

# CropSpec™

On-the-Go Crop Canopy Sensor



A real-time integrated crop monitoring and application system for agricultural equipment

- Reduce fertilizer costs by applying based only on crop need
- Create prescription maps, or prescribe and apply in a single pass
- Round-the-clock 24/7 operation
- Cab mounted sensors protected and out of harms way
- Largest sensor footprint in the industry
- Senses a larger percentage of the area to be applied
- Compatible with Topcon System 200 and System 250 (X20 Controller)

# CropSpec™ On-the-Go Crop Canopy Sensor

## Just-in-time crop management

CropSpec is a real-time integrated crop monitoring and application system for agriculture. CropSpec was developed in cooperation with Yara International, a leading world supplier of nutrients. Designed for use with Topcon's field proven System 200/250 (X20) console, CropSpec operates with the VRC program (MapLINK) or any of the X20 application controllers and allows the user to monitor in-field variability, treat on-the-go, or keep data for future analysis or prescription applications.

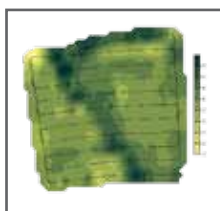


CropSpec is a two-sensor configuration that is light and easy to install. The sensors mount on the cabin roof, out of harm's way with less potential for damage to crops or equipment. With technology based on Topcon's core competency of optics, CropSpec uses pulsing laser diodes for sensing. The sensor measures plant reflectance to determine chlorophyll content, which is closely related to the nitrogen concentration in the leaf. This non-destructive, non-contact method provides accurate, stable readings and repeatable values.

## CropSpec features three different modes of operation:

### Read and Record

Users can read and record data for analysis and creating prescriptions. Scanning the crop creates a map to indicate nitrogen levels, including nitrogen rich and deficient areas. This information can be used to construct a variable rate prescription application to be used immediately or at a later date. Perform relative crop monitoring over time or create application programs based on health stages.



### User Determined Rate Control

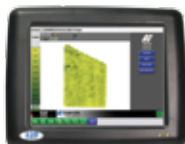
Hi/Low Basic mode - with a simple two-point calibration, the user can set high and low points then perform actual on-the-go application using field averaging. The target rate can be determined by the user.

### Real-Time Variable Rate Application

Operators can subscribe to optional Yara software which processes the CropSpec readings using crop specific algorithms to determine optimum site-specific fertilizer rates. This system allows the farmer to perform variable rate application at the same time nitrogen levels are determined, controlling the output of fertilizer in one pass over the crop.

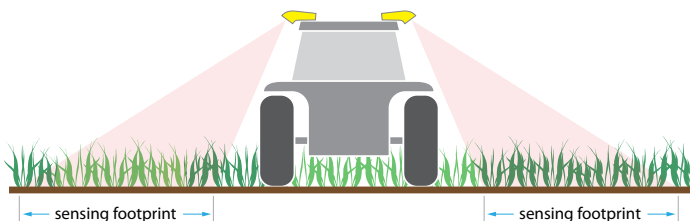
## Data and Mapping

In all three modes, the X20 mapping and logging functions provide a wealth of data for recordkeeping, as-applied maps, future analysis or designs.



## Specifications

Environment	IP 67 compliant
Laser safety	Class 1 or Class 1M
Physical Dimensions	200 mm x 80 mm x 80 mm
Mounting height	2 - 4 meters
Viewing angle	45° - 55°
Operating Temperature	0 - 60°C
Operational wavebands	730-740 nm and 800-810 nm
Supply voltage	10-32 VDC
Supply current	2 A



## Key Features

### 24/7 Day or Night Operation

Provides considerable reduction in time and cost over blanket application

Provides the largest footprint per sensor in the industry

Senses a larger percentage of the area to be applied

Views crops at a uniform angle to the crop rather than directly above to minimize the effects of shadowing, crop movement, etc.

Provides on-the-go averaging with user-determined target rates

Read and Record allows the user to collect and store data for offline analysis and creation of prescription maps

Provides on-the-go VRA – four algorithms available to build a customized fertilizer application plan based on observed field conditions

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