



Airborne Thermal-Infrared Mapping

Precision Agriculture

Quality Irrigation Assessment

The concept of precision agriculture utilizes many tools and technologies to identify in-field variability, improve farming practices, and optimize agronomic inputs. Irrigation is a critical agronomic input to maximize yield. However, the uniformity of irrigation application is often overlooked.



Thermal Mapping Can Be Used as an Early Detection Tool for Irrigation Issues!

Visualize Heat Stress Patterns Undetected by the Human Eye.

Advantages and Opportunities

- Detect Water Stress Issues Just a Few Weeks After Irrigation Begins
- Georeferenced Thermal Images Provide Exact Location of Problems
- Acquire Simultaneous Color-Infrared and Thermal-Infrared with Dual-Mounted Cameras
- Thermal-Infrared Imagery is a Complimentary Technology to Color and CIR imagery
- Integrates Into Your Farm GIS
- Can Be Used with Mobile Devices
- Options for Google Earth, GeoPDF, GeoTiff formats
- 2-meter Spatial Resolution on a Quarter Section
- Temperature Measurement Down to 0.1 °C

Aside from fixing missing nozzles, flat tires, and stuck pivots there are few tools to monitor the performance of an irrigation system.

Why Thermal Imaging Works

Insufficient soil moisture leads to crop water stress and overheating of plants. When plants are overheated for extended periods of time, the plant physiology is altered and grain yield is reduced. Proper irrigation scheduling can reduce water stress and mitigate plant heat stress. Malfunctioning irrigation systems and non-uniform irrigation is a problem that may not be detected until spatial patterns are detected in yield maps. Remote sensing can be used to identify irrigation issues in-season. Irregular irrigation patterns can be detected using true color and color-infrared aerial photography later in the growing season. However, the plant has already suffered unrecoverable yield loss by that time.

