vinetur

Canada Invests CA$1.7 Million in AI Vineyard Camera Project

AAFC researchers will test Vivid Machines’ system in Ontario vineyards over three years to verify early disease detection.

Tuesday, September 29, 2026



The Canadian government is providing up to CA$1.7 million to help adapt an artificial intelligence camera system for vineyards, aiming to let grape growers detect disease and manage yields before problems can be seen by eye. The funding was announced Sept. 10 by Agriculture and Agri-Food Canada, or AAFC, through the AgriScience Program’s Projects Component.

The money is going to Vivid Machines Inc., an Ontario agtech company founded in 2020 by Jenny Lemieux and Jonathan Binas. The company already sells a monitoring system called Vivid XV for apple orchards. Under the new project, it will rework the same hardware and software for wine and table grapes, which present different canopy structures, growth patterns and disease pressures than orchard crops.

The effort is based in Ontario and is set up as a three-year project. According to Global Agriculture, AAFC researchers will work with the company to test the system’s readings against ground-truth data collected by hand in commercial vineyards. That validation step is important because growers are unlikely to rely on automated disease alerts unless the tool performs well under real field conditions.

Vivid XV is designed to attach to a tractor, sprayer or other equipment that is already moving through vineyard rows, rather than operating as a separate robot. The system combines high-speed optics with a multispectral camera that captures image data in visible and near-infrared bands. That approach is widely used in crop sensing because plant tissue reflects near-infrared light differently depending on its health and moisture status.

The system also processes images on board as the machine moves through the field, instead of requiring growers to upload data later for analysis. The company says the equipment can operate at typical field speeds of up to 10 miles per hour. In orchard use, Vivid says the system can scan about 15,000 trees an hour and follow individual plants from blossom to harvest, counting fruit, estimating size and identifying early disease symptoms at the level of a single tree or a specific block.

A positioning system records the location of each reading, which means a grower can go back to the exact vine or row that triggered an alert. That could reduce the need to search by hand across an entire block. If the vineyard version performs as intended,

growers could use it to target scouting and treatment earlier and more precisely.

The company says its predictions run at about 90% accuracy, but that figure comes from the company rather than from an independent peer-reviewed trial. The planned work with AAFC researchers is expected to provide a more formal check on how well the system performs in vineyards, where disease detection can be harder than in orchards.

Adapting the technology to grapes is not a simple software change. Grapevines are trained on trellises and often form a flatter and denser canopy than apple trees. Some important grape diseases, including downy mildew and botrytis bunch rot, can show early signs on the underside of leaves or inside compact fruit clusters. Those symptoms may be more difficult for a moving camera to capture clearly, especially when equipment is traveling through rows at normal working speeds.

The federal government has presented the funding as part of a broader push to get precision tools into farmers' hands more quickly. Agriculture Minister Heath MacDonald said support for this kind of technology can help protect crops and the rural economies tied to them. The AgriScience Program operates under the Sustainable Canadian Agricultural Partnership and is generally a cost-shared program, which means recipients are typically expected to contribute matching funds and meet project deliverables rather than simply receive a grant.

That structure gives the announcement commercial weight beyond a small research award. It signals that the project is intended to move toward practical use in farm operations, not remain at the concept stage. For Vivid Machines, the vineyard work also expands a product that has so far been used in orchards into another high-value crop segment where timing matters and disease losses can be severe.

For the wine business, earlier disease detection could have effects beyond the farm if the tool proves reliable. Growers may be able to treat affected areas before problems spread across a block, which could reduce crop losses, improve the use of water and crop protection products, and help protect grape quality. That, in turn, could matter for wineries that depend on stable supplies of healthy fruit in seasons when disease pressure is high.

The project also reflects a broader trend in agriculture toward using AI and imaging systems to make decisions plant by plant instead of field by field. In vineyards, that level of detail is especially valuable because disease, vigor and yield can vary sharply even within a single block. A system that can flag a specific vine or short section of row may give growers a more practical way to act on data than broader aerial maps alone.

What remains to be shown is how well the orchard-based platform can handle grape-specific conditions over several seasons. Vineyard canopies change quickly during the growing season, and fruit can be partly hidden by leaves, wires and equipment angles. The hand-collected vineyard data in the AAFC collaboration is expected to be used to train and verify the AI model so its disease calls are based on what is actually happening in the field, not only on patterns learned in orchards.