

Bees and the Neonicotinoid Controversy



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Valley Laboratory

The Connecticut
Agricultural Experiment
Station

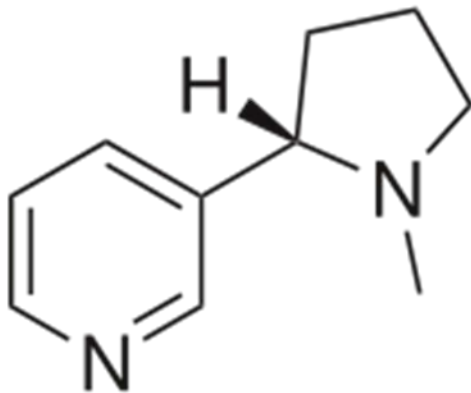


Overview

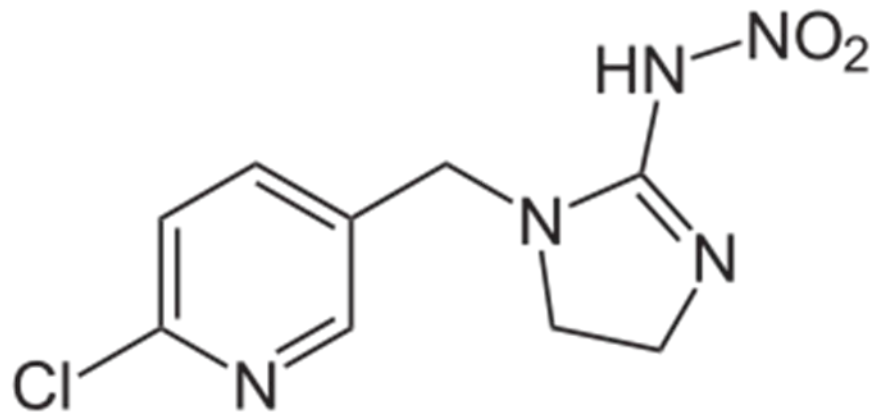
- What are neonicotinoids?
- History of concern regarding bees
- Evidence: causes for poor bee health
- What station scientists are doing
- What can you do?

What are neonicotinoids?

nicotine



imidacloprid



Colony collapse disorder of honey bees: 2006

Most bees (not the queen) leave the hive

Dead bees are not found at front of hive



Bees exposed to low levels of neonicotinoids can become “drunk” and cannot orient back to the colony

Might this explain the loss of worker bees?

Why neonic use doesn't fit CCD pattern

CCD-happened before imidacloprid's invention!

<u>Other sudden collapse incidents</u>	<u>Years</u>
Isle of Wight Disease	~1906
Autumn Collapse	1961
Disappearing Disease	1979

P. L. Borst, Am. Bee J., March 2015, pp. 315 – 319.

Why imidacloprid doesn't fit CCD pattern

Australian bees are healthy in presence of neonics

Ban on neonics in Europe: bees remain sick

Why imidacloprid doesn't fit CCD pattern

- By 2007 researchers found link between high levels of viruses and CCD
- Sterilizing hive equipment protects bees from CCD

Varroa mites are central to poor bee health



Bees leave the colony when they are sick and about to die. “Altruistic suicide” protects the colony.

Might this explain the loss of worker bees?

Evidence related to poor bee health

Neonics Diseases

Geographical
correlation

-

+

Temporal
correlation

-

+

Dose response

+/-

+

Other

+/-

+

experiments



June 20, 2013 Wilsonville, Oregon



Photo: Wikipedia Commons, N. P. Holmes



Photo: Pamplin Media Group





Work by C.A.E.S. scientists
Helped to craft S.B. 321 in 2016
AN ACT CONCERNING POLLINATOR HEALTH

Work by C.A.E.S. Scientists

Richard Cowles

Systemic insecticide use

Brian Eitzer

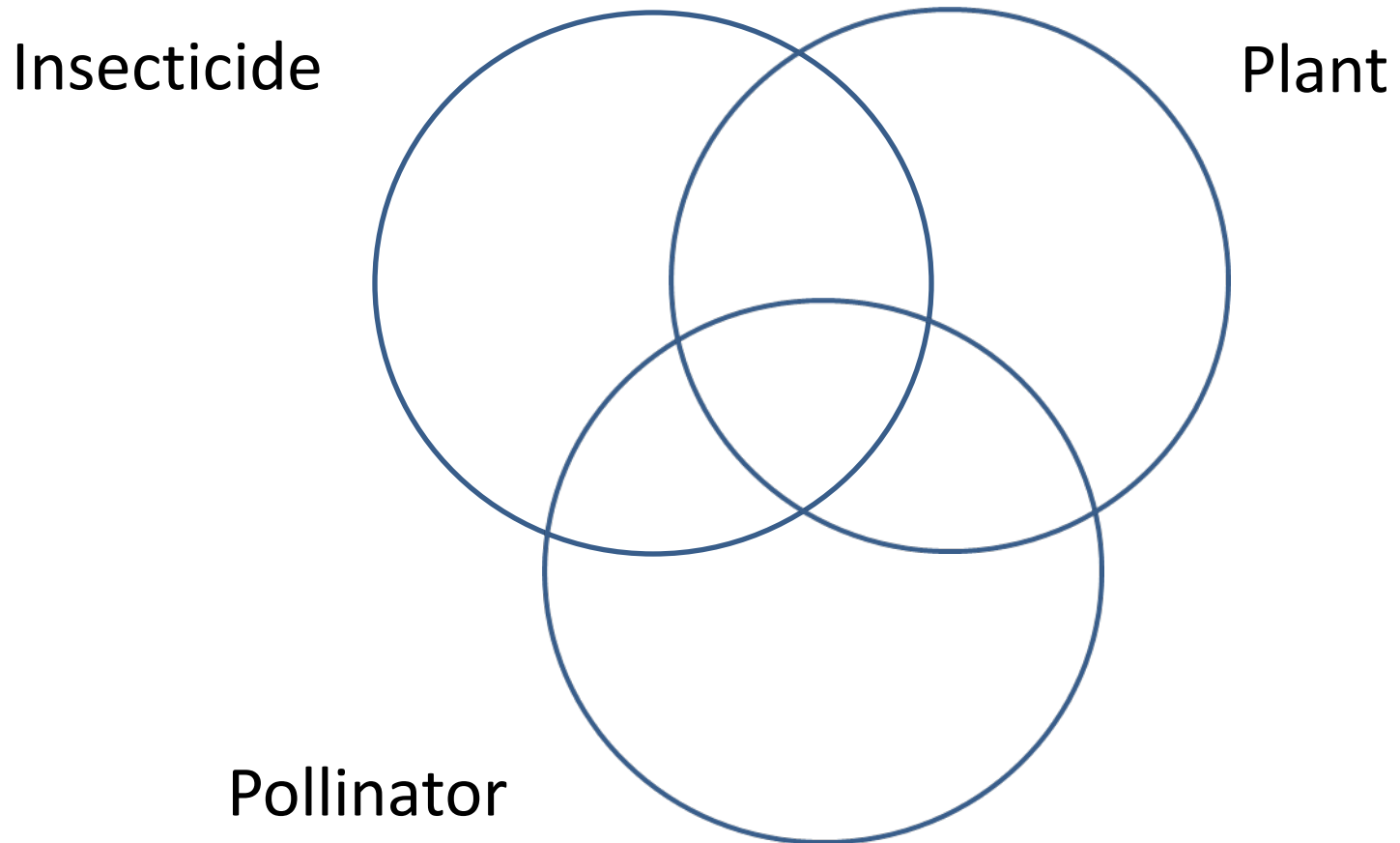
Analytical chemistry

Kimberly Stoner

Pollinator ecology



Systemics principles and pollinator risk



What can you do to help bees?

- Plant flowers; consider allowing flowering plants in lawns
- If you keep bees, treat for Varroa
- If you use pesticides, follow the label instructions

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