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# Tallahassee Democrat

October 12, 2009

Reese Halter: Earth needs the bees' buzz *Dr Reese Halter My View*

Over the past three years, more than 50 billion honeybees have died. Scientists understand the causes, and now we need everyone to lend a helping hand.

The humble honeybee has been inextricably linked to humankind since prehistoric times.

At first we were drawn to this remarkable creature because of its sweet honey. Honey is what electricity is for humans — energy. One teaspoon of honey weighing 21 grams contains 64 grams of sugar or 60 calories, and it took 12 bees their entire foraging lives, combining a total time of about 6,000 miles, to produce that teaspoonful.

To understand the importance of honeybees, consider that every third bite on your plate is the result of their primary role on the planet, as pollinators.

Honeybees contribute at least \$44 billion a year to the U.S. economy, pollinating crops such as almonds, apples, avocados, blueberries, broccoli, canola, carrot seeds, cherries, citrus fruits, cranberries, cucumbers, grapes, lettuce, macadamias, melons, peaches, plums, pumpkins, onion seeds, squash, sunflowers, kiwis, tomatoes and zucchinis (to name a few), not to mention alfalfa and clover for beef and dairy industries and cotton for our clothes. And then there is honey, candles and medicines.

Bees have been on the planet for more than 100 million years, or about 14 times longer than the first human progenitor. Bees have a memory; They vote, are being trained to communicate, and are helping people as an early detector of disease by sniffing skin and lung cancers, diabetes and tuberculosis.

The Red Cross estimates there are 80 million to 120 million land mines in 70 countries, with 40,000 new land mines being deployed weekly. Each year these brutal weapons maim or kill thousands of children. Researchers from the University of Montana are using bees to detect traces of TNT — the primary ingredient in land mines — while conducting surveys many miles from the hive.

Many blue-chip corporations depend on the honeybees for their products, including General Mills, Haagen-Dazs ice cream, Starbucks coffee and Clorox's Burt's Bees, a specialty care company with more than 150 products.

A combination of factors has collided to create the perfect storm responsible for men's appetite loss and autoimmune system collapse, resulting in the rapid decline in honeybee populations worldwide.

Each year, 5 billion pounds of pesticides are applied globally. Many of them are neurotoxic nerve poisons that prevent acetylcholine from allowing neurons to communicate with muscle tissue. In humans, it would trigger Parkinson's and Alzheimer's.

Imidacloprid (one form of neonicotinoids) killed millions of bees in France before ever being banned in that nation, yet it's still used widely throughout the U.S.

In 2008, researchers from Penn State found 43 pesticides in a Pennsylvania apple orchard where farmers combine or stack their chemicals to reduce application costs; however, stacking chemicals is known to increase toxicity levels in some cases by 1,000 fold.

Research from Europe showed that bees exposed to electromagnetic radiation from cell phone towers made 21 percent less honeycomb and that 36 percent, taken a half mile from towers, were unsuccessfully able to navigate home.

In 2006, the honeybee genome was decoded, and it revealed only half as many genes for detoxification and immunity as other known insects. Scientists found specific "good" genes inside bees' stomachs and intestines crucial for fighting pathogens and digesting the nectar around each pollen grain, providing access to its protein.

Bees evolved to feed on a wide assortment of pollens, though today we use them in monoculture fields. Pollens provide their only source of protein. Proteins grow eggs, larvae, brains and immune systems.

The abnormally high temperatures of 2006 were likely the tipping point for bees in North America. The searing springtime temperatures during the onset of flowering are believed to have caused sterile pollen in many plants. Sterile pollen produces little if any protein.

In 2007, almond, plum, kiwi and cherry pollens that were tested exhibited little if any protein content. Infertile soils lacking essential nutrients, and bacteria, fungi, protozoa and climate change were implicated.

Beekeepers around the globe are now feeding their hives a form of a protein shake with brewer's yeast, pollen and honey and other special ingredients.

Clearly, agriculture must reduce the levels of toxicity from pesticides, herbicides and fungicides globally.

There is hope on the horizon, as organics is the fastest growing sector in the U.S. at the moment. First lady Michelle Obama has an organic garden on the White House lawn with honeybee hives close by.

Each of us can help by purchasing organic foods and cottons, and supporting local beekeepers by buying organic honey. Do not use herbicides, pesticides or miticides in your yard.

wide variety of native yellow and blue flowers and participate by helping scientists in National Phenology Network. Without the bees we cannot survive.

Additional Facts

ABOUT THE AUTHOR

Dr Reese Halter is a conservation biologist and a syndicated science writer, TV nature documentary host and author whose latest book is "The Incomparable Honey Bee and the Economics of Pollination" -- [http://www.amazon.com/s/ref=nb\\_ss\\_gw?url=search-alias%3Dstripbooks&field-keywords=The+Incomparable+HoneyBee+reese+halter&x=0&y=0](http://www.amazon.com/s/ref=nb_ss_gw?url=search-alias%3Dstripbooks&field-keywords=The+Incomparable+HoneyBee+reese+halter&x=0&y=0) He founded Global Forest Science as a charitable international forest research foundation. He's a visiting academic at Tallahassee writing a book on Detoxifying the Ocean. Contact him at [rhalter@globalforestscience.org](mailto:rhalter@globalforestscience.org) or go to <http://DrReese.com>

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