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Researchers have much to chew on

Food security projects in S'pore include finding ways to kill spud fungus

By Grace Chua

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The seeds of hunger

FOR an urban centre, Singapore is home to a great deal of food security research.

Such research is becoming increasingly relevant, as issues like climate change and the growing populations of developing countries put pressure on the world's food supplies.

And it is of particular importance to urbanised countries like Singapore, which must buy a huge proportion of its food from abroad.

Projects here include studying plant genetics to improve oil palm production, farming sea bass in high-tech land-based cages, and automating egg production to nearly double a farm's output.

The latest weapon in the food security arsenal is a study by Nanyang Technological University (NTU) chemist Loh Teck Peng, who recently synthesised the complicated hormone which helps the potato blight-



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causing phytophthora fungus reproduce.

With the hormone, other scientists may be able to study the fungus' reproduction and find ways to halt its growth.

The fungus, which is hard to kill with conventional pesticides, causes \$6 billion in damage to global potato crops each year, and affects soya beans and ornamental plants like azaleas.

Making sure people have enough access to food is becoming increasingly difficult.

The problem is exacerbated by people shifting to a meat-based diet, as the world grows richer and competition for agricultural land for biofuels, industrialisation and housing increases.

For example, bad weather and floods in Malaysia and Thailand have led to vegetable shortages and higher prices, well before the Christmas and Chinese New Year festive seasons.

Droughts in West Africa have put pressure on the world's cocoa supply, to the horror of chocolate lovers worldwide.

In India, competition for agricultural land to grow turmeric means prices of the spice have doubled here over the past year.

Food security in Asia's cities is also becoming a particular focus of research.

Experts from around the region gathered here in August for a meeting on the topic, organised by the S. Rajaratnam School of International Studies' Centre for Non-Traditional Security Studies at NTU.

Four of those experts highlighted in a paper that urban residents are more vulnerable to food-price shocks, as they must buy, rather than grow, almost all their food.

Most of the world's population now lives in cities.

By United Nations estimates, that proportion is set to swell to 60 per cent by 2030.



In the paper, researchers Paul Teng, Mely Caballero-Anthony, Margarita Escaler and Pau Khan Khup Hangzo wrote: 'Despite Singapore's limited agricultural history and experience, it can play a significant role in regional food security.'

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'Its high level of economic development, strategic location, R&D capabilities, technology, business-friendly environment and stringent food safety standards allow Singapore to serve as an honest broker and 'neutral mediator' in a number of initiatives.'

Recent grant calls are already helping to bolster Singapore's research and development (R&D) in food security.

Last month, the National Research Foundation called for research proposals on food security, functional foods with higher nutritional value and quality compared with conventional ones, and food-safety technologies.

It will grant funding of up to \$10 million per programme over three to five years.

The Agri-Food and Veterinary Authority of Singapore's \$10 million food fund has already supported 11 projects to improve the productivity of essentials such as fish, eggs and leafy vegetables.

For example, it funded a vegetable farm's automated packing system, freeing workers who had previously packed produce by hand to take on other tasks.

Such research is expected to contribute to Singapore's food production targets: In the next five to seven years, the Republic aims to increase egg production to meet 30 per cent of local consumption, up from 23 per cent, production of leafy vegetables to 15 per cent from 7 per cent, and that of fish to 15 per cent of local demand, up from 4 per cent.

Singapore has also contributed to the region's food security.

For instance, the National University of Singapore last year signed a tie-up with the International Rice Research Institute to improve the staple crop's productivity, nutritional value and resistance to a hotter climate or harsh environment.

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SINGAPORE'S PULL FACTORS

'Its high level of economic development, strategic location, R&D capabilities, technology, business-friendly environment and stringent food safety standards allow Singapore to serve as an honest broker and 'neutral mediator' in a number of initiatives.'

Researchers Paul Teng, Mely Caballero-Anthony, Margarita Escaler and Pau Khan Khup Hangzo, who say Singapore can play a significant role in regional food security



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