



VIEWPOINTS: Humble honeybees are vital to human survival

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By REESE HALTER

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 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 6,000 miles, to produce 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 \$44 billion a year to the U.S. economy. In Alabama, bees from 2,500 beekeepers in all 67 counties pollinate crops like apples, blueberries, blackberries, cantaloupes, cucumbers, grapes, honeydew, peaches, persimmons, plums, pumpkins, strawberries, squash, sunflowers, tomatoes, vegetable seeds, watermelons; alfalfa and clover for beef and dairy industries; cotton for our clothes; and, of course, bees give us 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 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 40,000 new land mines being deployed weekly. Each year, these brutal weapons of destruction maim tens of thousands of children. Researchers from the University of Montana are using bees to find TNT residue -- the primary ingredients in land mines. Many blue-chip corporations depend on honeybees for their products.

A combination of factors has collided to create the conditions for memory loss, 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, and these chemicals are known to poison nerves causing symptoms similar to Parkinson's or Alzheimer's. In 2008, researchers from Penn State found 43 different pesticides in a Pennsylvania apple orchard. Many farmers combine or stack their chemicals to reduce applications cost. However, stacking chemicals is known to increase toxicity levels in some cases by 1,000 times.

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



navigate home. In 2006, the honeybee genome was decoded, and 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. Proteins grow eggs, larvae, brains and autoimmune 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 pollen that was tested exhibited little if any protein content. Infertile soils lacking essential nutrients, bacteria, fungi, protozoa along with climate change were implicated.

Beekeepers around the globe are now feeding their hives a form of a protein shake with eggs, brewer's yeast, pollen and honey. Clearly, agriculture must reduce the levels in toxicity from pesticides, herbicides and miticides globally.

There is hope on the horizon, as organics are the fastest-growing sector in the United States at \$24 billion a year. First lady Michelle Obama has an organic garden on the White House lawn with two honeybee hives close by.

Each of us can help by buying organic foods and cottons, and support local beekeepers by buying organic honey. Do not use herbicides, insecticides or miticides in your yard. Plant a wide variety of native yellow and blue flowers and take part by helping scientists in the U.S. National Phenology Network (www.usanpn.org).

Without bees, we cannot survive.

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