



Automated Crop Intelligence System

AgMRI IMAGE LAYERS

NDVI

NDVI, or Normalized Difference Vegetation Index, uses a false color scheme on a red/green scale to visualize biomass in a field. Higher levels of vegetation appear darker green with a higher NDVI value, while lower levels of vegetation will appear yellow or red.

AgMRI includes two NDVI layers—a relative NDVI and an absolute NDVI, called NDVI and NDVI2 in the app, respectively.

NDVI (relative)

NDVI maps provide higher contrast to make issues stand out more easily by taking the lowest and highest values in the field and scaling colors to those points, i.e., if NDVI is measured on a scale of 1-10 and the lowest and highest values in the field are 3 and 7, NDVI will scale to those points. Because of this scaling, green and red pixels in one field are not the same level of biomass as the green and red pixels in another field.

NDVI2 (absolute)

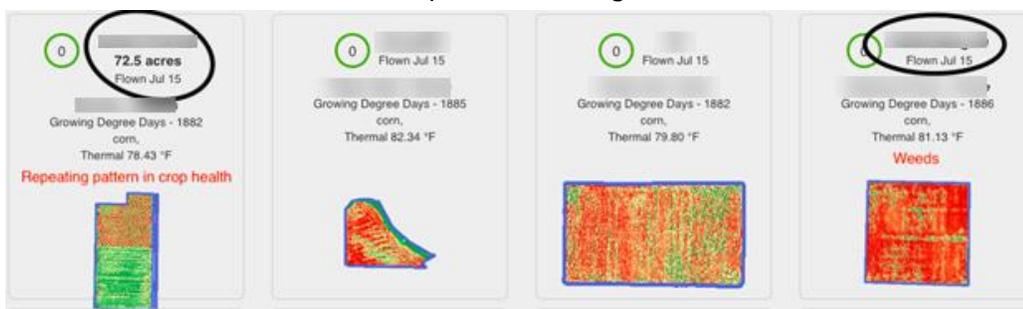
NDVI2 provides a means to view and compare performance across several dates. NDVI2 uses the same 1 – 10 scale, but scales to the full spectrum of colors, creating a standardized view.

A few things to keep in mind when using NDVI:

- Green and red are not inherently good or bad.
 - For example, weeds in crop rows create more biomass which will appear darker green in a field under NDVI.
- Other layers can provide context.
 - NDVI's contrast makes it the best lens to see problems in the field quickly. However, because it is a false color layer, it doesn't provide context aside from patterns and size.
 - RGB, or Birds Eye View, can provide context for issues spotted via NDVI.
- It's most effective at/after canopy closure.
 - Before canopy closure soil interference may "wash out" the map and make it difficult to identify variance in plant health in early growth stages.
 - Soil can have different NDVI values depending on soil types and saturation that may skew NDVI values. For instance, darker or saturated soils have more light reflectance resulting in higher values.

NDVI PRO-TIPS

- Scan thumbnails for patterns that warrant additional investigation.
 - View crop health at a glance.
 - In corn, use NDVI to evaluate crop health from canopy to tassel.
 - NDVI provides insights through the growing season in beans.
 - Spot weed issues.
 - NDVI can help find weeds in corn until the field is near tassel.
 - In beans, weeds will show up in NDVI through the full season.



- Validate the NDVI score on a pattern found in another lens.
 - For instance, a yellow tint is typically nutrient deficiency, but that area will display may a higher or unchanged NDVI compared to the surrounding area, disqualifying nutrient deficiency as the cause.
 - Below, while it looks like a clear nutrient deficiency, the NDVI score was high in the suspected nutrient deficient area.
 - The issue turned out to be an area of overapplied N via 28.

