

# Honey Bees and Pesticides

Protecting pollinators is vital to American agriculture



## Why Are Pollinators Important?

- **One in three bites of food** is reliant on honey bee pollination and threats to pollinators concern the entire food system.
- A May 2012 study by Cornell University finds that insect pollination results in a value of more than **\$15 billion annually**. A single beekeeper pollinating almonds, blueberries, pumpkins, apples, and cherries can result in an estimated \$5 million value to the agricultural economy.

## Pesticides Harm Pollinators

- **Neonicotinoids** (clothianidin, thiamethoxam, imidacloprid) are a class of insecticides that are highly toxic to honey bees and other pollinators. They are **systemic**, meaning that they are taken up by a plant's vascular system and expressed through pollen, nectar and guttation droplets from which bees forage and drink.
- Neonicotinoids are particularly dangerous because, in addition to being acutely toxic in high doses, exposure also results in serious **sublethal effects** when insects are exposed to chronic low doses.
- Research has shown that neonicotinoid exposure causes **significant problems** for honey bee health, including disruptions in mobility, navigation, feeding, foraging, memory, learning, and overall hive activity.
- Pesticides are also suspected to affect honey bees' **immune systems**, making them more vulnerable to parasites and other pathogens.

## Regulatory Failures

- EPA granted a **conditional registration** to the neonicotinoid clothianidin in 2003 without a required field study on pollinators on the basis that this study would soon be received. However, this requirement has **not been met**. EPA continues to allow the use of clothianidin **nine years** after acknowledging that it had insufficient basis for allowing its use.
- In March 2012, commercial beekeepers and environmental organizations filed an **emergency legal petition** with EPA to suspend use of clothianidin, asserting that EPA failed to follow its own regulations by allowing clothianidin to be used without the required adequate pollinator field study.

## Recent Research Highlights Risks

- A January 2012 Purdue University study reveals that honey bees were exposed to clothianidin through dust that is expelled from mechanical planters containing coated seeds.
- An April 2012 study out of France shows that when exposed to sublethal doses of thiamethoxam, honey bees' foraging and feeding behavior were significantly degraded.
- A study released in May 2012 by the University of California at San Diego finds that small doses of imidacloprid depress honey bees' ability to communicate and effectively feed the colony.



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