

Monitor Quality As You Harvest

Get real-time levels of protein, oil-fat, moisture, and more in grains as they're harvested from the field with Grain-Q. The easy-to-retrofit sensor system fits on the combine grain auger as grains move to the hopper. The near-infrared (NIR) sensor gathers the geo-referenced data and sends it to the in-cab monitor for immediate and post-harvest use.

"Grain-Q can be installed in any kind of grain elevation system, from the combine to the dryer or other augers," says Gustavo Caneda, Tecnocientifica.

The Grain-Q sensor scans a column of grain diverted momentarily from the flow of grain to the hopper. As the grain returns to the flow, the NIR images move via fiber optics to the separately mounted spectrometer. From there, data is transmitted to the touch screen computer in the cab.

The screen image is updated every 20 seconds (depending on the speed of the combine) and geo-referenced for real-time mapping. It's also collected for post-harvest analysis and comparison with other field maps.

Mounted on a combine, Grain-Q makes it possible for the operator to identify and harvest areas with uniform grain qualities, such as certain oil levels in soybeans, protein in wheat, or starch in corn.

"The system is easy to install, and we provide everything that is needed: the sensor and cables, fiber optics, controller, monitor screen, and data transmission," says Caneda. "We offer an industrial touch panel PC for use in the cab, but we can open the software

platform to integrate with other vendor monitors or managing systems."

The computer delivers two sets of data to the operator. One is from the grain flowing past the sensor. The second is a rolling average of the grain that has passed by the sensor.

"You can reset the average any time you want, such as every time a grain cart has filled," says Caneda. "The data for a particular cart load or trailer load can be transmitted from the field in a number of ways. The data packet can be sent to the semi driver, bin site, farm office, or to the grain buyer."

Trucks and semis loaded with known quality grain can then be segregated at the farm storage site or delivered to a commercial elevator.

Developed initially in Argentina, Caneda is now working on establishing Grain-Q in the U.S. and Canada, with Europe to follow. He notes that an article in *The Western Producer* in February created interest in Canada, as well as the western U.S. and the Midwest.

"We're running pilot tests this year with our first units operating in North America," says Caneda. "There has not been much attention paid to grain quality in the past, but that's changing. The market is starting to look for quality."

Grain-Q is not new. Caneda has been working in precision grain monitoring for the past 30 years. An expert in chemistry, automation, and calibrations, he saw the potential for more refined grain monitoring. Initially, the company offered a benchtop

NIR scanner. Years went into developing the concept for an in-field unit and then a prototype. Separating the sensor from the spectrometer was key to success in the heavy vibration and dust environment of a combine.

Grain-Q has been in the field for the past 4 years. Time has been the biggest challenge, as calibration and validation have been limited to annual harvests.

It was formally launched early this year for \$26,000 with sales direct from the company. A distribution system for the U.S. and Canada is in development, and corporate offices are being opened in the U.S. soon.

"When a customer acquires a system from us, they obtain 6 mos. of free assistance with calibration," says Caneda. "We teach them how to sample their grains and save data for later use. They don't need to send any data to us. They're the owners of their own calibrations and data. We want them to be as independent as possible."

The company is introducing the basic scanning technology in a second system, the T-Scanner. It utilizes a similar sensor, developed for use on the end auto probes. It's intended for use at grain elevators to sample truck and semi loads, as well as outgoing train carloads.

"We launched the T-Scanner this year and are working with auto-probe manufacturers on integrating it with their probes," says Caneda. "It also can be retrofitted to existing auto-probes, reducing labor and improving data collection. We've already sold some units and are getting an initial market



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Priced at \$39,000, the T-Scanner can collect a full column of grain in 7 seconds. Using multiple samples, it can provide a visual map of grain quality across a load.

"Instead of taking a single 300-gram sample, an elevator operator can scan a 30-ton truck and map the whole thing," says Caneda. "The sensor scans the grain as it penetrates, providing the opportunity to divide the load by sections; bottom, middle and top."

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Brahn built his digger with a 3-hp. motor to run the digging pan and shaker.

Potato Digger Rides On Lawn Mower Wheels

"The smaller potato diggers I found online were 3-pt. models that mounted on a tractor pto, which wouldn't work for me, so I built a pull-type model myself," says Dexter Brahn, retired from 35 years in farm equipment manufacturing. Brahn's digger works on the same principle as those commercial models, but his rides on four wheels and is powered by a 3-hp. motor that he bought from Harbor Freight. "I geared the motor down with a pulley system, so it'd run the digging pan and shaker at a slow speed," Brahn says.

Brahn made the frame out of assorted scrap steel that he cut, formed, and welded together, using reinforcing cross members for added strength. The frame forms a V in the front with a pole hitch extending beyond that he hooks to his zero-turn lawnmower. It rides on four old zero-turn mower wheels spaced 38 in. apart in the back and about 20 in. apart in the front.

"My machine is about 2 ft. wide with a digging pan that gets bumped up and down by a reciprocating pulley," Brahn says. "The

motor also runs the shaker tines that remove dirt from the potatoes."

Brahn pulls the machine behind his Dixon zero-turn mower, straddling a row of potatoes. "The machine works great," he says, "but my rows were too close together, so on the second pass, one of the mower drive wheels was slipping in loose dirt. I had to pack that down so the mower could get traction."

Brahn sold his digger at a consignment auction in August 2023. "I was only growing a few hills of potatoes and thought someone else could get more use from it than I was. Turns out the person who bought it was very happy to get it. He told me he was planning to build something like it, and now he didn't have to. I told him it worked well and that I didn't put a whole lot of time into building it. I bought the motor, a few pulleys, and a few bolts, but it doesn't have a warranty."

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Device Gives Cell Phones Satellite Access

If you live or work in an area with no cell service, you'll like this new add-on device that lets you send messages by satellite.

The Motorola Defy Satellite Link (DSL) functions as a satellite hub to pass messages or an SOS signal to others on connected smartphones.

The DSL is a separate device that connects with your phone via Bluetooth. Once paired with the Bullitt Satellite Messenger app (previously downloaded) on your phone, it lets you send up to 140-character messages and emojis from your cell phone without cell service. It also lets you receive messages. To connect with the satellite, the user needs to be outdoors with a clear view of the sky.

Significantly smaller than a cell phone at 2 1/2 by 3 1/2 in. and only 1/2 in. thick, the DSL weighs only 2 1/2 oz. It easily clips onto belts or packs. The rechargeable battery has a 4-day life.

The Motorola DSL can be preset with a check-in message such as 'I'm here' or 'Meet me here.' These messages, which include the sender's latitude and longitude, can be sent without a phone. Simply press the center-left side button on the device.

A large SOS button on one side can be activated to notify emergency services. Staff members on the FocusPoint International team are notified and provide response services.

The purchase price of \$149.99 includes one year of SOS service and a year of the Essential service plan. It allows up to 30 messages per month and is priced at \$4.99 per month after the first year. Other service plans



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include Everyday and Premium and include SOS service when paid monthly.

Everyday allows up to 80 messages per month at \$4.99 per month for the first year and then \$9.99 per month after that. Premium allows up to 300 messages per month for \$24.99 per month for the first year and \$29.99 per month after that. Freedom is a no-contract plan for up to 250 messages per year for \$59.99.

The DSL can be purchased online from the company website. It is also available from many major retailers, both in-store and online.

Contact: FARM SHOW Followup, Motorola Defy (support@motorolarugged.com; www.motorolarugged.com).