

Honeybee today's canary in mine

BY DR. REESE HALTER, SPECIAL TO THE STARPHOENIX JANUARY 21, 2010

The following viewpoint was written by Halter, founder of Global Forest Science, an international conservation institute. His latest book is *The Incomparable Honeybee and the Economics of Pollination*.

More than 50 billion honeybees have died over the past three years. 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 to a bee what electricity is for humans -- energy. One teaspoon of honey weighing 21 grams contains 16 grams of sugar or 60 calories, and it took 12 bees their entire foraging lives, combined flying time of about 9,700 kilometres, to produce that 21 grams of honey.

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

Honeybees contribute at least \$47 billion a year to the North American economy, as they pollinate crops such as almonds, apples, avocados, blueberries, broccoli, canola, carrot seeds, cherries, citrus, cranberries, cucumbers, grapes, lettuce, macadamias, melons, peaches, plums, pumpkins, onion seeds, squash, sunflowers, kiwis, tomatoes and zucchinis (to name a few); alfalfa and clover for beef and dairy industries; cotton for our clothes; honey, candles and medicines.

Many blue-chip corporations depend on the honeybees for their products.

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 count 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 landmines in 70 countries, with 40,000 more being deployed weekly. These brutal weapons maim tens of thousands of children each year. Researchers from the University of Montana are using bees to find residue of TNT, the primary ingredient in landmines, while conducting surveys many miles away from the hive.

Several factors have combined to create memory loss, appetite loss and auto-immune system collapse in honeybees, resulting in their rapid population decline worldwide.

Each year, 2.3 billion kilograms of pesticides are applied globally. Many of them are neonicotinoids, a nerve poison that prevents acetylcholine from allowing neurons to communicate with each other and with muscle tissue. In humans it would trigger Parkinson's and Alzheimer's.

Imidacloprid, one form of neonicotinoids, is manufactured by Bayer under the trade names of Gaucho

and Pancho. It killed millions of bees in France before it eventually was banned there, yet it's still widely used throughout North America.

Researchers from Penn State University in 2008 found 43 pesticides in a Pennsylvania apple orchard. Many farmers combine or stack their chemicals to reduce applications costs. However, stacking chemicals is known to increase their toxicity levels, in some cases by a thousand-fold.

Research from Europe showed that bees exposed to electromagnetic radiation from cellular towers made 21 per cent less honeycomb, and that 36 per cent of bees taken a half mile from the hive were unable to navigate home.

The honeybee genome was decoded in 2006. Their genetics revealed only half as many genes for detoxification and immunity, compared to other known insects.

Bees evolved to feed on a wide assortment of pollens, but today we use them in monoculture fields. Pollens provide their only source of protein that grows eggs, larvae, brains and auto-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. In 2007, almond, plum, kiwi and cherry pollen that were tested exhibited little if any protein content. Infertile soils lacking essential nutrients, bacteria, fungi and protozoa, along with climate change, were implicated.

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

Clearly, agriculture must reduce the levels in toxicity from pesticides, herbicides and miticides globally. There is hope on the horizon, as organic farming is the fastest growing sector in North America at \$27 billion a year.

Each of us can help by purchasing organic foods and cottons, support local beekeepers by buying organic honey. Do not use herbicides, pesticides, or miticides in your yard. Plant a wide variety of native yellow and blue flowers and participate by helping scientists in Nature Watch's (www.icewatch.ca/english/plantwatch/) program.

We cannot survive without bees.

© Copyright (c) The StarPhoenix