

Aerobotics launches new agritech innovations to combat pest, disease

 By [Robin Fredericks](#)

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Cape Town startup, Aerobotics has launched five new agritech precision farming innovations to help farmers with early pest and disease detection. The Aeroview Drone Scouting Application will give farmers access to artificial intelligence (AI), which will detect the exact problems impacting their trees.



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The announcement was made during Aerobotics' Future of Farming event at Leopard's Leap Wine Farm in Franschhoek on 11 October 2018, which was broadcasted across South Africa in 11 locations in most farming communities; including Citrusdal, Johannesburg, Pretoria, KwaZulu-Natal South Coast, KwaZulu-Natal Midlands, Kirkwood, Patensie, Tzaneen, Nelspruit and Hartswater.

Commenting on the new technology, Aerobotics co-founder and CEO, James Paterson said: "We have been working extremely hard over the past few years with growers and industry partners to create technology that will completely change how farmers manage their crops, identify stressed trees and spot individual pests and diseases without stepping foot on the farm. This kind of technology has been the stuff of agritech legend."

What does the Drone Scouting Application do?

The drone captures high-resolution images of stressed trees, which then run through Aerobotics' tree crop and vineyard pest and disease detection database. Using artificial intelligence and machine learning, the technology makes it possible for pests and disease to be identified, which is then communicated via push notifications to the farmer.

Once the system has detected problem trees that need further investigation and a scout route has been planned using AI, the application sends the route to a drone. The drone then takes off and fly's a custom-designed mission, locating trees which have been identified as experiencing stress.

The drone then comes down to approximately one metre above the tree to take a high-resolution image. This image captures data at leaf-specific detail and then uploads it to the database.

"Aerobotics has been looking at how we can combine our technology and farming knowledge to help farmers streamline their operations and save time and money. This has massive implications for the farming sector as early detection of these risks will enable early intervention, saving farmers costs, protecting crops and saving yields exposed to harmful pests and disease," said Benji Meltzer, co-founder and CTO.

The five new innovations include:

- Automated problem detection for trees using multispectral cameras, visual cameras and satellite imagery
- Scouting routes generated by Artificial Intelligence (AI)
- Drone scouting within one metre of individual trees to capture imagery
- Artificial Intelligence (AI) disease identification through Aerobotics' database
- Intuitive reporting to give the farmer key, actionable insights

The Aerobotics Future of Farming 2018 event featured a panel discussion moderated by *Landbouweekblad* editor, Chris

Burgess and featured guest speakers, including Nedbank's head of agriculture, John Hudson, AgriSA's head of natural resources, Janse Rabi, 1st Fruits Farmer, Hein Gerber and economist and national policy advisor and strategist, Miriam Altman.



Image Supplied.

Burgess opened the panel discussion by asking Altman her thoughts on job creation in line with high-value irrigation industries and what this sort of technology could mean in creating the jobs that South Africa's agriculture industry might need.

Altman shared that creating jobs are a challenge and the National Development Plan (NDP) agrees. "What we need to do is have tenure extension support by securing the extension of irrigation and water use. We need to do a lot more to be encouraging clusters of activity; encouragement of this kind of innovation that improves the utilisation of land, produce resource intensity and upstart capabilities in these critical areas. We are going to have to think a lot more about how we are promoting innovation, especially in light of how we can expand on these capabilities and link them and do more."

Burgess then addressed Gerber on what has been the technological developments that he has seen in the industry that has complemented and supported profitability and what his thought on what Aerobotics technology could have on the future. "I think one of the very important technologies that have increased profitability is technology surrounding plant material and genetic technology focusing on using cultivated varieties – some of which are able to produce and be a lot more profitable. New technologies like precision farming of which the Aerobotics platform and technologies form part of as being instrumental to differential apply exactly what is needed, where it is needed as supposed to just a blanket application.

"The use of drones to create health maps are crucial in establishing and optimising on irrigation and yields, to address issues before they cause economic loss. However, low producing areas also need to be addressed, which are not always visible to the naked eye. Drone technology amplifies this and makes it possible to investigate thoroughly, which could have a positive impact on the success of yields."

The value of agri-technology

On whether or not he thought Aerobotics would be a hard sell in the industry, Gerber shared that from his own experience, 1st Fruits Farmer has gained a lot of value out of it. "What is important is to become acquainted with this sort of technologies coming to the fore – they are new to some extent, but then its also about adding on to your management.

"It takes more time and takes effort to get use to these sorts of technologies; to practice using them and interpret the data that you're getting, but as soon as you get comfortable with it, it becomes an easy tool for you to use to address issues and increase profitability on yields, which I think is where you would want to go. I think that in itself sells the product."

From a banking business concern of managing risk, Burgess asked Hudson if he thought if this sort of technology could minimise risk for making farming more bankable, i.e. how this technology is going to impact on the way banks finance farmers.

Hudson responded by saying that technology and the taking off of technology by farmers has really helped banks to combat the cost price squeeze. "Over time we've seen a cost price squeeze playing out and farmers have had to adapt to this, and of the ways has been to take up technology. That, and also growing their farm size; the economy of scales and good farming practices. If there is value to the farmer, then there is value to us as a banker and to the whole value chain.

If this would be critical technologies for farmers to use to be financed by a bank, Hudson says it's absolutely important. "We see it playing out at the moment. We go through the risk assessment process and therein we differentiate our lending accordingly. So the low-risk farmers then get better or finer rates in terms of interest rates, so I think that connection as well, that if we as a bank are happy with the risk, it means that the client actually gets a better deal as well in terms of better interest rates and finer pricing on his loans."

Risk management on yields

On the absence of data information, Rabi commented that pest and crop detection data can help prepare farmers accordingly for any risks that they may face when it comes to yield production, and to have these mechanisms in place could help mitigate any disastrous consequences of climate change that may arise. "Agritech ensures the sustainability of food security."

Altman then shared her views on technology and how it can leapfrog development, including her thoughts on whether or not technology will help the farming community accelerate the trajectory on development and if there are any technologies that she might think, could help along the lines. "New technology is not going to replace the need for regulatory structure.

"We all know that those models are supported and progress as they need. I would not refer to any specific technology, I think the issue is that we need an environment that is conducive to the development of this kind of technology; AI, the digital kind of capabilities that Aerobotics have incorporated, for example, which can predictions to build a stronger environment, that incorporates and goes beyond the human interface."

By making us of Aerobotics Aeroview Drone Scouting Application technology, farmers are now able to locate problem areas efficiently and accurately, marketing an agritech innovation that can indeed inspire the future of farming for years to come.

For those that missed the live stream of the 2018 Future of Farming, can watch the event on [Aerobotics YouTube channel](#).

[View gallery here.](#)

ABOUT ROBIN FREDERICKS

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