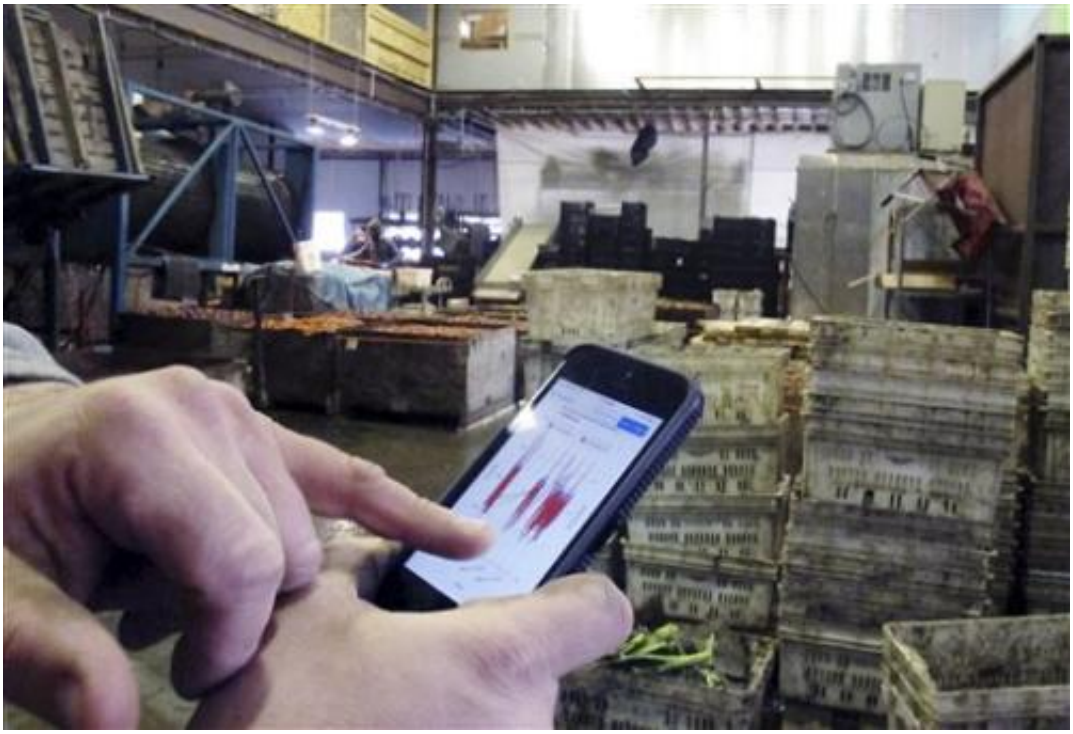
Vermont farms monitor storage conditions by cellphone

March 7 2015, byLisa Rathke



In this March 5, 2015 photo, sales manager Tim Fishburn demonstrates a climate monitoring system at the warehouse of Pete's Greens in Craftsbury, Vt. Pete's Greens and other small-scale vegetable producers that can't afford high-tech refrigeration are using remote-temperature monitoring systems that protect their produce by providing climate updates by cellphone. (AP Photo/Wilson Ring)

Temperature fluctuations can shorten the growing season for farmers, and the worry doesn't stop when crops are stored inside for winter sales,

as a drop or spikes can ruin what's meant for market.

For years, growers would have to walk into coolers or other storage spots to check the temperature and humidity. Now, some small-scale vegetable producers in Vermont who can't afford high-tech refrigeration are gaining access to remote monitoring systems that keep cold storage in check, provide updates by cellphone and ease their worries.

The University of Vermont Extension Service test project installed remote thermostat technology, which is available to check conditions in apartment buildings, on nine farms. Since last winter, the system reduced the rates of vegetables that needed to be thrown out or culled by 30 to 50 percent—adding an average of $10,000 in revenue to each farm, university officials said.

The growers like it because they physically check their storage less often and, thanks to constant updates from their cellphones, are able to detect and quickly fix any problems. Though it's only being tested in the Northeast, the system could work in any region of the U.S. or facility where careful attention to temperature and humidity is critical. What's needed is a good Internet connection—which isn't always available in rural areas.

"The fact that there's something in there all the time checking in on it, letting us know what's going on is extremely helpful," says Pete Johnson, owner of Pete's Greens, an organic vegetable and community-supported agriculture farm in northern Vermont.

In this March 5, 2015 photo, sales manager Tim Fishburn stands among bins of produce at the warehouse of Pete's Greens in Craftsbury, Vt. Pete's Greens and other small-scale vegetable producers that can't afford high-tech refrigeration are using remote-temperature monitoring systems that protect their produce by providing climate updates by cellphone. (AP Photo/Wilson Ring)

More than two years ago, his business lost 20 tons of potatoes, worth about $25,000, when the temperature in its cold storage room dropped. Since installing the remote sensors, the farm is losing far less produce and storing it longer.

"Some larger farmers may be able to absorb storage losses or produce losses due to inadequate storage because they're making it up in volume. But these guys are not able to absorb that loss due to volume," said Chris Gunter, vegetable production specialist for the North Carolina State University Cooperative Extension.

He added that he hadn't heard of growers using this type of technology, but that it would be useful, especially for those who don't live on their farmland.

Remote monitoring already is available nationally to large-scale producers and distribution centers at a cost of more than $10,000. The university's model runs $500 for the equipment and an estimated $500 to install, according to UVM Extension agricultural engineer Chris Callahan. UVM bridged the Internet connectivity problem with installing cellular modems where needed.

"The neat thing was that it gave growers real-time visibility into their storage rooms and they didn't need to be there," he said. "And the other thing it did ... every five minutes getting a data point, you start to realize things you don't see when you look at the conditions once a day."

In this March 5, 2015 photo, bins of produce sit in the warehouse of Pete's Greens in Craftsbury, Vt. Pete's Greens and other small-scale vegetable producers that can't afford high-tech refrigeration are using remote-temperature monitoring systems that protect their produce by providing climate updates by cellphone. (AP Photo/Wilson Ring)

In Maine, most small farmers monitor their cold storage and refrigeration "by the seat of their pants," said Mark Hutton, vegetable specialist with the state's cooperative extension. But the UVM model brings existing technology down to a size that's useable—and useful—for Northeast growers, who tend to have smaller storage units than growers in other parts of the country.

The system has boosted growers' confidence in their winter crop storage, and most who participated in the UVM project plan to expand storage by at least 50 percent, Callahan said.

Andy Jones of the Intervale Community Farm in Burlington says between storage investments and adding the sensors, it's "allowed us to store things for much longer" and the quality of its raw vegetables like cabbage has improved.

This winter, he's gone weeks without getting any text message alerts, until something like a cold snap produces a number of alerts until an adjustment is made. "Now I would say I'm worried less and I'm obsessing less," he said.