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# Missing the buzz of the bees

Rapid urbanisation, global warming and the widespread use of pesticides are driving away honeybees which are important for putting food on our table.

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**B**EES are disappearing from our forests and plantations and this is affecting local fruit production and food crops.

Orchard owners, honey gatherers and farmers in various parts of the country have noticed a recent decline in bee colonies and some have taken drastic steps such as rearing their own bees to increase pollination of crops or switching to organic farming.

According to Malaysia Fruit Exporters Association president Ricky Yong, some orchard owners have started keeping honeybees to protect their crop yield.

"Bees are very important in agriculture. To ensure that the pollination process is not affected, farmers have taken to rearing honeybees because they cannot rely on nature alone as the wild bee population has dwindled. The bees are reared and released to pollinate the fruit trees," he adds.

The association's 15 members account for some 60% of the country's fruit exports, valued at RM500mil annually.

The vanishing bee phenomenon, first observed in the United States and later in Europe, Africa and Asia, is reportedly linked to rapid urbanisation, global warming and the widespread use of pesticides.

In the US, beekeepers first sounded the alarm on disappearing bees in 2006 when seemingly healthy bees abandoned their hives en masse and never returned.

According to the US Natural Resources Defence Council (NRDC), researchers in the country have estimated that nearly one-third of all honeybee colonies have vanished and warned that the US could lose US\$15bil (RM48.5bil) worth of crops without bees to pollinate the crops.

The council reports that scientists researching the mass disappearance – described as Colony Collapse Disorder – believe a combination of factors could be making bees sick, including pesticide exposure, invasive parasitic mites, an inadequate food supply and a new virus that targets bees' immune systems.

Closer to home, Federation of Malaysia Vegetable Growers Association secretary-general Chay Ee Mong believes the erratic weather, especially the recent rainy spells, is one reason why honeybees have been rarely spotted lately.

"Most vegetables rely on self-pollination but flowering greens like eggplant, cucumber, bittergourd, capsicum and beans attract honeybees.

"Bees tend to be 'lazier' when the weather is bad, so less pollination takes place," he explains.

Centre for Orang Asli Concerns (COAC) coordinator Dr Colin Nicholas says the community's honey gatherers in places like Hulu Langat in Selangor and Lanchang, Krau Wildlife Reserve, Taman Negara and Kuala Kubu Baru in Pahang have reported fewer honeycomb finds.

"The logging of Tualang trees, which the honeybees are fond of, has been particularly rampant in recent years," he points out, adding that agricultural activities like honey and fruit gathering are among the economic activities of the orang asli community.

Malaysian Agricultural Research and Development Institute (Mardi) strategic resource research centre director Dr Mohd Norowi Hamid notes that the use of pesticides could be driving away the bees,

adding that some farmers have switched back to organic farming to lure back the bees.

He says pollination is required for agricultural crops such as starfruit, guava, citrus fruits, mango, watermelon, durian and coconut.

"Honeybees are important pollinators in the country and their declining number is linked to lower crop yield.

"It's very simple – no bees means no food. It's a fact that the drastic drop in honeybee population has caused poorer yields in agricultural

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crop, especially fruits.

"Some say vegetables like tomatoes and chilli don't need pollinators but I disagree – pollination improves the taste and yield of these crops," he stresses, adding that some plants, such as root vegetables and salad crops, may require insect pollination to produce seeds for the next generation.

Dr Mohd Norowi says Mardi introduced two new domesticated stingless bee species last year to solve the problem of declining honeybee numbers.

The institute is currently collecting data on crop yield rise on farms that are keeping the bees, which are from the *Trigona itama* and *Trigona thoracica* species.

"These bees can produce honey and have enhanced pollinating capabilities which should increase crop yield and quality," he says.

He cites an incident in the early 1990s when swarms of honeybees were wiped out by disease.

"Farmers reported a drastic drop in coconut supply to a point where we had to import the fruit," he recalls.

"I've also worked with two starfruit exporters who reported zero yield when they started growing inside a netted structure.

"The problem was solved after honeybees were brought in."

According to Forest Research Institute Malaysia (FRIM) faunal biodiversity programme head Dr Laurence G. Kirton, expanding urban areas, shrinking forests and pesticide usage in farmlands have become threats to bees.

In countries that use Genetically Modified Organism (GMO) crops to induce resistance to pests, the nectar produced contains biopesticides

that kill bees and other pollinators.

"All these are possible threats (so) we might expect bees to be on the decline," he says.

Dr Kirton explains that hives are only temporary shelters for the bees and advises those who fear being stung against burning the hives.

He recommends smoking bees away from populated areas rather

than destroying them as the bees eventually form a new hive somewhere else.

"We all need to be more tolerant of bees," he says.

## Why honeybees are buzzing off

In early 2000, thousands of commercial beekeepers across the globe claimed that swarms of honeybees were flying away from their hives, never to return. Scientists around the world are still studying the causes behind what is dubbed the "colony collapse disorder" (CCD) but most agree that a complex combination of factors is likely to blame.

- Killer chemicals**  
 The use of chemical pesticides like neonicotinoid and herbicides coupled with genetically modified crop pollen may have stressed the global bee population to a decline.
- Rising radiation**  
 The rise in atmospheric electromagnetic radiation from mushrooming cell phones and wireless communication towers interfere with the bees' ability to navigate back to their hives.
- Global warming**  
 Global warming may be exaggerating the growth rates of pathogens such as the mites, viruses and fungi that are known to take their toll on bee colonies. The unpredictable weather fluctuations may also be wreaking havoc on the bee population.
- Urbanisation**  
 Deforestation and destruction of wild honeybee hives for development.
- Monoculture**  
 Growing a single commodity crop or plant species like wheat and corn over a wide area over long periods result in a lack of nutrition for honeybees.
- Modern beekeeping practices**  
 Unnatural feed, migratory beekeeping, artificial insemination and chemical treatments weaken the honeybees' resistance to diseases and parasites.

Source: About.com by Earth Talk, NaturalNews.com and Time Magazine Online. ©The Star Graphics by SHOBA RAVI



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**Tender loving care:** Dr Norowi checking on a stingless bee colony in a pollinator garden at Mardi Serdang.  
**Inset:** Pollination is required for agricultural crops such as starfruit, guava, citrus fruits, mango, watermelon, durian and coconut.

