Winnipeg Free Press - PRINT EDITION

Bringing bees to their knees

Pesticides, electromagnetic radiation killing essential pollinators by the tens of billions

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16/01/2010 1:00 AM | Comments: 0

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 9,700 kilometres, 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 $47 billion a year to the North American economy pollinating crops like almonds, apples, avocados, blueberries, broccoli, canola, carrot seeds, cherries, citrus, cranberries, cucumbers, grapes, lettuce, macadamids, melons, peaches, plums, pumpkins, onion seeds, squash, sunflowers, kiwis, tomatoes, zucchinis (to name a few); alfalfa and clover for beef and dairy industries; cotton for our clothes; honey, candles and medicines.

Bees have been on the planet for over 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 to 120 million landmines in 70 countries and 40,000 new landmines are 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 landmines -- while conducting surveys many miles away from the hive.

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

A combination of factors has collided to create the perfect storm responsible for memory loss, appetite loss and autoimmune system collapse resulting in the rapid decline in honeybee populations 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 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 Poncho, it killed millions of bees in France before eventually being banned in that nation yet it's still used widely throughout North America.

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 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 cellular towers made 21 per cent less honeycomb and that 36 per cent, taken a half mile from the hive, were unsuccessfully able to navigate home.

In 2006, the honeybee genome was decoded. Their genetics revealed only half as many genes for detoxification and immunity compared to other known insects. Scientists found specific "good" bacteria inside their stomachs and intestines, crucial for fighting pathogens and digesting the silica casing around each pollen grain, providing access to its protein.

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 auto-immune systems.

The abnormally high temperatures of 2006 were likely the tipping point for bees in North America. 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 were 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, brewers yeast, pollen and honey and other special ingredients.

Clearly agriculture must reduce the levels in toxicity from pesticides, herbicide and miticides, globally.

There is hope on the horizon as organics is the fastest growing sector in North America at $27 billion a year -- Michele Obama has an organic garden on the White House lawn with two honeybee hives close by.

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 (http://www.icewatch.ca/english/plantwatch/) program.

Without the bees we cannot survive.

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