Polybee on lookout for investors to seed drone-powered pollination

The startup will run trials for its drones to pollinate crops grown in indoor farms, which are bee-free

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TOMATO farmers have long known that the wing beats of bumblebees trigger pollination in their crops and bump up yields. But in indoor farms, where bumblebees aren’t likely to be found, some operators take to holding vibrating wands or tuning forks against their flowers to replicate the thump of the insects’ wings, which beat at more than 130 times a second.

But pollinating flowers this way on a large scale is inefficient. Enter Singapore-based agritech startup Polybee, with its idea of getting autonomous drones to do the job.

While it is no rush to raise a round, Polybee is on the lookout for future seed investors. Its founder and chief executive Siddarth Jadhav said: “Our premise is to serve agritech sectors where the only option is pollination by hand... Pollination is the biggest bottleneck for the industry and the only way out is automation.”

Now an associate scientist at the aerodynamic research lab in Temasek Laboratories at the National University of Singapore (NUS), he has long been fascinated by nature-inspired drones and has studied the aerodynamics of flying wing machines, such as thosemodelled after hummingbirds.

Jadhav started Polybee as a side project last year, and set it up as a startup in March this year. Polybee now has two full-time engineers. Mr Jadhav will join full-time at the end of this year. The plan is to hire another four engineering and business development employees by mid-2020.

A year ago, Mr Jadhav joined the university’s Lean Launchpad programme, which encourages researchers to explore commercial use cases for their work. This got him thinking about use cases for drones in urban farming.

“I was just getting familiar with vertical farming, which is of strategic importance, especially in land-scarce Singapore... A key issue in growing different crops is that a number of them need pollination.”

“And then it occurred to me that if it’s indoors, it doesn’t sound like you’ll be able to use bees.”

He has contacted various vertical farming companies and found out that they pollinate their blooms in a laborious fashion — by hand, because the lack of ultraviolet light indoors makes it tough for bees to find the markers for flowers’ reproductive parts.

And indoors, dead bees pose a contamination risk.

A wide variety of crops needing pollination, and bees not being of any use indoors.

“That’s when I knew that this is a great opportunity to build a solution at scale,” he said.

Polybee is developing its own palm-sized drone that can create a ‘signature controlled airflow’ pattern to vibrate the flowers at the right frequency so they release their pollen.

A “customer” of its service, which it hopes to sell to indoor farms and seed producers as a subscription package, the efficacy of the drones is somewhat untested, but Polybee’s small-scale trials thus far have yielded a fruit set rate of 92 per cent. The figure represents the proportion of flowers that are successfully pollinated.

Polybee founder Siddarth Jadhav aims to reach out to vertical farms and hybrid seed companies. The sector now pollinates its crops by hand.