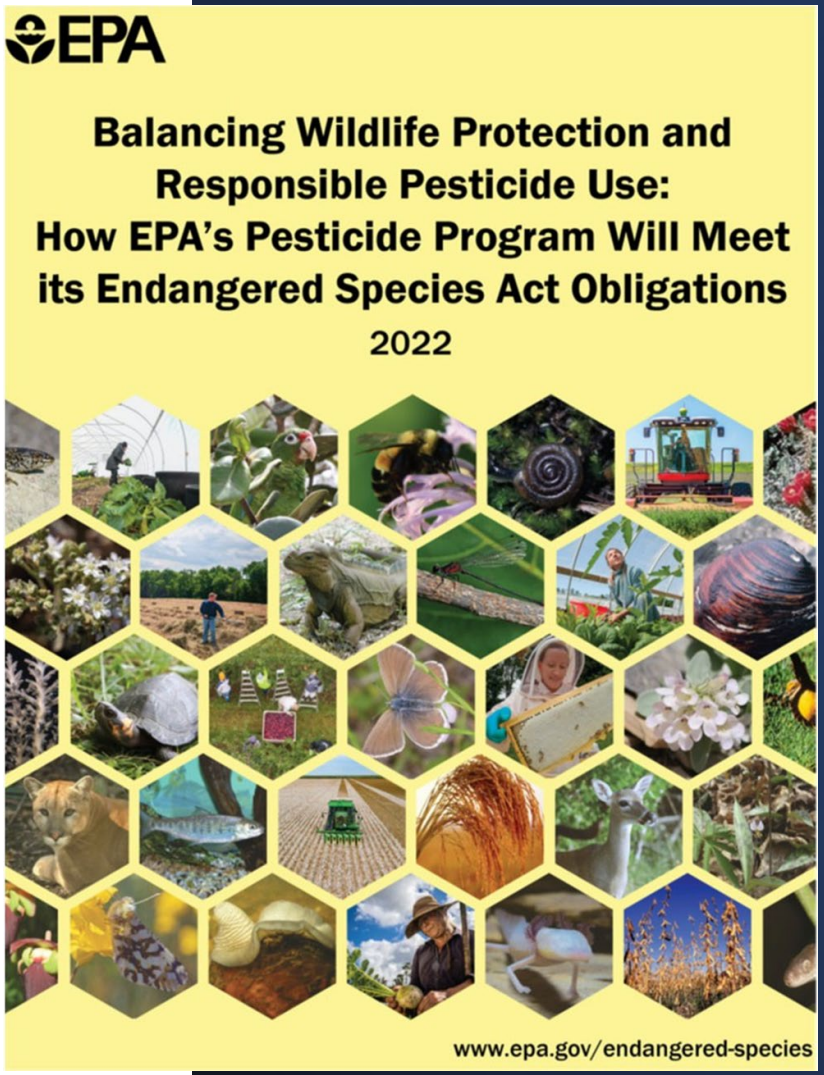
Training manual for the National Park Service

IPM Battles


Glyphosate (Round-up) was developed by Monsanto Scientist, John E. Franz and first sold on the market in 1974
Round-Up Ready Soybeans and others were commercially approved in the US
First report of Palmer Amaranth resistance to Glyphosate
1980-90's
2000
2010
1970
Mid-1990's
2005
Neonicotinoids were developed.
Imidacloprid was patented in 1988 and registered in 1994 by Bayer
First US reported Glyphosate resistant weed- Horseweed- Delaware
93% Soybeans, 78% Cotton, 70% Corn are herbicide-resistant genetically modified organisms

EPA Resolves Longstanding Litigation to Protect Endangered Species

- **2011,** the Center for Biological Diversity and Pesticide Action Network (Plaintiffs) filed a complaint in Federal Court in California against EPA.
  - Alleged that EPA was violating the Endangered Species Act (ESA)
    - when it registered or reevaluated the registration of 382 pesticide active ingredients, which was ultimately reduced to 35 active ingredients covering over 1,000 pesticide products containing one or more of these active ingredients.
- **2022**, EPA issued its *ESA Workplan, Balancing Wildlife Protection and Responsible Pesticide Use:*
  - How EPA's Pesticide Program Will Meet its Endangered Species Act Obligations
  - Describes how EPA will address the challenge of protecting ESA-listed species from pesticides.



What is a pesticide

- Any substance or mixture of substances intended for preventing, destroying, repelling, or mitigating any pest.
- Any substance or mixture of substances intended for use as a plant regulator, defoliant, or desiccant.
- Any nitrogen stabilizer.
- A product is likely to be a pesticide if the labeling or advertising:
  - Makes a claim to prevent, kill, destroy, mitigate, remove, repel or any other similar action against any pest.
  - Indirectly states or implies an action against a pest.
  - Draws a comparison to a pesticide.
  - Pictures a pest on the label.

Chemicals Have Consequences

- Resistance – herbicide and pesticide resistance increasing
- Secondary Pests – chemicals can upset natural ecological balance
- Killing Natural Enemies – IPM promotes natural predator-prey relationships to keep pests at bay
- Human Health - teratogenic, mutagenic, carcinogenic
- Environmental Factors – runoff upsets downstream ecology

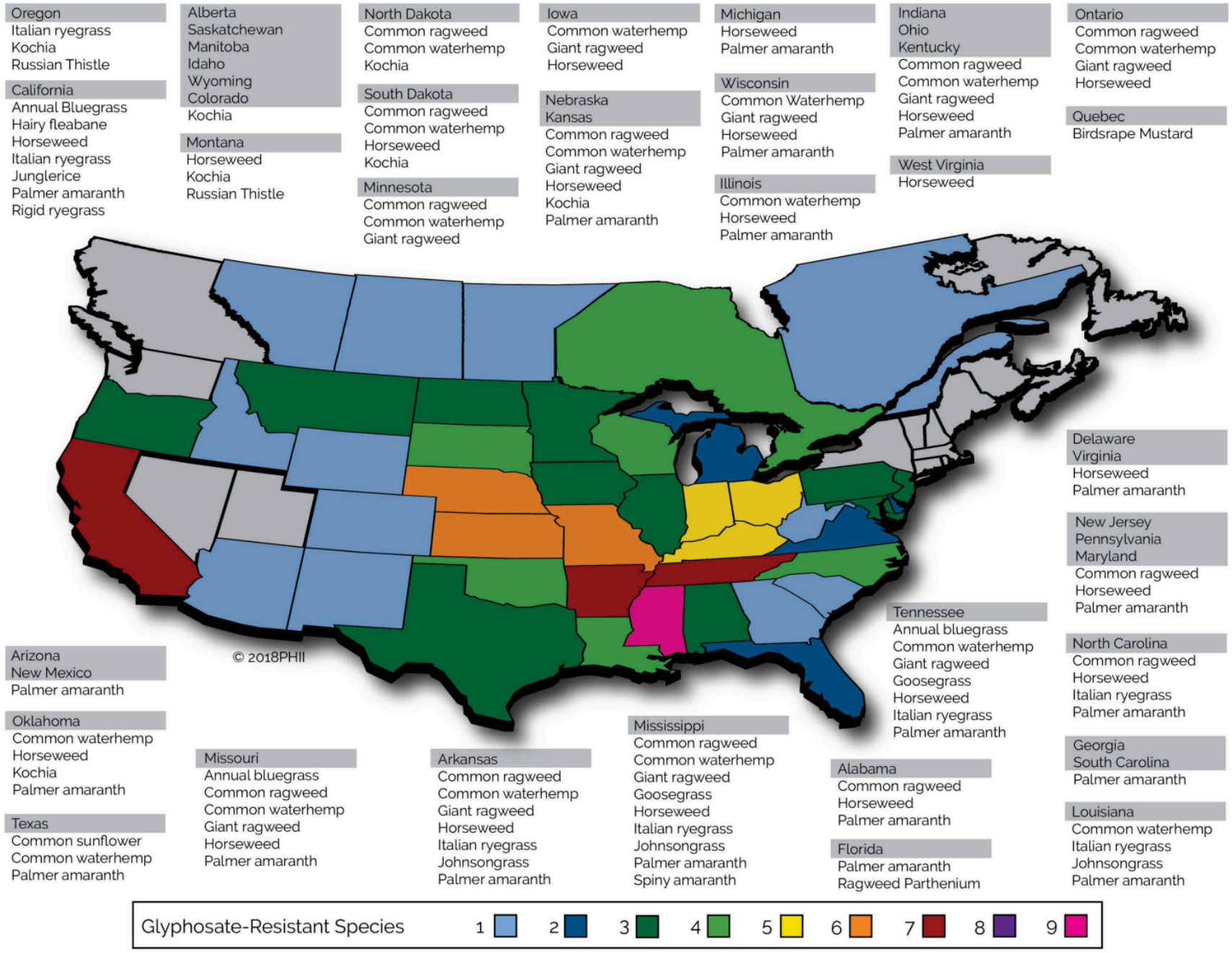
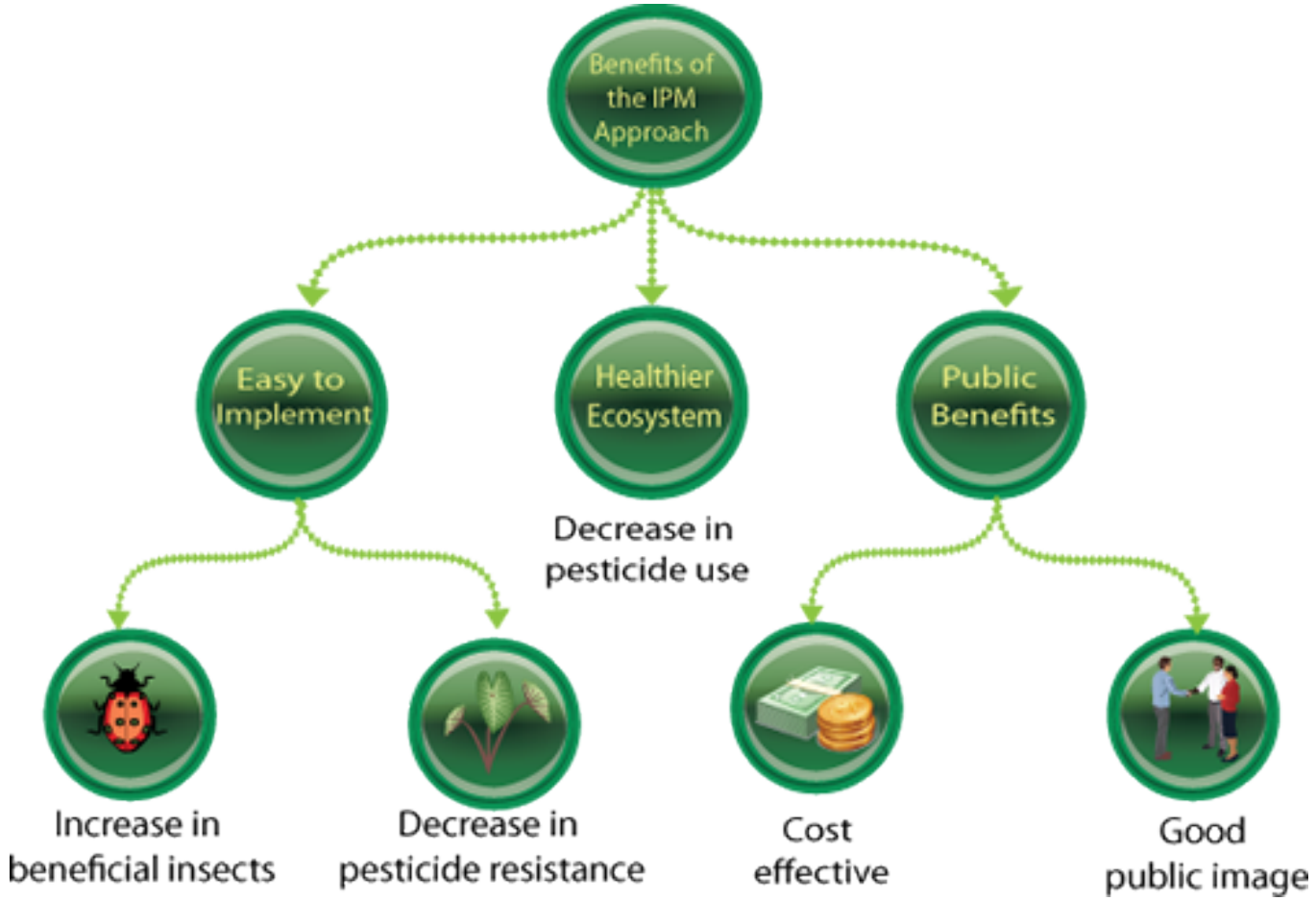


Figure 1. Confirmed cases of glyphosate resistance in North America as of spring 2018.

IPM Benefits



http://www.scpesticides.org/knowledgebase/ipm_advantages.php

IPM Disadvantages

IPM systems have the potential to be complex

For success, IPM needs constant monitoring

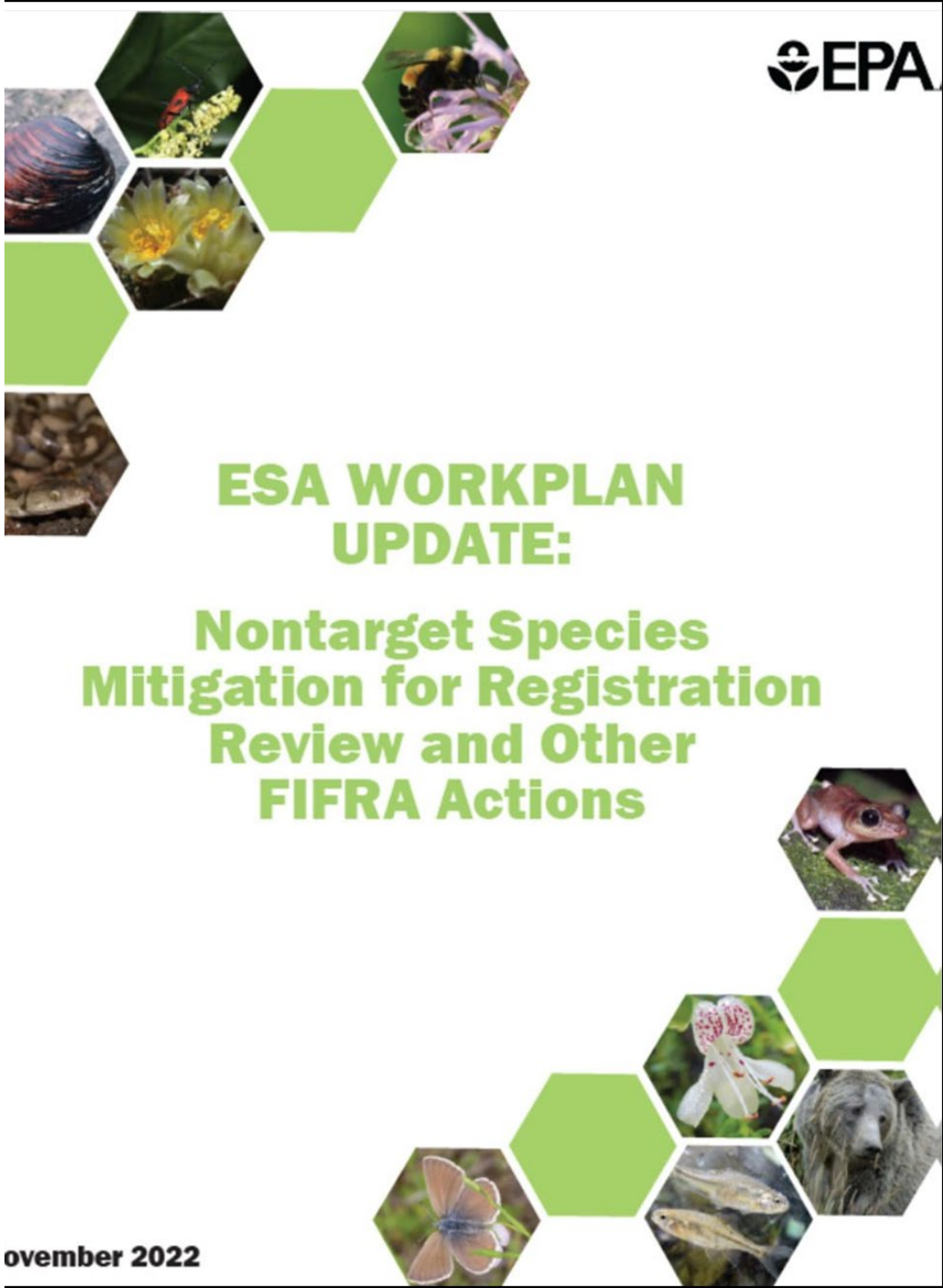
Requires time, effort, and money

Natural enemies could become pests?

Summary of draft mitigations

- Avoidance
  - Prohibit use in key areas inhabited by species
  - Provide exceptions if user gets input from Fish and Wildlife Service field office

- Minimization of spray drift
  - Different requirements based on application equipment and droplet sizes
  - Wind directional
  - Windbreak exception
  - Larger buffer distances proposed for the pilot terrestrial insect and plant species due to the susceptibility of these species to pesticides as a stressor



Summary of draft mitigations cont'd

- Minimization of runoff transport
  - Based on existing mitigations available to growers and pesticide applicators
  - Users would select 4 practices from mitigation menu
  - Runoff mitigations do not apply to 2 species, as this was not identified as a route of exposure

- Timing restrictions
  - EPA considered the life histories of the pilot species to determine if restrictions could be limited to specific periods of time to maximize species protection and minimize impact to the user
  - Only certain species have proposed timing restrictions

Pilot Species

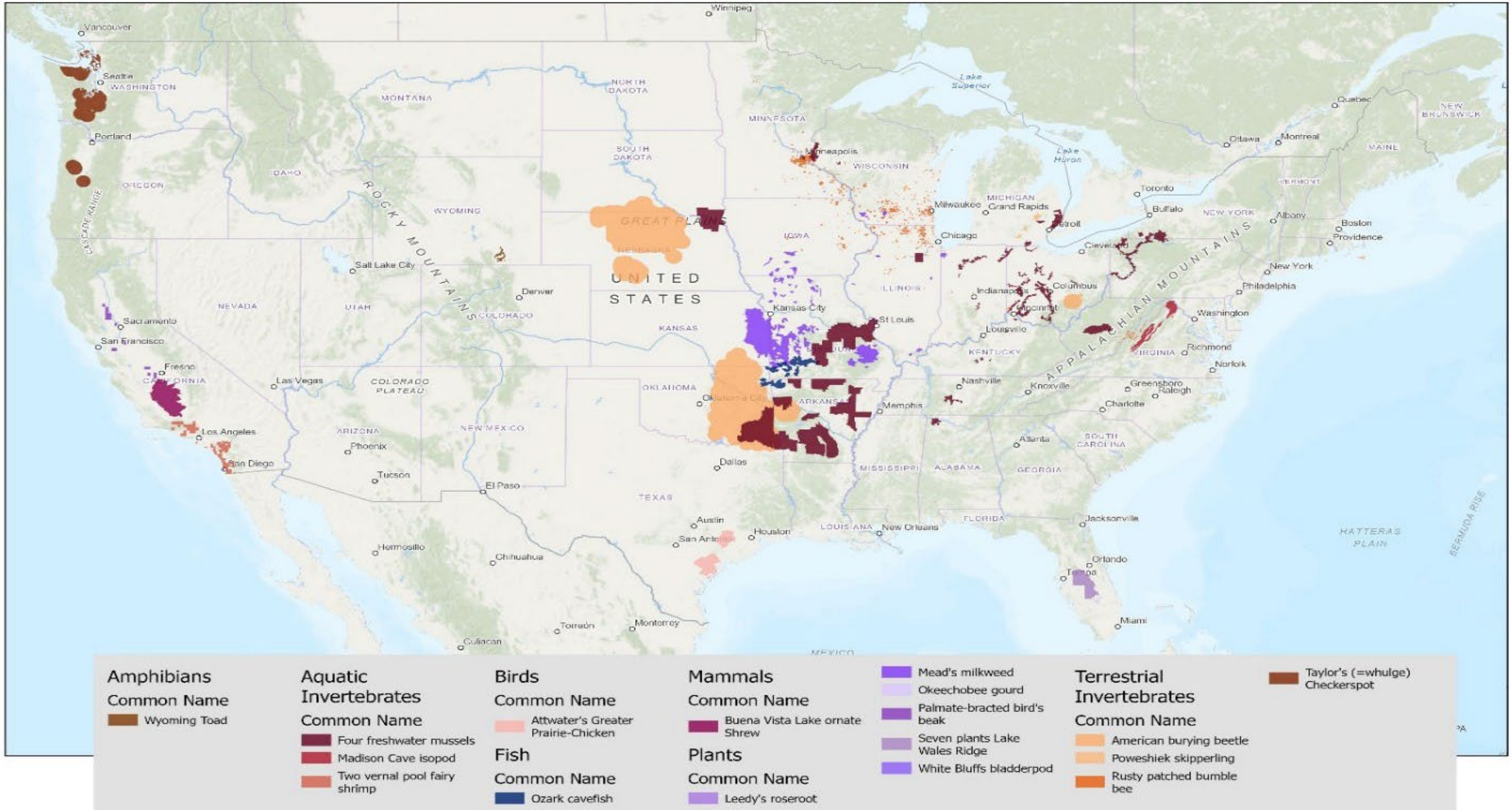
- Criteria
  - Fish and Wildlife Service has categorized species as high or medium vulnerability
  - Limited ranges
  - Pesticides identified as a potential stressor

- Approximately 20 species or groups of species representing diverse taxa
  - Plants
  - Terrestrial and aquatic invertebrates
  - Vertebrates (fish, amphibian, bird, mammal)
  - Variety of habitats (e.g., grassland, streams) and locations

Pilot Vulnerable Species

- Plants
  - Lake Wales Ridge species
  - Mead's milkweed
  - Leedy's roseroot
  - Okeechobee gourd
  - Palmate-bracted bird's beak
  - White bluffs bladderpod
- Fish, Amphibians, Birds, Mammals
  - Ozark cavefish
  - Attwater's greater prairie chicken
  - Buena Vista Lake ornate shrew
  - Wyoming toad
- Insects
  - Poweshiek skipperling
  - Rusty patched bumble bee
  - Taylor's checkerspot
  - American burying beetle
- Aquatic invertebrates
  - Madison cave isopod
  - Riverside and San Diego fairy shrimp
  - Ouachita rock pocketbook (mussel)
  - Rayed bean (mussel)
  - Scaleshell mussel
  - Winged Mapleleaf (mussel)

Locations of ranges and designated critical habitats (if available) of 27 vulnerable pilot species.

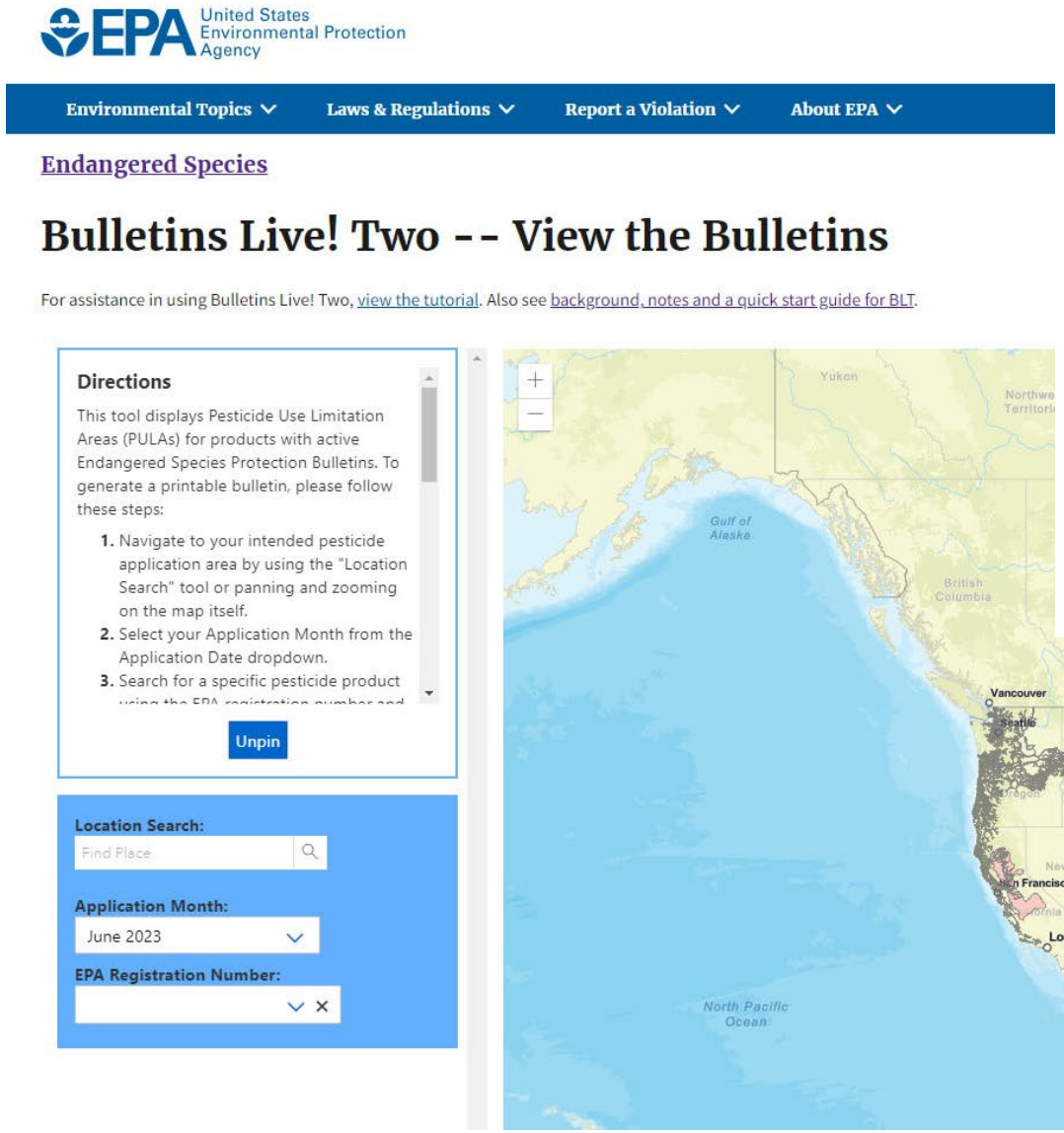


Proposed mitigations

- Plan to implement using Bulletins Live! Two
- Bulletins include two parts:
  - Location (referred to as a “Pesticide Use Limitation Area”)
  - Mitigations (referred to as “Pesticide Use Limitations”)
- Pesticide Use Limitation Areas are based on
  - Species’ ranges
  - And critical habitat if available
- Three types of mitigation
  - Avoidance
  - Spray drift minimization
  - Runoff minimization

Bulletins Live! Two (BLT)

- Bulletins contain enforceable pesticide use limitations to protect ESA-listed species or critical habitat.
- Bulletins Live! Two the web-based application to access Bulletins.
  - To access Bulletins in the system, users identify the intended pesticide application area, application month and EPA product registration number.
  - Available at https://www.epa.gov/endangered-species/bulletins-live-two-view-bulletins
  - A quick start guide and a tutorial are linked from this page



Runoff Mitigation Menu

- EPA recognizes efficacy information on additional practices may become available over time and is currently thinking about ways to expand the menu to include additional options as appropriate.

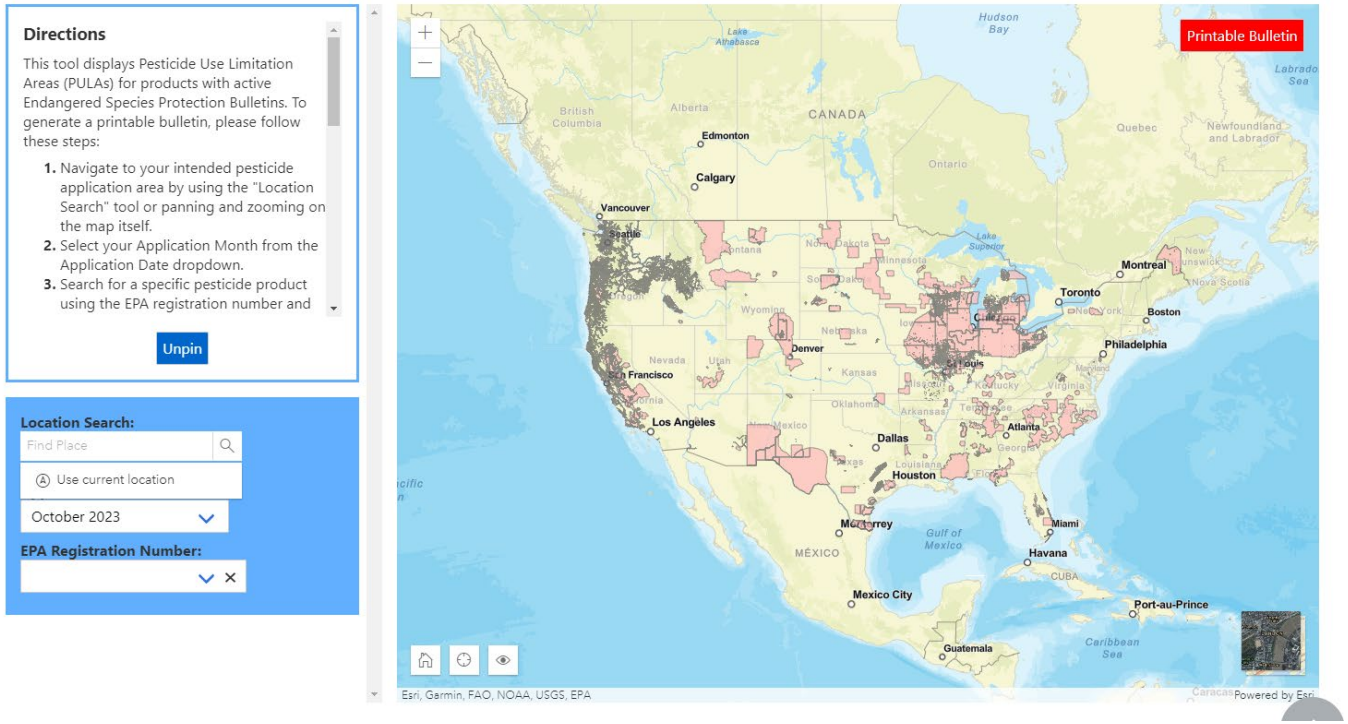
Table 4. Draft options for runoff/erosion measures for selected pesticide use site[1].

Runoff/Erosion Mitigation Practice	Use Site				
	1: Field Crops[2]	2: Orchards	3: Specialty Crops[3]	4: Non-Ag[4]	5: Rice[5]
Applications					
Avoid Using Pesticide of a Highly Toxic Hazard Class to invertebrates	✓	✓	✓	✓	✓
40% rate reduction[6]	✓	✓	✓	✓	✓
In Field					
Contour Farming	✓	✓	✓	--	--
Cover Crop	✓	✓	✓	✓	--
In-field Vegetative Filter Strip[7]	✓	✓	✓	✓	--
Mulching	✓	✓	✓	✓	
Residue and Tillage management	✓	--	✓	--	--
Terrace Farming	✓	✓	✓	--	--
Grassed Waterways	✓	✓	✓	✓	--
Field Characteristics					
Field with <2% slope	✓	✓	✓	--	✓
Adjacent to the Field or In-between field and Protection Area					
Vegetative Filter Strips[7]	✓	✓	✓	✓	--
Riparian Area (>10m width from average high-water mark to use site)	✓	✓	✓	✓	--
Controlled Drainage					
Constructed wetlands or Water and Sediment Control Basins	✓	✓	✓	✓	✓

Draft Implementation Plan - Bulletins

- Proposing a multi-pronged implementation plan to get Bulletins Live! Two reference language and link on product label
- Mitigations will be required once EPA has established the relevant Bulletins, and the label has the BLT link.
- BLT language will be added through registration and registration review activities
- Release policy statement that allows adding BLT link voluntarily through non-notification
- Longer term: Evaluate whether further policy/rulemaking is needed

Endangered Species Protection Bulletins



- StoryMaps and other materials will allow growers and applicators to determine whether they routinely apply pesticides near the pilot species
    - Available before full implementation BLT references on pesticide product labeling and creation of Bulletins
    - StoryMaps are intended for informational purposes only; not to be interpreted as regulatory
- Planning outreach and education efforts on use of the BLT on-line system, compliance with label directions, and Bulletins

National Level Listed Species Biological Evaluations of Conventional Pesticides.

- EPA to finalize BEs for the three pilot chemicals: chlorpyrifos, diazinon and malathion in 2017.
- Uses this methodology for the following chemicals.
- Clothianidin
- Imidacloprid
- Thiamethoxam
  - Models and tools used in neonic BEs
- Carbaryl
- Methomyl
  - Models and tools used in carbaryl and methomyl BEs
- Atrazine
- Propazine
- Simazine
- Glyphosate
  - Models and tools used in triazine, and glyphosate BEs

BUCCANEER PLUS®

glyphosate herbicide

TENKOZ

AVOID CONTACT OF HERBICIDE WITH FOLIAGE, GREEN STEMS, EXPOSED NON-WOODY ROOTS OR FRUIT OF CROPS (EXCEPT AS SPECIFIED FOR INDIVIDUAL ROUNDUP READY® CROPS), DESIRABLE PLANTS AND TREES, BECAUSE SEVERE INJURY OR DESTRUCTION MAY RESULT.
Non-selective, broad-spectrum weed control for many cropping systems, farmsteads and Conservation Reserve Program acres.
Not all products specified in this label are registered for use in California. Check the registration status of each product in California before using.

ACTIVE INGREDIENT:

*Glyphosate, N-(phosphonomethyl)glycine, in the form of its isopropylamine salt	41.0%
OTHER INGREDIENTS:	59.0%
	100.0%

*Contains 480 grams per litre or 4 pounds per U.S. gallon of the active ingredient glyphosate, in the form of its isopropylamine salt. Equivalent to 356 grams per litre or 3 pounds per U.S. gallon of the acid, glyphosate.
No license granted under any non-U.S. patent(s).

Keep out of reach of children.

WARNING! AVISO!

Si usted no entiende la etiqueta, busque a alguien para que se la explique a usted en detalle. (If you do not understand the label, find someone to explain it to you in detail.)

Read the entire label before using this product. Use only according to label instructions.

Nonrefillable container.

EPA REG. NO. 55467-9 **EPA EST. NO. 42750-MO-001**

NET CONTENTS 2½ GALLONS

36829 092514 09Y14

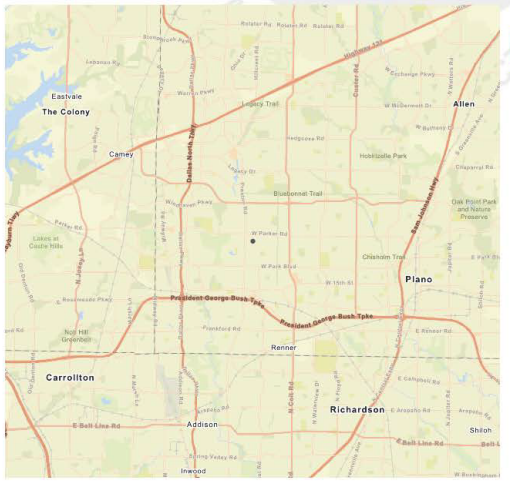
Tenkoz, Inc.
Alpharetta, GA 30005

Endangered Species Protection Bulletin

October 2023

Application Month: BUCCANEER PLUS GLYPHOSATE HERBICIDE
Product: (55467-9) ; "DEAL PLUS GLYPHOSATE HERBICIDE"

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.

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

Present Day – Label is the Law

The changes have begun and will continue

Pesticide Labels

- Use restrictions are changing each year
- Be aware of who your neighbors are and what they are doing
- Work with your local county agent, crop advisor, pesticide dealer to review directions for use.
- Additional Restrictions that will impact what we do in the future:
  - Water – changes to the waters of U. S.
  - Soil – what breakdowns quickly and what doesn't work with others
  - Endangered Species and other non-target species (rodenticides)
  - People's Perceptions that can influence rules more than anything else.

PROTECTION OF POLLINATORS

APPLICATION RESTRICTIONS EXIST FOR THIS PRODUCT BECAUSE OF RISK TO BEES AND OTHER INSECT POLLINATORS. FOLLOW APPLICATION RESTRICTIONS FOUND IN THE DIRECTIONS FOR USE TO PROTECT POLLINATORS.

Look for the bee hazard icon  in the Directions for Use for each application site for specific use restrictions and instructions to protect bees and other insect pollinators.

This product can kill bees and other insect pollinators.

Bees and other insect pollinators will forage on plants when they flower, shed pollen, or produce nectar.

Bees and other insect pollinators can be exposed to this pesticide from:

- Direct contact during foliar applications, or contact with residues on plant surfaces after foliar applications
- Ingestion of residues in nectar and pollen when the pesticide is applied as a seed treatment, soil, tree injection, as well as foliar applications.

When Using This Product Take Steps To:

- Minimize exposure of this product to bees and other insect pollinators when they are foraging on pollinator attractive plants around the application site.
- Minimize drift of this product on to beehives or to off-site pollinator attractive habitat. Drift of this product onto beehives can result in bee kills.

Information on protecting bees and other insect pollinators may be found at the Pesticide Environmental Stewardship website at:
http://pesticidestewardship.org/pollinatorprotection/Pages/default.aspx

(for example, bee kills) should immediately be reported to the state/tribal lead agency. For ...org. Pesticide incidents can also be reported to the ...@epa.gov

Alerts users to separate restrictions on the label. These prohibit certain pesticide use when bees are present.

The new bee icon helps signal the pesticide's potential hazard to bees.

Makes clear that pesticide products can kill bees and pollinators.

Bees are often present and foraging when plants and trees flower. EPA's new label makes it clear that pesticides cannot be applied until all petals have fallen.

Warns users that direct contact and ingestion could harm pollinators. EPA is working with beekeepers, growers, pesticide companies, and others to advance pesticide management practices.

Highlights the importance of avoiding drift. Sometimes, wind can cause pesticides to drift to new areas and can cause bee kills.

The science says that there are many causes for a decline in pollinator health, including pesticide exposure. EPA's new label will

GROUP	4A	INSECTICIDE

Arena® 50 WDG INSECTICIDE[1]

FOR FOLIAR AND SYSTEMIC CONTROL OF LISTED INSECTS IN COMMERCIAL AND RESIDENTIAL LANDSCAPES AND INTERIORSCAPES, NON-BEARING FRUIT AND NUT TREES, RESIDENTIAL APPLE AND PEAR TREES, TURFGRASS AND SITES WHERE PLANTS ARE GROWN FOR ORNAMENTAL, AESTHETIC AND CLIMATE MODIFICATION PURPOSES

Active Ingredient	By Wt
*Clothianidin	50.0%
Other Ingredients	50.0%
Total	100.0%

*(*E*)-1-(2-chloro-1,3-thiazol-5-ylmethyl)-3-methyl-2-nitroguanidine

EPA Reg. No. 59639-152
EPA Est. 39578-TX-1Ⓔ, 67545-AZ-1Ⓨ
Superscript is first letter in lot number.

KEEP OUT OF REACH OF CHILDREN

CAUTION

SEE BELOW FOR ADDITIONAL PRECAUTIONARY STATEMENTS.

FIRST AID

If swallowed: Call 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 by the poison control center or doctor.
Do not give anything by mouth to an unconscious person.

If on skin or clothing: 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.
(continued)

FIRST AID (continued)

If inhaled: Move person to fresh air.
If person is not breathing, call 911 or ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible.
Call a poison control center or doctor for further treatment advice.

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.

HOT LINE NUMBER

Have the product container or label with you when calling a poison control center or doctor, or going for treatment. You may also contact **800-892-0099** for emergency medical treatment information.

PRECAUTIONARY STATEMENTS

HAZARDS TO HUMANS AND DOMESTIC ANIMALS

CAUTION

Harmful if swallowed. Harmful if absorbed through skin. Harmful if inhaled. Causes moderate eye irritation. Avoid contact with eyes, skin or clothing. Avoid breathing spray mist or vapor.

PERSONAL PROTECTIVE EQUIPMENT (PPE)

Applicators and other handlers must wear: long-sleeved shirt and long pants, shoes and socks and chemical-resistant gloves such as barrier laminate, butyl rubber ≥ 14 mils, nitrile rubber ≥ 14 mils, neoprene rubber ≥ 14 mils, natural rubber ≥ 14 mils, polyethylene, polyvinyl chloride ≥ 14 mils, or viton ≥ 14 mils.

Follow the manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables exist, use detergent and hot water. Keep and wash PPE separately from other laundry.

ENGINEERING CONTROLS

When handlers use closed systems or enclosed cabs in a manner that meets the requirements listed in the Worker Protection Standard (WPS) for agricultural pesticides [40 CFR 170.240 (d)(4-6)], the handler PPE requirements may be reduced or modified as specified in the WPS.

IMPORTANT: When reduced PPE is worn because a closed system is being used, handlers must be provided all PPE specified above for "applicators and other handlers" and have such PPE immediately available for use in an emergency, such as a spill or equipment break-down.

Clothianidin*

SAMPLE PRODUCT IMAGE
See label for specific product information

USE INFORMATION

Arena 50 WDG Insecticide[1] is a broad spectrum insecticide, for control of a wide spectrum of insects infesting turfgrass, ornamental plants, interior plantscapes and non-bearing fruit and nut trees (in landscapes). When applied as directed, *Arena* 50 WDG Insecticide[1] provides excellent and long residual insect control.

RESTRICTIONS

- Do not use a foliar application of clothianidin (*Arena* 50 WDG Insecticide[1]) following a soil application of clothianidin.
- Regardless of the application method, do not apply more than 0.4 lb active ingredient clothianidin per acre per year for turf, landscape, ornamentals and non-bearing fruits and nuts.
- If the maximum limit (0.4 lb active ingredient clothianidin per acre per year) has been applied and pest populations require additional treatments, use another registered pesticide that is not in the neonicotinoid class of chemistry.
- Do not apply by air.
- Do not apply this product, by any application method, to linden, basswood or other *Tilia* species.

PLANT TOLERANCE

Neither the manufacturer nor the seller has determined whether or not *Arena* 50 WDG Insecticide[1] can be used safely on cultivars of plants registered for use. *Arena* 50 WDG Insecticide[1] has been tested on many cultivars with no phytotoxicity observed at label rates. Since all plant species and their varieties and cultivars have not been tested for tolerance, it is recommended that a small number of plants be sprayed to make certain that no phytotoxicity occurs, prior to any large scale application to plants. The end user assumes all risks arising from application of *Arena* 50 WDG Insecticide[1] in a manner inconsistent with its labeling.

Arena 50 WDG Insecticide[1] can be tank mixed. However, all plant species and their varieties and cultivars have not been tested with possible tank mix combinations, sequential pesticide treatments and adjuvants and surfactants. Conduct a spray mix compatibility and phytotoxicity trial under local conditions to ensure compatibility prior to any large scale use.

Special Instructions based on protentional to harm pollinators

RESISTANCE MANAGEMENT

Arena 50 WDG Insecticide[1] contains a Group 4A insecticide. Insect biotypes with acquired resistance to Group 4A insecticides may eventually dominate the insect population if Group 4A insecticides are used repeatedly in the same field or in successive years as the primary method of control for targeted species. This may result in partial or total loss of control of those species by *Arena* 50 WDG Insecticide[1] or other Group 4A insecticides.

To delay insecticide resistance consider:

- Avoiding the consecutive use of *Arena* 50 WDG Insecticide[1] or other Group 4A insecticides that have a similar target site of action on the same insect species.
- Using tank mixtures or premixes with insecticides from a different target site of action Group as long as the involved products are all registered for the same use and have different sites of action.

(continued)

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- Basing insecticide use on a comprehensive Integrated Pest Management (IPM) program.
- Monitoring treated insect populations for loss of field efficacy.
- Contacting your local extension specialist, certified crop advisors and/or manufacturer for insecticide resistance management or IPM recommendations for the specific site and resistant pest problems.
- For further information or to report a suspected resistance, you may contact Valent U.S.A. LLC at 800-898-2536.

TEXAS A&M AGRILIFE

Difference between an indoor application and outdoor application

FOLIAR APPLICATION ON ORNAMENTALS IN OUTDOOR LANDSCAPES

PLANTS	PESTS	*ARENA* 50 WDG INSECTICIDE[1] APPLICATION RATES (Per 100 Gals of Water)	SPECIAL INSTRUCTIONS
Bedding Plants Evergreens Flowering Plants Foliage Plants Ground Covers Non-Bearing Fruit Trees Non-Bearing Nut Trees Non-Bearing Vines Ornamental Trees Shrubs	Aphids	0.63 to 1.26 oz	Uniformly apply the spray solution to the point of drip. Reapply as needed. The amount of spray solution needed per acre will depend on the ornamental size and the density of the leaf canopy.
	Mealybugs Whiteflies	0.9 to 1.26 oz	

RESTRICTION

- Regardless of the application method do not apply more than 0.4 lb active ingredient clothianidin per acre per year.

FOLIAR APPLICATION ON ORNAMENTALS IN INTERIOR PLANTSCAPES

PLANTS	PESTS	*ARENA* 50 WDG INSECTICIDE[1] APPLICATION RATES (Per 100 Gals of Water)	SPECIAL INSTRUCTIONS
Bedding Plants Evergreens Flowering Plants Foliage Plants Ground Covers Non-Bearing Fruit Trees Non-Bearing Nut Trees Non-Bearing Vines Ornamental Trees Shrubs	Aphids	0.63 to 1.26 oz	Uniformly apply the spray solution to the point of drip. Reapply as needed. The amount of spray solution needed per acre will depend on the ornamental size and the density of the leaf canopy.
	Mealybugs Whiteflies	0.9 to 1.26 oz	

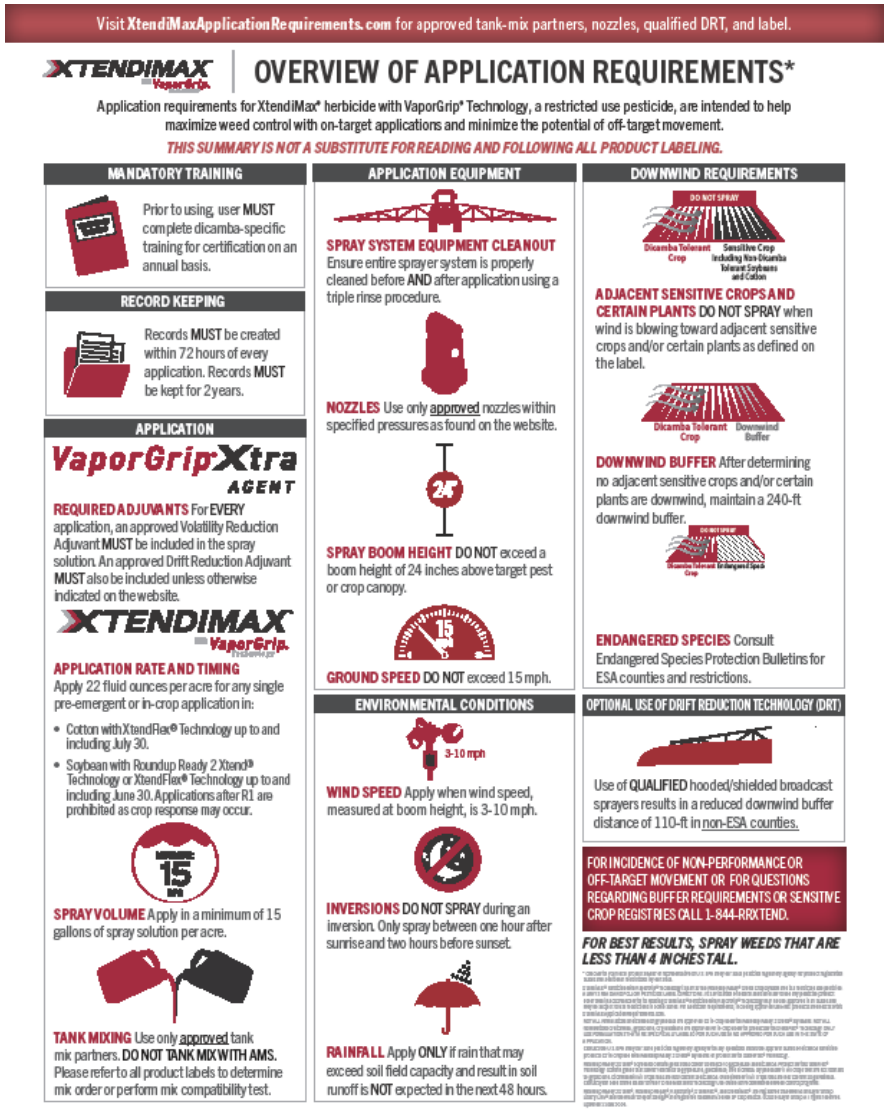
RESTRICTION

- Regardless of the application method do not apply more than 0.4 lb active ingredient clothianidin per acre

Dicamba

- Dicamba herbicides will be restricted use pesticides, which will limit their availability and use to certified retailers and applicators, as well as require more comprehensive record keeping.
- State pesticide regulators and agencies will be required to train all applicators before they can use the dicamba herbicides.
- Applications are limited to sunrise to sunset, effectively banning nighttime spraying, when temperature inversions are most likely to occur.
- Applications are also limited to wind speeds of 3 to 10 mph.
- Applicators must keep records showing they have surveyed the surrounding area for susceptible and sensitive crops. The new labels include graphics to help explain the herbicide's buffer requirements and attempt to clarify what counts as a susceptible or sensitive crop.

More Pesticide Stewardship



Visit XtendiMaxApplicationRequirements.com for approved tank-mix partners, nozzles, qualified DRT, and label.

XTENDIMAX VaporGrip

OVERVIEW OF APPLICATION REQUIREMENTS*

Application requirements for XtendiMax® herbicide with VaporGrip® Technology, a restricted use pesticide, are intended to help maximize weed control with on-target applications and minimize the potential of off-target movement.

THIS SUMMARY IS NOT A SUBSTITUTE FOR READING AND FOLLOWING ALL PRODUCT LABELING.

MANDATORY TRAINING

Prior to using, user **MUST** complete dicamba-specific training for certification on an annual basis.

RECORD KEEPING

Records **MUST** be created within 72 hours of every application. Records **MUST** be kept for 2 years.

APPLICATION

VaporGrip Xtra AGENT

REQUIRED ADJUVANTS For **EVERY** application, an approved Volatility Reduction Adjuvant **MUST** be included in the spray solution. An approved Drift Reduction Adjuvant **MUST** also be included unless otherwise indicated on the website.

XTENDIMAX VaporGrip

APPLICATION RATE AND TIMING

Apply 22 fluid ounces per acre for any single pre-emergent or in-crop application in:

- Cotton with XtendFlex® Technology up to and including July 30.
- Soybean with Roundup Ready 2 Xtend® Technology or XtendFlex® Technology up to and including June 30. Applications after R1 are prohibited as crop response may occur.

15 GPA

SPRAY VOLUME Apply in a minimum of 15 gallons of spray solution per acre.

TANK MIXING Use only approved tank mix partners. **DO NOT TANK MIX WITH AMS.** Please refer to all product labels to determine mix order or perform mix compatibility test.

APPLICATION EQUIPMENT

SPRAY SYSTEM EQUIPMENT CLEANOUT Ensure entire sprayer system is properly cleaned before **AND** after application using a triple rinse procedure.

NOZZLES Use only approved nozzles within specified pressures as found on the website.

24"

SPRAY BOOM HEIGHT **DO NOT** exceed a boom height of 24 inches above target pest or crop canopy.

15 MPH

GROUND SPEED **DO NOT** exceed 15 mph.

ENVIRONMENTAL CONDITIONS

3-10 mph

WIND SPEED Apply when wind speed, measured at boom height, is 3-10 mph.

INVERSIONS **DO NOT SPRAY** during an inversion. Only spray between one hour after sunrise and two hours before sunset.

RAINFALL Apply **ONLY** if rain that may exceed soil field capacity and result in soil runoff is **NOT** expected in the next 48 hours.

DOWNWIND REQUIREMENTS

DO NOT SPRAY — Dicamba Tolerant Crop — Sensitive Crop including Non-Dicamba Tolerant Soybeans and Cotton

ADJACENT SENSITIVE CROPS AND CERTAIN PLANTS **DO NOT SPRAY** when wind is blowing toward adjacent sensitive crops and/or certain plants as defined on the label.

Dicamba Tolerant Crop — Downwind Buffer

DOWNWIND BUFFER After determining no adjacent sensitive crops and/or certain plants are downwind, maintain a 240-ft downwind buffer.

DO NOT SPRAY — Sensitive Tolerant Endangered Crop

ENDANGERED SPECIES Consult Endangered Species Protection Bulletins for ESA counties and restrictions.

OPTIONAL USE OF DRIFT REDUCTION TECHNOLOGY (DRT)

Use of **QUALIFIED** hooded/shielded broadcast sprayers results in a reduced downwind buffer distance of 110-ft in non-ESA counties.

FOR INCIDENCE OF NON-PERFORMANCE OR OFF-TARGET MOVEMENT OR FOR QUESTIONS REGARDING BUFFER REQUIREMENTS OR SENSITIVE CROP REGISTRIES CALL 1-844-RRXTEND.

FOR BEST RESULTS, SPRAY WEEDS THAT ARE LESS THAN 4 INCHES TALL.

APPLY WITH CONFIDENCE

Enlist™ weed control system

Review before spraying to ensure successful application. For detailed instructions, visit **Enlist.com/Apply**. Always follow all label requirements.

BEFORE SPRAYING

APPLICATION WINDOW

Am I spraying when weeds are less than 6" tall?

Am I spraying during the right application window?
Soybeans: through R1 growth stage
Cotton: before first white bloom
Corn: no larger than V8 growth stage or 30 inches tall; unless applying with drop nozzles, then may spray up to 48 inches tall

TANK-MIX PARTNERS

Have I checked **EnlistTankMix.com** for qualified tank-mix products before planning my application?

Am I using **multiple effective sites of action**? Pair Enlist One® herbicide with Liberty® herbicide or glyphosate based on need.

Do I know the **correct tank mix sequence** as detailed on the label?

NOZZLES

Am I using a qualified nozzle and corresponding pressure, as listed on Enlist.com/nozzles, to provide **optimum spray coverage**?

SPRAYER CONTAMINATION

Is my sprayer clean from prior applications to avoid tank contamination?

PAY SPECIAL ATTENTION TO WIND AND WEATHER CONDITIONS

WIND SPEED, WEATHER

Is the wind speed within the recommended range of **3 to 10 mph**?

Have I made sure there is **no temperature inversion**?

SUSCEPTIBLE CROPS

Is the **wind blowing away** from adjacent susceptible crops, including cotton without the Enlist® trait, tomatoes, grapes and cucurbits?

APPLICATION

SPRAY VOLUME

Am I using the **right spray volume**? For Enlist herbicides: use 10 to 15 gallons per acre; no less than 10 gallons per acre.

For Enlist One + Liberty herbicide (*glufosinate*) tank mix: use 15 to 20 gallons per acre; no less than 15 gallons per acre.

SPRAY RATE

Am I spraying Enlist Duo® herbicide at **4.75 pt./A** or Enlist One® herbicide at **2 pt./A**?

SPRAY PRESSURE

Am I spraying at the right pressure within the **qualified range for optimum coverage** with the nozzle I selected?

BOOM HEIGHT

Is my boom height **no more than 24" above crop canopy** when applying an Enlist® herbicide?

AFTER SPRAYING

CLEANOUT

Am I clean-water flushing with **10% of tank volume**?

Am I **triple-rinsing** when application is complete?

Enlist Duo® COLEX-D® technology HERBICIDE

Enlist One® COLEX-D® technology HERBICIDE

This reference guide is not a substitute for reading the label for Enlist One® and Enlist Duo® herbicides. Please read before application each corresponding label, which can be accessed on Enlist.com/en/herbicides. Always check your state regulations and follow all state requirements for Enlist® herbicides.

PRODUCT INFORMATION

XtendiMax® With VaporGrip® Technology is:

- a water-soluble formulation intended for control and suppression of many annual, biennial, and perennial broadleaf weeds listed in the "Weeds Controlled or Suppressed" section of this label. This product may be used for control of these weeds in cotton with XtendFlex® Technology and soybean with Roundup Ready 2 Xtend® Technology or XtendFlex® Technology.
- a contact, systemic herbicide, with limited soil activity on small seeded broadleaf weeds, including waterhemp, lambsquarters, and Palmer pigweed.
- readily absorbed by plants through shoot and root uptake, translocates throughout the plant's system, and accumulates in areas of active growth. XtendiMax® With VaporGrip® Technology interferes with plant growth hormones (auxins) resulting in death of many broadleaf weeds.

Additional state restrictions and requirements may apply. The user must comply with any additional state requirements and restrictions. The user must check www.xtendimaxapplicationrequirements.com no more than 7 days before application of this product for additional labeling, including state restrictions. Where applicable, users must comply with additional requirements found on this website.

Refer to the specific use directions and restrictions in each crop table. Follow all requirements and restrictions on www.xtendimaxapplicationrequirements.com.

APPLICATION REQUIREMENTS OVERVIEW

Read and follow all applicable restrictions, precautions, and directions on the container label and booklet and at www.xtendimaxapplicationrequirements.com. For product questions or inquiries and/or to report any nonperformance of this product against any particular weed species, call 1-844-RRXTEND (1-844-779-8363). It is recommended that the certified applicator visit www.xtendimaxapplicationrequirements.com to obtain a copy of the Overview of Application Requirements for reference prior to and during application.

REQUIREMENTS	LABEL SECTIONS
Mandatory Training: ☐ Prior to applying, applicator must complete dicamba-specific training. Only certified applicators may apply this product; NOT to be used by uncertified persons working under the supervision of a certified applicator, except that uncertified persons may transport containers.	➢ Training (p. 3)
Record Keeping: ☐ Records must be created within 72 hours of every application. Records must be kept for a period of two years.	➢ Record Keeping (p. 3)
Application: ☐ For EVERY application of XtendiMax® With VaporGrip® Technology, an approved **Volatility Reduction Adjuvant (VRA)** must be included in the spray solution. An approved **Drift Reduction Adjuvant (DRA)** must also be included in the spray solution, unless otherwise indicated on www.xtendimaxapplicationrequirements.com. Refer to the website for a list of approved DRAs and VRAs. ☐ *Rate and Timing:* Apply 22 fluid ounces per acre (0.5 lb. a.e. dicamba) for any single pre-emergent or in-crop application in: ◦ Cotton with XtendFlex® Technology up to and including July 30 (DO NOT apply after July 30 regardless of growth stage), and ◦ Soybean with Roundup Ready 2 Xtend® Technology or XtendFlex® Technology up to and including June 30. Applications occurring after R1 are prohibited as crop response may occur and in no event can applications be made after June 30 regardless of growth stage. ◦ For details, see the "Specific Use Directions" section. ☐ *Spray volume:* Apply in a minimum of 15 gallons of spray solution per acre. ☐ *Tank mixing:* Use only approved tank-mix partners found at www.xtendimaxapplicationrequirements.com. ◦ Refer to all product labels to determine mix order or perform a mix compatibility test.	➢ Tank Mix Partners (p. 5) ➢ Specific Use Directions (pp. 7-8) ➢ Specific Use Directions (pp. 7-8) ➢ Tank Mix Partners (p. 5)
Application Equipment: ☐ *Spray system equipment cleanout:* Ensure entire sprayer system is properly cleaned before and after application. ☐ *Nozzles:* Use only approved nozzles within specified pressures found at www.xtendimaxapplicationrequirements.com. ☐ *Spray boom height:* Maximum boom height is 24 inches above target pest or crop canopy. ☐ *Ground speed:* DO NOT exceed 15 mph.	➢ Equipment Requirements (p. 4)
Environmental Conditions: ☐ *Wind speed:* Apply when wind speed, measured at boom height, is 3-10 mph. ☐ *Inversions:* DO NOT spray during an inversion; only spray between one hour after sunrise and two hours before sunset. ☐ *Rainfall:* DO NOT apply this product if rain that may exceed soil field capacity and result in soil runoff is forecasted in the next 48 hours.	➢ Environmental Requirements (p. 4)
Downwind Requirements: ☐ *Sensitive crops and certain plants downwind:* DO NOT apply if sensitive crops and/or certain plants, as defined below in this label, are planted on an adjacent downwind field or area. ☐ *Downwind buffer:* After determining no adjacent sensitive crops and/or certain plants are downwind, maintain a 240-ft downwind buffer. ☐ *Endangered species:* Consult Endangered Species Protection Bulletins for ESA counties and restrictions.	➢ Adjacent Sensitive Crops and Certain Plants (p. 4) ➢ Buffer Requirements (p. 4) ➢ Protecting Endangered Species (p. 1)
Drift Reduction Technology: ☐ See "Optional Use of Drift Reduction Technology" section for details on application requirements and the potential to qualify for reduced use restrictions.	➢ Optional Use of Drift Reduction Technology (p. 4)

USE RESTRICTIONS

- DO NOT USE ANY TANK MIX PRODUCT OR ANY NOZZLE AND PRESSURE COMBINATION WITH XTENDIMAX® WITH VAPORGRIP® TECHNOLOGY THAT IS NOT IDENTIFIED ON THE LIST OF APPROVED PRODUCTS FOUND AT www.xtendimaxapplicationrequirements.com.
- DO NOT TANK MIX AMMONIUM SULFATE (AMS) WITH THIS PRODUCT.
- DO NOT EXCEED 88 FLUID OUNCES (2 POUNDS ACID EQUIVALENT (A.E.) DICAMBA) OF XTENDIMAX® WITH VAPORGRIP® TECHNOLOGY PER ACRE PER YEAR.
- DO NOT EXCEED 88 FLUID OUNCES (2 POUNDS A.E. DICAMBA) PER ACRE PER YEAR FROM ALL DICAMBA APPLICATIONS IF MORE THAN ONE DICAMBA-CONTAINING PRODUCT IS APPLIED TO THE SAME SITE WITHIN THE SAME YEAR.
- DO NOT MAKE APPLICATION OF THIS PRODUCT IF RAIN IS EXPECTED IN THE NEXT 48 HOURS THAT MAY EXCEED SOIL FIELD CAPACITY AND RESULT IN SOIL RUNOFF.
- DO NOT APPLY THROUGH ANY TYPE OF IRRIGATION EQUIPMENT. DO NOT TREAT IRRIGATION DITCHES OR WATER USED FOR CROP IRRIGATION OR DOMESTIC PURPOSES.
- DO NOT APPLY TO CROPS UNDER STRESS DUE TO LACK OF MOISTURE, HAIL DAMAGE, FLOODING, HERBICIDE INJURY, MECHANICAL INJURY, INSECTS, OR WIDELY FLUCTUATING TEMPERATURES AS INJURY MAY RESULT.
- DO NOT APPLY THIS PRODUCT IF SENSITIVE CROPS AND CERTAIN PLANTS ARE PLANTED ON AN ADJACENT DOWNWIND FIELD OR AREA.
- DO NOT APPLY THIS PRODUCT AERIALLY.
- Restricted Entry Interval (REI): 24 hours.

USE PRECAUTIONS

- In case material is released or spilled: dike and contain the spill with inert material (sand, earth, etc.) and transfer liquid and solid diking material to separate containers for disposal. Remove contaminated clothing and wash affected skin areas with soap and water. Wash clothing before re-use. Keep the spill out of all sewers and open bodies of water.
- Rainfast period: This product is rainfast four (4) hours after application to most weed species. Rainfall or irrigation occurring within four (4) hours after application may necessitate retreatment or may otherwise result in reduced weed control.

TRAINING

Prior to using this product, users must complete dicamba-specific training to obtain certification on an annual basis. If state-specific training is required by the state where the applicator intends to apply this product, the applicator must complete training from the state or state-authorized provider. Otherwise, the applicator may complete dicamba-specific training provided either by the state/state-authorized provider or by a registrant of a dicamba product approved for in-crop use with dicamba-tolerant crops.

RECORD KEEPING

The following records must be generated as soon as practical but **no later than 72 hours after application.** The certified applicator must keep these records for a period of **two years.** Records must be made available to State Pesticide Control Official(s), USDA, and EPA upon request. See www.xtendimaxapplicationrequirements.com for an example form summarizing record keeping requirements.

Keep records of the following items for each application of XtendiMax® With VaporGrip® Technology:

Spray Drift On Labels

"**Pesticide Drift**" shall mean the physical movement through the air at the time of application of a pesticide from the site of application to any non-target site in sufficient quantities to cause injury to the non-target site, as a result of the application being made:

- In a manner inconsistent with drift control recommendations on the pesticide product label; or
- In a careless or negligent manner and shall not mean the off-target movement of a pesticide by erosion, volatility, or windblown soil particles at a time after the application is made.

"**Sufficient Quantity to Cause Injury**" shall mean an amount of pesticide which will cause:

- Pesticide residues in excess of the established tolerance for the pesticide on the non-target agricultural commodity; or
- Death, stunting, deformation, or other effects which are detrimental to the off-target environment including humans, desirable plants, animals or wildlife.

Protections During Applications: Outdoor Production

Watch Drift	Leave	Keep out
• Drift can result in contact that can make you ill or contaminate your clothes worn home	• If you see drift contacting non applicators, have them leave the area immediately and wash up as soon as is practical	• Agricultural employers must keep workers and other persons out of application exclusion zones (AEZs) {area being sprayed/treated}

Texas A&M AgriLife

Deviations from the Pesticide Label

- Using a pesticide in a way that is inconsistent with its label is a violation of FIFRA. However, in 1978, the original prohibition of the "use of any registered pesticide in a manner inconsistent with its labeling" was modified to allow four exceptions:
  - *Applying amounts less than the label states*. You may apply a pesticide at dosages, concentrations, or frequencies that are less than those specified on the label. Keep in mind that a pesticide application at less than the recommended rate may be ineffective, costly, or result in the development of resistant pest populations.
  - *Application methods not prohibited by the label*. You may use application methods not specifically prohibited by the label instructions. However, certain application methods, such as chemigation, must be specifically listed on the label to be legal.
  - *Applying against a target pest*. Unless specifically prohibited by the label, you may apply a pesticide against a target pest not listed on the label, provided that the application will be made on a label-approved site.
  - *Mixtures*. You may use mixtures of pesticides or pesticides with fertilizers if these mixtures are not specifically prohibited by the label instructions. You should conduct a Jar Test to check for compatibility, unless directed not to. A Jar Test involves mixing products proportionally on a small scale (in a quart jar) to see if they are compatible. Some pesticides do not allow you to use a Jar Test, and instead direct you to a list of approved mixes.

Remember

Use of any pesticide inconsistent with its label is prohibited by federal and state law

Deliberate violations of the label can result in heavy fines, imprisonment, or both

Think on this

- Regulations are not usually anticipatory but are responsive to some problem, perceived or actual
- Education is a much less invasive and much more cost-effective solution to problems than regulations are
- People being humans and, by their very nature, imperfect organisms it takes more than an idea to get their attention, therefore, there are times when we need regulations
- The use of agricultural chemicals will continue to be necessary to produce the food & fiber needed to feed, clothe, house, & protect the ever-expanding world population

Thank You

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