

Bee the Change

Tips & Tools for Protecting Honey Bees



Pesticide Action Network North America

Pesticide Action Network North America (PAN North America) works to replace the use of hazardous pesticides with ecologically sound and socially just alternatives.

As one of five PAN Regional Centers worldwide, we link local and international consumer, labor, health, environment and agriculture groups into an international citizens' action network. This network challenges the global proliferation of pesticides, defends basic rights to health and environmental quality, and works to ensure the transition to a just and viable society.



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Introduction

Bees are in trouble. They've been disappearing and dying at alarming rates, with beekeepers reporting astonishing losses this spring from New York to Ohio and Minnesota.

While policymakers have yet to take meaningful action to address the known causes of bee die-offs, home gardeners, hobbyist beekeepers and individuals across the country have been stepping up to protect honey bees and other pollinators in their own backyards.

This groundswell of support of bees is inspiring and important, but we need to keep building momentum – and we need to press for policy change.

Use this toolkit to spread the word about the challenges bees face and to learn about simple actions you can take to restore bee habitat or reduce exposure to harmful pesticides.

Whether you create a safe haven in your yard, write a letter to the editor, or chat with your neighbors about the importance of protecting pollinators, your actions will make a difference. Every little bit counts!

Thank you for your continued dedication to bees.



Bees 101

Bees pollinate a significant portion of the food we grow and eat. In North America alone, honey bees pollinate nearly 95 kinds of fruits, including almonds, avocados, cranberries and apples. We can thank honey bees for one in three bites of food we eat.

We all rely on bees – and the pollination services they provide – every day.

What's happening to bees?

In recent years, bees have been dying off in droves. First in France in the mid-1990s, then in the U.S. and elsewhere, colonies have been mysteriously collapsing with adult bees disappearing, seemingly abandoning their hives.

In 2006, about two years after this phenomenon hit the U.S., it was named “Colony Collapse Disorder,” or CCD. Each year since, commercial beekeepers have reported annual losses of 29% - 36%. Such losses are unprecedented, and more than double what is considered normal.

Much has been made over the "mystery" surrounding CCD, but two points of consensus have emerged:

1. **Multiple, interacting causes are in play** – key suspects include pathogens, habitat loss and pesticides; and
2. **Immune system damage** is a critical factor that may be at the root of the disorder.



Impacts of systemic pesticides

A new class of systemic, neurotoxic pesticides – neonicotinoids – is known to be particularly toxic to bees. And since their introduction in the 1990s, neonicotinoids have rapidly taken over the global insecticide market.

Neonicotinoids like imidacloprid and its successor product clothianidin are used as seed treatments in hundreds of crops from corn to almonds, as well as in lawn care and flea products. These products can persist for years in the soil, and, as systemics, permeate the plants to which they are applied to be expressed as pollen, nectar and [guttation droplets](#) (like pesticide dew).

In other words, this class of pesticides is nearly pervasive, and honey bees are exposed in many different ways.

The ripple effect of Colony Collapse Disorder

U.S. commercial beekeepers report that their industry is on the verge of collapse, and farmers who rely on pollination services are increasingly concerned. It's unlikely that such a collapse will directly result in a food security crisis, but crop yields would decline significantly. With most fruits, many vegetables, almonds, alfalfa and many other crops all dependent upon bees for pollination, the variety and nutritional value of our food system is threatened.

In addition to their agricultural value as pollinators, honey bees are a [keystone, indicator species](#). Their decline points to (and will likely accelerate) broader environmental degradation in a kind of ripple effect. Honey bees are sounding an alarm that we ignore at our peril.

Decisive action is overdue

Governments in Italy, Germany, France and elsewhere have already taken action against neonicotinoids to protect their pollinators. And beekeepers there are reporting recovery. Yet regulators in the U.S. remain paralyzed, apparently captive to [industry-funded science](#) and a regulatory framework that finds chemicals innocent until proven guilty.

It seems that only massive public outcry will compel U.S. policymakers to take action on a timeframe that is meaningful for bees and beekeepers. With one in every three bites of food dependent on honey bees for pollination, [the time for decisive action is now](#).



Engage Your Community

Help build momentum in support of healthy bee populations. Share the issue with your community and keep the pressure on policymakers to prioritize pollinator health.

When it comes to making change, we are most influenced by friends, family members and people with whom we work and worship. [Share your support](#) of bees in your local paper, at farmers markets, neighborhood gatherings or gardening clubs. Spread the word far and wide!

In this section, you'll find resources for:

- Writing a letter to the editor or OpEd;
- Leading a discussion about bees and the challenges they're facing;
- Sharing engaging, bee-related films and books with your community,
- Petitioning and tabling to enlist more bee supporters; and
- Organizing creative actions that build momentum and community through fun.



Write an OpEd or letter to the editor

Short of face-to-face visits with politicians, getting in the habit of writing to your paper is one of the most effective things you can do.

According to a study by Pew, Americans are spending more time following the news today than over much of the past decade. Newspapers, while in decline, remain authoritative; this is where most Americans still get their knowledge of public affairs.

OpEd columns and letters to the editor give you the opportunity to communicate directly to the public, including influential decision-makers, and to shape or frame a debate in your own words.

One well-placed OpEd or Letter to the Editor can make a decisionmaker think again. Take 15 minutes to change the conversation.

Drafting a Letter to the Editor

Letters to the editor are a quick and effective way to weigh in on issues that the media frequently cover. Often, more people read the letters pages than the original article, so your chances of getting good exposure for the issue are high.

Letters to the editor (often called “LTEs”) are generally around 150 words.

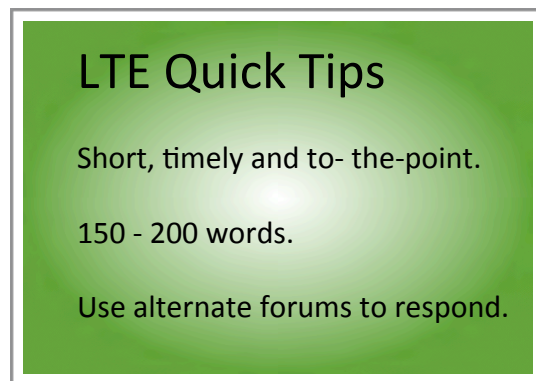
Keep it short. Respond quickly to the article you've read (note the headline and date it ran). Make your points short and specific. It's better that you edit your own words rather than let the outlet cut what you consider to be your key point.

Be factual but not dull. State important facts that back up your point. Humor helps.

Personalize it. Papers don't want to run standardized, impersonal letters, so dribble bits of personal or local information to make the piece fit the newspaper.

Timing is everything. Because of the volume of submissions at national newspapers, getting in a letter the same day will increase your chances of getting published. Send it by e-mail in the body of the text, not as an attachment.

Use alternate forums to respond. Many media outlets have online reader forums and interactive online discussions with reporters. Some news magazine shows encourage viewers to respond while a show is on air, and then read selected e-mails in real time. These e-mails should be short, clear and punchy, only a few sentences will be used.



Sample Letters

April 7, 2012 Pollinators are Critical

Bees are still dying off, and the public conversation around colony collapse disorder remains mired in misinformation.

There is no smoking gun behind CCD. The story is complicated and involves a combination of factors (pathogens, nutrition, pesticides) acting in concert to make bees sick. In the last year, and especially in the last two weeks, neonicotinoid pesticides have rapidly risen to the top of that list as a critical catalyst.

Pollinators are a critical part of agriculture. We cannot afford to lose them because we could not gather the will to act in the face of irreducibly complex science.

Uncertainty is a fact of science — it is the condition of science. We as the lay public must remain clear on the distinction between certainty, and knowing enough to act. — Danny Dwinell, Shoreline

April 7, 2012 Pesticide corporations fighting back

Scientists have been hard at work cracking the “mystery” of colony collapse disorder. [“Studies link pesticides to decline of bee colonies,” News, March 30.]

A new study released yesterday, and two published last week, strengthen the case that neonicotinoid pesticides are key drivers behind declining bee populations — alone and especially in combination with other stressors. This class of pesticides covers 143 million acres of U.S. countryside, and more damning studies are awaiting publication.

Yet, pesticide corporations like Bayer and others are running a predictable PR defense aimed at delaying action by manufacturing doubt — it’s called the “tobacco strategy.” We need to make sure that the EPA and our national and state legislators who will decide the fate of bees, know what’s at stake.

Without bees, our food supply is at great risk, and we can’t afford to wait until EPA completes its review of neonicotinoids in 2018. Enough is known to take decisive action now! — Emily Bishton, Seattle

For more information:

Go to www.panna.org/get-involved/action-center/change-the-conversation to find:

- guidelines by news outlet; and
- an automatic LTE lookup, where you can enter your zip code & be digitally linked to your local papers.

[Sources: SpitFire Communications Strategies, The Opportunity Agenda & Communications Consortium Media Center]

Drafting an OpEd

An op-ed is a column or guest essay published in the opinion section of a newspaper (**O**pposite the **E**ditorial page). These carry more weight & authority than letters to the editor.

Start stocking your pantry with the ingredients for your instant OpEd pieces now! You can use essentially the same content & write a number of different OpEds by moving paragraphs, or adding new facts or statistics that freshen it up. Remember, the new part has to be near the beginning, where it “hooks” onto some breaking news event.

OpEd Quick Tips

Targeted, timely and to- the-point.

About 700 words.

Follow up & try again

1. Determine your goal & audience. Op-eds can be an effective way to influence policymakers, or sway the opinion of a specific segment of the population. Who could best help you in your goal? The general public? Seniors? Nurses? Elected officials? Determine which news outlet can best deliver your op-ed to your targeted audience; then keep your audience in mind as you write the piece.

2. Be timely. Op-ed’s need a “news hook.” Link your op-ed to a holiday, a newly-released report, or any relevant upcoming event. If you don't get your get your piece in

until 10 days after the event, it's too late. Even two days later is often too late. It's old news by then. This is why it’s best to prepare op-ed’s in advance & then tailor to an opening or moment as news develops.

3. **Stay focused & lively.** First & foremost, the op-ed needs to focus on ONE issue. Use statistics, facts, anecdotes & clichés to make your point. Anecdotes & stories are good ways to bring complex issues to life. Editors want readers to say, "Wow, did you see that piece today?" They are looking for an unusual or provocative opinion on a current issue, a call-to-arms on a neglected topic, wit, or an expert take on an issue by a well-known name. Op-ed page editors are not looking for event announcements or generic ideas.
4. **Start with the main point.** This should sound like a headline & express the essence of your op-ed. If you can’t sum up your story in less than 10 words, keep thinking. This is the key to a strong, focused op-ed. Once you state this, then you build the case, & offer the solution. Many editors will only read the first few lines before deciding whether or not to run the piece.
5. **Keep it short - 750 words max, 600 is better.** If you write more & they want to place it, the newspaper will edit it down & you will have no control over which pieces they run. Aim for a first draft of about 1,000 words. Ask a colleague for suggestions & comments. Include those that make sense & edit it down. Restate your key argument at the end.

6. **Make it relevant to the newspaper's market.** A local newspaper is interested in information that is of interest to the community it serves. If you are writing a piece for your local paper, include a story or other hook that localizes the piece. If you plan to submit your piece to a national news outlet or wire service, tie it to a national or global happening.
7. **Use plain language.** Avoid lingo, acronyms, technical jargon, & clichés.
8. **Follow the format.** Many newspapers have specific requirements for format. You can find this on the newspaper's web site. At the end of the piece, be sure to include: your name & affiliation that you'd like them to use when identifying you as the author, as well as a day phone & evening phone number. If they decide to use the piece, they will call to confirm you wrote it. If they have a hard time reaching you, they may decide not to use it.

Submitting an OpEd

1. **Pick a newspaper target.** If you have two competing papers in town, you can only submit to one at a time. The same rule applies to national outlets (i.e., you can not submit a piece to The New York Times & USA Today simultaneously). If you are submitting statewide in different markets, e.g., Dallas Morning News, Houston Chronicle, & Austin American Statesman, you can submit to all papers at once.
2. **Consult format rules.** Go to the newspaper's website, & see if they give instructions for formatting & submitting an op-ed. If there are no instructions, or the paper doesn't have a web site, call the newspaper's main line & ask for the name of the editorial page editor, the fax number & any other rules for submitting an op-ed.
3. **Include a cover letter.** When submitting an op-ed, include a cover note that states why this op-ed is timely or important now, e.g., "March 18 is the 40th anniversary of a landmark Supreme Court ruling about defendant's right to counsel. The enclosed op-ed describes what Georgia needs to do to deliver on this promise."
4. **Make a follow up call.** Wait 24 hours after you submit the op-ed, then call to explain why the piece is important & find out if they are going to run it. You only get one call.
5. **Try again.** If your first target paper turns the op-ed down, determine whether or not there is another paper you should submit it to. Be sure to edit appropriately before sending. If your op-ed is rejected, don't be discouraged. They get a lot of submissions. Keep writing & submitting. It's often just a matter of your op-ed being at the right place at the right time.

Leverage your success. If your piece does get published, send copies to funders, board members, reporters, elected officials, colleagues and other allies. An OpEd can serve as a springboard to talk-show appearances, panel discussions and a host of other opportunities.

Dinner Discussion Guide :: Bees & Our Food

Bees are relying on us! Dedicate the conversation around your dinner table to honey bees, the pollinators responsible for one in every three bites of food we eat. Whatever you're eating for dinner, chances are, bees helped create much of what you'll be sharing at your table. Bees and other pollinators play a key role in providing a majority of food for people around the world. But bees are in trouble; since 2006, they have been dying off in droves in the U.S., in part due to increased exposure to systemic and other pesticides. Without enough pollinators, crop yields diminish and the variety of foods we're able to grow drops sharply. We invite you to take the opportunity to celebrate the variety and abundance made possible by these noble and necessary creatures.



It's simple: invite friends and family over for a meal and reflect on the various ways we rely on bees for daily nourishment. How do they impact your life? What can we do to help them survive the current crisis they face?

Here are some broad ideas to explore at your dinner table:

Where does your food come from? What memories do you associate with your favorite foods? Were your favorite recipes invented by your immediate family, or do they go back generations? Where do you usually buy your ingredients? Have you ever tried growing any of these foods? What kinds of insects help your favorite foods grow? Could these foods grow without pollinators?

What are your bee experiences? Do you have childhood memories of bees? Have you ever seen a honey bee in the garden or a hive? How do you use honey in your cooking? Do you know anyone who's keeping bees? At this point in your lifecycle what kind of bee would you be? Drone bee, nurse bee, security-guard bee, hive-cleaner bee, worker bee, Queen bee - maybe a bumble bee, leaf-cutter bee?

Why are bees important to our food? What does a bee do? What is pollination and why is it important for plants? What are the foods in your kitchen that rely directly on bee pollination? Try to list ten items in your kitchen that don't rely on bee pollination in any way. What plant parts (flower, fruit, leaf, seed) are in your meal?

What is happening to the bees? What have you been hearing about bees in the news recently? What is your understanding of Colony Collapse Disorder (CCD)? Are you concerned about CCD? What are other things in the environment that could make bees sick or kill them? How would our food supply be impacted if honey bees no longer exist? Which bee-pollinated food would you miss the most? What can we do to protect honey bees from the effects of pesticides and encourage healthy bees?

Where does your food come from?

Discussion Points:

- **Natural history of a food crop:** In order to grow, plants require a few key things. Sunlight is necessary for the process of photosynthesis, and the proper balance of water and nutrients ensures a plant's health. Adequate pollination also contributes to a plant's livelihood, and some plants are incapable of producing fruit without the help of pollinators like bees. Other plants self-pollinate, but honey bee pollination increases the abundance and size of their yield. In most agricultural settings, if sufficient native pollinators are not available, honey bees will be transported to the fields to ensure pollination takes place.
- **Food insecurity & hunger:** Honey bee health insures food security. According to a recent U.N. report, of the 100 crops that provide 90% of the world's food, over 70 are pollinated by bees. Without the benefit of honey bee pollination, agricultural yields would be less abundant. Honey bees are also an indicator species whose health provides insight into the health of the greater ecosystem. As honey bee health is threatened, we also face a global decline in biodiversity.
- **What's in season:** Eating seasonally is the practice of only eating produce during the time of year it grows in your region. In most areas of the U.S., for instance, winter means that fresh fruits and vegetables must be imported from warmer states or countries closer to the equator. However, in California's central valley, where the weather stays mild throughout winter, it's possible to grow a variety of crops year-round. This makes California a leader in agricultural exports, many of which rely on honey bees for pollination.

Bees pollinate one in every three bites of food we eat.

Foods that require bee pollination:

- ◆ Apples
- ◆ Almonds
- ◆ Watermelon
- ◆ Pumpkin
- ◆ Squash
- ◆ Cucumbers
- ◆ Avocados
- ◆ Mangos
- ◆ Blueberries
- ◆ Raspberries
- ◆ Blackberries
- ◆ Cranberries



Foods that benefit from bee:

- ◆ Tomatoes
- ◆ Strawberries
- ◆ Peppers
- ◆ Eggplants
- ◆ Soybeans
- ◆ Lima beans (and other dry beans)
- ◆ Sunflower seeds
- ◆ Sesame seeds



Why are honey bees important to our food?

Discussion Points:

- Working 9 to 5, what a way to make some honey:** Honey bees are a common sight in the garden whenever flowers are in bloom. Though usually seen alone, they actually are collecting nectar and pollen to support the complex and social colony they live in. All honey bees live in hives that are organized around their queen, a dominant female who is the only bee able to lay viable eggs. The queen lays up to 2,000 eggs a day, and the hive's survival is dependent on her. The working bees we see in the garden are also female. When they first mature they work as nurse bees, caring for the eggs and feeding the larvae, or "brood". As they age, they work as guard bees, protecting the hives against threats from animals or other insects; then they serve as worker bees, flying up to four miles away to find flowers, or "forage". Male bees are called "drones" and only leave the hive to mate with the queen during her mating flight in the spring. Collected nectar and pollen is fed to the brood and other bees in the hive, and turned into honey to feed the hive during the winter, when it becomes too cold for the bees to leave the hive and there is little or no forage available.
- Bees = Blueberries (and apples, and almonds, and watermelons ...):** While bees are foraging for food to feed the members of their hive, they are also performing an important service to many plants: pollination. Many species of plants need pollen from another individual plant. This pollen is carried to their flowers, enabling the plants to fruit and produce viable seed. Honey bees, along with native bees, butterflies, flies and other insects are vital to these plants' reproduction. According to a recent United Nation study, 70 out of the 100 most important food crops in the world must be pollinated by bees. Many nutritionally and economically important crops either wouldn't fruit at all or would produce much lower yields without bees. Even dairy products and beef indirectly rely on honey bees; bees must pollinate alfalfa, the main hay fed to cows, so it will produce seed for farmers to plant the next year. All in all, pollinators' contribution to the U.S. economy is estimated at over \$15 billion a year.



Pesticide Action Network and partners are working to protect our pollinators, and putting pressure on decision makers to suspend the most bee-toxic uses of a suspect class of pesticides (neonicotinoids) known to undermine honey bee health.

With one in every three bites of food dependent on honey bees for pollination, the time for decisive action is now.

Go to www.panna.org/bees and join the global movement to protect bees.

Why are bees disappearing?

Discussion Points:

- **Colony Collapse Disorder:** Colony Collapse Disorder or CCD was first documented and named in 2006 when US beekeepers experienced an unprecedented loss of 30-90% of their hives over the winter. Each winter since, U.S. beekeepers have averaged losses of about 30%, year on year. It is unlikely that CCD is caused by a single factor, rather, scientists believe it is a combination of factors that decrease immunity and increase stress on the hive. These factors are pesticide exposure, pathogens and parasites, and nutrition and management practices. Beekeepers have continued to experience unsustainable losses every year since.
- **Neonicotinoid Pesticides:** Neonicotinoids are systemic pesticides that were introduced in the 1990's and have become one of the fastest growing class of pesticides in modern agricultural history. They are neurotoxic to a wide variety of insects, and especially toxic to honey bees. They are often used to coat seeds but are also used in flea collars, lawn treatments and some garden composts. Systemic pesticides are applied at the root (as seed coating or drench) and then taken up through the plant's vascular system to be expressed in pollen, nectar & guttation droplets (like dew) from which bees forage and drink. Four countries in Europe have restricted the use of certain neonicotinoids after they were connected to major bee die-offs in 2008. Recent research has shown that the pesticides undermine immunity in honey bees, making them more susceptible to pests and pathogens.

What you can do to help the honey bees...

- ◆ Join our campaign to protect bees! Urge EPA officials to pull Bayer's bee-killing pesticide, clothianidin. More details at: www.panna.org/bees.
- ◆ Plant a garden with plants bees particularly like. Even in the city, a container on a balcony or front stoop can make a big difference to the growing number of urban bees and their beekeepers. Download a free 'Bee-friendly Gardening' guide at http://www.panna.org/sites/default/files/Bee-FriendlyGardening_PAN.pdf
- ◆ Become a beekeeper! There are a growing number of beekeeping resources and classes available.
- ◆ Eat pesticide-free foods and support farmers who choose not to use pesticides.

Host a film screening

Invite neighbors and friends over for a film screening at your house, or coordinate a screening at your local community center.

Not sure what to watch? Here are a few suggestions:

Vanishing of the Bees (2011)

Narrated by Ellen Page, *Vanishing of the Bees* follows commercial beekeepers David Hackenberg and Dave Mendes as they strive to keep their bees healthy and fulfill pollination contracts across the U.S. The film explores the struggles they face as the two friends plead their case on Capital Hill and travel across the Pacific Ocean in the quest to protect their honeybees.



Queen of the Sun (2011)

This film looks as "what the bees are telling us" and takes a journey through the catastrophic disappearance of bees, and the mysterious world of the beehive, weaving stories from beekeepers, scientists and philosophers from around the world including Michael Pollan, Gunther Hauk and Vandana Shiva.



Colony (2009)

Colony documents a time of unprecedented crisis in the world of the honeybee through the eyes of both veteran beekeeper, David Mendes, and Lance and Victor Seppi, two young brothers getting into beekeeping when most are getting out. As Mendes tries to save the nation's collapsing hives, the Seppi's try to keep their business alive amidst a collapsing economy.



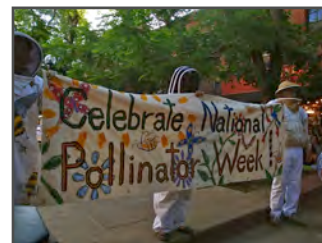
Nature: Silence of the Bees (2008)

In the winter of 2006, a mysterious epidemic began decimating honeybee populations in North America. This documentary explores the possible causes of the disease and follows scientists as they attempt to stop its spread. Oscar winner F. Murray Abraham hosts this Peabody Award-winning episode of the PBS series "Nature."

Organize an event

Policymakers aren't listening? Well, let's change that.

By building a base of supporters in your community, you encourage decisionmakers to focus on the issue of declining bee populations. Unless they hear from lots of people on an issue, they can easily ignore it. So it's up to us to make sure they understand what bees mean to food, our economy and beekeepers.



Petitioning

Petitioning (sometimes called "tabling", when a table is involved, or "canvassing" when door-to-door) is the most effective way to reach a large number of people through one-on-one contact. It helps educate the community, creates visibility around issues like bee declines, and helps identify and recruit new people to our efforts. You can find petitions in PAN's Action Center or write one to target a local decisionmaker.

Some tips:

- Approach people with a short, upbeat opening.
- Make sure each person reads and understands the petition before signing it.
- Answer questions concisely.
- Get pertinent contact information - be that email, phone, Facebook, Twitter handle, etc. -- so you can follow up with the person.
- Identify enthusiastic supporters to get more involved in efforts.

For more details on media coverage, or for help connecting with reporters, contact PAN's media director Paul Towers at ptowers@panna.org or [415-625-9072](tel:415-625-9072).

Hosting a public action

Actions build upon petitioning and other activities that recruit people to your cause, they help garner visibility and potentially media coverage, and they are as limitless as your imagination. Hopefully these will help spark some of your own!

Ideas for actions:

- **Petition delivery:** You wrote a great petition? Time to deliver it and make some noise. Walk them into the local EPA office, or to your local Ag Commissioner...whatever makes sense to send the message that bees should be protected.
- **Flash mob:** A group in Colorado held a surprise, but coordinated honey bee dance performance to celebrate National Pollinator Week last year. They got a lot of attention in their town and were a big hit on YouTube.
- **Swarm-in:** Earlier this year, people dressed in bee costumes surrounded the California offices of Bayer, one of the largest manufacturers of neonicotinoid pesticides. Bayer got the message and TV cameras got some great footage.
- **Honey tour:** Take a group of people out, maybe even decisionmakers, to show them backyard or commercial beekeeping operations. And give them a taste of honey! When they see and taste things first hand, it's likely to influence how they feel about the issue.

Creative actions garner attention and build the movement through fun.

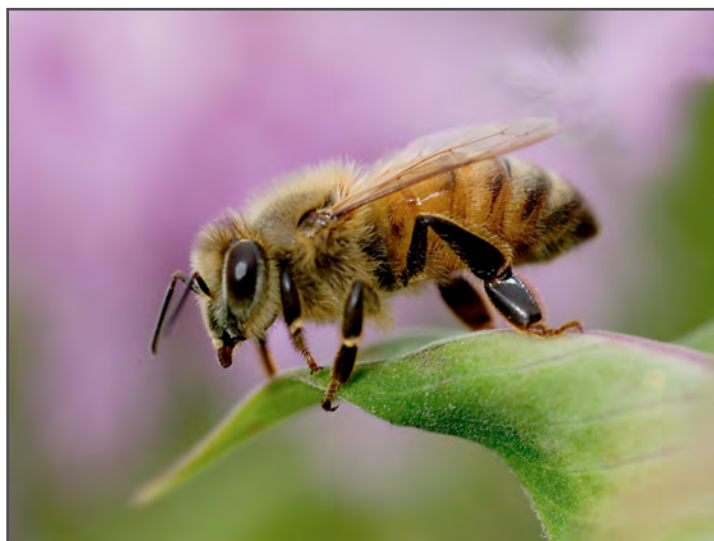
Pollinator protection pledge

Use the sample pledge pages in this section gather signatures and engage your community in conversations about the need to protect bees and other pollinators.

I pledge to protect honey bees and other pollinators by following the four pollinator protection principles.

Guiding Principles:

- 1. Protect bees from pesticides.** Pesticides kill beneficial insects including pollinators and natural enemies that control common pests like aphids. Certain pesticides, including neonicotinoids, are highly toxic to honey bees in particular. Instead of using pesticides, explore organic ways to grow healthy plants, such as using compost for healthy soil and controlling pests with homemade remedies and biocontrols like ladybugs.
- 2. Provide a variety of food for bees.** Consider clustered plantings with staggered blooming times so there is food throughout the year and particularly in the late summer and fall. Native plants are always best, and inter-planting and hedgerows provide additional forage on farms.
- 3. Provide a year-round, clean source of water for bees.** This can be a river, pond, irrigation system, rainwater collection system or small-scale garden water features. Shallow water sources can provide more than enough water for bees, without creating opportunities for mosquitoes to breed.
- 4. Provide shelter for bees.** Leave some ground undisturbed and untilled and some dead trees and plants on the property for wild bees to nest in.



In Your Backyard

You can support bees in your backyard by providing pesticide-free habitat, growing bee-friendly plants or perhaps even becoming a beekeeper.

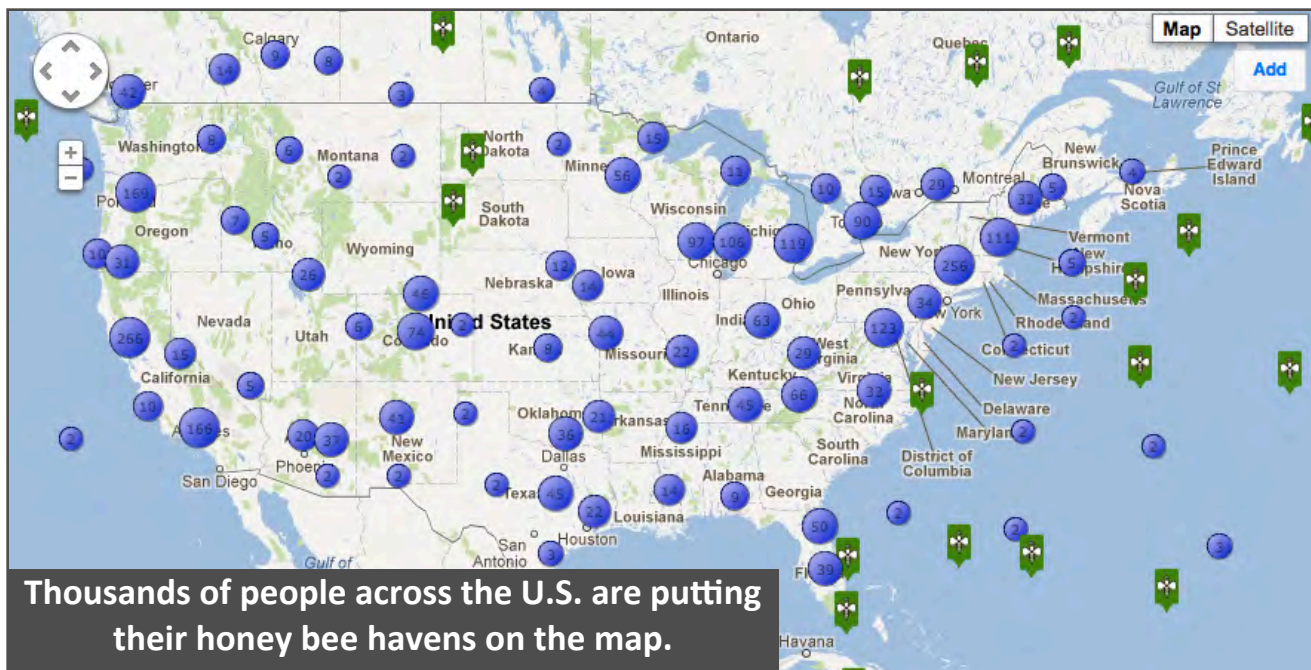
Create a honey bee haven

People across the U.S. are taking a stand for honey bees, and [pledging to provide a safe, pesticide-free haven](#) with access to food, water and shelter.

Join the movement! Creating a honey bee haven doesn't take much space — a few containers of the right kinds of plants tucked into your garden, on a balcony or front stoop, will get you started. Follow these guidelines:



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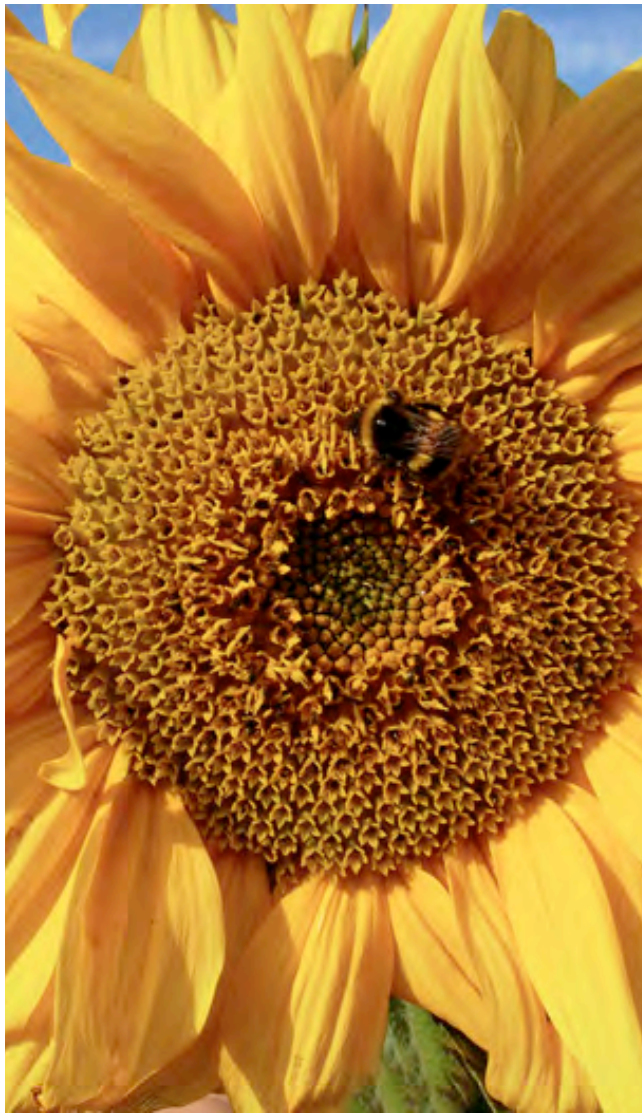
Bee-friendly gardening

You don't need a lot of space...

...just a little extra consideration. A few containers of the right kinds of plants tucked into your garden, or a designated "honey bee haven" will get you started.

Most pollinator plants do need at least 6 hours of sunlight a day - and remember, native plants are always best. Pollinators are 4 times more attracted to native plants.

Follow 4 common-sense guidelines and you're on your way: Food, water, shelter & protection from pesticides.



Common nectar- & pollen-rich plants

| COMMON NAME | GENUS |
|---------------------|--------------------|
| Giant Hyssop | <i>Agastache</i> |
| Borage | <i>Borago</i> |
| Paint brush | <i>Castilleja</i> |
| Bee plant | <i>Cleome</i> |
| Cosmos | <i>Cosmos</i> |
| Globe thistle | <i>Echinops</i> |
| Wallflower | <i>Erysimum</i> |
| Joe-pye weed | <i>Eupatorium</i> |
| Sunflower | <i>Helianthus</i> |
| English lavender | <i>Lavandula</i> |
| Purple gay-feather | <i>Liatris</i> |
| Mint | <i>Mentha</i> |
| Four o'clock | <i>Mirabilis</i> |
| Bergamot (bee balm) | <i>Monarda</i> |
| Basil | <i>Ocimum</i> |
| Marjoram | <i>Origanum</i> |
| Rosemary | <i>Rosmarinus</i> |
| Sage | <i>Salvia</i> |
| Skullcap | <i>Scutellaria</i> |
| Thyme | <i>Thymus</i> |
| Mullein | <i>Verbascum</i> |
| Verbena | <i>Verbena</i> |
| Zinnia | <i>Zinnia</i> |

🐝 Use a wide variety of plants that bloom from early spring to late fall.

🐝 Help pollinators find and use them by planting clusters of the same plant.

🐝 Use plants native to your region - natives are four times more attractive to pollinators. Regional planting guides :: www.pollinator.org/guides.htm

FOOD

Lack of varied nutrition is a key stressor for bees.

Below and on the back of this brochure are lists of common bee-friendly plants, as well as links to find native planting guides for your region.



Container plants:

▶ Aromatic herbs (coriander, catnip, mint, parsley, lavender); annuals (marigold, phlox, bachelor's button, zinnia, cosmos, salvia); perennials (bee balm, Shasta daisy, iris, coneflower, lobelia, delphinium).

Trees & shrubs:

▶ Dogwood, blueberry, linden, cherry, plum & willow.

WATER

Pollinators will gather at shallow pools, mud puddles, or birdbaths.

Water seeping or dripping from a garden hose to create mud puddles.

U.S. honey bee populations have declined by a third each year since 2006.

Lead suspects in these declines include pathogens, nutritional stress & pesticides.

▶ Mud puddles also provide important minerals for pollinators including butterflies.

▶ A few flat stones that rise above the water will give visiting pollinators easy access to the water.



SHELTER

Leave bare ground for ground-nesting bees.

Many beneficial insects overwinter in the dried stalks of plants. Leave garden cleanup until spring.



Honey bees are the most economically important pollinators in the world. In the U.S. alone their value is \$15 - \$20 billion per year.

Native bees live underground, so an attractive habitat will have patches of exposed dirt, or a small pile of sand.

▶ Avoid using black plastic or mulch as ground cover.

▶ Provide sites and materials for nesting & overwintering. Leave cut plant stems exposed, turn flowerpots that have drainage holes upside down, leave twigs & brush in small piles, create mud puddles, or put out pieces of string or other light fibers.

PROTECTION

Bees are indicator species that need our protection.

Recent science finds bees carrying an unprecedented pesticide load: 87 different pesticides in beeswax.

Pesticides build up & have synergistic effects so that even micro-doses can make a big difference.

Avoid using pesticides and herbicides if at all possible. They kill beneficial insects including pollinators & natural enemies that control common pests like aphids.

▶ Bees are especially sensitive to insecticides, and herbicides wipe out key plants (weeds) that are nutritionally important.

▶ To control pests, judiciously use homemade remedies such as garlic spray, or pesticides derived from plants or microbes. Apply them only after sundown, when most pollinators have stopped their rounds.

▶ It is important to protect native habitat by controlling invasive plant species — don't plant them.

Backyard beekeeping

[Join the ranks](#) of backyard beekeepers! [Learn the basics](#) by joining a local beekeeper's association that will provide additional support and resources as you establish your hive.

Beginner's classes are often offered in the beginning of the year, as people prepare to start their hives in the spring.

A few questions answered by members of the American Beekeeping Federation (www.abfnet.org):

How much time does it take to keep bees?

Beekeeping is a seasonal hobby and therefore, the time varies with the seasons. In the winter, there is practically nothing to do except to occasionally check for physical damage or something blocking the entrances. The busiest time is in the early summer when each hive should be checked weekly to prevent swarming, and to add additional honey supers. This will take no more than a few minutes once you get the hang of it.

What equipment do I need to start keeping bees?

First you will need the hive. This consists of a bottom board, two hive bodies with frames and foundations, three medium honey supers with frames and foundation, an inner cover, and an outer cover. Secondly, you will need a smoker and hive tool.



Do I need a bee suit?

You will need some sting protection. You can buy a veil and gloves for about \$25, a full deluxe bee suit and gloves for around \$100, and several in between to fit your budget. Good sting protection makes sense when you're getting started.

How much honey will I get?

That depends on the strength of the colony and the weather.

Where can I buy bees?

Most bee supply houses have bees for sale. There are some local producers who sell bees, and many suppliers are listed in beekeeping periodicals.

Can I keep bees in my garden?

Yes, you can! It is advisable to have the entrance facing away from populated areas.

Will bees bother my neighbors?

No, not usually. Some may even thank you, since their fruit trees and gardens may start bearing more fruit with the added pollinators in the neighborhood.

Join PAN Today

Bee part of the solution.

A handful of corporations control our food and farming, but we can change that. For three decades PAN has worked to replace hazardous pesticides with safe and sustainable alternatives. Your tax-deductible gift will fund grassroots science, collaboration with communities and policy change to democratize our food system.

Become a member of Pesticide Action Network North America by donating \$35 or more and receive a recycled aluminum **Honey Bee Haven sign** to show your neighbors that your yard, garden, or balcony is safe for bees and other pollinators.

[Donate online](#), or print out this form and mail to us at the address shown below.



Yes! I want to make a donation and join PAN.

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