WE HELP FARMERS GROW
The ultimate AG imaging solution

**Satellite Images**
- 3m full field
- Image twice a week
- X 1400 resolution

**TARANIS UHR**
- Full field imaging
- On demand
- X 1400 resolution

**TARANIS AI²**
- Scouting-level
- 0.5mm
- Field sampling
How does it work?

- Risk Detected: 3 Bushels Per Acre
- Risk Detected: 5 Bushels Per Acre
- Risk Detected: 3 Bushels Per Acre
- Risk Detected: 12 Bushels Per Acre
AI^2 automated detection

Largest data set of visual symptoms ever created across:

• Diseases
• Insects
• Weeds
• Nutrient deficiencies & abiotic stress
• Emergence
• Drainage tile line detection
• Irrigation issues
Data preparation

Many Objects identified
Data preparation

Many Sizes
Data preparation

Context
Resolution matters

2.87 mm

0.33 mm
TARANIS AI

- Annotation expert agronomists: 50
- Contracted professional PhD agronomists: 30
- Taranis in-house agronomists: 10
Emergence count

1/1000

1. To determine stand count, use the table below with a tape measure to mark off 1/1000 of an acre.

2. Count the plants within a given distance.

3. The number of plants x \( \frac{1000}{1000} \) = plant population in plants per acre.

4. Take multiple counts of adjacent rows in different areas of the field to get an overall stand for the field.

<table>
<thead>
<tr>
<th>Row Spacing</th>
<th>Length of Row for 1/1000 acre</th>
</tr>
</thead>
<tbody>
<tr>
<td>38 inches</td>
<td>13 ft, 9 in</td>
</tr>
<tr>
<td>36 inches</td>
<td>14 ft, 6 in</td>
</tr>
<tr>
<td>30 inches</td>
<td>17 ft, 5 in</td>
</tr>
<tr>
<td>22 inches</td>
<td>23 ft, 9 in</td>
</tr>
<tr>
<td>20 inches</td>
<td>36 ft, 2 in</td>
</tr>
<tr>
<td>15 inches</td>
<td>34 ft, 10 in</td>
</tr>
</tbody>
</table>
Emergence count

- Tested 1/1000 (43.56 square foot) shows ~85% accurate
- Tests it and 10/1000 = 1/100 (435.6 square foot) represents 97% - compared to as applied data
- PER ACRE!!!!
- How many acres should I be surveying?
- Which acres are representative of my field?
Emergence count

30907 per ac.
Emergence count

Emergence Count 06/28/2019

Avg. number of plants
30907 per ac

Heatmap

Range | Average | Total %
--- | --- | ---
20.9k - 24.3k | 25.3k | 2.9%
24.3k - 27.7k | 26.4k | 9.0%
27.7k - 31.2k | 29.7k | 33.7%
31.2k - 34.6k | 32.5k | 48.5%
34.6k - 38.0k | 33.3k | 6.1%

Show all Images locations

Seed Spacing Average 6.85 in
Crop Emergence
Count plant emergence at beginning of season

Emergence Detections
Detections: 219
Emergence count

Avg. number of plants:
30907 per ac.

Map Layers
Orders
App Reports
Zones
Field Data
Weather
Account

Emergence Count 06/28/2019

Heatmap
Show Heatmap

Range/ac  | Average/ac | %Area
-----------------|----------|-----
20.9k - 24.3k  | 23.3k    | 2.5%
24.3k - 27.7k  | 26.4k    | 9.0%
27.7k - 31.2k  | 29.7k    | 33.7%
31.2k - 34.6k  | 32.3k    | 48.3%
34.6k - 38.0k  | 35.3k    | 0.1%

Show all Images locations

Seed Spacing Average: 8.85 in

Export Insight

TARANIS
Emergence count

Emergence Count 06/28/2019

Avg. number of plants

30907 per ac

Heatmap

- 20.9k - 24.5k: 23.3% 2.9%
- 24.5k - 27.7k: 26.4k 9.0%
- 27.7k - 31.2k: 29.7% 35.7%
- 31.2k - 34.6k: 52.9% 48.3%
- 34.6k - 80.0k: 55.1% 61.1%

Show all images locations

Seed Spacing Average: 6.85 in

Export Insight
**TARANIS**

**SATELLITES**
- Generates initial analysis and priority before activating UHR & AI²
- Monitors issues detected via UHR & AI²

**UHR**
- Prioritizes AI² scouting
- Generates zones for VR Fertilization
- Whole field anomaly detection
- Trial plots · Breeding · Seed production – at phenotyping level

**AI² - SUB MM IMAGERY**
- Crop emergence and stand count report at sprout level
- Weeds · Insect · Disease identification at species level
- Individual heatmaps of weed, disease, insect damage, stand problems etc...
THANKS!

- TARANIS