



THE OREGON BEE PROJECT

PARC BOARD MEETING

GILBERT URIBE – PESTICIDES PROGRAM
SEPTEMBER 19, 2018



OVERVIEW



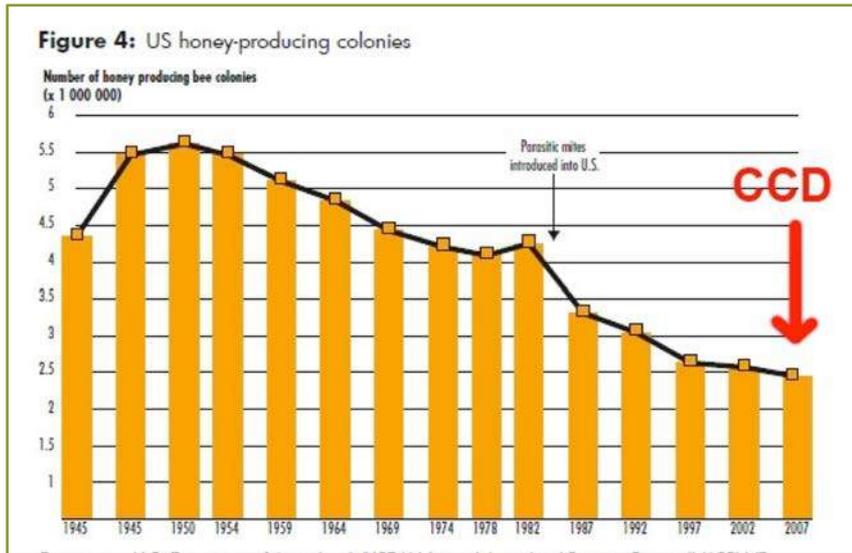
- **Bee, Pesticides, & Government**
- **The Oregon Bee Project**
- **Bees of Oregon**



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COLONY COLLAPSE DISORDER



- Starting in 2006 an estimated 10 Million beehives were lost
- Global decline of native pollinators



WILSONVILLE – JUNE 2013





- ~50,000 bumble bees killed
- Caused major public outrage
- Started a larger movement to ban the use of Neonicotinoids





EPA LETTER TO REGISTRANTS – JULY 2013



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

OFFICE OF CHEMICAL SAFETY
AND POLLUTION PREVENTION

JUL 22 2013

To: Registrants of Nitroguanidine Neonicotinoid Products

Subject: Registered Products Containing Imidacloprid, Dinotefuran, Clothianidin or Thiamethoxam

Dear Registrant:

As you are aware, the Environmental Protection Agency (EPA) has been actively involved in pollinator protection. Although research conducted by the U.S. Department of Agriculture has not demonstrated that Colony Collapse Disorder, nor the broader declines in pollinator health, are caused by pesticides, this research has indicated that pesticides in combination with other factors (e.g., pests, pathogens, nutrition, bee management practices) may be associated with the declines. The relative contribution of these factors, however, has not been identified. Based on potential effects of neonicotinoid insecticides on honeybees and other pollinators as well as recent bee kill incidents in Oregon and Canada, which may indicate that applicators are not aware of the potential for harming bees when they use these products, EPA is concerned about potential adverse effects on non-target arthropods, including pollinators. Consequently, EPA is initiating a project to develop clearer language that will strengthen pollinator protective labeling on neonicotinoid products by more effectively highlighting the risks to pollinators. The intent is to achieve clarity and consistency as well as to highlight pollinator protective text to both commercial applicators and general consumers. All registrants of products containing imidacloprid, thiamethoxam, clothianidin and dinotefuran are being notified of this project.





EPA is developing new label language that will apply to all neonicotinoid products registered for outdoor sites, regardless of formulation or intended user. The language being developed will incorporate advice received through the Office of Pesticide Program's Federal Advisory Committee (the Pesticide Program Dialogue Committee). It is essential to this critical effort that registrants adopt these label statements. It is our goal to have this language on as many products as possible by the 2014 use season and we will consider an appropriate regulatory response if registrants decline to adopt the new language. We expect to send you the label statements in early August. To facilitate this implementation it would be helpful if you could provide the following:



THE NEW EPA BEE ADVISORY BOX

On EPA's new and strengthened pesticide label to protect pollinators

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>

Pesticide incidents (for example, bee kills) should immediately be reported to the state/tribal lead agency. For contact information for your state/tribe, go to: www.aapoc.org. Pesticide incidents can also be reported to the National Pesticide Information Center at: www.npic.orst.edu or directly to EPA at: beekill@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 help protect pollinators.



Read EPA's new and strengthened label requirements: <http://go.usa.gov/jHH4>

ODA TAKES EMERGENCY ACTION – JUNE 2014



Bans the use of imidacloprid and dinotefuran on *Linden spp.*



The Presidential Memorandum (PM)

- Issued June 20, 2014, to galvanize responses to declines in honey bee colony survival, threats to the iconic monarch butterfly migration, and risks to other pollinator species such as native bees, moths, birds, bats
- The PM has four basic requirements
 1. Research to identify causes and responses
 2. Habitat enhancement and increased acreage
 3. Education and outreach
 4. Public-private partnerships
- Aiming at on the ground actions
- The President is looking to an all hands on deck approach



Presidential Memorandum -- Creating a Federal Strategy to Promote the Health of Honey Bees and Other Pollinators.

<http://www.whitehouse.gov/the-press-office/2014/06/20/presidential-memorandum-creating-federal-strategy-promote-health-honey-b>





Task Force on Pollinator Health

November 2014

Name	Affiliation	Interests Represented
Ramesh Sagili, Chair	Department of Horticulture, Oregon State University	University faculty specializing in science of pollinator health
Senator Chuck Thomsen	State Senator Appointed by the Senate President	Oregon Legislature
Representative Jeff Reardon	State Representative Appointed by the Speaker of the House	Oregon Legislature
Aimee Code	Xerces Society for Invertebrate Conservation	Advocacy group dedicated to protection of pollinators and invertebrates
Scott Dahlman	Oregonians for Food and Shelter	Advocacy group for farmers
Betsy Earls	Associated Oregon Industries	Advocacy group for retailers
George Hansen	Beekeeper	Public
Rich Little	Master Gardner	Public
Christy Splitt Doug Moore (eff. 9/29/14)	Oregon League of Conservation Voters	Advocacy group dedicated to environmental protection
Jeff Stone	Oregon Association of Nurseries	Advocacy group for nurseries and greenhouse producers



PERMANENT RULE – FEBRUARY 2015



Oregon

Kate Brown, Governor

Department of Agriculture
635 Capitol St NE
Salem, OR 97301-2532

PESTICIDE ADVISORY

Permanent Rule Prohibiting the Use of Dinotefuran, Imidacloprid, Thiamethoxam, and Clothianidin on Linden Trees



The Oregon Department of Agriculture (ODA) has enacted a permanent rule prohibiting the use of any product containing the neonicotinoid insecticides dinotefuran, clothianidin, imidacloprid, or thiamethoxam, regardless of application method, on linden trees, basswood trees or other *Tilia* species. The permanent rule (OAR 603-057-0388) went into effect on February 27, 2015.

What Does this Mean to You?

This rule supersedes product label language. This means that, even if a pesticide user has a pesticide label which provides directions for use on linden trees, ornamental trees (or a similar site), the product **can not** be used on linden trees, basswood trees or other *Tilia* species in the State of Oregon. Application methods prohibited include, but are not limited to: foliar, soil drench, tree or soil injection, and basal bark applications.



2015 OREGON HOUSE BILLS



3361: Best Management Practices

**3362: Education & Public Pesticide
Safety Plan**



NATIONAL STRATEGY TO PROMOTE THE HEALTH OF HONEY BEES AND OTHER POLLINATORS



Pollinator Health Task Force

MAY 19, 2015

- **Establish baseline honey bee data and reduce winter honey bee losses (<15% within 10 years)**
- **Enhance or restore pollinator habitat (7 million acres in 5 years)**



State FIFRA Issues, Research, and Evaluation Group
Final Guidance for State Lead Agencies for the Development and
Implementation of Managed Pollinator Protection Plans
June 2015

Introduction

Pollinator health is a high priority national issue due to significant colony losses experienced by U.S. beekeepers over the past decade. In his memo, “*Creating a Federal Strategy to Promote the Health of Honey Bees and Other Pollinators*” in June of 2014, the President called attention to the issue of pollinator health and directed federal efforts to reverse pollinator losses and help restore populations to healthy levels. In particular, the memo directed the U.S. Environmental Protection Agency (EPA) to engage state agencies in developing state pollinator protection plans as a means of mitigating the risk of pesticides to bees and other managed pollinators.



PRIMARY PURPOSE OF THE MP³s

To reduce pesticide exposure to bees through timely communication and coordination among key stakeholders, including beekeepers, growers, pesticide applicators, and landowners.



- Bee, Pesticides, & Government
- The Oregon Bee Project
- Bees of Oregon



The Oregon Bee Project's mission is *to bring together Oregonians around a science-based strategy for protecting and promoting wild and managed bees through education, pollinator-friendly practices, and research.*



Oregon State
University



Oregon
Department
of Agriculture





Goals:

- Protect bees from pesticide exposure,
- Increase pollinator habitat across the state,
- Reduce the impacts of diseases on bees, and
- Expand our understanding of the bees of Oregon



Activities:

- Train and engage
- Develop decision-making support and diagnostic tools for pollinator stewardship
- Recognize and learn from innovators
- Support and promote mission-aligned research



STRATEGIC PLAN

A Strategic Plan for Keeping Oregon's
Bee Pollinators Healthy (2018-2020)
Released June 18, 2018





ONE STOP SHOP: OregonBeeProject.org

A screenshot of the Oregon Bee Project website homepage. The background is a close-up photograph of a bee on a flower. The website header includes a logo in the top left, a navigation menu with links for HOME, ABOUT, NEWS, JOIN US, RESOURCES, CONTACT, and a DONATE button in the top right. The main heading reads "OREGON BEE PROJECT" with the subtitle "Official Collaborative Resource Website". Below this, two paragraphs of text describe the project's mission and the state's commitment to pollinators.

OREGON'S GARDENS, AGRICULTURAL LANDS, NATURAL AREAS AND FORESTS HELP SUPPORT AND MAINTAIN ABOUT 500 SPECIES OF BEES.

THE STATE OF OREGON IS MAINTAINING THESE POLLINATOR SPECIES VITAL TO THE FOOD SUPPLY AND THE NATURAL ENVIRONMENT AROUND US.



WHO ARE YOU?



Beekeepers



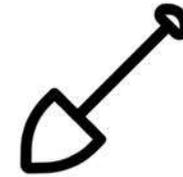
Citizen Scientists



Educators



Foresters



Gardeners



Growers



Habitat Conservationists



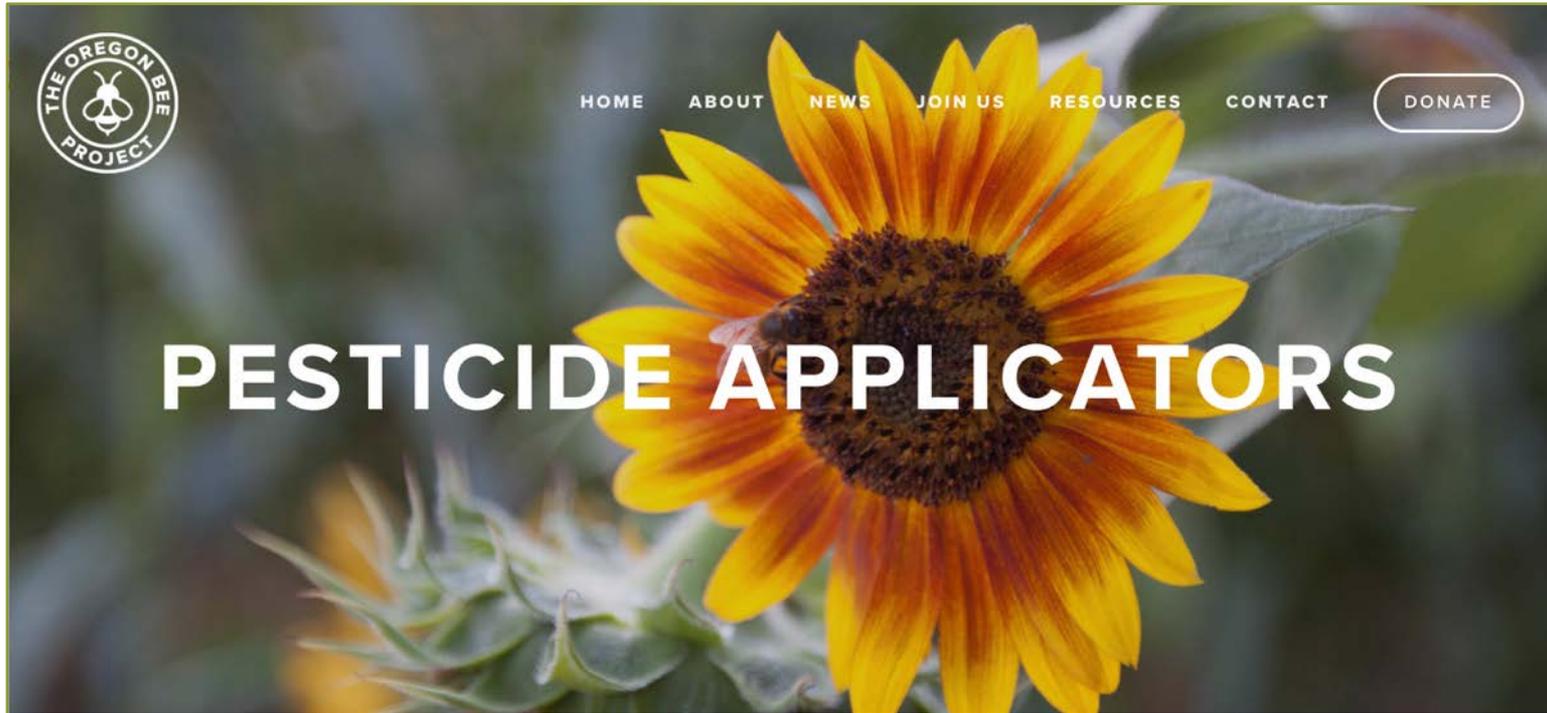
Land Managers



Landscapers



Pesticide Applicators



PUBLIC OUTREACH





LESSON OBJECTIVES:

1. Explain the difference between a pesticide's toxicity and risk to bees
2. Tell how risky a pesticide treatment is to bees from information on the label in conjunction with PNW 591



GOT A SMART PHONE?



Reduce Bee Poisoning from Pesticides

Quinolone insecticide/miticide,
metabolic poison



Acetamiprid
Neonicotinoid insecticide
(cyano group)



Common Product Names

Assail, Tristar, Transport

Toxicity information

N/A

Notes and Special Precautions

Length of residual toxicity to honey

HOME

KEY

HELP

ABOUT



ACUTE TOXICITY & THE LABEL

“Highly Toxic to Bees”

– LD50 is *less than or equal to* 2 $\mu\text{g}/\text{bee}$



“Toxic to Bees”

– LD50 is *less than* 11 $\mu\text{g}/\text{bee}$ but *greater than* 2 $\mu\text{g}/\text{bee}$

Relatively Nontoxic

– LD50 is *greater than* 11 $\mu\text{g}/\text{bee}$



Nothing on the label

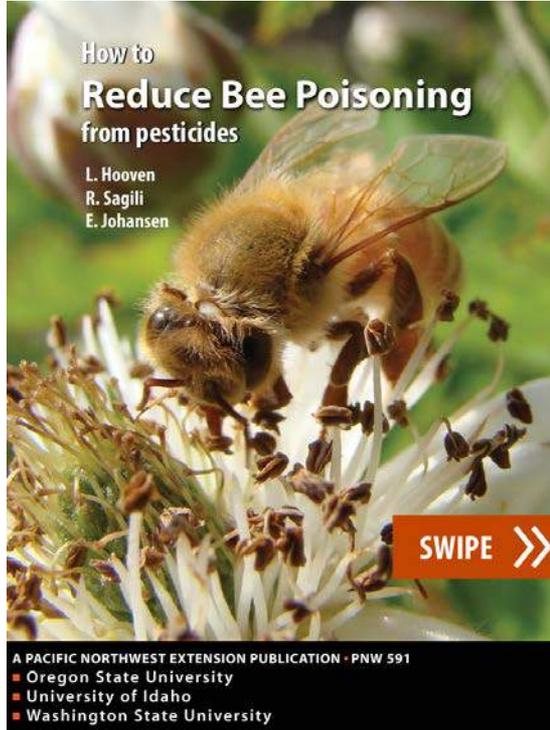




Table 4 (p. 16-27)

Table 4. Active ingredients of commonly used pesticides and their effect on bees in California, Idaho, Oregon, and Washington

Active Ingredient	Highly Toxic to Bees (RT)	Toxic to Bees (RT)	No Bee Precautionary Statement (PS) on Label	Common Product Names	Notes and Special Precautions
Abamectin (Avermectin) <i>Fermentation products derived from soil bacterium, affects nerve and muscle action of insects and mites</i>	X 0.025 lb ai/acre 1-3 days ERT ≤ 0.025 lb ai/acre 8 hours RT [1] <i>Can vary with formulation and application rate</i>			Abacide, Abacus, Abba, Agmectin, Agri-Mek, Ardent, Avert, Avicta, Avid, Epi-Mek, Reaper, Solera, Solero, Temprano, Zoro	ERT to bumble bees [2], short RT to alfalfa leafcutting bees and alkali bees at 0.025 lb ai/acre [1].
Acephate <i>Organophosphate insecticide</i>	X >3 days ERT [1] <i>Can vary with formulation and application rate</i>			Bracket, Orthene, Orthonex	Incompatible with bumble bees [2], ERT to alfalfa leafcutting bees and alkali bees [1].
Acequinocyl <i>Quinolone insecticide/miticide, metabolic</i>			X	Kanemite, Shuttle	
Acetamiprid <i>Neonicotinoid insecticide (cyano group)</i>		X Yes ↑		Assail, Tristar, Transpire	Length of residual toxicity to honey bees is unknown. ERT to alfalfa leafcutting bees and alkali bees [3], 2 day ERT to bumble bees [2]. Cyano group neonicotinoids exhibit lower toxicity to bees than nitro group neonicotinoids [4].
Aldicarb <i>Systemic carbamate insecticide and nematocide</i>	X			Temik Only available as granular formulation [5]	Not hazardous to bees when applied at least 4 weeks prior to bloom [1]. May be a persistent contaminant of beeswax [6].
Alpha-cypermethrin <i>Pyrethroid insecticide</i>	X Yes			Fastac	Length of residual toxicity to bees unknown.
Aluminum tris O-ethyl phosphonate <i>Systemic organophosphate fungicide</i>			X	Alliette, Fosetyl-Al, Chipco, Flanker, Linebacker, Legion	
Azadirachtin <i>Insecticidal extract of neem oil Ecdysoe antagonist</i>		X <2 hours RT [1] <i>Can vary with formulation and application rate</i>		Neemix, Amazin, Azera, Aza, Ecozin, Ornazin	Must be ingested to be toxic [7].
Azinphos-methyl <i>Organophosphate insecticide</i>	X 4 days ERT [1] 5 days ERT [8] <i>Can vary with formulation and application rate</i>			Guthion is being phased out	ERT to alfalfa leafcutting bees and alkali bees [1].
Azoxystrobin <i>Benzothiazoylolate fungicide</i>			X	Abound, Dynasty, Heritage, Quadris	
Bacillus subtilis <i>Fungicide derived from naturally occurring soil bacterium</i>			X	Kodiak, Rhapsody, Serenade, Optiva, Companion, Cease	Laboratory tests suggest potential effects on bumble bees [9].



Quinolone insecticide/miticide,
metabolic poison



Acetamiprid

Neonicotinoid insecticide
(cyano group)



Common Product Names

Assail, Tristar, Transport

Toxicity information

N/A

Notes and Special Precautions

Length of residual toxicity to honey

HOME

KEY

HELP

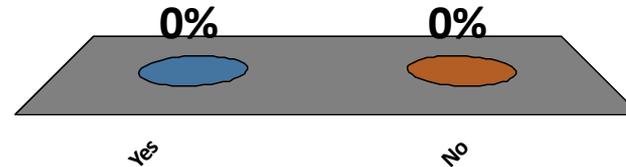
ABOUT



IF A PESTICIDE LABEL SAYS YOU CANNOT
APPLY A PESTICIDE WHEN **“BEES ARE
VISITING THE TREATED AREA”** CAN YOU
APPLY THE PRODUCT AT NIGHT?

A.Yes

B.No





1. ENVIRONMENTAL HAZARDS

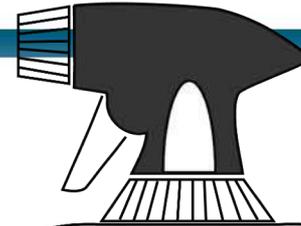
don't spray
when in bloom

wait until full
petal fall

ENVIRONMENTAL HAZARDS

This pesticide is toxic to _____

This product is **highly toxic to bees** exposed to direct treatment or residues on blooming crops or weeds. Do not apply this product or allow it to drift to blooming crops if bees are actively foraging the treatment area.



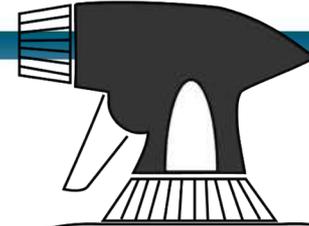
PROTECTION OF POLLINATORS



DIRECTIONS OF USE

Do not apply more than _____ outlined in the table below.

Plant	Pest	Directions
Fruit and Vegetables	Leafrollers	repeat every 14 days if necessary
Roses	Aphids, Japanese beetle	use not less than 2 weeks apart



1. ENVIRONMENTAL HAZARDS

don't spray when in bloom → wait until full petal fall

2. Residual toxicity
Look out for the words:

1. **foraging** = toxic for longer than 8 hours

2. **actively foraging** or visiting = toxic for less than 8 hours

ENVIRONMENTAL HAZARDS

This pesticide is toxic to _____

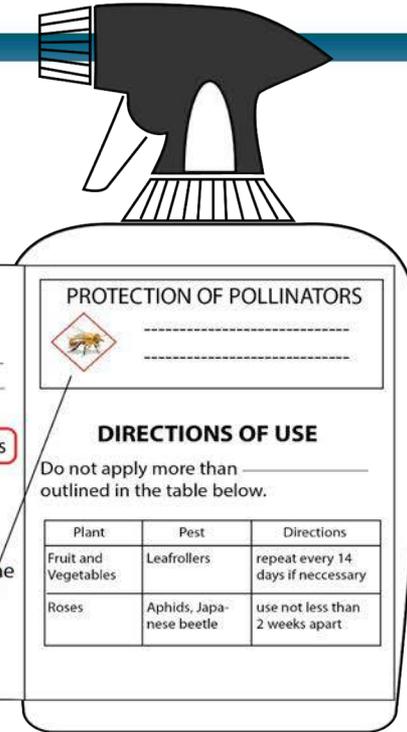
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PROTECTION OF POLLINATORS

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ENVIRONMENTAL HAZARDS

This pesticide is toxic to _____

This product is highly toxic to bees exposed to direct treatment or residues on blooming crops or weeds. Do not apply this product or allow it to drift to blooming crops if bees are actively foraging the treatment area.

3. Check for more precautions

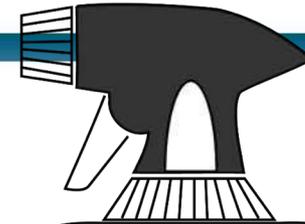
Some products have a more comprehensive label with a bee advisory box and icon containing information on routes of exposure and spray drift precautions.

PROTECTION OF POLLINATORS

DIRECTIONS OF USE

Do not apply more than _____ outlined in the table below.

Plant	Pest	Directions
Fruit and Vegetables	Leafrollers	repeat every 14 days if necessary
Roses	Aphids, Japanese beetle	use not less than 2 weeks apart



1. ENVIRONMENTAL HAZARDS

don't spray when in bloom → wait until full petal fall

2. Residual toxicity
Look out for the words:

1. **foraging** = toxic for longer than 8 hours
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ENVIRONMENTAL HAZARDS

This pesticide is toxic to _____

This product is highly toxic to bees exposed to direct treatment or residues on blooming crops or weeds. Do not apply this product or allow it to drift to blooming crops if bees are actively foraging the treatment area.

PROTECTION OF POLLINATORS

DIRECTIONS OF USE

Do not apply more than _____ outlined in the table below.

Plant	Pest	Directions
Fruit and Vegetables	Leafrollers	repeat every 14 days if necessary
Roses	Aphids, Japanese Beetle	use not less than 2 weeks apart

3. Check for more precautions

Some products have a more comprehensive label with a bee advisory box and icon containing information on routes of exposure and spray drift precautions.

4. Use directions

Follow use directions specific to crop and pest carefully. Effects on bees can change if not applied correctly.



POLLINATORS, PESTICIDES & RISK



RISK =

1. Toxicity +
2. Bloom + 
3. Residual Time +
4. Application/
Formulation

También en Español





CREATING NEW RESOURCES





Riesgo a los Pesticidas

RIESGO = TOXICIDAD x EXPOSICIÓN

Entre más toxico sea el pesticida, más importante es disminuir la exposición.

Como Reducir el Riesgo

- Evite hacer aplicaciones de pesticidas a plantas en flor o que la aplicación se desvíe a otras plantas en flor incluyendo a malezas en flor. Si es necesario usar un pesticida, seleccione uno que no tenga advertencia de toxicidad para las abejas o un producto con toxicidad residual corta que pueda ser aplicado al amanecer y se degrada antes de amanecer
- Muchas etiquetas no permiten que se hagan aplicaciones hasta que la planta a terminado de florecer y todos los pétalos se han caído

Recursos Adicionales

- www.oregonbeeproject.org
- How to Reduce Bee Poisoning from Pesticides, PNW 591
 - o <http://catalog.extension.oregonstate.edu/u/pnw591>

CONTACTENOS

Departamento de Agricultura de Oregon
Programa de Pesticidas
635 Capitol St NE
Salem, OR 97301
T: 503-986-4762
F: 503-986-4785
<http://oregon.gov/ODA/PEST>

HOW TO REDUCE PESTICIDE EXPOSURE AND RISK TO BEES

Cómo Reducir la Exposición a Pesticidas y sus Riesgos a las Abejas

Oregon
Department of Agriculture





Protect bees - read the label

Labels are legal documents providing directions on how to use a pesticide safely and effectively. The label will indicate if a pesticide is toxic to bees if the bees are directly sprayed, or when bees land on previously treated plants. The following steps guide you where to find and how to understand information important to protect bees.

READ LABEL FIRST

1. Open the label and read all of the instructions carefully.

2. Bee toxicity in ENVIRONMENTAL HAZARDS section
Look for the words "toxic or highly toxic to bees" and if toxic then:

don't spray when in bloom → wait until full petal fall

ENVIRONMENTAL HAZARDS

This pesticide is toxic to _____

This product is **highly toxic to bees** exposed to direct treatment or residues on blooming crops or weeds. Do not apply this product or allow it to drift to **blooming** crops if bees are **actively foraging** the treatment area.

PROTECTION OF POLLINATORS

DIRECTIONS OF USE

Do not apply more than _____ outlined in the table below.

Plant	Pest	Directions
Ornamentals and vegetables	Leafrollers	Repeat every 10-14 days if necessary
Roses	Japanese beetle	Use only less than 2 weeks apart

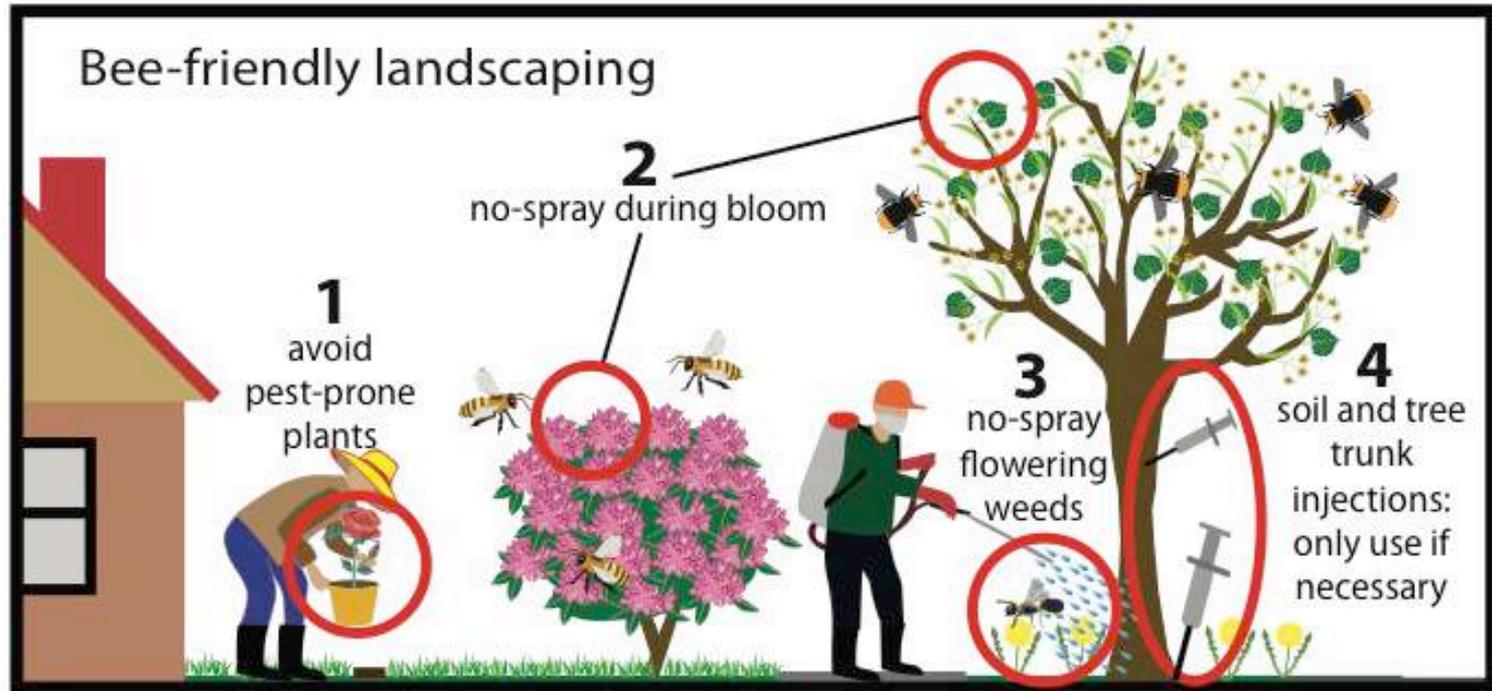
3. Lasting toxicity
Look out for the words:

1. **foraging** or visiting = longer than 8 hours

2. **actively foraging** or visiting = less than 8 hours

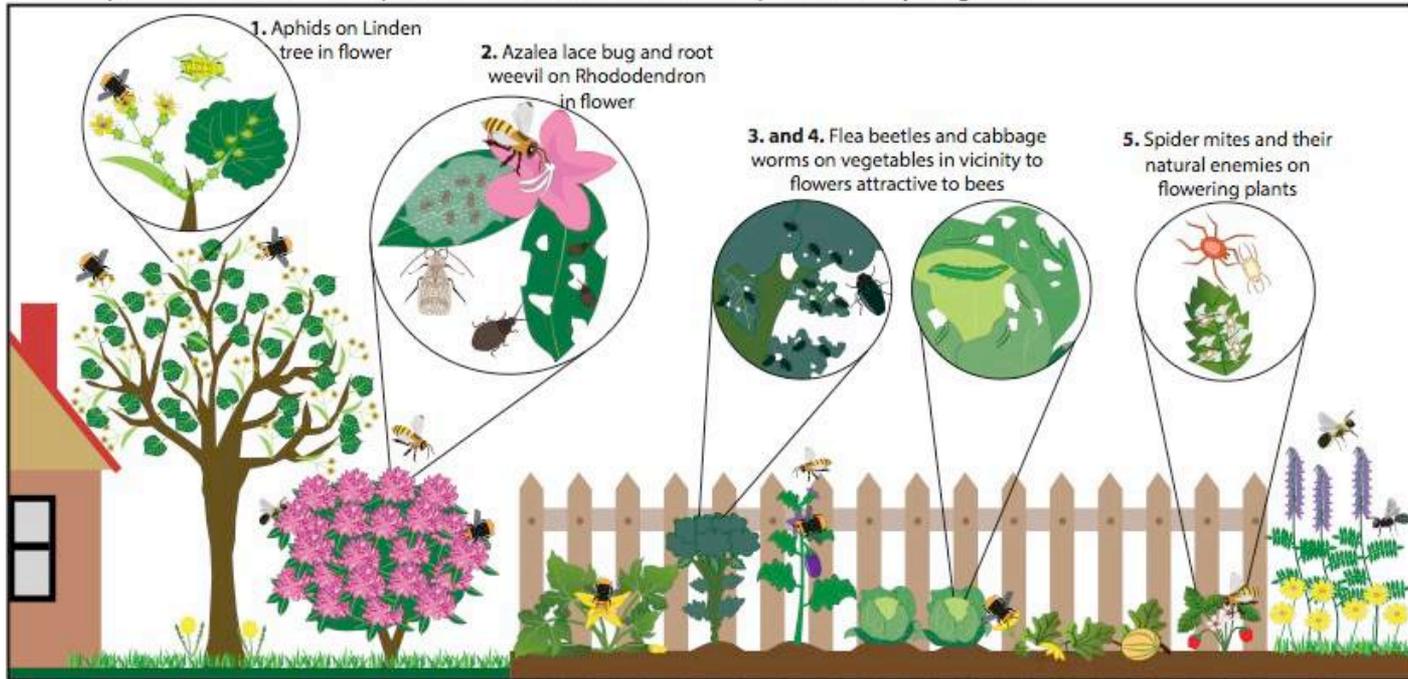
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Some products have a more comprehensive label with a bee advisory box and icon containing information on routes of exposure and spray drift precautions.

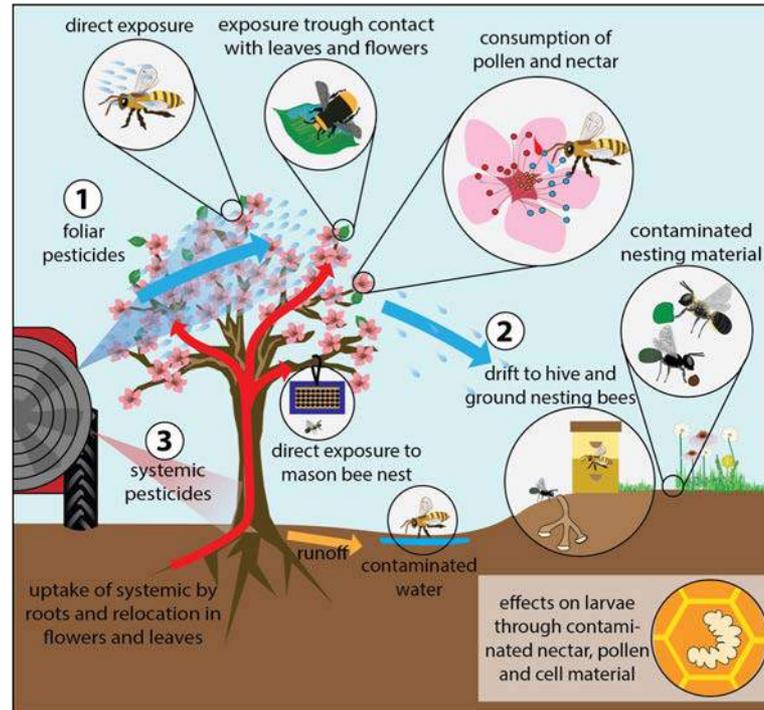
5. Use directions
Follow use directions specific to crop and pest carefully. Effects on bees can change if not applied correctly.





Where pest control collides with protection of beneficial insects like pollinators in your garden

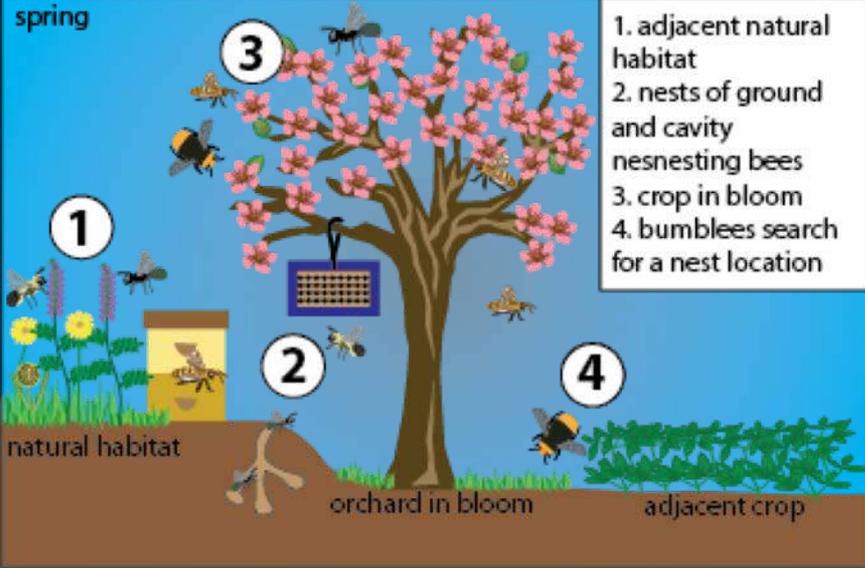




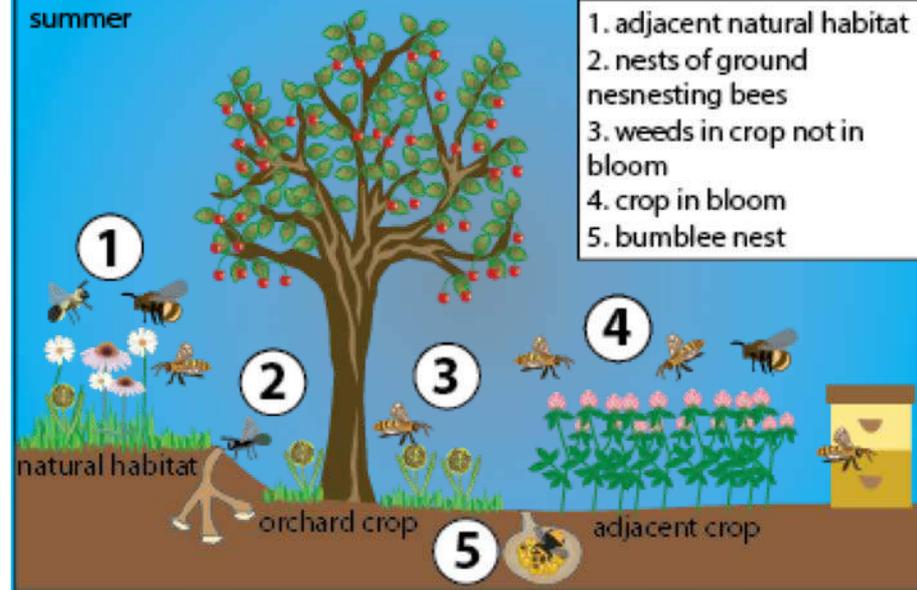


Locations of potential exposure risk for bees in agriculture

spring



summer





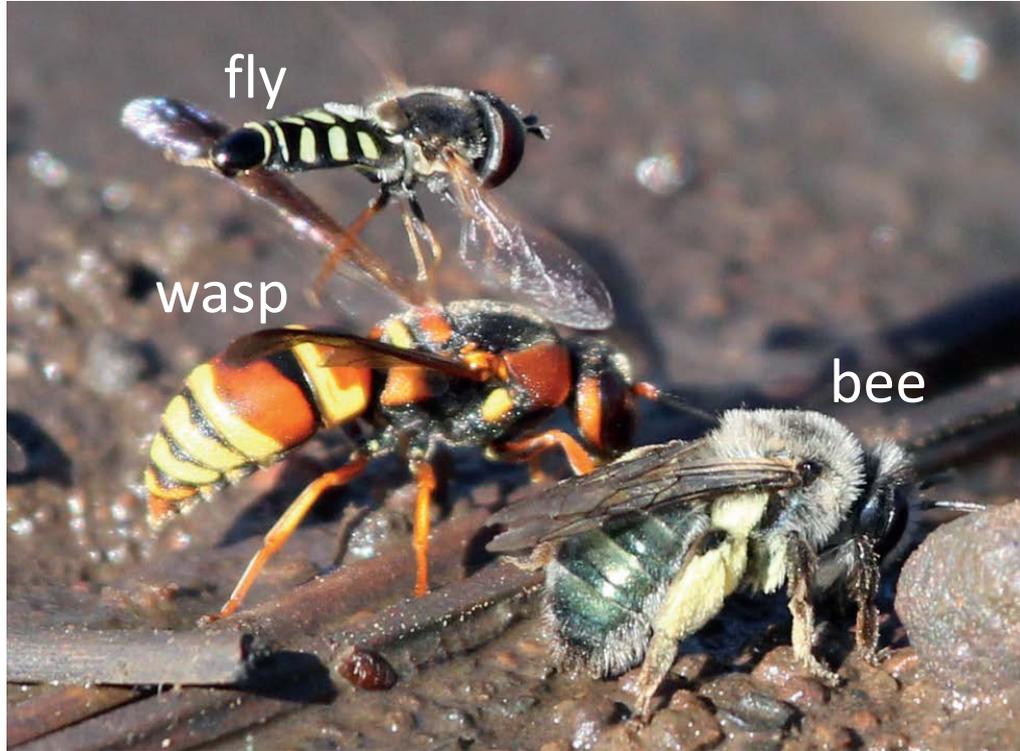
BEES OF OREGON

A SAMPLING OF THE 500+ KNOWN SPECIES OF OREGON
BEES TO SHOW VARIATION OF FORM AND COLOR.



Oregon Department of Agriculture
Plant Protection and Certification Program
Insect Pest Prevention and Management
KBS, Casey St. H., Salem, OR 97331
1-800-555-0557 • www.oregon.gov/od-
insects May 2017 • Photo by Thomas

- Bee, Pesticides, & Government
- The Oregon Bee Project
- Bees of Oregon



Wilson and Carril (2016)



ALKALI BEES

*THE WORLD'S ONLY
MANAGED GROUND
NESTING BEE*







THANK YOU



guribevaldez@oda.state.or.us
503-986-4752