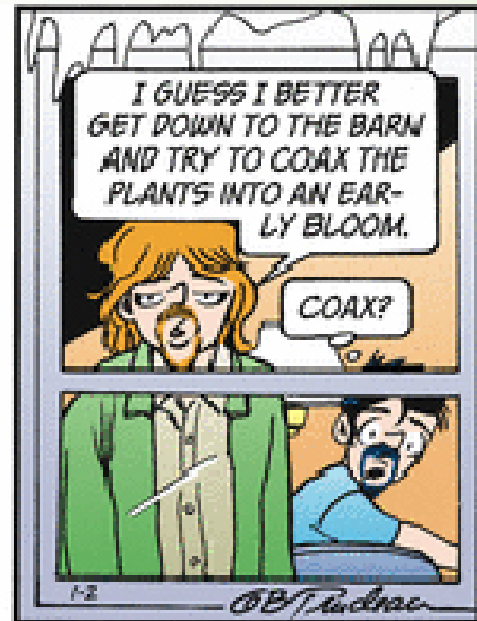
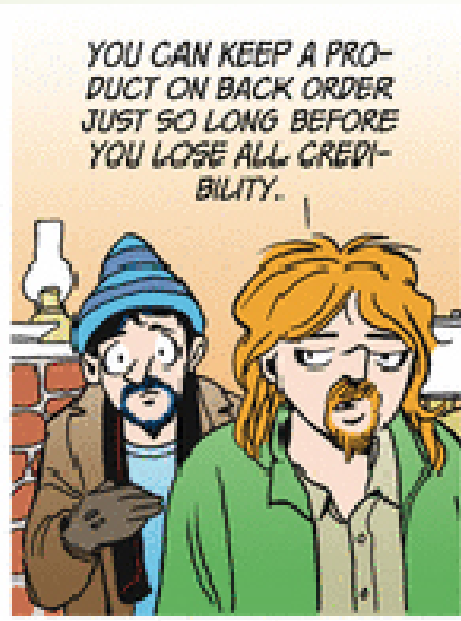




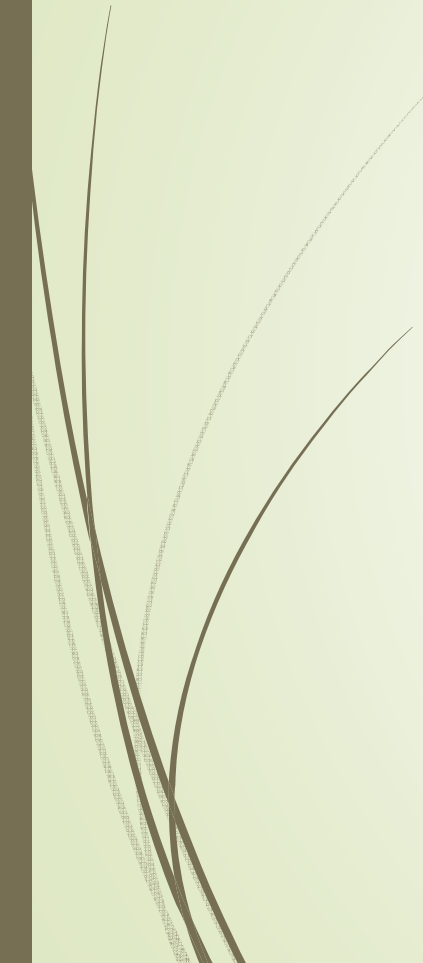
Reflections



Garry Trudeau



Non-targeted Chemical Analysis

- ▶ Detect chemicals when you don't know what you're looking for
 - ▶ Screening technique
- 



Guidance for Assessing Pesticide Risks to Bees

Office of Pesticide Programs
United States Environmental Protection Agency
Washington, D.C. 20460
Health Canada Pest Management Regulatory Agency
Ottawa, ON, Canada
California Department of Pesticide Regulation*
Sacramento, CA

*Currently, due to resource limitations, the California Department of Pesticide Regulation does not conduct full ecological risk assessments, but reserves the right to do so in the future.
June 19, 2014



Tiered approach

Individual bee level—laboratory tests of different life stages (larval/pupal versus adults) and castes (e.g., worker bees); acute and chronic.

Colony level--Semi-field and full-field levels.



February 2016

BEE HEALTH

USDA and EPA Should Take Additional Actions to Address Threats to Bee Populations



From Footnote 1

Apis mellifera is the non-native European honey bee.

Other managed bees include orchard mason bees (*Osmia lignaria*), alfalfa leafcutting bees (*Megachile rotundata*), and bumble bees (*Bombus spp.*).

Orchard mason bees and some bumble bees are native to the United States, while alfalfa leafcutting bees are not.

Wild, native bees refer to unmanaged bees that are native to the United States. There are an estimated 4,000 or more species of wild, native bees in the United States.

Nonnative bees, including honey bees, may also be unmanaged, i.e., wild.



GAO to EPA:

Office of Pesticide Programs should

- Develop a plan for obtaining data from pesticide registrants on the effects of pesticides on non-honey bee species.
- Identify commonly used pesticide tank mixtures to help determine whether those mixtures pose greater risks than the sum of the risks posed by the individual pesticides.
- Provide accurate information about the schedules for completing the registration reviews for existing pesticides required under FIFRA.