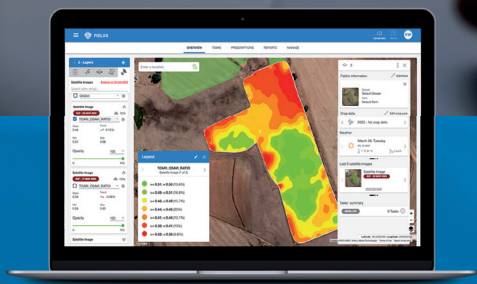
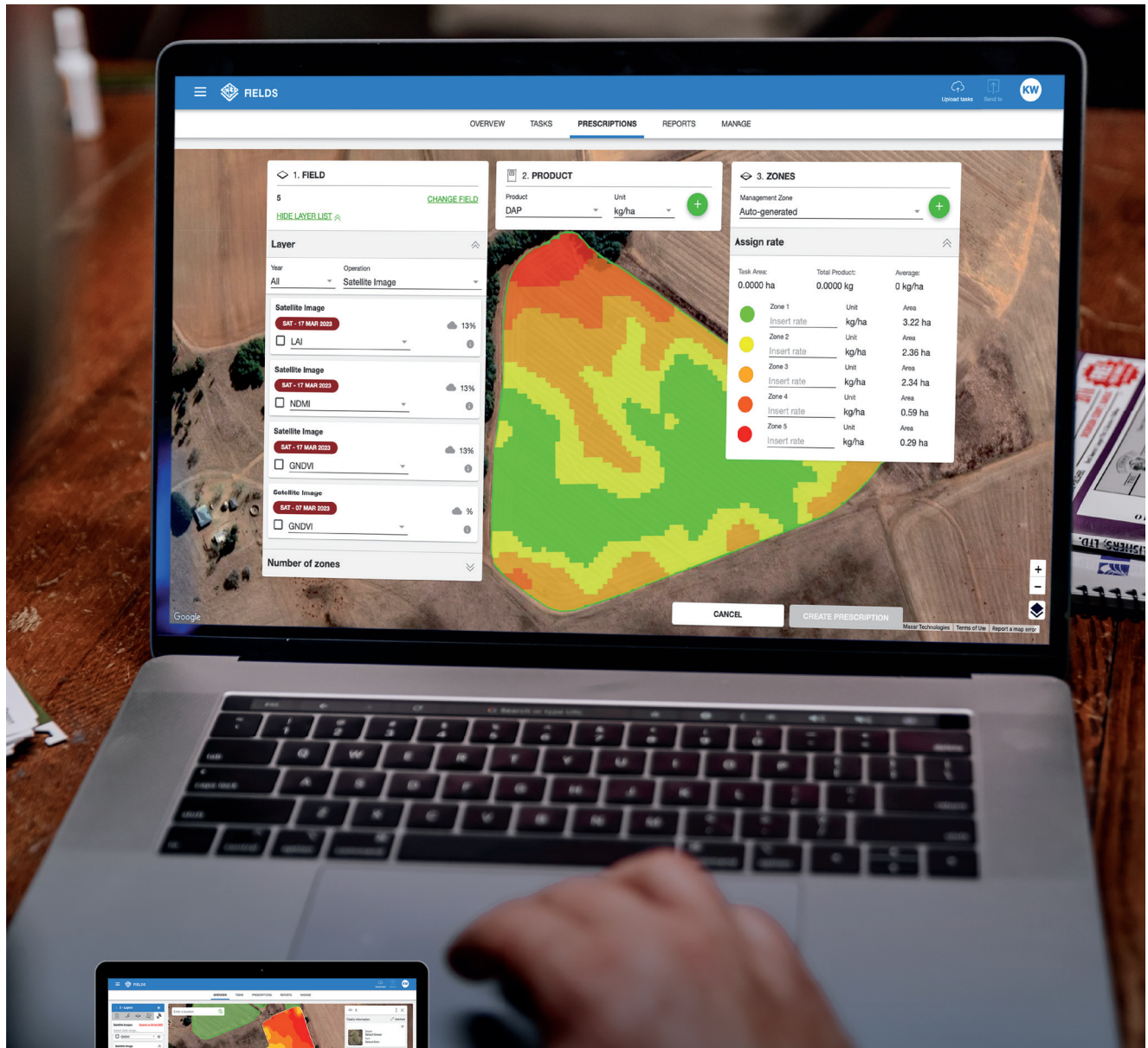


TAP Satellite Imagery Add-on

Digital Farm Management



Satellite imaging measures crop and field health for relevant insights that lower your risk

Imagery types for vigor, chlorophyll and moisture

High-resolution (10 meter-spatial) imagery delivered every five days

Straightforward, 1-year subscription term

Imagery seamlessly delivered for insights to Topcon TAP Fields/Pro, an easy-to-use data management solution

Topcon technology ecosystem integration and powerful complementary solutions

Lower Your Risk with Satellite Imagery

Satellite imaging measures crop and field health for relevant insights that lower your risk. Our technology provides active monitoring and a record to track development. Solutions apply indices, in-season or out-of-season to analyze field conditions and aid impactful decisions.

You can use satellite imagery to guide key applications throughout the crop cycle, such as spray or harvest timing. It can also support strategic crop management initiatives when combined with other relevant data, such as soil and yield.



Actively Monitor



Track Development



Optimize Timing

Satellite Imagery is the Smart Way to Monitor

The correct index depends highly upon the crop development stage, soil reflectance, vegetation, and canopy cover. While there is a general guide, growing conditions are variable, it can take a variety of imagery to identify the anomaly. There's an optimal band or combination of bands for every condition, and they detect different types of information, so multiple can be relevant simultaneously.

Imagery is a powerful tool to identify issues, but in-field inspection is often required; it can help monitor but not effectively diagnose. Satellite imagery delivers the core benefit of revealing anomalies while offering the most cost effective and easiest way to get started.

Imagery May Detect



Weed Pressure



Pest Pressure



Disease Pressure



Crop Health



Crop Variability



Water Issues

Vigor Indices

- Weed pressure
- Pest pressure
- Irrigation issues
- Emergence
- Crop health
- Disease pressure
- Growth activity

Chlorophyll Indices

- Chlorophyll content
- Crop health
- Growth activity
- Pest pressure
- Disease pressure

Moisture Indices

- Water stress
- Irrigation issues
- Drainage issues
- Water ponding
- Pest pressure
- Disease pressure

Topcon Offers a Variety of Indices for Deep Insight

Vigor (Crop Health)

SAVI (Soil Adjusted Vegetation Index)

Index driven by plant density; adjusted for soil reflectance and bare soil. **Considerations:** Adjusts for soil reflectance. OSAVI is better adjusted for soil reflectance in various canopy cover scenarios.

OSAVI (Optimized Soil Adjusted Vegetation Index)

Index driven by plant density; adjusted for soil reflectance and bare soil. **Considerations:** Adjusts for soil reflectance, better than SAVI. In situations of no or inconsistent crop canopy density, OSAVI works better than SAVI.

NDVI (Normalized Difference Vegetation Index)

Driven by photosynthetic activity; the bigger, stronger, more actively growing plants (i.e., weeds or crops) will increase index values. **Considerations:** Useful in many stages of the growing cycle. High sensitivity to soil reflectance (e.g., bare soil) and moisture-related atmospheric conditions (e.g., cloud cover). GNDVI is better adjusted for later stages of development and condensed crop conditions.

GNDVI (Green Normalized Difference Vegetation Index)

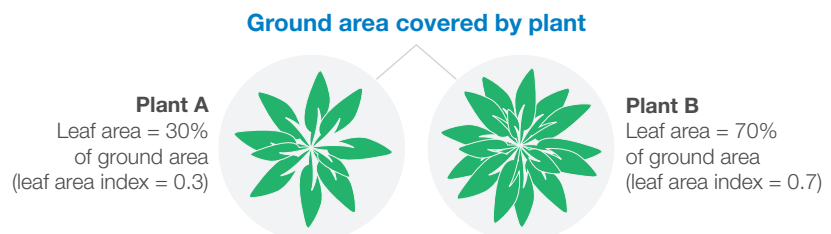
Driven by photosynthetic activity with a higher saturation point than NDVI; used in crops with denser canopies in later growth stages. **Considerations:** Useful in later stages of the growing cycle when NDVI values reach a saturation point. High-sensitivity to soil reflectance (e.g., bare soil) and moisture-related atmospheric conditions (e.g., cloud cover). Relevant in thicker, more dense biomass scenarios where NDVI becomes saturated.

WDRVI (Wide Dynamic Range Vegetation Index)

Driven by photosynthetic activity; WDRVI adjusts for highly dense canopies later into the growing season. **Considerations:** Useful in later stages of the growing cycle where NDVI values reach a saturation point. Effective in heavy, dense crops and later growth stages.

LAI (Leaf Area Index)

LAI measures crops canopy structure and more specifically the foliage area to soil surface ratio. **Considerations:** Correlates with NDVI, GNDVI and WDRVI; the LAI value increases as vegetation values increase.



Chlorophyll (Activity & Crop Health)

TCARI (Transformed Chlorophyll Absorption Reflectance Index)

Indicates the chlorophyll content of the vegetation.

Considerations: Negatively impacted by soil reflectance when crop canopy is nonexistent or inconsistent. The higher the chlorophyll content the lower TCARI and TCARI/OSAVI.

TCARI OSAVI Ratio (Chlorophyll Absorption/Soil Adjusted Vegetation)

Relationship between chlorophyll content and vegetation index, adjusted for soil reflectance and bare soil.

Considerations: Useful when canopy densities are sparse or inconsistent and should be used only in the presence of crop where LAI is greater than 0.5.

Moisture (Content & Water Stress)

NDMI (Normalized Difference Moisture Index)

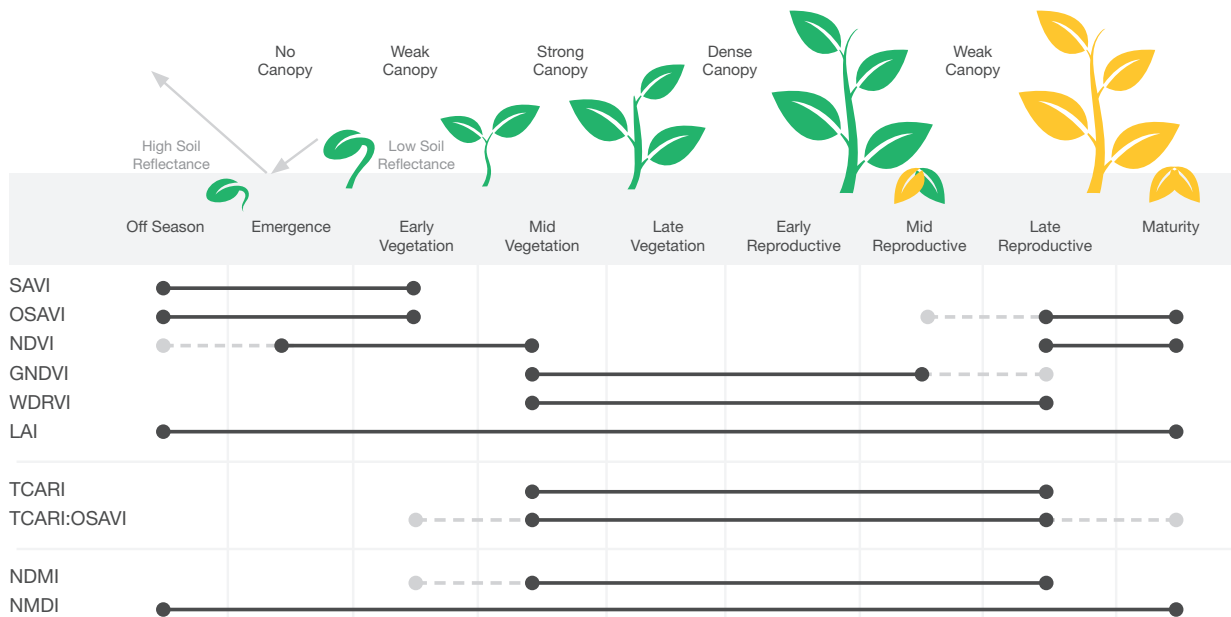
Describes the level of water stress of the crop; highly sensitive to soil reflectance. **Considerations:** NDMI can only be interpreted in the presence of uniform vegetation cover. Lower values indicate high-water stress.

NMDI (Normalized Multi-Band Drought Index)

Describes the crop's water stress level, adjusted for soil reflectance. **Considerations:** Provides information on soil water content. The higher the soil water content, the lower the NMDI.

There's an Optimal Time for Each Index

While every growing cycle varies upon conditions, including crop, soil, and weather; this is a general guide.

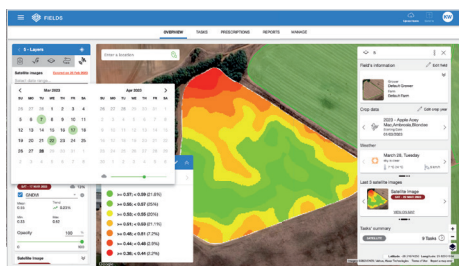


Easily Analyze and Manage Through the Topcon Agriculture Platform (TAP)

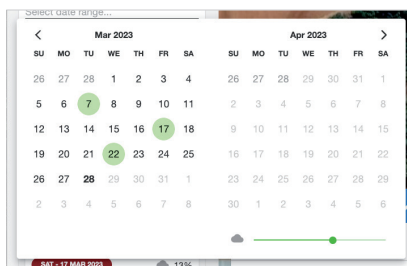
The Topcon Agriculture Platform (TAP) provides an easy-to-use tool to analyze imagery in high-resolution visualization layers, including clear data management and navigation functionality. Growth stages and weather information and general field perspective are crucial to analyze imagery indices correctly. TAP Fields and TAP Pro subscriptions both provide current and forecasted weather for every field and the ability to easily document crop type, variety, growth stage, and

other important dates. With the TAP Satellite Imagery add-on, data for all ten (10) indices are seamlessly delivered to TAP Fields/Pro accounts as an "imagery card," including the date and cloud percentage.

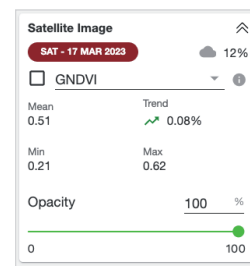
Managing and navigating the images is designed to be intuitive – easily compile imagery to be analyzed and quickly know what imagery is available using the calendar view.



High-Resolution Visualization



Clear Calendar View



Detailed Imagery Card



Specifications subject to change without notice.
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