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BEE FARMING

STINGLESS BEES THE NEXT 'SUPER FOOD' INDUSTRY

Stingless bees are a potential natural treasure trove for agriculture and they are fast creating a buzz amongst our farmers

Preserving our forests and harvesting the stingless bees in a sustainable manner will ensure the honey produced by these bees to be a lucrative industry. FILE PIC

LAST September, Prime Minister Tun Dr Mahathir Mohamad called for more research on plants that can be nurtured and grown to become successful industries, similar to palm oil and rubber.

Oil palm and rubber trees, he noted, came from foreign countries but have since become major export commodities for the nation.

"Research in more plants could yield even more use for other plants that we can grow in this country," Dr Mahathir said.

This is clear direction from the top on the need to revisit our approach to agriculture, with the aim of providing farmers with more solutions to generate good income.

The need for crop diversification was reiterated last March by Primary Industries Minister Teresa Kok, who suggested that smallholders consider bamboo, pineapples and coconuts as alternative crops for supplementary income.

To which we can now add another interesting agricultural idea: rearing of stingless bees — the subject of a conference recently convened by the International Institute of Plantation Management (IIPM) in Kota Kinabalu.

In his opening speech, Deputy Chief Minister Datuk Seri Madius Tangau said the stingless bees industry is an emerging new source of income for farmers and that Sabah's state government would help them meet the increasing market demand for honey-based products.

According to IIPM's Fellow, Prof Mohamad Osman, a senior associate at Atri Advisory, while honey bees need no introduction, stingless bees are still quite unknown to most people.

They are known locally as *lebah kelulut* (genus Heterotrigona, family Apidae — and a close relative to common honey bees).

> *Major issues currently faced by the lebah kelulut* industry include oversupply, adulteration or fakery and lack of quality standards.

So what are the differences between honey bees and stingless bees? The world over, there are thousands of species of bees, most of them of a solitary species. Like honey bees, stingless bees are social insects which live in large, well organised hives or colonies.

While a honey bee stings as a way to defend against predators, stingless bees have highly reduced stingers that cannot be used for defence. They are, therefore, generally harmless to humans.

The hive wall of the stingless bees is made of propolis (from a resinous substance collected from tree buds) whereas honey bees' hives are made of wax.

Stingless bees thrive in most tropical or subtropical regions and there are over 500 species, 78 of them found in Malaysia, but only a few of them can produce honey. Honey bees produce a lot more honey (up to 27 times more) than *lebah kelulut* and the honey is sweeter, but *lebah kelulut* are more resistant to diseases and parasites that affect honey bees.

In Sabah, farmers are paid RM30 and RM60 per kg of bee and *lebah kelulut* honey, respectively. In the market, *lebah kelulut* honey fetches a higher price — more than RM120 per kg.

Mohamad noted that beyond its reputation as a "super food", honey and propolis can be used in cosmetics, pharmaceuticals and other health products.

To date, *lebah kelulut* are largely farmed for their honey, which contributes RM200 million annually to the economy. Sarawak currently ranks highest in production, followed by Sabah and Peninsular Malaysia.

Entrepreneur Tan Chung Chuan, with 15 years of experience in bee farming, is an industry role model. His company purchases close to 10 tonnes of honey monthly from farmers rearing 30,000 colonies across the country, which he markets throughout Malaysia and in China.

Stingless bees are also great pollinators, but to date have literally not been harnessed for the purpose locally. Field research has documented stingless bees as field crop pollinators in 12 tropical countries worldwide.

At the Kota Kinabalu conference, Jinius Jipanin of the Agricultural Research Station in Tenom highlighted his invaluable innovation using a "twin exit apparatus" (TEA) to both sustain the *lebah kelulut* colony, and to effectively provide pollination for brinjal (eggplant) crops under nethouse conditions.

"Among the greatest commercial potential of stingless bees is as crop pollinators," said Tim Heard, former research scientist at the Commonwealth Scientific and Industrial Research Organisation (CSIRO) in Australia. Stingless bees have short flight ranges of about 500 metres, making it easier to keep them among crops for pollination — compared with honey bees which have a flight range of 2km.

"You have a fantastic stingless wonder here in Malaysia," said Cristiano Menezes, bee biology and bee management researcher from the Brazilian Agricultural Research Corporation.

"In Brazil, stingless bees have already transcended into a highly profitable pet industry for the population!"

Little wonder then that stingless bees are a potential natural treasure trove for agriculture and they are fast creating a buzz amongst our farmers.

But there is a prerequisite to a productive *lebah kelulut* industry: preserving our forests and harvesting the bees in a sustainable manner — something that is not adequately happening in this country.

Major issues currently faced by the *lebah kelulut* industry include oversupply, adulteration or fakery and lack of quality standards. Fix them, exclaimed Mohamad, and Malaysia may see the industry soar to RM350 million in the near future.

The writer has returned to farming after retirement, having received a diploma in agriculture from the then College of Agriculture (now Universiti Putra Malaysia) in 1969