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Special Species

The Latest Honey Bee Statistics – A First-Ever Happening

The numbers from the Bee Informed Partnership annual survey show one never-seen-before situation emerging. Insect pollinators — largely bees — contribute over $24 billion to the US economy, so this news is crucial. What you can do to help.

Reviewed by Dr. Becker

STORY AT-A-GLANCE

- From April 2014 to April 2015, US beekeepers lost 42% of their colonies, up from 34% the prior year
- For the first time, more honeybees died during the summer than the winter
- Before the phenomenon known as colony collapse disorder came into play, beekeepers expected to lose about 10% of their bees in an average year
- Deaths began to escalate worldwide in 2006 as bees mysteriously abandoned their hives and died in massive numbers
- Experts believe the three main factors contributing to colony collapse disorder in bees are a type of deadly mite, poor nutrition, and widespread use of neonicotinoid pesticides

Editor's Note: This article is a reprint. It was originally published August 18, 2015.

According to the Bee Informed Partnership annual survey, in the 12-month period from April 2014 to April 2015, US beekeepers lost 42% of their colonies. That is considerably higher than the 34% loss reported in the preceding 12 months (April 2013 to April 2014), and is the second-highest loss experienced in the 5 years the surveys have been taken.[1]

Beekeepers in Oklahoma, Illinois, Iowa, Delaware, Maryland, Pennsylvania, Maine, and Wisconsin all saw over 60% of their hives die since April 2014, according to the survey.[2]

Another stunning fact the survey revealed was that for the first time, honeybee deaths during the summer months surpassed winter deaths. Dennis vanEngelsdorp, an assistant entomology professor at the University of Maryland who directs the survey told The New York Times:

> *"We expect the colonies to die during the winter, because that's a stressful season. What's totally shocking to me is that the losses in summer, which should be paradise for bees, exceeded the winter losses."*[3]

Before the phenomenon known as colony collapse disorder came into play, beekeepers expected to lose about 10% of their bees in an average year. But deaths began to escalate worldwide in 2006 as bees mysteriously abandoned their hives and died in massive numbers.

Mass die-offs have slowed a bit in recent years, but bee colonies remain in poor health and death rates continue to be much higher than in the past.

For the First Time on Record, More Bees Died During the Summer Than the Winter

The 2014-2015 annual survey revealed that beekeepers lost 27% of their colonies during the summer months, up from 20% during the summer of 2013.[4]

According to vanEngelsdorp, seeing large-scale colony losses in the summer is as surprising as it would be to see more flu deaths in the summer than the winter. "You just don't expect colonies to die at this rate in the summer," he said.[5]

He believes the increasingly poor nutritional status of bees is a likely factor in the rising summer death rate. Increases in crop prices have incentivized farmers to replace millions of acres of wildflowers with food plants.

Last summer's large die-off involved a high number of queen bees, which is unusual. Also, the losses were worse in colonies that moved more. As they lose colonies, beekeepers split their surviving hives to recover their losses, which pushes the bees to their limits.

3 Major Factors in Colony Collapse Disorder

According to vanEngelsdorp and other scientists, there are three primary factors at work in bee die-offs: a deadly parasite called the varroa mite that is primarily a problem for "backyard" beekeepers, poor nutrition, and pesticides, especially neonicotinoids.[6]

Neonicotinoids are nicotine-like chemicals and are the most widely used class of insecticides in the world today. It's hard to find pest control products that don't contain at least one neonicotinoid insecticide. In 2013, the European Union banned the three most widely used neonicotinoids in the face of mounting scientific evidence showing that these pesticides kill bees directly, and also make them less able to survive pests, pathogens, and other stressors. Unfortunately, neonicotinoids are still widely used in the U.S.

Crops That Depend on Insect Pollination

According to a 2010 report compiled by the Congressional Research Service, as of the year 2000, the estimated value of honey bees to U.S. crop production was as follows:[7]

Crop	Dependence on Insect Pollination	Proportion of Pollinators That Are Honeybees	Value Attributed to Honeybees
Alfalfa, hay, and seed	100%	60%	$4,654,200
Apples	100%	90%	$1,352,300
Almonds	100%	100%	$959,200
Citrus	20% to 80%	10% to 90%	$834,100
Cotton (lint and seed)	20%	80%	$857,700
Soybeans	10%	50%	$824,500
Onions	100%	90%	$661,700
Broccoli	100%	90%	$435,400
Carrots	100%	90%	$420,700
Sunflower	100%	90%	$409,900
Cantaloupe, honeydew	80%	90%	$350,900

Source: *fas.org/sgp/crs/misc/RL33938.pdf*

For more information, Wikipedia has a comprehensive **list of crop plants pollinated by bees**.

How You Can Help

Pollinators support much of the world's food population and contribute over $200 billion to the global economy each year. In recent years we've seen up to 30% annual honeybee colony losses, in addition to population declines in butterflies and other insects, as well as insect-pollinated wild plants.

Insect pollinators are also extremely important to the U.S. economy, contributing over $24 billion, of which more than half is from honeybees alone and their vital role in the growth of fruits, vegetables, and nuts.

If you plant flowers around your home or have a garden and want to help out our insect pollinator friends, plant bee-friendly flowers that you are confident have not been treated with neonicotinoid pesticides on either the plants or the seeds they were grown from. Choose native flowering plants from your local area, or plant clover, alfalfa, or other flowering cover crops that replenish soil nutrients and prevent erosion.

Also avoid pesticides containing these neonics: Acetamiprid, Clothianidin, Dinotefuran, Imidacloprid, and Thiamethoxam.

Sources and References

Discovery News May 13, 2015 (Archived)

[1] BeeInformed.org, Colony Loss 2014 - 2015: Preliminary Results (Archived)

[2, 4, 5, 6] Associated Press, May 13, 2015 (Archived)

[3] New York Times, May 13, 2015 (Archived)

[7] Federation of American Scientists (Archived)