

# UAVs undergo testing for pesticide delivery

## Safer, cheaper delivery method to be tested in Agassiz

by [REDACTED]

AGASSIZ – Abbotsford ag tech company Precision Crop Tech Inc. and the federal government are set to start testing pesticide application via drones in Agassiz next month.

The trials, pending approval from the federal Pest Management Regulatory Agency (PMRA), will take place at the Agassiz Research and Development Centre as a part of the minor use pesticide program. Agriculture and Agri-Food Canada will lead the project while Precision Crop Tech will supply the drones (UAVs, or unmanned aerial vehicles). The company has already seen exciting results spraying legal fluids such as fertilizers from six and eight-propeller drones.

Currently, pesticide application in Canada is limited to ground vehicles and manned aircraft, but that's set to change in the near future.

"When we can spray pesticides, it will probably be the most effective delivery mechanism," says Precision Crop Tech founder Mark Vendrig. "Because you're flying just a couple of feet above the plants, you don't get over-spray and drift. The

blades are basically driving everything down in a helix, so it's actually causing the leaves to flutter around, and in doing that you're getting deposition on both sides of the leaves."

Ultimately, this means a benefit to the environment and farmer's pocketbooks.

PMRA is currently getting ready to introduce labeling that will allow UAVs to spray pesticides, herbicides and fungicides, but until then limited testing is being permitted in controlled areas such as the site in Agassiz.

Vendrig, who has worked as an environmental engineer for the past 25 years, is currently using his UAVs to service a growing client base. He's successfully spraying other fluids such as organic nutrients for now.

After moving to Abbotsford from Vancouver six years ago, Vendrig saw an opportunity to use UAVs on farms. Since then, he's been working with local farmers to develop systems that can fulfill various needs. He chose UAVs from Homeland Surveillance and Electronics in the US and retrofitted them with advanced navigation, safety and farming apparatuses.

In the last three years, he's gone from working with two



**Agricultural uses of UAVs require operators to carry special commercial UAV licences. Mark Vendrig's team flies each unit with a spotter and pilot. The UAV itself does its work automatically from takeoff to landing; human input is only needed when unexpected events occur.** SUBMITTED PHOTO

to 40 farmers in the Fraser Valley and Interior. This growing season, his fleet of 16 drones will fly over and spray 45,000 acres of berries, cherries, grapes, alliums, flowers, and greenhouses.

Compared to conventional fluid-delivery methods, UAVs are faster, more accurate and require much less product to cover the same area, he says. His company offers detailed soil and tissue sampling as well as aerial photo analysis to identify problem areas.

"We start tying all these pieces of data together and figure out what parts of the field need what types of treatment, so you're only putting on the treatment where it's needed," he says, adding the amount of product used can be reduced

by up to 60% compared to conventional methods.

His drones can cover 20 to 30 acres per hour, depending on how much needs to be sprayed. This shortens the delivery time and frees Vendrig's team to schedule applications for times when plants are best able to drink in the product, such as the cool morning hours when the leaves are wet with dew.

The drones run on batteries, further reducing costs compared to the gas-powered tractors traditionally used for such jobs. For large fields, the team uses four sets of four batteries, swapping them out every 30 minutes or so. Depleted batteries replace those taken from the charger. This allows the drones to work all day with minimal

interruption.

"We will go through a field and lay out the battery packs ahead of time," says Vendrig. "The aircraft will land next to those battery packs and then you just swap them out and another person comes along and collects those batteries and starts recharging them."

Vendrig's UAVs can deploy predatory insects, pollen, white washes for greenhouses and can over-seed grass and wildflowers. He's also been experimenting with a salt solution that farmers can spray on their roads in the winter and with moss control for the tops of buildings.

"It's new technology; it's not perfect [and] it's not ideal for everything," he says, but the jobs his drones can do, they do very well.



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