

Agri-technology (both sides)

On the flight path to better data, savings

DRONE POTENTIAL

By: SIMON EDWARDS

HE'S EXPERIENCED frustrating software blips, and his first drone met its demise after deciding its 'home base' landing site was the neighbouring farm's water storage pond. But Nick Hoogeveen is convinced UAVs are coming into their own as an important tool for farmers.

Unmanned Aerial Vehicles, or drones, are increasingly used by hill country farmers to check on stock, fence lines and water troughs as an alternative to time-consuming quad bike treks.

But Mr Hoogeveen is general manager of Canterbury dairy operation Kintore Farm and is working towards using pre-programmed drone flights to do weekly pasture walks. Knowing exactly how much feed there is for his animals will not only help profitability but deliver environmental benefits, such as security of knowledge he doesn't have to buy in extra feed.

His interest in drones goes way back.

"When I was a kid I went for a ride in a spray helicopter with the old man. I took an instant liking to being up above and getting that perspective on things," he recalls.

He was also keen on photography and so when the first affordable drones started to come on the market, he got out his wallet. "At first, it was a bit of a toy to be honest," he says. But by the time that first drone 'drowned' in the storage pond, he'd learned quite a bit about them and could see the potential.

Nearly 18 months ago he bought a Phantom III Pro for about \$1800. It was only one model on from his first "but it was

probably 10 times as good as far as the smarts it had. The technology is really accelerating."

Kintore Farm consists of 450ha of dairy platform effective, a 30 per cent share in 320ha of dairy support blocks, and another 70ha of leased dairy support. That's quite a bit of ground to cover. Mr Hoogeveen started off using the drone on pre-programmed flight paths to do weekly surveys of the run-off blocks where the cows are wintered.

The photos are downloaded and stitched together on a web-based system "which spits you an email half a day later when it's ready to be picked up. You've basically then got a 'today' version of Google Earth [for your farm properties]."

He uses the drone to measure how much area of crop he has left each week and also to measure the length of baleage runs — "you just divide by 1.2m and you know how many bales you have left".

Previously, a staff member had to be sent out with a smartphone with good GPS to measure all the break fences and count the bales.

Mr Hoogeveen says he's getting to grips with using it to measure silage stack volume and to give him early information on where the dry areas on Kintore are, pinpointing where irrigation is not working so well.

"Of course, you can do all this on the ground as well but it's just a lot quicker and easier."

So, does a farmer have to be really technically-minded to use drones effectively? Not at all, to get up and shoot photos and video, he replies.

"But to do these surveys, you've got to have all your ducks lined up and there are a lot of bugs in the software."

The drones are clever enough



By the time that first drone 'drowned' in the storage pond, he'd learned quite a bit and could see the potential.

to calculate when they're running low on battery juice to head back to home base. Nevertheless, Mr Hoogeveen has five batteries at \$250 a pop. He's experienced the drone heading off on a tangent from its pre-programme flight and stop, "or think it's done its job and come home early".

"Every time you do a battery change, there's a risk of the software not remembering where

POTENTIAL: Nick Hoogeveen of Kintore Farm is convinced of the potential for drones to save time and money.

the drone is up to on its survey, and you have to start again. You can use up four batteries for what should have taken one."

He's already bought a special sensor and is considering investing in the next model drone as he works towards full pasture measurement by UAV — essentially a stock take of how much grass there is on the farm. It would be "extremely cheap" compared to someone dragging around a CX Pasture Meter on a four-wheeler.

"My thought at the moment is to get it to do an automatic flight path, stopping at three GPS locations in each paddock to take photographs. Because they're exactly the same locations, you can compare exactly the same view and information from week to week."

Mr Hoogeveen is aware there is technology that allows drone users to detect grass grub damage before it can be seen at ground level. "It's a wavelenght of light humans can't see."

He admits he is "shivering in his boots" about being one of the guest presenters at the NZ UAV Conference in Auckland, February 13-14, because he's

never done anything like that before. But he's also convinced drone technology is on the cusp of being an everyday tool for many farmers, and he's happy share his experiences if it helps others to get into it.

"I would say to farmers, 'don't expect anything financial from it right now', but that's where I want to get and I'm confident it will happen."