Pesticides and Pollinators: Policy, Practice, and Activism

Presenters

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Chris A. Geiger, Ph.D. San Francisco Department of the Environment

Learning Objectives

I. Understand how systemic pesticides applied to horticultural plant material threaten larger ecosystems
II. Gain insight into city-based efforts regulate pesticide use and create pollinator friendly environments
III. Survey the field of international, domestic, and state-labeling requirements for plant material treated with neonicotinoids
IV. Learn tools and strategies for incorporating aesthetically pleasing, functional, and pollinator-friendly plant species into landscape designs
V. Learn techniques to source the right seeds/plants in your planting specs
VI. Learn about the benefits of urban gardens for pollinators

Introduction

I. Why are pollinators and bees important?
   a) Around 80% of all flowering plants are pollinated by animals [1]
   b) Around 30% of all food relies on bee pollination
   c) The economic impact of bees
II. What are neonicotinoids
   a) Definition
III. How neonics harm bees
   a) Neonic regulation may be controversial, but the fact these chemicals are toxic to bees is not. Bee mortality associated with neonics is most visible when they are improperly. However, bees are exposed directly to neonics in unexpected ways. Additionally, sublethal doses can still have dramatic effects
   b) Other systemic pesticides – including insecticides and some fungicides – can also kill bees. Most non-systemic pesticides, including many commonly used products, are quite lethal to bees too.
IV. What can we do?
   a) Policy
   b) Practice
   c) Activism
Policy, lessons learned from IPM in San Francisco - Chris Geiger PhD

Policies to reduce pesticides

I. The good news: Properly designed landscapes, with the right plant species, the right seedling stock, and managed under an IPM program, will rarely if ever need insecticides or fungicides

II. Control of nature vs. harmony with nature
   d) Managed landscapes very controlled
   e) But can work with natural systems

III. Definition of IPM
   a) Decisionmaking system, not tools or products
   b) Prevention first, disruptive controls (chemicals) last
   c) Part of integrated pest management (IPM) is saving pesticides as a last resort – and even then using products that will not kill pollinators or other Beneficial’s

IV. Ingredients of a successful IPM program
   a) Team effort – not top-down
   b) Creating corporate culture
   c) Lists – put boundaries on pesticide use
   d) Training – information instead of chemicals
   e) Challenging old ways of doing things
   f) Communication – with clients and management

V. Some ideas from the SF team
   a) Sheet mulching
   b) Covering the ground quickly
   c) Growing a healthy “crop”
   d) Avoiding water problems
   e) Challenging customers’ thresholds – ex. English daisies
   f) Watch out for the scope of work – some things take longer

Practice and considerations for Landscape Architects’s - Sutter Wehmeier, ASLA

I. Specifying safe plants: Nursery and horticultural perspective
   a) Prevalence of neonic usage in ornamental horticulture and different ways they are applied to plant material
   b) Nursery crops are treated at much higher application rates than agricultural crops
   c) Importance of increased communication between landscape architects and growers
   d) List of safe growers we compiled & what to ask growers when specifying plants
   e) How to leverage SITES and other green certification programs
   f) Different approaches toward specifications: contract grow, testing requirements, required labeling, pre-approved grower lists, getting granular
Activism - Patricia Algara, ASLA

I. Designing pollinator habitats
   a) Importance of urban habitats for bees
   b) A haven from pesticides on agricultural land
   c) Variation in planting provides diverse forage in contrast to the massive mono-cultures on agricultural land
   d) Gardens, but also urban/community agriculture - both of which can thrive without pesticide use and typically contain highly varied, dense plantings

II. Scale and case studies
   a) Personal/Private Garden - The Algarden the practice of beekeeping
   b) City/Educational School Gardens - School gardens in SF, creating habitat and education
   c) Civic/Public Space - Pollinator Boulevard, habitat and building community

III. Challenge
   a) Do it in your city, find a public space where it can be done
   b) Use the list of resources to help you

IV. Thank you!
Neonicotinoids are not only capable of killing bees outright by attacking their nervous systems, but low levels of exposure can impair foraging abilities and navigation; disrupt learning, communication and memory; reduce fecundity and queen production; and suppress the immune systems of bees, making them more vulnerable to disease and pests.1

HOW TO HELP

1. Learn about bees!
Read primary sources and analyze content for biases.

2. Start a garden!
Use bee-safe plants and provide a source of fresh water. Urban habitats provide diverse forage and a haven from agricultural pesticides.

3. Eat organic!
Create demand for produce grown without chemicals that harm bees.

4. Befriend a beekeeper!
Buy honey from those who use bee-safe plants and techniques.

5. Advocate for bees!
Talk to your representatives to support pollinator-friendly legislation.

6. Talk to BASE!
BASE can help you design and select appropriate plants for your pollinator habitat.

THE NEONICOTINOIDs

Buying a pesticide? Check the active ingredients:

Acetamiprid
Clothianidin
Dinotefuran
Imidacloprid
Nitenpyram
Nithiazine
Thiacloprid
Thiamethoxam

BASE can help you design and select appropriate plants for your pollinator habitat.

Sourcing Pollinator Safe Friendly Plants

415.909.3728
45 29th St
San Francisco, CA 94110
patria@baselandscape.com

1. Neonicotinoids are not only capable of killing bees outright by attacking their nervous systems, but low levels of exposure can impair foraging abilities and navigation; disrupt learning, communication and memory; reduce fecundity and queen production; and suppress the immune systems of bees, making them more vulnerable to disease and pests.
Imidacloprid, the neonicotinoid pictured above, is the most popular pesticide in the world.

WHAT ARE “NEONICS”?

SAFE GROWERS:

WHAT CAN I DO?

Neonicotinoids, or “neonics”, are a class of neurotoxic systemic insecticides that can persist for many years in soil and plants. This means they can remain in the environment for a long time and can have a negative impact on pollinators and other beneficial insects.

WHAT CAN I DO?

- Call nurseries to ask about pest management strategies before you buy from them.
- Don’t use neonics on your lawn or garden.
- Rethink your relationship with “weeds”. They grow so fast because they are well suited to the grow conditions in your garden and they provide diverse forage for pollinators.
- Provide cover crops with a pre-applied Insecticide and Neonicotinoid.

RETURN TO BASILANDSCAPE.COM PORTFOLIO/BEESAFE

REFERENCES


PROFESSIONALS

- Specify plants that are not treated with neonics.
- Provide contractors with a pre-approved list of safe growers so it’s easy for them to find plants that meet your specifications.
- Use only organic fertilizers in your designs.
- Adopt an integrated pest management strategy in your nursery.

GARDENERS

Your maintenance methodology:

- Avoid spraying with systemic chemicals before planting.
- Use only organic alternatives in your designs.
- Leach any organic pesticides in your garden before you buy from a nursery.
- Provide cover crops with a pre-applied insecticide.
- Avoid spraying with systemic chemicals that are not needed with neonics.

GROWER NEONIC POLICY

Bay Natives

None applied in store.

Insecticidal soap and tobacco tea are the only pesticides used by Bay Natives.

None applied at grower level.

That’s great! This rating means we don’t know that what they use instead is safe.

None applied at retailer level.

That’s pretty good! Neonics last a while, so be sure to ask about their suppliers’ policies.

None applied at retailer level.

That’s great! This rating means we don’t know that what they use instead is safe.

None applied at retailer level.

That’s the best!

Clipped image of a flower.

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SAFE GROWERS:

We called several wholesale and retail nurseries in and around Northern California to ask about their pest management strategies and rated them according to how confident we are that their plants are safe for bees. See the full list on our website at http://baselandscape.com/portfolio/bee-safe. If you’re wondering about a grower that isn’t listed, give them a call!

<table>
<thead>
<tr>
<th>Grower</th>
<th>Neonic Policy</th>
</tr>
</thead>
<tbody>
<tr>
<td>American Meadows</td>
<td>No neons used by American Meadows. All neonic-free products labeled on website. Goal to be 100% neonic-free by 2016.</td>
</tr>
<tr>
<td>Bay Natives</td>
<td>None applied in store. Insecticidal soap and tobacco tea are the only pesticides used by Bay Natives.</td>
</tr>
<tr>
<td>Berkeley Horticultural Nursery</td>
<td>None applied or sold in store. CA Certified Organic plants, herbs, vegetables, and any plants labeled bee-friendly are neonic-free.</td>
</tr>
<tr>
<td>BJ’s Wholesale Club</td>
<td>All vendors required to disclose neonic use in nursery or plant-able products. Any vendors using neonics required to phase them out by 2014 or have a cautionary label applied to their products.</td>
</tr>
<tr>
<td>Blooming Nursery</td>
<td>No neons used.</td>
</tr>
<tr>
<td>Blooms Wholesale Nursery</td>
<td>No neons used.</td>
</tr>
<tr>
<td>Cactus Jungle</td>
<td>No neons used.</td>
</tr>
<tr>
<td>Cal Color Growers</td>
<td>No neons used as of end of 2014.</td>
</tr>
<tr>
<td>Cedarglen Floral</td>
<td>No neons used. No coated seeds purchased. Uses beneficial insects and a balanced IPM approach to control pests. Only OMRI listed pesticides with low impact on beneficial insects used.</td>
</tr>
<tr>
<td>GROWER</td>
<td>NEONIC POLICY</td>
</tr>
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<td>---------------------------------------</td>
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</tr>
<tr>
<td>Central Coast Wilds</td>
<td>No neonics use. Organic neem oil, an insecticidal vegetable oil, is the only pesticide used.</td>
</tr>
<tr>
<td>Crimson Sage Nursery</td>
<td>No neonics used. USDA certified organic. Relies on natural pest resistance of herbs and yearly introduction of ladybugs to control aphids.</td>
</tr>
<tr>
<td>Devil Mountain</td>
<td>No neonics used.</td>
</tr>
<tr>
<td>Elkhorn Native Plant Nursery</td>
<td>No pesticides used due to adjacency to Elkhorn Slough.</td>
</tr>
<tr>
<td>High Ranch Nursery, Inc.</td>
<td>No neonics used. Pythriu preferred.</td>
</tr>
<tr>
<td>Horizon Herbs</td>
<td>No neonics used. USDA certified organic.</td>
</tr>
<tr>
<td>Intermountain Nursery</td>
<td>No neonics used.</td>
</tr>
<tr>
<td>Lowe's</td>
<td>Plan to phase out sale of products that contain neonics by 2019.</td>
</tr>
<tr>
<td>Mountain Valley Growers</td>
<td>No neonics used. USDA certified organic.</td>
</tr>
<tr>
<td>Native Sons</td>
<td>No neonics used.</td>
</tr>
<tr>
<td>Prairie Moon</td>
<td>No neonics used. No products containing neonics sold.</td>
</tr>
<tr>
<td>Suncrest Nurseries</td>
<td>No neonics used.</td>
</tr>
</tbody>
</table>
How you can save the bees

Did you know

Honey bees are not native to the United States. There are over 4,000 native bee species.

Pollen basket. Pollen is a major protein source in the bee diet.

Native bees include bumblebees, who pollinate tomatoes; carpenter bees, one of our country’s largest bees; squash bees, who pollinate melons.

Without us, no more pie, coffee, lemonade, guacamole or salsa!

Avoid the use of pesticides!

Avoid buying products that say:

Pesticide
Herbicide
Killer
Insecticide

Ask yourself, if these products are harming bees, what are they doing to me?

Pesticides are not only approved as a spray, but also as a hardcoat on the seed before it is even planted.

Pesticides are also causing harm to other beneficial pollinators like birds, butterflies, and ladybugs.

The facts:

Pollinators contribute substantially to the U.S. economy food production. $9 billion from native bees, $15 billion from honey bees annually.

Since 2000, with the increased use of approved pesticides, 33% average hive loss for honey bees up to 95% hive loss for some bumblebees.

Grow only organic.

Large retailers and nurseries such as Wal-Mart, Home Depot, and Lowes often sell plants and flowers that contain pesticides such as neonicotinoid. These are systematic pesticides meaning they are taken up a plant’s vascular system and expressed through the stem, leaves, flower, and fruit. This is consumed as pollen, nectar, even morning dew.

Eat: Seasonal organic local.