AgMRI analytics can help you detect nutrient deficiency symptoms and overall crop health risk to drive in-season and long-term fertility plans. Learn how:
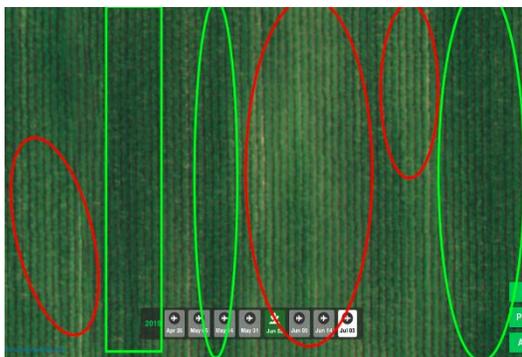
HOW TO FIND NUTRIENT DEFICIENCIES

1. Sort by the Yield Risk badge to bring the fields most likely to have issues to the top.
2. Switch to thumbnail view to quickly scan fields and jump into the ones most likely to have an issue.
3. Look for fields with stunted or yellow crop in the thumbnail, ruling out fields with visible soil, as these issues are likely not correctable.

    PRO TIP *– Place a higher priority on fields with streaking patterns that span the field (illustrated below) to quickly isolate correctable problems versus environmental problems like topography or soil type effects.*

4. Zoom in on areas with a suspected issue adjacent to an area that appears unaffected. If more soil is visible between the rows in the affected area versus the non-affected area and there is a full stand (which can be confirmed by looking at prior Veg Row images - shown below), there is an issue that stunted these plants.
5. If affected areas are yellow or pale, there is a high probability of nutrient deficiency. The example below, planted June 2, shows an image from July 3 compared to the emergence map on June 14.

July 3 image; low health areas are shown in red, while healthy areas are circled in green.

Row Tracer from June 14 shows full emergence in the now suffering area.

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SMART FARMING TOGETHER

**IDENTIFY NUTRIENT DEFICIENCIES IN EARLY GROWTH STAGES**

Nutrient deficiencies in early growth stages won't yet be the distinct pale-yellow shade. To find them:

1. First, look for areas where the crop seems stunted. In the thumbnail view, these will have areas showing as a lighter brown color instead of a darker green, as there is more soil showing through.
2. Second, look for areas where the issue identified follows a pattern that runs through the entire field in blocks or streaks, which increases the probability the issue is a nutrient deficiency.


Distant view of V4 corn with a suspected early growth stage nutrient deficiency highlighted inside the purple polygon.

3. After identifying the pattern, zoom into an area where you can see both healthy and stunted crop and compare plant size and canopy. Soil will be more visible in between stunted plants.
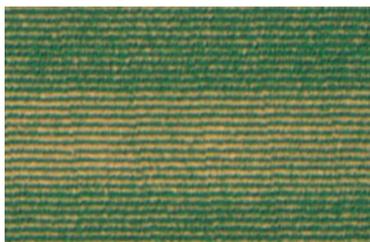
PRO-TIP - This appearance can also occur due to hybrid variation, tillage, residue accumulation, or downforce problems, but you can rule out these causes as follows:

- *Hybrid difference or downforce issues can be ruled out by viewing as applied maps, tracing pinch rows, and looking for consistency in the width of streaks.*
- *Tillage issues will be visible in early season imagery, tillage issues can be matched to distinct color variations in the bare soil RBG imagery because worked soil is darker and cooler.*
- *Residue accumulation is a less consistent pattern and typically shows up an angle; viewing bare soil imagery is also useful in spotting residue accumulation.*
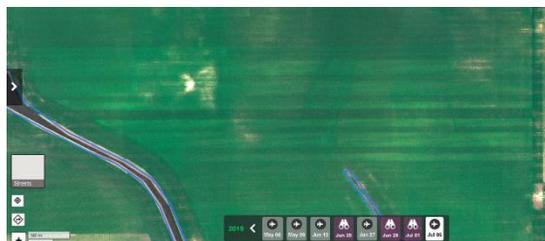
After ruling out the above possibilities, the remaining possible cause for an issue with this appearance is a nutrient deficiency, which you can confirm by looking for yellowing in subsequent flights.

**Automated Crop Intelligence System**

PINPOINT ANHYDROUS AND SIDEDRESS ISSUES

Equipment issues can also be the cause of nutrient deficiencies. Learn how to pinpoint some of the most common causes below.

Applicator Skip

Compare suspected deficiencies to as applied maps to match the angle of the issue. The width of each applicator pass and yellow crop color in the pass help identify a nutrient deficiency due to a skip.

- Lens Types: RGB, Thermal, or NDVI
- SmartAlerts: Emergence (early season) and Yield Risk (later season)
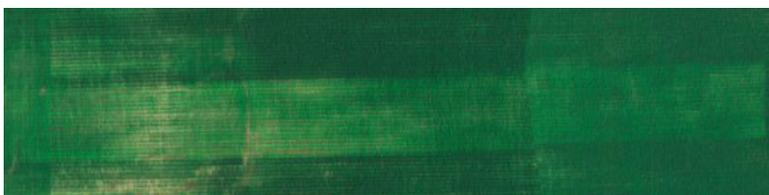
Sealed Knives

Deficiencies due to sealed knives will run through the field, to identify look for stunted crop with full stand. Compare the direction/angle to the as applied map, which will also help rule out a residue issue. Growers can apply a Y drop rescue to affected rows.

- Lenses: RGB, RowTracer (VEG)
- SmartAlerts: Emergence and Yield Risk
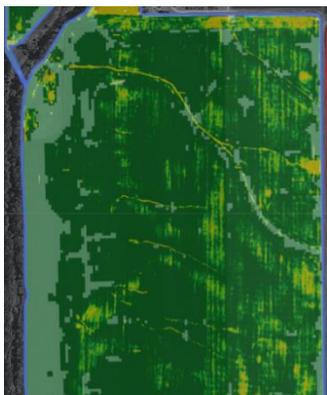
VEG (RowTracer) highlights areas with poor emergence.

Comparing RowTracer to a bare soil RGB image helps rule out residue due to the differing angles.
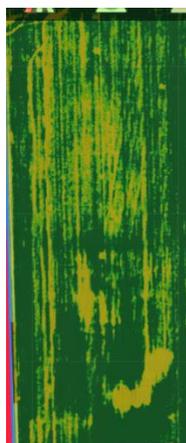
Consistent yellow streaks in the field show the affects of the sealed knife during application.

Sidedress Issues

Typically affect a single row in each pass, appearing as narrow lines running through the whole field in a consistent pattern. Sidedress issues are often from a skip row at end of bar.

Lenses: RGB and VEG (RowTracer)

Left: Stunted growth highlighted as poor emergence in RowTracer.
Above: Ground truth photo showing the visible difference in the row missed by the sidedress bar.
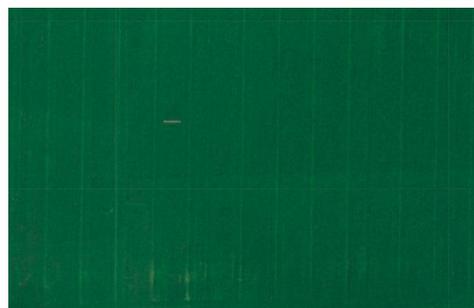
Affected rows clearly visible in a later season image.

Urea Issues

Early in the season, urea issues will show up as stunted plants without much color difference but will turn yellow later. The pattern of poor emergence can help you lock into urea as the root cause, as typically it shows up with thick blocks subtle damage—except in wetter areas of the field where you will see extreme damage—(usually more drastic than other applications)—and between the deficient paths you will see narrow strips of healthy corn. In most cases to date, the path traveled by the machine is deficient and areas of overlap are healthy.

Lenses: Early identification (until canopy closure) on spinner application: VEG (RowTracer)
SmartAlerts: Low Emergence
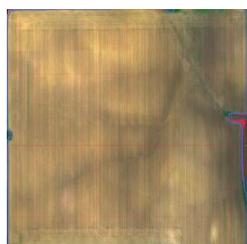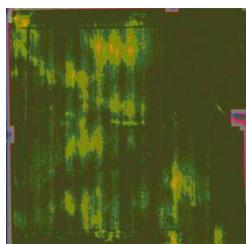
Lenses: Late identification (after canopy closure) on airflow application: RGB or NDVI
SmartAlerts: Yield Risk