

Protecting Monarch Butterflies from Pesticides

US EPA, OCSPP

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Overview

EPA is committed to protecting pollinators, including the monarch butterfly. Threats to the monarch butterfly population are multi-pronged and include loss of breeding habitat, loss of overwintering habitat in Mexico (where the butterflies spend their winters), changes in weather patterns (including winter storms), and other factors¹.

EPA believes that a holistic approach is needed for monarch conservation that includes judicious use of herbicides, balancing weed management needs with monarch conservation needs, and focusing on ways to support monarch conservation through pesticide registration review, registration and stakeholder outreach and education.

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What EPA is Doing

EPA regulates pesticides and recognizes that herbicides are important tools for growers to control weeds. In 2015, in order to be responsive to public concerns about the monarch population decline, EPA released the [Risk Management Approach to Identifying Options for Protecting the Monarch Butterfly](#) for public comment. In this document, EPA sought feedback from stakeholders on strategies for managing risks to monarch butterflies and sought specific information on factors affecting the monarch population.

After reviewing public comments, EPA is focusing its monarch conservation efforts on four main areas:

- Pesticide label language;
- Cooperative efforts between EPA and federal, state and other stakeholders;
- Education and outreach that promotes spray drift management, best management practices and integrated pest management; and
- Science and risk assessment.

Promotion of monarch conservation activities at the state level. EPA provides funds to states for pesticide program activities under the State and Tribal Continuing Environmental Program's cooperative agreements.

[Federal Insecticide, Fungicide and Rodenticide Act \(FIFRA\) Cooperative Agreement Guidances](#), which are periodically updated, outline areas of cooperation between EPA and the states. The guidances describe specific pesticide program activities where grant money may be disbursed.

Educational webinars. In 2018, EPA offered webinars on spray drift management and integrated pest management to educate growers, applicators and other stakeholders involved in crop production on ways to reduce pesticide drift and limit pesticide exposure. Spray drift management can help protect pollinator habitat, including monarch habitat, by ensuring that pesticide don't move to non-target plants where pollinators forage. For more information on our webinars:

- [Strategies for Managing Pesticide Spray Drift](#)
- [Integrated Pest Management: Strategies for Pollinator Habitat Promotion and Conservation in Agricultural Areas](#)
- [Best Practices for Aerial Application](#)
- [Best Practices for Ground Application](#)

Updated label language. To further reduce pesticide exposure to pollinator habitat, in 2017, EPA updated the label language for pesticide products that are toxic to plants. This label language raises awareness of potential effects to pollinator habitat and directs the user to instructions on minimizing spray drift.

Recent herbicide labels have already been modified to reflect the appropriate language. In addition to incorporating this language into registration review decisions, this language will also be added to the pesticide [label review manual](#) in 2019 and will continue to be implemented on newer pesticide labels.

Continued collaboration. EPA is collaborating with states, federal agencies and other stakeholders to coordinate conservation efforts and assist in scientific risk assessments. EPA is working with the Fish and Wildlife Service on [assessing the status of the monarch butterfly](#). EPA is also discussing how best to protect monarch butterflies with the U.S. Department of Agriculture, the State FIFRA Issues Research And Evaluation Group ([SFIREG](#)), and the Association of American Pesticide Control Officials ([AAPCO](#)).

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Ways to Protect Monarch Butterflies

Best Management Practices

Best management practices are effective, common-sense practices that emphasize proper pesticide mixing, loading and application.

There are many ways to reduce pesticide exposure, which in turn can help protect native pollinators like the monarch butterfly. Examples include:

- Avoiding application of bee-toxic pesticides during bloom;
- Making pesticide applications in the evening or at night when pollinators are not actively foraging; and
- Checking wind conditions and other weather parameters prior to pesticide application.

These practices can be used to plan pesticide applications. EPA encourages and promotes the use of best management practices when possible. For more information on best management practices, see the websites below:

- [Find Best Management Practices to Protect Pollinators](#)
- [EPA's Tips for Reducing Pesticide Impacts on Wildlife](#)
- [Pesticide Applicator BMPs Exit](#) (Center for Integrated Pest Management)
- [Best Management Practices for Pollinators and Their Habitat Exit](#) (Minnesota Department of Agriculture)

Integrated Pest Management

Integrated pest management (IPM) is an environmentally friendly approach to controlling pests. Proper use of IPM principles may help reduce pesticide exposure to non-target organisms, including native pollinators like the monarch butterfly.

Examples of integrated pest management practices include:

- [Introduction to Integrated Pest Management](#)
- [EPA's Approach for Integrated Pest Management in Schools](#)
- [National Roadmap for Integrated Pest Management](#) (U.S. Department of Agriculture)
- [Pest Management Guidelines for Agricultural Pests Exit](#)(University of California)
- [National Pesticide Information Center's Integrated Pest Management Webpage Exit](#)(National Pesticide Information Center)

Integrated Vegetation Management

Integrated vegetation management (IVM) is the practice of promoting desirable, stable, low-growing plant communities that resist pest invasion.

Vegetation management professionals can use IVM practices to plant or boost pollinator-friendly, nectar-producing plants (including milkweed) in a safe and cost-effective manner. More information on IVM practices can be found on the following websites:

- [Integrated Vegetation Management Fact Sheet](#)
- [Integrated Vegetation Management Practices around Utility Rights-Of-Way](#)
- [Integrated Forest Vegetation Management Exit](#)(Penn State Extension)
- [Roadside Best Management Practices that Benefit Pollinators](#) (U.S. Department of Transportation)
- [Integrated Vegetation Management for INDOT Roadsides Exit](#)(Indiana Department of Transportation and Purdue University)
- [Mowing: Best Practices for Monarchs'Exit](#) (Monarch Joint Venture)

Spray Drift Management

When pesticides are sprayed on crops in the field, there is the potential for spray particles to drift off-target. If not applied according to label directions, such off-target spray could affect non-target plants (including pollinator forage and habitat) near the field.

In addition to following any mandatory labeling directions regarding spray drift on the product being applied, EPA encourages growers and pesticide applicators to use pesticide spray drift reduction measures whenever possible to help keep pesticide applications on the field.

Beyond the EPA's spray drift management webinars listed above, the following resources provide information on reducing pesticide drift which can help protect pollinator habitat:

- [Pesticide Drift Exit](#) (Center for Integrated Pest Management)
- [Air Temperature Inversions Causes, Characteristics and Potential Effects on Pesticide Spray Drift Exit](#) (North Dakota State University)
- [Aerial Application Technology Research](#) (USDA Agricultural Research Service)
- [University of Nebraska-Lincoln App: Ground Spray Estimates Droplet Size Exit](#) (University of Nebraska)
- [Compendium of Herbicide Adjuvants Exit](#) (Purdue University)
- [Adjuvants and the Power of the Spray Droplet Exit](#) (Purdue University)

At Home

You can help create and promote pollinator habitat in your own backyard by checking out the following resources.

- [Create Habitat for Monarchs Exit](#) (Monarch Joint Venture)
- [The Monarch Butterfly in North America](#) (USDA)
- [Conservation and Management of Monarch Butterflies: A Strategic Framework](#) (USDA)
- [Save the Monarch Butterfly](#) (U.S. Fish and Wildlife Service)
- [Nectar Plants for Monarchs Exit](#) (The National Wildlife Federation)

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¹Agrawal, A. and Inamine, H. (2018), Mechanisms behind the monarch's decline. Science, 22: vol. 360, Issue 6395, pp.1294-1296.

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