

YOUR SIXTH SENSE



PHOTO AND MAPS: GREENSEEKER, NTECH INDUSTRIES

THESE N-SENSING PRODUCTS CAN HELP YOUR CROPS AND YOUR BOTTOM LINE.

BY JEN BENNETT

Inputs are costly these days. So is your time. Now, more than ever, being efficient in your farming practices is a valuable tool. One way to increase efficiency is through the use of nitrogen (N) sensors and variable-rate equipment. Here are a few products to get you started.

GREENSEEKER, from NTech Industries, is an integrated optical sensing and application system that measures crop stats and variably applies the crop's N requirements. It applies the right amount of N at the right place and time, optimizing yield and N input expense.

Sensors use LEDs to generate red and near-infrared light (NIR). The light generated is reflected off the crop and measured. Sensors calculate normalized difference vegetative index (NDVI) using the

red and NIR light. Since red light is absorbed by plant chlorophyll as an energy source during photosynthesis, healthy plants absorb more red light and reflect larger amounts of NIR.

The RT200 allows for on-the-go zone management of top/sidedress N. It verifies the amount of N available in the soil, then writes a prescription for the sprayer to deliver, helping eliminate excess application. All of this happens in real time. According to GreenSeeker, profits average \$8/acre.

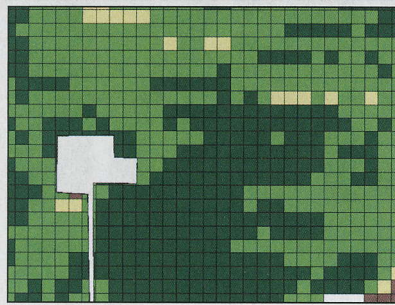
Using real-time integrated optical sensing, the RT200 measures crop status and variably applies the crop's N requirements, predicting yield potential for the crop using NDVI. The N recommendation is based on in-season yield potential and the crop's responsiveness to additional N.

Numerous NDVI readings are taken across each zone. The control-

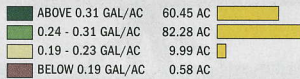
ler modifies the rate for each zone based on a prescription from the sensor. Compatible with most variable-rate controllers and delivery systems, the RT200 sensors can be mounted on various boom configurations and most sprayers/spreaders. It also allows application of UAN, urea and anhydrous ammonia fertilizers with a retrofit.

The GreenSeeker RT200 can be used by a farmer without application maps or agronomist recommendations. Using technology similar to satellite or aerial imagery zone management programs, the RT200 has similar resolution but in real-time operation, day or night, ignoring fog and clouds.

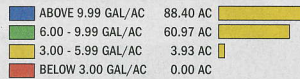
Also available from GreenSeeker is the RT220 mapping system, which measures plant health and vigor measurements on your own schedule. You can collect NDVI data when you want it, along with collecting data during farming opera-



NDVI



RX RATE



▲ The left map is a GreenSeeker NDVI or vigor map produced by optical sensors from a RT200 system in Minnesota. It allows you to see the relative vigor or variability within the field. The right map shows the resulting nitrogen prescription for that field (gal./acre of 32% liquid nitrogen or UAN).

tions such as spraying, cultivating or mowing. The images can be used to create management zones, identify pest and disease problems, evaluate drainage systems' efficacy, modify soil sampling strategies, monitor

and modify irrigation schedules, determine optimum harvesting dates and make variable-rate prescription maps.

To learn more about GreenSeeker, go to www.ntechindustries.com/.

CROP CIRCLE IS A product of Holland Scientific (distributed by Ag Leader) and includes canopy sensors, handheld units and mapping systems.

Crop Circle's ACS-210 sensor provides vegetative index data along with basic reflectance information from plant canopies. The information from the sensor can be used to quantify the impact of nutrients, water, disease or other growing conditions. The ACS-210 is not limited by ambient lighting, allowing for measurements to be made day or night.

The ACS-210 can be mounted to just about any type of vehicle to remotely sense and/or map plant or crop canopy biomass while driving through the field. Its compact size and weight allows Crop Circle to be easily adapted to pole-mounted and handheld devices. Two sensor models are available, providing yellow/NIR or red/NIR sensing.

With a measurement range of 1-8 ft., Crop Circle ACS-210's other fea-

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tures include low noise performance, dust and water resistance, fast data output rate, low-power operation, light weight and networkability.

Also available is the Crop Circle Handheld System. This device integrates the ACS-210, GeoSCOUT GLS-400 and the FieldPAK PS-12 into a portable, easy-to-use scouting instrument, ideal for plot work, field mapping and crop scouting. Data is collected and stored through a data logger by flipping the toggle switch on the extension pole, and is stored on an SD flash card for later use.

Crop Circle Mapping System is another product available from Holland Scientific. A useful tool for collecting plant biomass or soil data in real time, the system can be mounted to nearly any vehicle type. Data collected can provide information related to plant health, vigor and spatial variability. Using the GeoSCOUT GLS-400 data logger to collect and georeference data

from multiple ACS-210 canopy sensors, the data are stored on SD flash cards for accessing another time and are easily accessed by third-party map-rendering software.

Features of the Crop Circle Mapping System include real-time sensor georeferencing, support of single- or multi-sensor networks, and one-button logging.

All of the Crop Circle products can be used for multiple applications, including: turf mapping, crop response to nutrient and fertilizer studies, herbicide effect/performance studies, trend/detect plant health changes and diseases, hybrid selection and forage biomass prediction. For more information about the Crop Circle offerings, go to www.hollandscientific.com and click on Products.

THE N-SENSOR BY Yara is a tractor-mounted device that measures a crop's N requirement as the tractor

passes across the field, and varies the fertilizer application rate accordingly. N-Sensor ensures the correct and optimal rate of N fertilizer is applied at each spot in the field, and practical experience has shown it to increase yields over standard farm practices, boost profits and minimize environmental loss, Yara says.

The N-Tester is also available from Yara. The handheld device measures a crop's N status from the chlorophyll content in its leaves. From this, an evaluation of N needs to meet target yields is available.

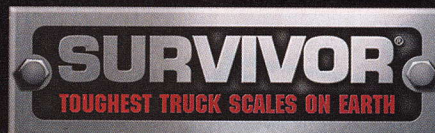
For more information on Yara's N-sensing products, go to www.yara.com and click on Products and Services.

WITH INCREASING INPUT, land and operation costs, it's important to be efficient. These are just a few of the products available that are easy to use and can increase efficiency, and ultimately, the bottom line – time is money. **CSO**

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