New Website Takes High-Tech Approach to Irrigation Decisions for Potato Growers

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New technology is being evaluated that may help potato farmers currently dealing with near-record droughts irrigate in ways that are more efficient and cost-effective than traditional methods. With the province's potato-growing industry contributing $100 million annually to the economy, the stakes are high when water is in short supply, and while potatoes can survive a drought, yields will suffer if the dry conditions persist.

Nearly all of southern Ontario is at least 20 per cent below normal rain amounts, says Rory Sweeting of Chatham-based Weather Innovations Incorporated (WIN). "It's not just that the overall totals are dreadful," Sweeting says, "but that the times between rains have been very long, and most were short, heavy downpours that were very geographically isolated. Having gone weeks and weeks without rain, working as hard as they can to draw every last bit of moisture from the soil, some crops are on the verge of giving up."

To assist growers in becoming more efficient, economical and sustainable in their water usage, WIN and the Ontario Potato Board (OPB) have launched a research project to evaluate the innovative integration of remote environmental sensing, mathematical modelling, crop production science and interactive online technologies through a new website, www.ONpotatoes.ca. The site provides near-real-time decision support tools that can tell farmers when they need to turn the taps on.

According to the Ontario Potato Board (OPB), more than half of the province's potato farms employ some level of irrigation.

"In the past, timing irrigation events perfectly to get the maximum effect, using the least amount of water, was very challenging. Today, however, new technologies are available to take the guesswork out of decision-making," Sweeting says.

Using automated monitoring equipment installed at a test farm in Simcoe County, WIN is keeping a constant eye on both weather conditions (rainfall, temperature, wind) and the soil moisture at five depths in the potato field. Wireless cellular units transmit the recorded data back to WIN's computers, where it's analyzed and transformed into user-friendly online advisories in the forms of easy-to-read maps and graphs.

"We like to say we make the data dance," Sweeting explains. "By turning the numbers into pictures, we can very quickly show growers how much rain has fallen, the amount of moisture the plants are using, how much is evaporating due to the weather and how much is left in the soil on a site-specific basis."

Having all these pieces of information available quickly allows farmers to take proactive irrigation measures rather than reactive ones. By quickly consulting the site, the grower can immediately decide if a pivot in a particular field needs to be activated, as well as how long to run the water.

The tools at www.ONpotatoes.ca also impart other useful information. The 5-level soil moisture readings, for instance, are reported on a stacked graph that mirrors the sensor depths in the field. The fluctuations in the graph's lines show where the water is and at what depth the plants are working to use it.

"The grower can see how far into the soil an irrigation or rainfall event penetrates, and if it's made a useful difference in the available moisture," Sweeting says.

Eugenia Banks, a potato specialist with the Ontario Ministry of Agriculture, Food and Rural Affairs (OMAFRA), has been talking to growers about the new website and she's already had a lot of positive feedback on how helpful the tools are.

"Growers can find very useful information such as evapotranspiration values for different production areas of the province," Banks says. "Scheduling irrigation is a best management practice that should enhance the sustainable crop production practices followed by provincial growers."

Potato farmers Ontario-wide are encouraged to visit the website, see how the tools work and provide their feedback. One objective of the project is to help educate growers on the technology that's available to simplify their everyday operations.

"The goal of this particular project is to maximize the use of water in irrigation," says OPB General Manager Don Brubacher. "We want to make producers aware of the results of this project through grower meetings and other venues and encourage growers to adopt this technology."

Anyone interested in seeing the farm site installations in person is invited to attend a demonstration day on August 16. Visit www.ONpotatoes.ca for more information.

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Weather INnovations Incorporated (WIN) - www.weatherinnovations.com
WIN specializes in providing turnkey weather based monitoring and modelling solutions for agribusinesses, producer organizations, government agencies, researchers and others. WIN makes models easy to use at the farm level by providing a connection to innovative research with site-specific applications.

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