Source: *The Straits Times,* p17
Date: 10 September 2026

Singapore's S$80m vertical farm must pass the 50-cent test to succeed

Local producers can bridge the price gap between their produce and those of importers by selling better

By Lin Dayan, Lawrence Loh and Luo Yanjun

THE Singapore Food Agency's 2026 farmland tender closed in July. Two vegetable-farming plots in Lim Chu Kang and Sungei Tengah drew just five bidders; the Lim Chu Kang parcel received only a single bid – and even that was the applicant's second choice.

The lukewarm tender contrasts sharply with January's high-profile opening of the world's tallest indoor vertical farm – an S$80 million facility coming in at 23.3 metres and five storeys – built by home-grown agritech company Greenphyto.

Its first-year output is 200 tonnes, but its total designed capacity is 2,000 tonnes – equivalent to that of dozens of hectares of vegetable fields. Greenphyto's produce already sits in major supermarkets such as FairPrice and Sheng Siong under the Hydrogreens brand.

Can this high-tech agricultural facility overcome Singapore's land constraint to become a sustainable business?

And can it help deliver the Republic's new target of raising self-sufficiency for fibre consumption (leafy and fruited vegetables, bean sprouts and mushrooms) from 8 per cent in 2024 to 20 per cent by 2035?

High costs in Singapore

The challenge starts with costs. Vertical farms are burdened from the outset: Replacing sunlight with artificial lighting, and the monsoon with air-conditioning keeps electricity expenses stubbornly high.

Less than 1 per cent of Singapore's land is set aside for agricultural use, driving up the cost of space. Add expensive labour and equipment depreciation, and costs pile onto every kilogram of vegetables.

These expenses feed straight into retail prices.

Based on our on-site surveys of supermarkets in mid-August, Greenphyto's kailan sold at FairPrice for S$1.68 per 100 g, against S$0.44 to S$0.70 for the same vegetable from China.

That is 2.4 to 3.8 times the imported price, even after a price cut of about 15 per cent since the vertical farm's opening in January.

Other local brands face the same cost constraints. Under SG Farmers' Market, the collective brand of local farms, xiao bai cai and chye sim sell for about S$0.89 per 100 g, against about S$0.41 for comparable imports from Malaysia and China.

Call it the "50-cent price gap": every 100 g of local greens is priced about 117 per cent more, or more than double the price, than the same weight of imported ones.

It is also unlikely the cost differential will relent. Local farms' electricity prices and wages show no room to fall, while imported vegetables, resting on free sunshine, rainfall and inexpensive land, generally stay cheap.

If every packet carries this price gap onto the shelves as Greenphyto's output climbs from 200 tonnes towards 2,000, it would keep consumers away from its products. Achieving greater capacity simply means having more unsold stock and losses.

Domestic vegetable producers can band together under collective brands such as SG Farmers' Market to pool reputation and shelf presence. PHOTO: BT FILE

History is not encouraging. Indoor farm IFFI was one of nine companies that shared the S$39.4 million of Singapore Food Agency's 30x30 Express grant in 2020. IFFI built an advanced 3,500 square metre facility in Tuas from 2021, only to close for good in 2024.

In the same year, Sky Greens, after over a decade in operation, tore down most of its greenhouses and scaled back.

Singapore's agri businesses harness advanced farming technologies. They are generously backed by the government too: The Agri-food Cluster Transformation Fund's first tranche alone channelled S$55 million into nearly 150 projects.

Yet Singapore's vegetable output fell rather than rose between 2021, when the fund was launched, and present day. Self-sufficiency also remains low.

The fundamental reason these agri businesses failed was not backward technology or inadequate government support, but that they could not withstand the test of that "50-cent price gap".

How to win consumers over

But Singapore consumers are not drawn to cheapness alone. Eggs are the classic example.

A popular local fresh egg sells for about S$0.29, against about S$0.26 for an imported one, a premium of roughly 12 per cent. Despite the gap, consumers willingly buy local.

They do so for three reasons.

First, the demands of the dish: Half-boiled eggs with kaya toast are a breakfast ritual here, and a runny egg tolerates nothing short of perfect freshness.

Local eggs, shelved the day they are laid, deliver exactly that, while Malaysian eggs typically take one to three days between being laid and arriving in supermarkets.

Second, a mild premium: Three cents an egg barely registers at the till. Third, deep trust: Seng Choon, Chew's and N&N have farmed steadily for decades, with their reputations spanning a generation.

Together, these factors have made eggs local agriculture's most successful category, with self-sufficiency at 34.4 per cent.

At the moment, vegetables have none of these three advantages.

Most are cooked, and subtle taste differences vanish in the wok. Malaysian greens picked at dawn arrive by mid-afternoon, so freshness confers no edge on the shelf.

The cost premium of local vegetables is not 12 per cent but 117 per cent – impossible to miss. And domestic brands have yet to build their reputations: Hydrogreens has been on shelves for under two years, SG Farmers' Market for only a few.

From growing more to selling better

The gap, then, is not unbridgeable. Eggs have blazed the trail. The task for vegetables is to follow it. Farms and the government both have much to do.

Farms can change the two reasons pertaining to price and trust.

Even though electricity tariff rates are unlikely to fall, domestic vegetable producers can still keep electricity – the biggest cost – in check, by harnessing efficient lighting and cooling, and off-peak power.

To build trust: Band together under collective brands such as SG Farmers' Market so as to pool reputation and shelf presence.

The government, too, can help bridge the gap, particularly regarding trust in those brands.

Cost conditions such as those pertaining to land and labour may be subject to broader national imperatives, and be harder to change.

But the government can raise acceptance of local produce by amplifying the SG Fresh Produce mark, much like it did for Newater.

The narrative should show how local farms grow quality produce, while using less water and electricity, so that the public sees the value of forking out some extra cents for purchases.

Can the S$80 million indoor vertical farm pass the 50-cent test? Can it help deliver the 20 per cent target for 2035?

Our answer is yes – provided that farms move fast to narrow the cost gap and the government helps to make the value of local greens plain.

Consumer trust will then grow over time. Eventually, that is what shifting from growing more to selling better truly means.

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The commentary is based on the writers' own experiences, observations and argument. AI tools were used for translating an original draft in Chinese to English, research and editing. The writer remains fully accountable for the commentary's accuracy, originality and final form.