

Efforts are underway to revive the low number of fruit cultivars.

Preserving diversity

Stories by LIM CHIA YING
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VISIT any night market, fruit shop or supermarket and chances are you will find very few varieties of bananas being sold. For a crop that has been cultivated since ancient times in Malaysia (reputedly its place of origin), the lack of choice is surprising. A myriad of local species used to be available, but not anymore. A random check at two supermarkets revealed only two choices: the imported Cavendish and the local *pisang berangan*.

The future scenario appears bleak for our local banana cultivars, which are not only up against foreign competition – in the form of the hardy and unblemished Cavendish – but also against other more profitable and productive crops. The problem is not just confined to bananas. Other fruits like pineapples and mangoes, too, suffer from dwindling varieties.

As farmers focus on growing only the best breeds for maximum yield, the challenge lies in the hands of the Malaysian Agricultural Research And Development Institute (Mardi) to stimulate research and conservation work to sustain diversity of these crops, and to ensure that a wealth of genetic resources exist for breeding quality and high-performing varieties.

Mardi director-general Datuk Dr Sharif Haron acknowledged Malaysia as a centre of diversity for wild and cultivated bananas.

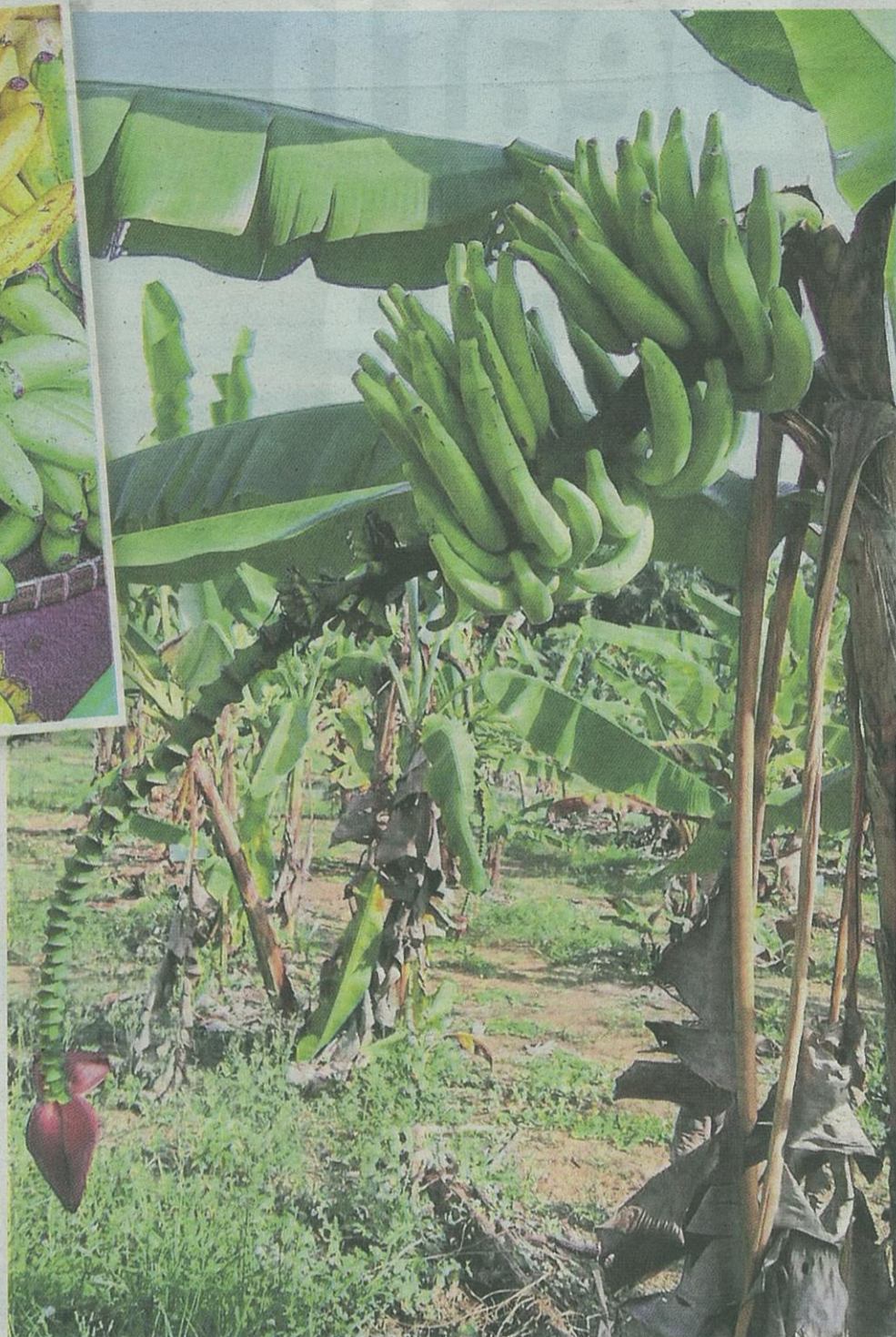
“We’ve been collecting cultivated bananas since the 1980s, with over 200 accessions (each unique specimen group) currently conserved in our field gene banks in Serdang, Selangor, and Jerangau, Terengganu.

“There are about 27,500ha planted with bananas throughout Malaysia, with average productivity being 10 tonnes per hectare. That said, banana isn’t a staple fruit for us, and is often plagued by diseases like the Panama fungus and Moko bacteria that stunt productivity. It may not necessarily be a good thing to have too many varieties in the market too, as supply would be a problem. What matters more is high yield.”

Sharif says there are just two successful commercialised varieties so far. “Given the fact that there are a lot of banana germplasm in the country, there’s definitely potential for more varieties to be commercialised. Mardi is currently developing them for the local market, though not so much for international release.”

In Malaysia, banana varieties like *berangan*, *mas*, *rastali* and *Cavendish* are used in cookery while *nipah*, *angka*, *tanduk* and *pisang awak* are used in desserts. These edible cultivars are derived from two wild species, *Musa acuminata Colla* and *Musa balbisiana Colla*. (The *Musa acuminata* is reportedly the most variable species and progenitor of cultivated bananas.)

Sharif says the commercial success of *Cavendish*, which dominates supermarket shelves, has a lot to do with promotion. For a fruit to do well, he says it has to meet consumers’ expectations and acceptance – the fruit must not just look good but taste good.



Bananas, a crop that has been cultivated since ancient times in Malaysia, have dwindled down considerably when it comes to the myriad of species available in today’s marketplace.
– Filepic

“The fruit’s features are as important as the quality, which means that for us to be competitive, we need to research and extract value-added properties like possible medicinal values. After that, we look into the yield, or how easy it is to plant and harvest, before domesticating it and planting it commercially.”

“At Mardi’s research centre, we use technology to screen for genes responsible for certain elements or quality, as well as for pest- and disease-resistant traits. We also have a seed unit that produces high quality foundation seeds and planting materials for our research programmes.”

The production sites are located at Mardi stations in Serdang, Sintok (Kedah), Kuala Kangsar (Perak), Jerangau (Terengganu), Jelevu (Negeri Sembilan), Kelang (Selangor) and Bintulu (Sarawak).

In the case of mangoes, the Department of Agriculture has registered 77 varieties and 209 clones to date, though only a few clones are popular for commercial planting – *chokanan*, *harum manis*, *golek*, *maha* and *mas muda*. The common mango, *Mangifera indica*, is the only widely cultivated species, though there are several other lesser-known species like the *Mangifera odorata* (*kuini*), *Mangifera foetida* (*bacang*) and *Mangifera caesia* (*binjai*).

An extensive 170 accessions of indigenous and exotic mango clones are kept as germplasm (seeds, tissue or plants, maintained

Maintaining variety: Pisang lilin is one of the many native banana species in Mardi’s germplasm collection in Jerangau, Terengganu. Photos: Mardi

for the purpose of breeding or preservation) in field gene banks in Mardi stations in Sintok, Jelevu and Serdang. Additionally, some 100 accessions of the *kuini* species and 40 of the *bacang* species are stored in Serdang. The best accessions have since been planted nationwide. Malaysia produces about 25,000 tonnes of mangoes from approximately 9,500ha of land; states like Perak, Perlis, Kedah, Malacca and Sarawak are noted as top growing mango regions.

With the pineapple, Sharif says Mardi has a few hybrid species ready for market release next year. Two cultivars are now in the mar-

ket, the *Josapine* and *Maspine*.

“Most of our pineapple varieties are imported from the Philippines, with another two or three varieties from Sarawak. We have two main germplasm banks in Pontian and Kluang, Johor, for pineapple cultivation. The new varieties can only be released next year because it takes 15 months to ensure that there is sufficient planting materials (seedlings) for farmers to buy from us.”

Pineapples, too, are not spared from diseases, most notably the black rot that inflicts the stems. This, Sharif says, underscores the importance

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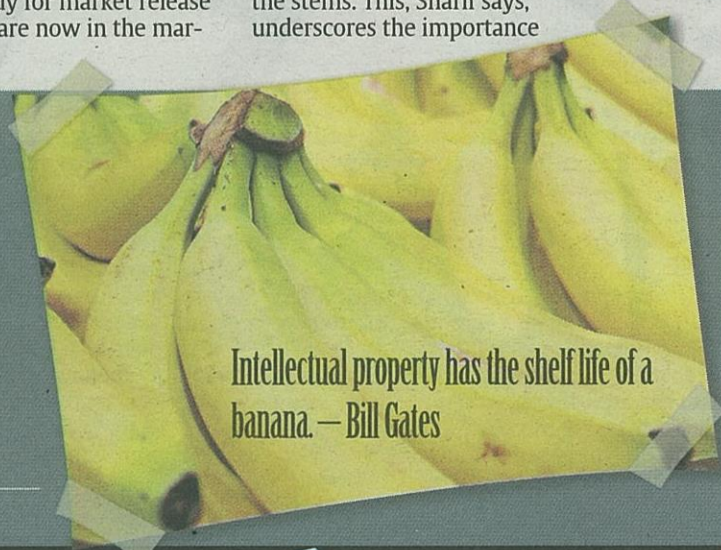
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Intellectual property has the shelf life of a banana. — Bill Gates

