

Can vertical farming scale new heights?

■ By Casey Dunn

As the global population rockets towards eight billion, and urban centres sprawl to accommodate us, the agricultural sector is grappling with the task of feeding more people with less land. Australian agritech startup, InvertiGro has risen to the challenge – quite literally – with a vertical farming system that turns any indoor space into productive agricultural land.

Buoyed by the success of its collaboration with Australian supermarket giant, Woolworths, InvertiGro is on the hunt for investors and budding indoor farmers to speed the commercial rollout of its innovative farming system.

InvertiGro is revolutionising Indoor Vertical Farming with innovative ‘plug-and-play’ solutions (combining fully-integrated unique hardware, proprietary software and a suite of supporting services) that address the industry’s key challenges of cost and complexity, whilst also delivering unprecedented crop flexibility and efficient scalability.

Game-changing collaboration

For Australian food and agritech startups, collaborations don’t come much bigger than supermarket giant, Woolworths. And for InvertiGro co-founder, Paul Millett it’s been a game-changer for both the company, and the fresh herb category.

He explained, “We partnered with Woolworths to deliver Australia’s first in-store vertical farms at two of its leading Sydney stores. Using our InvertiWall technology, we grow fresh herbs (basil, parsley, mint and coriander) right within Woolies’ fruit and veg department – giving new meaning to the term ‘locally grown.’”

Seedlings are raised in InvertiGro’s indoor farm at Roseberry, Sydney and transplanted into the in-store grow walls, dubbed ‘The Urban Garden’, where they are used to replenish the point



Pilot farm stacked cubes. (PHOTO: InvertiGro)

of sale with herbs so fresh that they’re still growing when the customer takes them home.

“Traditional supply chains can sprawl over thousands of kilometres from paddock to plate – incurring anywhere up to 70 per cent waste,” said Paul. “Our hyper-local model eliminates food miles, reduces food waste, and gives customers access to the freshest, highest quality herbicide and pesticide-free produce.”

A revolution in fresh food supply chains

The project has been met with strong support from both retail customers and the indoor farming industry, earning InvertiGro a spot in the finals of the 2022 World Vertical Farming Awards.

Primed by its success, InvertiGro is crafting even bigger plans to enable farmers and hyper-local supply chains across Australia and around the world. “We’ll have a much bigger impact on the planet if we focus on enabling the food system with our technology, rather than competing in it as a grower,” Paul explained. “That means enabling the food system of the future, with scalable, flexible and affordable technology that addresses our food security challenges.”

Key to their plan is the InvertiCube – a modular solution that offers all the good stuff of indoor farming (less land and water, reliably premium produce, higher yields, the ability to grow out-of-season crops) and because it is a sealed cube, achieving all that without herbicides or pesticides.

At 1.5 metres square by 2.2 metres high, InvertiCube is designed to be ‘dropped in’ to almost any indoor space: From inner city basements and undercover car parks to warehouses in remote rural locations or purpose-built farming facilities of any scale. And because it’s compatible with conventional pallet racking and materials handling equipment, indoor farmers can scale efficiently and affordably with their business needs.



InvertiGro’s innovative InvertiCube at Woolworths store in Park Sydney. (PHOTO: InvertiGro)

Plug'n'Play system does the farming for you

Over 170,000 research and development and design hours went into developing the 'Plug'n'Play' InvertiCube – a farm in a box that comes complete with seeds, nutrients, growing media, sophisticated software and hardware solutions, and ongoing remote monitoring and support from the InvertiGro team to help every farmer get up and running quickly and reliably with optimised production.

"We've been in the fortunate position where, because we have our own indoor farm [at Roseberry], we've spent the last three years learning as we go: Building, researching, trialling and refining," explained Paul. "The results are grow cubes that optimise the growing environment to achieve really high density and high yields per box."

Central to the enviable production outcomes are InvertiGro's 'grow recipes,' which provide the perfect humidity, temperature, water, airflow, nutrients, light intensity and even light spectrum – for how much red and blue light a plant needs – for any indoor crop type.

"If a farmer wants to grow basil, they simply select 'basil' on the user interface, and the system takes care of the rest – ensuring the cube delivers exactly what a plant needs, when it needs it. This allows farmers to easily and reliably plan and manage their crop production, without the need for skilled in-house expertise."

Technology already exists to grow food indoors, but Paul explained it tends to be expensive, and complex to build and commission. "Because of that, farmers are a long time between investing and seeing a return come back through a saleable crop. Our Plug'n'Play solution means we can literally rock up like you would with a new washing machine, plug it in, and watch the plants start to grow. Simple as that."

The sky's the limit for crop choices

InvertiGro accommodates a huge variety of crop types, with farmers able to reconfigure the cubes to various crops by simply taking a grow tray out and plugging it into the desired location. Closely spaced trays can germinate 40,000 seedlings per cube; wider spacing can grow 1000 lettuces. But there's also the option for rotating vertical growth columns for crops that prefer to grow in this orientation.

"We've successfully grown 200 crops in our farm, including highly perishable herbs, salads, fruit and veg with typically poor



InvertiCube tray configuration. (PHOTO: InvertiGro)

shelf-life and lengthy supply chains: Leafy greens, capsicum, strawberries, chillies, eggplant, beans and exotic mushrooms," explained Paul. But this is just scratching the surface in terms of what can be grown. InvertiGro have also commenced trials on:

- Early-stage ornamental and edible flowers for the high-value nursery industry;
- Robust saplings for orchards or reforestation projects;
- Fodder for intensive livestock; and,
- Medicinal plants.

"We're also investigating alternative proteins, by converting the green waste, root ball [the mass of roots at the base of a plant] and digestible growing media into a feedstock for mealworms and other bugs [that can tap into the growing demand for alternative protein]."

"The InvertiGro solution's flexibility and scalability means that the applications are almost limitless."

Series A underway to speed commercialisation

With strong interest from customers in Australia, Europe, Asia and the Middle East, as well as virtual pilots already underway for a customer in Canada, InvertiGro is looking for investors and budding indoor farmers to help bring its innovative InvertiCube product to market.

"We're halfway through our Series A, which will help us convert those early customer opportunities to market development at scale," explained Paul. "We'd love to hear from investors, future indoor farmers and other supply chain partners who share our passion for addressing global food security challenges and want to offer the world a new approach to food production."

Paul's focus for now is on engaging customers – including farmers, food distributors, food service providers, resorts, retailers, property developers – to ramp up the commercial side of the business. But he has bigger ambitions for the coming years.

"We want to work with food agencies and aid programs to bring this technology to where it is really needed; to where it can have a really meaningful impact. Like providing fresh, nutritious food to refugee camps, or affordable, quality fresh produce to remote Indigenous communities. There's just so much scope to feed the planet in a smarter way, which is the heart of our mission."

For more information: www.invertigro.com



InvertiCube vertical column configuration. (PHOTO: InvertiGro)