



#### TEE YIH JIA FOOD MANUFACTURING

## New spins on classic ingredients

Since its inception in 1969, Tee Yih Jia has burgeoned from manufacturing popiah skins to becoming a global player producing a wide range of foodstuffs, with the judicious adoption of automated production.

**R**ED BEAN pancakes, seaweed crackers, banana fritters, nacho-esque chips – these and more can be made using the humble spring roll skin, as Tee Yih Jia Food Manufacturing's cheerful recipe videos demonstrate.

Posted on social media and screened at trade fairs, the short clips also showcase how the food manufacturer's frozen roti prata can be used as puff pastry for everything from fruit tartlets to salmon wellington, and how its dim sum range can be jazzed up with creative plating.

"Our customers themselves, they are always hard-pressed to continuously introduce new products," says Tee Yih Jia executive director Juliette Lee. "That's where we come in to help them."

Finding new uses for familiar food products is part of Tee Yih Jia's constant efforts to set itself apart from the competition. Over the decades, it has evolved from a tiny one-product firm to a global player producing a wide range of foodstuffs.

Tee Yih Jia started out in 1969 as a small semi-mechanised factory producing popiah skins. But

things changed after it was acquired by businessman Sam Goi in 1977.

Seeing the need to expand beyond Singapore's limited domestic market, Mr Goi took its products abroad to Australia and the United States.

He was also keen on mechanisation, ramping up the use of automation in its production process.

It took a while for chefs to accept the popiah skins produced by automation, which were square rather than round. But eventually they were convinced by the consistent quality – and Tee Yih Jia's business took off.

Says Ms Lee: "Usually when you start off, you have to go to the traditional customers who use it, because that will build up your volume."

"Then after that, slowly, you do all these modern products, then people will use it for other purposes."

The firm's internationalisation and automation efforts did not go unnoticed. In 1986, Tee Yih Jia became the first small- and medium-sized enterprise (SME) to receive the government's National Productivity Award.

It was an Enterprise 50 Award winner for six consecutive years from 1995, taking first place in 2000. Organised by *The Business Times* and KPMG, the annual awards honour Singapore's 50 most enterprising privately held local companies.

#### SELLING IDEAS, NOT JUST PRODUCTS

The turn of the century was also when Tee Yih Jia was making serious product development efforts, most notably frozen roti prata in 1999.

Today, the product development team comes up with ideas not just for Tee Yih Jia, but its clients as well.

"About 10 years ago, the company started thinking: 'How do we differentiate ourselves from competitors?'" says general manager of export sales and marketing Laureen Goi. "The answer we came up with: 'We sell ideas.'"

The firm has three broad business areas: industrial, which involves supplying materials to other food manufacturers; food services and quick-service restaurants; and retail.

Instead of simply selling frozen pratas to a caterer or popiah skins to a manufacturer, the firm comes up with product ideas and applications.

"For pastry and roti prata, we see it as a raw material," says Ms Goi. "So we're teaching them how to make products from this raw material."

For one fast-food chain in China, for instance, Tee Yih Jia suggested using shredded pastry skins to form the coating for fried prawns.

China is a good potential market because "Sin-

gapore itself is a branding", she adds. Singaporean players such as Tee Yih Jia benefit from the country's reputation for food safety and quality.

But a major obstacle, not least when competing against firms within China, is price. Providing product ideas is an important way in which Tee Yih Jia competes, says Ms Goi: "This is a value-added service that people can come to us for."

"People always tell us that we're very expensive. But they will come to us because they want our ideas."

Tee Yih Jia is also willing to go the extra mile for its clients. One client wanted to sell pan-fried radish cake, but its outlets were only equipped with air fryers, which would not be able to produce the classic browned edges. Tee Yih Jia provided radish cakes that were pan-fried in advance to achieve that effect.

In recent years, the firm's product development efforts have gone even further. To circumvent the difficulty of exporting products that contain meat, the firm is working with a partner from the United Kingdom to develop meat-free products that taste like the real thing and do not rely on traditional soya-based proteins.

This meat substitute can be used in dim sum products, as well as the next area that Tee Yih Jia is exploring: ready meals, the production of which will be made possible by the upcoming move to a larger factory.

#### THINKING BIG

Tee Yih Jia has moved several times since it was founded, settling into its current premises on Senoko Road in 1999. "Each time we moved, it's because we want to automate," says Ms Lee. "Each time we automate, we need bigger premises."

Machinery simply takes up space, both on the factory floor in general and also along the length of production lines in particular.

In the firm's current facility, conveyor belts snake back and forth in a bid to make the most of the space.

The factory is already at full capacity, says group financial controller Loo Wen Lieh. "Our management is very in tune with the technology (that is out there). But we're limited by what we can do now in this space."

That is why Tee Yih Jia is set for its next big move: to a newly secured plot of land nearby, which spans four hectares, up from the current site's 1.37ha.

Crucially, the new plot is almost 300 metres in length, which will allow for long, straight production lines.

Mr Loo estimates that construction of the new building will take some three years, with an expected

(From left) Tee Yih Jia group financial controller Loo Wen Lieh; executive director Angeline Guat; GM of export sales and marketing Laureen Goi; and executive director Juliette Lee. Finding new uses for familiar foods is how the firm sets itself apart from the competition.

BT PHOTO: JONATHAN CHOO

investment of S\$300 million to S\$400 million.

With more space, Tee Yih Jia will be able to upgrade its current production lines and introduce new ones.

It plans to produce specialised ready meals, both for the consumer retail market and for caterers. These could be tailored for specific groups such as the elderly, athletes or people with diabetes. Or they could simply be pitched as a healthy range of ready meals – not least given their meat-free nature.

Apart from providing more room for production, the new facility will also allow for new investments in their coldroom operations.

The current coldroom is very labour-intensive, with workers having to enter with forklifts in order to retrieve products, notes Mr Loo. For the warehouse management of their new coldroom, Tee Yih Jia wants to invest in a massive automated storage and retrieval system.

With such a system, humans will rarely need to enter the warehouse. This saves not just manpower but also energy, as no lighting is required.

"Energy is a very big component of Tee Yih Jia's costs," says Mr Loo. He hopes to tackle this in the new factory with detailed energy monitoring, in line with the move towards Industry 4.0 – the catch-all term for smarter factories in which data and automation play a large role.

The firm already has a rough sense of which machines use more energy or water, and at what points

– for instance, when pastry machines are heating up. But if this can be systematically monitored and tracked, and peaks of energy use noted, "it can really help us to manage our energy and utilities usage", he adds.

Another Industry 4.0 initiative in the new factory will be the collection of real-time production data. This can be shared with suppliers on "a more continuous basis", reducing paperwork and back-and-forth communication. Quality control reports can be easily generated and even sent automatically to clients.

#### DRIVERLESS VEHICLES

Automation and innovation is not confined to the production line. Tee Yih Jia is also looking at autonomous guided vehicles for waste disposal, and surveillance technology to keep security manpower needs down.

Perhaps one of Tee Yih Jia's most unconventional moves – made with Enterprise Singapore's encouragement – is looking beyond itself. As a small firm that has made it big, Tee Yih Jia now hopes to help other local industry players scale up.

It plans to have joint research and development (R&D) facilities in its new factory, not just for its own purposes, but to serve the wider food industry. These R&D facilities could, for instance, help smaller SMEs commercialise products by producing them on a larger scale.

To address any scepticism or wariness that other firms might have, Tee Yih Jia hopes to work with institutions of higher learning for this industry laboratory. Non-disclosure agreements and protection of intellectual property can also be worked out.

Besides physical facilities, it can also offer its expertise to smaller firms and help them go abroad, adds Mr Loo. Noting that Tee Yih Jia exports to more than 80 countries, he says: "We are very familiar with the customs requirements, the ingredient needs of each country."

Tee Yih Jia is also planning to set up an incubator to invest in promising food-related startups, which would also be able to use the R&D facilities. The firm itself might act as an angel investor, or bring others in.

As Mr Loo puts it: "Is there some way that we can tap each other's strengths? You have certain products, you are not growing it enough, it's not commercialised. We can make good profits together from this."



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## Handing tasks over to robots

PACKAGING roti prata was a numbing task when Chen Zhang Lin joined Tee Yih Jia in 2009, and not just because of the repetition involved.

"The roti prata were frozen and you had to count them by hand," he recalls. For hours on end, workers like himself had to handle frozen discs of dough, picking them up and collating them in the required quantities.

Happily, since 2016, nimble robotic arms – impervious to cold and fatigue – have largely taken over that task. In Tee Yih Jia's factory on Senoko Road, these spindly mechanical limbs lift frozen pratas off one conveyor belt and place them with precision on another, with the assembled stacks heading off to be packaged by another machine.

Mr Chen, 37, now supervises Tee Yih Jia's roti prata production. Though this has expanded from one production line to three, the number of workers has not tripled in tandem, instead rising from about 10 when Mr Chen joined to 22 today – a demonstration of how increased automation has both improved jobs and kept manpower needs in check.

Tee Yih Jia has constantly aimed to improve its production facilities, says Zhao Meng Wang, 40, who joined the company in 2002.

Since then, he has risen from technician to assistant engineer and then engineer. In the latter

two roles, he helped to suggest improvements for the equipment under his care.

This is particularly the case for equipment that is made to Tee Yih Jia's specifications. Engineers such as Mr Zhao work directly with suppliers to make the machines safer, more efficient, and generally more tailored to the food manufacturer's needs.

In that vein of constant improvement, Hang Kam Hui has seen changes at each stage of the spring roll pastry packaging process.

"In the past, a lot more of the work was manual," he recalls.

When he joined in 2000, he had to package the pastry skins by hand, manually place the sealed packets into cardboard cartons, and then carry the cardboard cartons – which weigh up to 15 kilograms – over to pallets.

All these tasks have now been automated, with the most recent change being 2015's introduction of robotic arms to stack cartons onto pallets.

Mr Hang, 37, now supervises some 50 workers in spring roll pastry production. Many are in their 20s, similar to the age at which he started out in Tee Yih Jia.

At times, Mr Hang shares stories from his earlier years on the production line, to the surprise of these newer workers. "They might not be able to imagine what it was like in the past," he says with a laugh.

(From left) Tee Yih Jia supervisors Chen Zhang Lin and Hang Kam Hui, with engineer Zhao Meng Wang. They have seen automation improving jobs and keeping manpower needs in check.

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