

The UNIVERSITY of VERMONT PROCTOR PAGE

News from the University of Vermont Proctor Maple Research Center





Sap Spy sensor hubs installed for testing at the University of Vermont Proctor Maple Research Center in Underhill, Vermont, during the spring 2021 maple season.

SapSpy keeps tabs on the sugarbush

By TIMOTHY D. PERKINS and WADE T. BOSLEY University of Vermont Proctor Maple Research Center

UNDERHILL CENTER, Vt.— During the 2021 season, the UVM Proctor Center tested SapSpy (www.sapspy.com), a relatively new entrant in the sugarbush monitoring field.

While we've used the H2O Smartrek system for several years (and developed a few iterations of our own custom systems prior to that), we tend to have multiple periods each spring where our internet signal is unreliable, so despite the Smartrek system working well, we couldn't see the status of our system at times.

So early in the season we purchased three SapSpy units to give them a try as a backup system in case our power or Wi-Fi signal went out.

Rather than a Wi-Fi connection, the SapSpy systems uses a cellular connection to send out data, so sites will have to have at least some degree of cellular service, although due to the technology used, even a modest signal should generally be sufficient.

It consists of a single plastic housing (Figure 1) with built-in temperature sensor, a fitting connector to attach to a 5/16" vacuum line, and an ultrasonic

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5	Dashboar	Logout		
	Devices Owned By: Abby vdB		Refresh At: 3/21/2021, 8:26:33 AM	
Red Series / Martin Block 98%				-
	Date & Time	TempF	Tank%	inHg
	2 minutes ago	54.0	66.4	26.5
	7 minutes ago	54.0	66.5	26.5
	12 minutes ago	53.9	66.1	26.5
Plot Data Device Settings				
UVM PMRC Sap Tank 1			100%	
	Date & Time	TempF	Tank%	inHg
	2 minutes ago	45.3	60.2	26.8
	7 minutes ago	45.3	60.6	26.8
	10	45.0	~~~~	

to the website every 5 minutes. After playing around with the system for about a week we emailed Jeff (the owner) with a few suggestions to consid-

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probe connected to a cable for measuring sap level in a tank.

While the system could on battery power (2-4 weeks), we had electricity at the locations we were installing the sensors, so they were plugged in for the entire season.

For those without line power at or near the point of installation, the system can be recharged periodically from power tool batteries using a USB converter, or have power supplied with a 12VDC battery, or via an optional 6V solar panel attachment.

Software installation was very quick and simple – within minutes the system was sending out data to the dedicated website for viewing.

The data were viewable immediately and could be readily accessed via computer, tablet, and both Android and iOS smartphones.

Date updates are pushed automatically

er for how he might improve the display of data, thinking he might get to them once the season was over.

Within a few hours he replied back and had already incorporated some of the ideas.

That turned out to be a fairly common theme.

Every time we had occasion to contact Jeff via email or on the chat system (built into the website) he was very prompt in replying.

He is clearly enthusiastic about making the system simple, easy to use, and affordable for even small and modestsized producers.

Some of our suggestions appeared right away, others he took the time to think about in depth. There is a really fine line between making any system very featurerich and keeping it simple, and the Sap-Spy system seems to find just the right balance.

A SAP SPY TANK LEVEL SENSOR installed at the University of Vermont Proctor Maple Research Center.

As the 2021 season progressed, we played around with most of the settings, testing various text alerts (settable points for temperature, tank level, and vacuum levels), recalibrating and confirming level sensors, checking the tank full predictions.

When the season was over, the full set of data the system had collected was made available, which is great for us scientists or for the other geeky data wonks who like to look at things in detail.

You don't need to be a computer wizard to use the system however...it is designed to be very simple for those who just need a minimum amount of information, but has detail for those who want to dive deeper. Jeff has plans for some upcoming changes and additions to the system: an external temperature sensor, new software features, and pump relay control.

One planned feature that will be very helpful is "burst mode", in which readings are taken each minute (for 1 hour) – a great feature when leak-checking.

Tank calibration, displays, and alert condition improvements are also in the works. Altogether, although we acquired the system as a backup, because it is so simple and reliable, we ended up using SapSpy as our primary monitoring method.

Rather than retiring the system after testing it...we'll be ordering a few more.