14. TO BEE OR NOT TO BEE

Honeybee populations have declined worldwide. In the US, the annual mortality rate for honeybees has been double to triple the expected rate each year for about a decade. Scientists estimate that there are now only about one-fourth as many honeybee colonies in the US now as there were 60 years ago. Agricultural pollination, mainly by honeybees, is essential to crop production. Diminished availability of these pollinators endangers agriculture and the food supply.

Colony Collapse Disorder (CCD), a set of symptoms related to a variety of factors, was described in 2006 after beekeepers noticed that honeybees would leave their hives and die elsewhere. Since its identification, researchers all over the world have been trying to save the honeybees.

In May 2013, the US Department of Agriculture (USDA) and the US Environmental Protection Agency issued an extensive report detailing the outcomes of a national meeting of stakeholders concerned with the disturbing decline of honeybee colonies. The report summarized the complex forces that have diminished the honeybee population: loss of wild bee habitat, loss of genetic diversity, parasites, disease, poor nutrition, and exposure to pesticides.

Experts agree that pesticide exposure is one factor in CCD. Some of the research on CCD has focused on the effects of the nerve poisons: neonictinoids, or neonics. Introduced in 1991, neonics are coated onto agricultural seeds. As the plant grows, the pesticide distributes into the pollen and nectar. Neonics are aimed at other pests, but their impact on honeybees has been noted and studied since the 1990s. Several recent studies confirm that honeybees exposed to neonics show effects consistent with symptoms observed in CCD. In particular, the pesticide is blamed for interfering with the bee's ability to gather pollen and return to the hive.

The European Union has determined that the evidence linking neonics to CCD is sufficient to warrant issuing a two-year ban on the use of this class of pesticides. The USDA has continued to withhold judgment, asking for more research.

Monsanto is a major global company and a significant player in agriculture worldwide. It supplies pesticides and other agricultural chemicals, and it genetically engineers seed for sale. It is a major source of seed-dusting neonics worldwide. Experts point out that honeybees may also be affected by pollen from another of the company's products, a corn variety (Roundup Ready) whose genetic makeup Monsanto engineered to include a pesticide effect.

Cynics ask why Monsanto purchased a small company in 2011called Beeologics. Founded in 2007 in response to the honeybee decline, Beeologics' mission, according to its website (http://www.beeologics.com/about-us, accessed 11/24/13), "…is to become the guardian of bee health worldwide. Through continuous research, scientific innovation and a focus on applicable solutions, Beeologics is developing…products to specifically address the long-term well being of honeybees…" Though Monsanto claims it is committed to having Beeologics continue its work, environmental journalist Richard Schiffman, for one, is skeptical. In his blog in the 5/3/13 Huffington Post, *The Fox (Monsanto) Buys the Chicken Coop (Beeologics),* Schiffman wonders if the purchase of a company dedicated to saving honeybees might in reality be a means to cover up, rather than solve the problem.

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