THESSALONIKI
digital analytics
MEETUP

Precision Agriculture: Drones Impact

Vassilis Polychronos
GeoSense CTO

Sales

WorkShops

Technical Support

R & D

...

GeoSense UAS Academy
powered by FILMCOPTERS

beyond GeoSense tandards

Training

Certifications

Consulting

R & D

...

Our Business Verticals

SURVEYING

- Land surveying
- Mining surveying
- GIS & Mapping
- Forensics
- Thermal Modeling

AGRICULTURE

- **Crop Science**
- **Forestry**
- **Turfgrass Management**

CONSTRUCTION

- Earthworks
- Site Management
- Building Inspection
- BIM

REAL ESTATE

- Communication
- Landscape Modeling
- Architecture
- Hobby & Design

> *“In the current milieu, use of sustainable information and communication technology in agriculture in not an option. It is a necessity.”*

Gerard Sylvester, Knowledge and Information Management Officer
Food and Agriculture Organization, UN

FACTS

PLANET'S POPULATION IS EXPECTED 9.7bil BY 2050

YIELD PRODUTION MUST INCREASE 70%

NEED TO BOOST ECOFLIENDLY PRACTICES

SHORTAGE OF LABOUR

CHANGES IN CONSUMER PREFERENCES

CLIMATE CHANGE

SORTAGE OF NATURAL RESOURCES

RISING COSTS OF SUPPLIES

Advancements in Technology have made Modern Agriculture Technology a reality aiming at:

- Higher Crop Production
- Decreased use of water, fertilizer and pesticides – Thus less input cost
- Reduced impact of natural ecosystem
- Less runoff chemicals into rivers and groundwater

DRONES in AGRICULTURE

SCOUT

Fast, Actual, Efficient, Accurate and Objective bird's eye view to crops, reveals issues such as irrigation problems, soil variation, and stress

ASSESS

Collect actionable data to identify and measure the problem, document it and report it for insurance claims

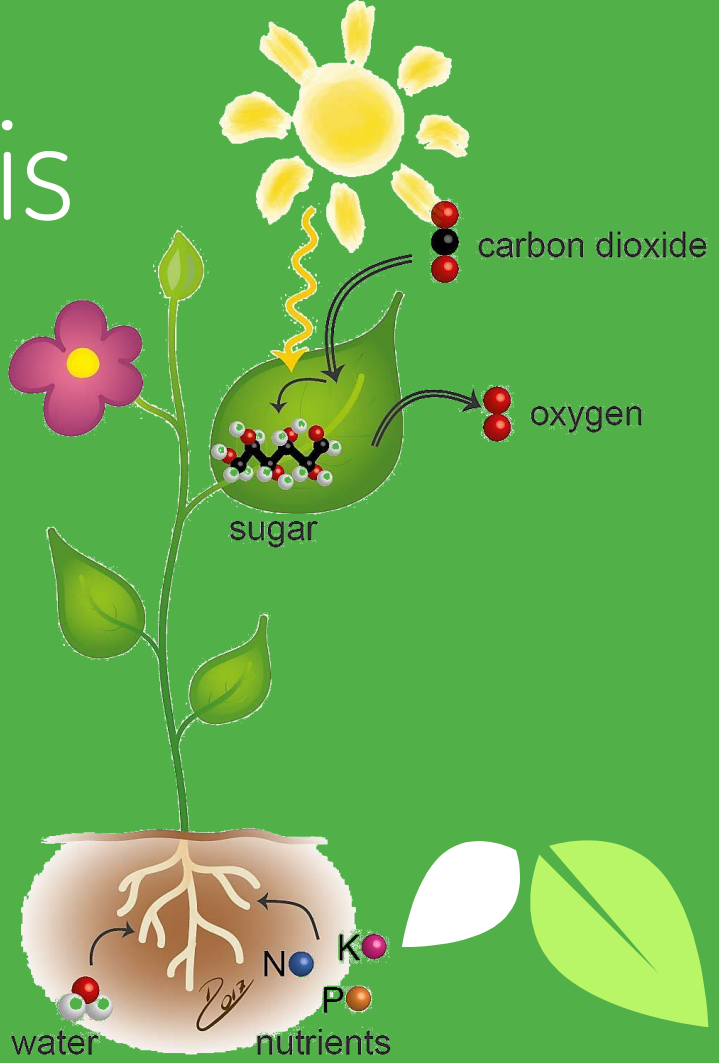
MEASURE

Create Prescription maps, Measure the treatment cost, apply accurate treatment in every field zone. Keep your running costs under control

How Drones Are Revolutionizing Agriculture?

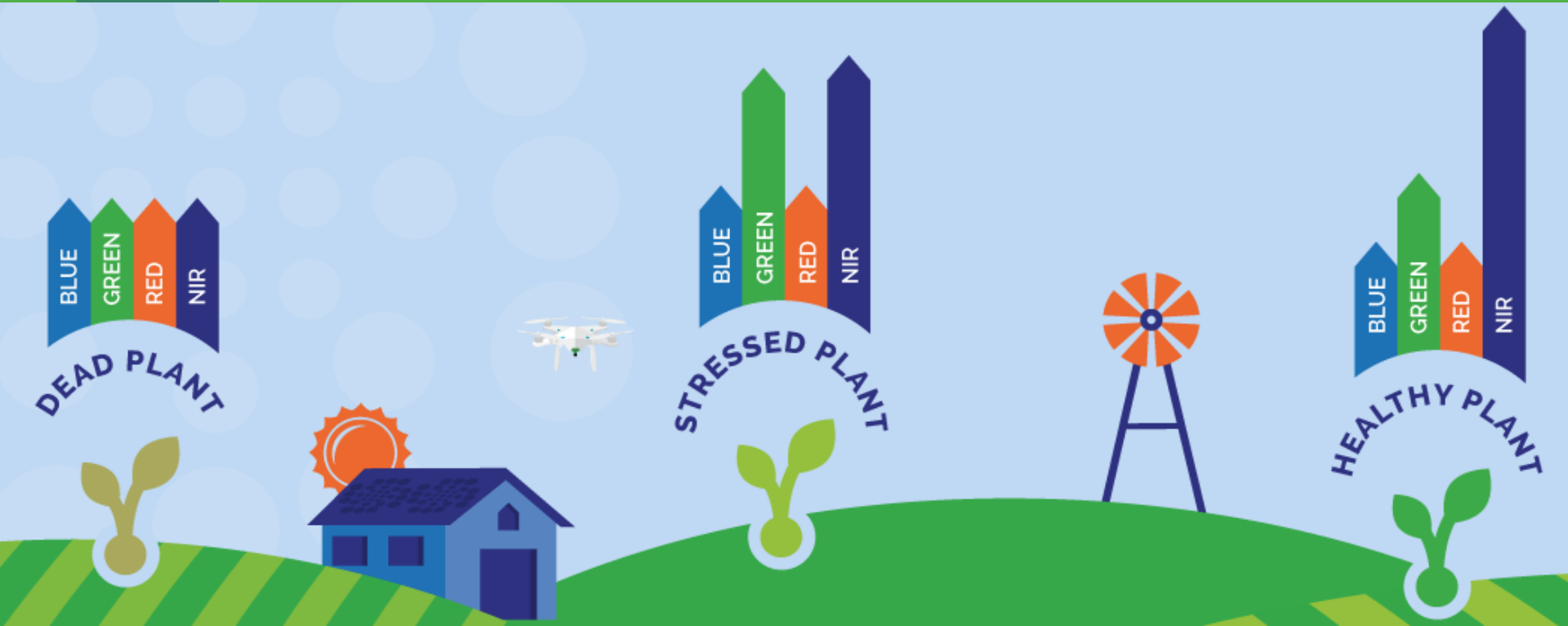
Photosynthesis

The biggest biochemical reaction in planet

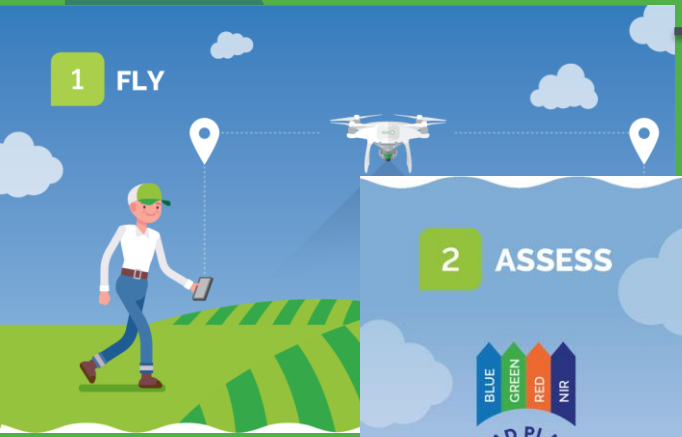


beyond GeoSense standards

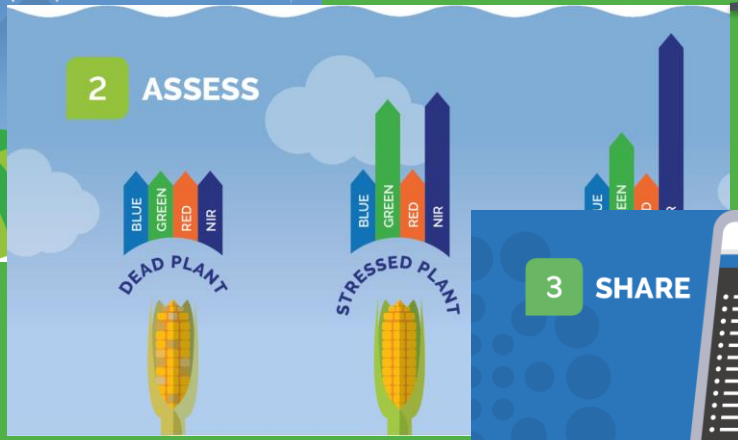
Vegetation Index



Workflow and Roles



Drone Service Provider

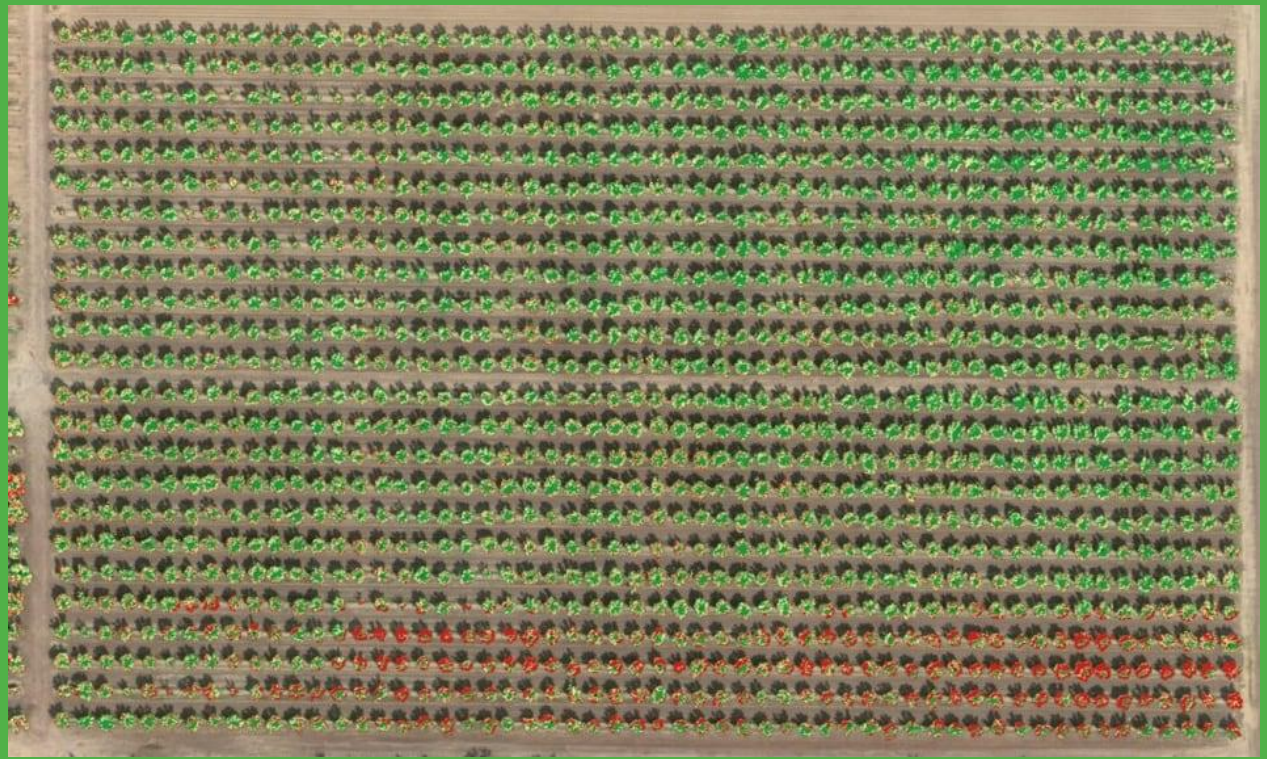


Analytics Expert

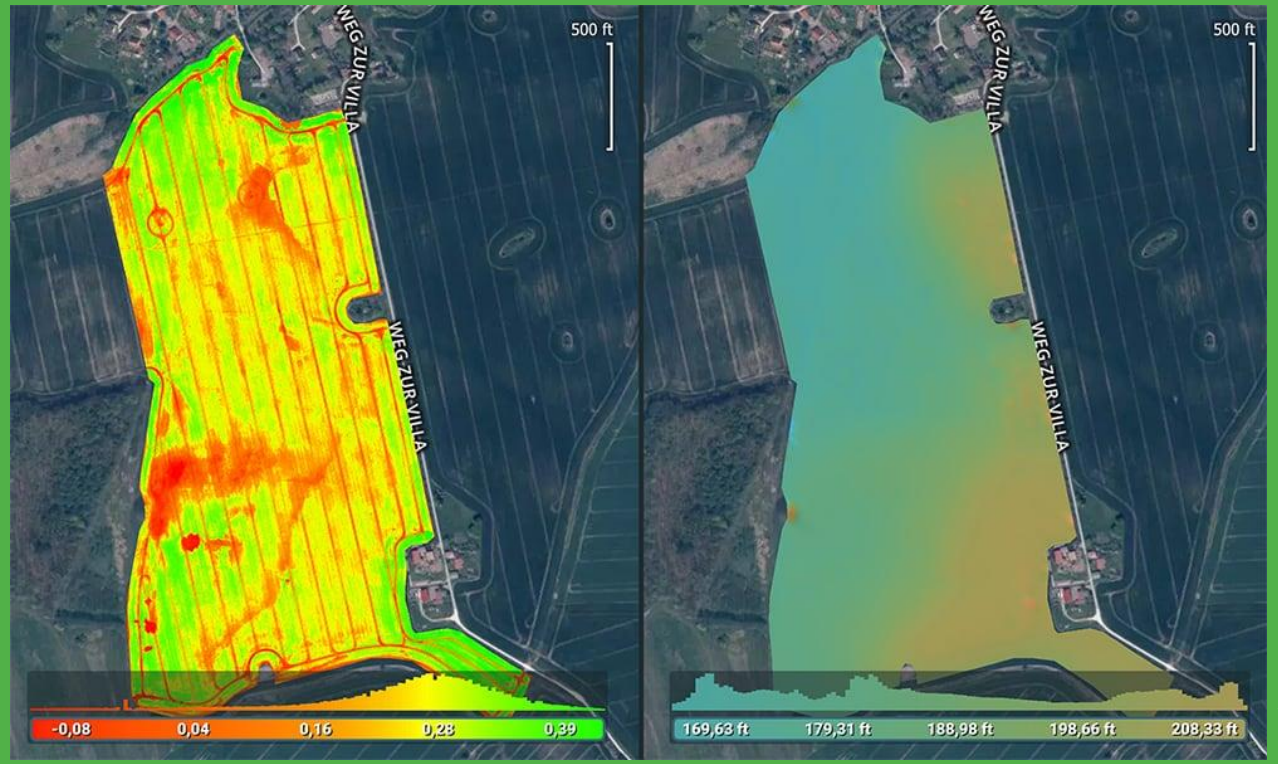
Agronomist

Farmer

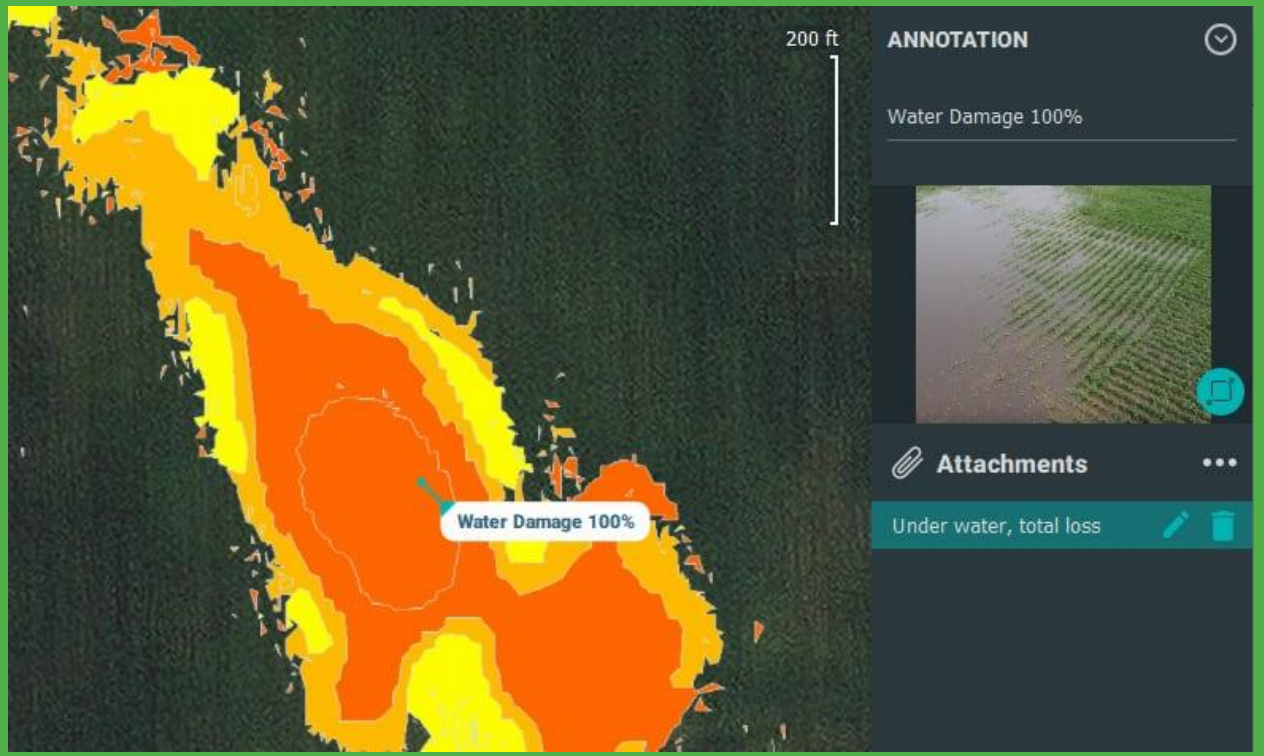
Chlorosis Study



Identify Irrigation problems



Damage Assessment



Plant Counting

PLANTS COUNTED
58,102

AVERAGE PLANT DENSITY
65,283.1 / Hectare

PLANNED SEEDING DENSITY
67,000.0 / Hectare

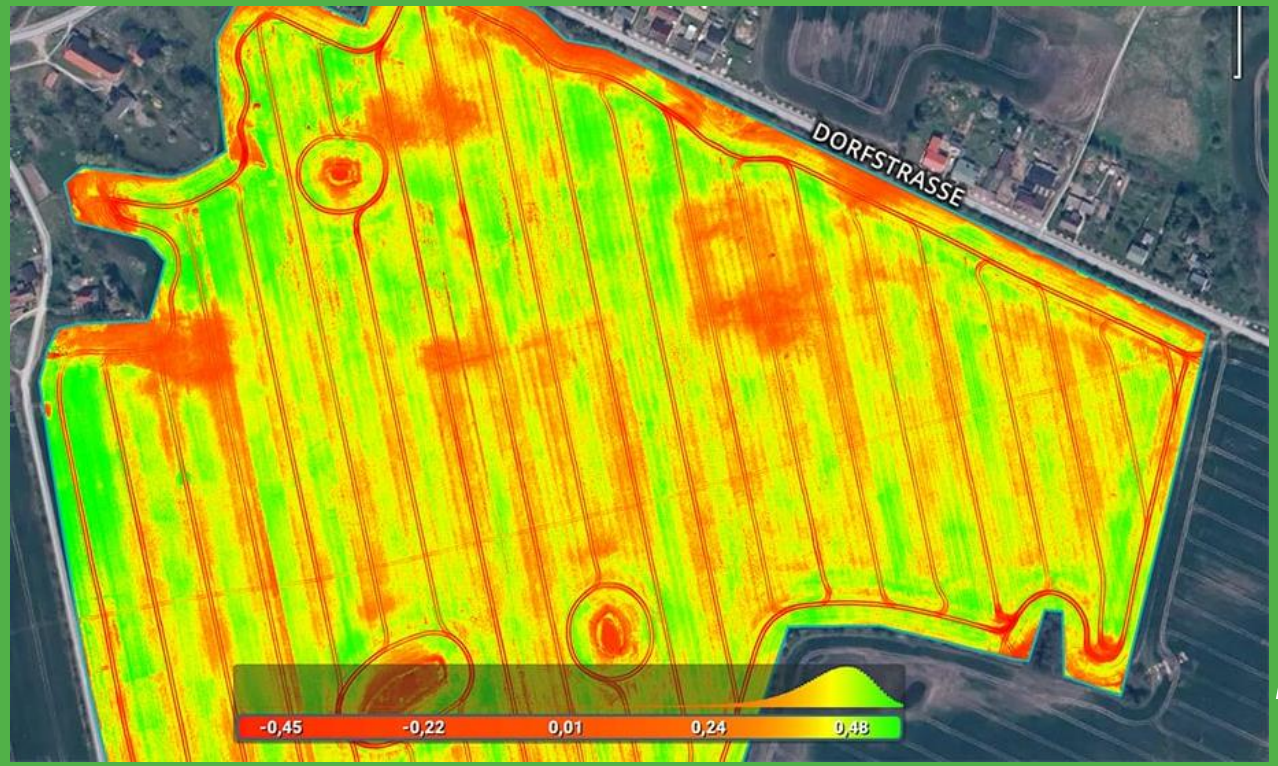
The difference between the counted number of plants and the planned number of plants is

3%

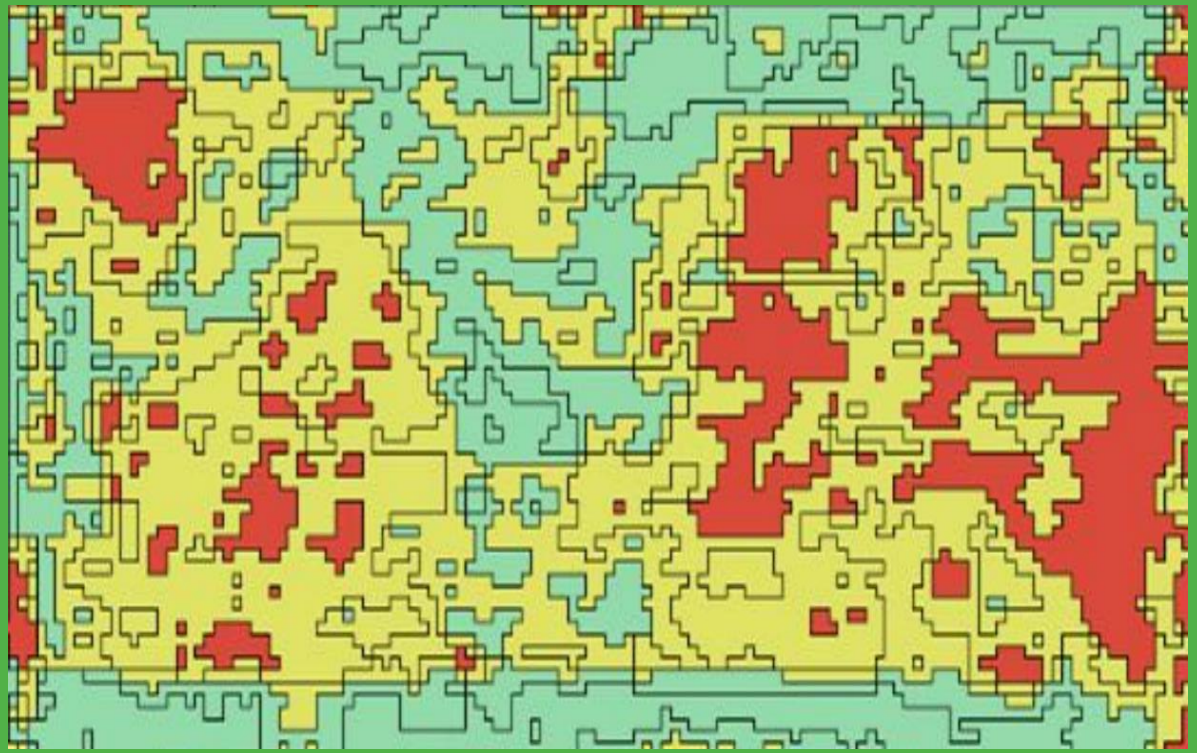
UNDER NORM

which is close to 1,528 plants

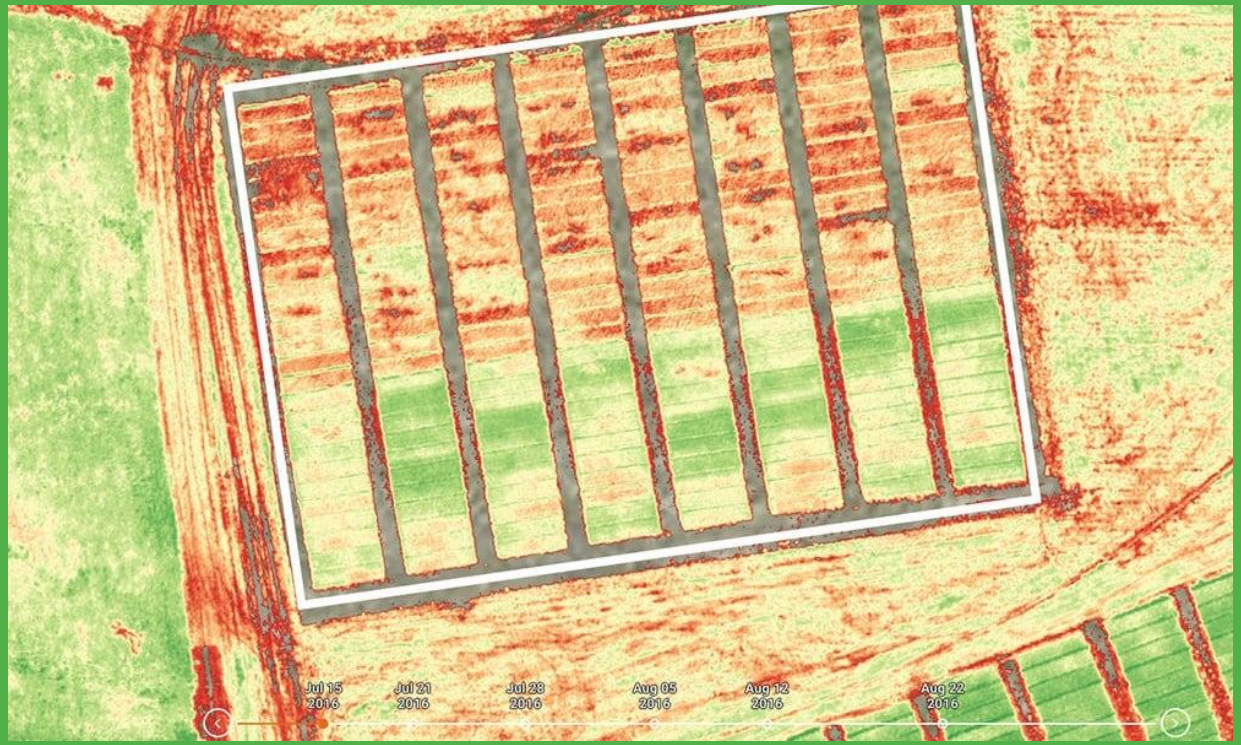
Assess Plant Health



Prescription Maps



Test Plots


Jul 15
2016
Jul 21
2016
Jul 28
2016
Aug 05
2016
Aug 12
2016
Aug 22
2016

Spot Spraying

beyond GeoSense standards

1. senseFly Drones

senseFly

Turn-key solutions for every aerial works application

2. Parrot Drones

The most complete Agri-Scouting system powered by Pix4D

Parrot
BLUEGRASS

3. DJI Drones

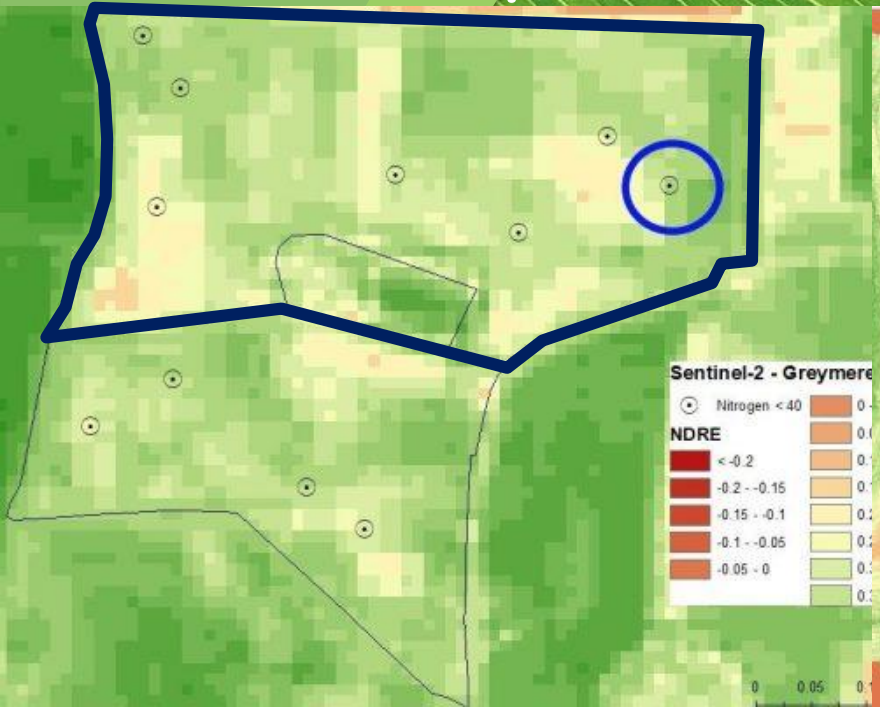
Aerial crop scouting and spraying solutions

beyond GeoSense standards

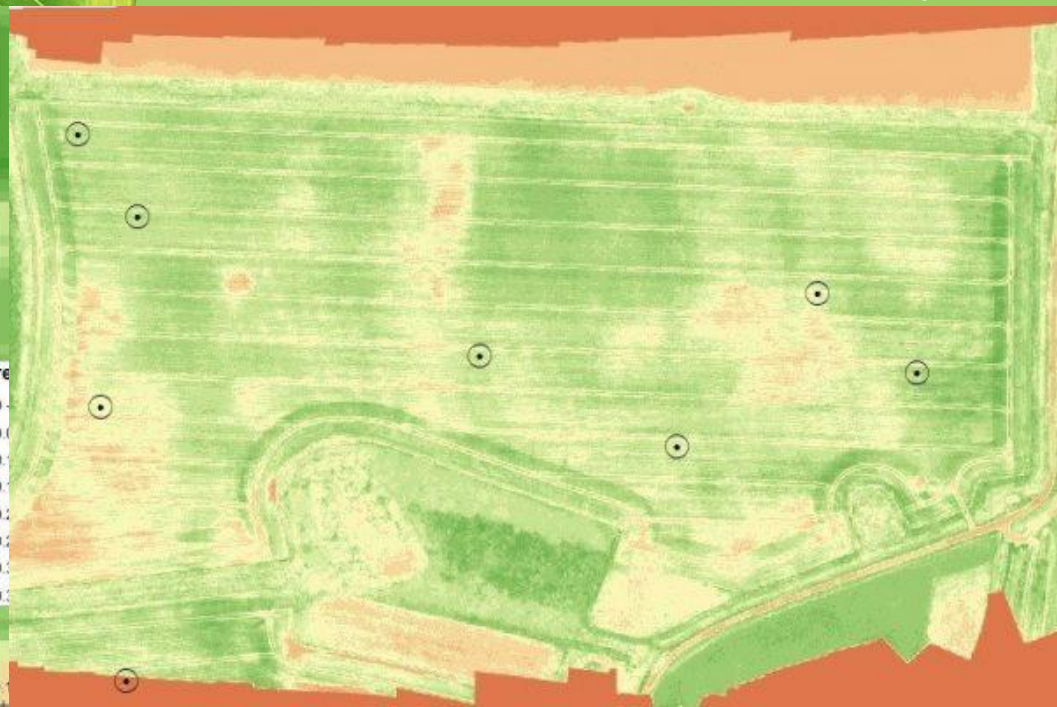
4. Special Cameras

Drones or Satellite images?

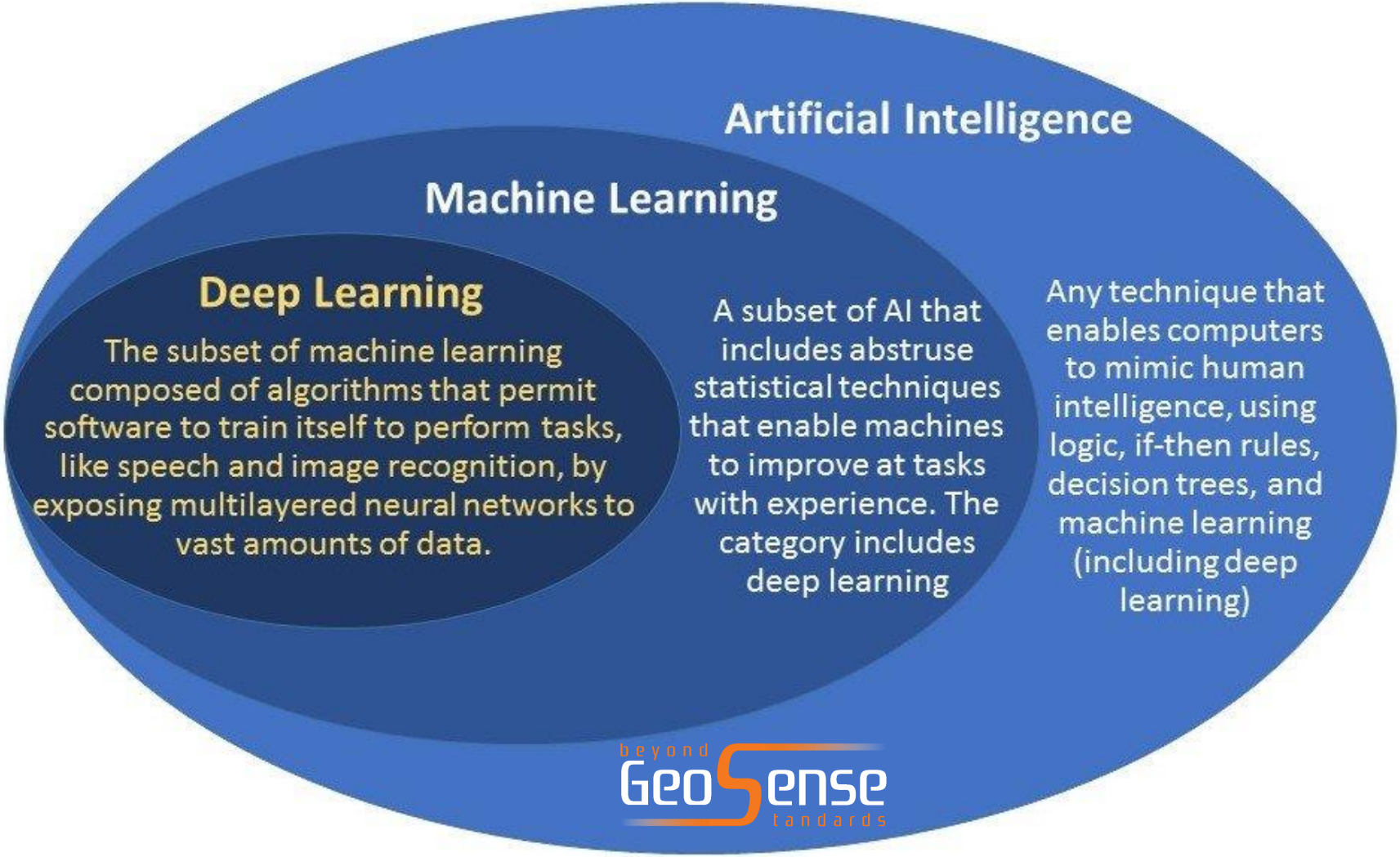
Sentinel 2 @ 10m/pixel



Drone @ 20cm/pixel



Artificial Intelligence – next big thing


Artificial Intelligence
Any technique that enables computers to mimic human intelligence, using logic, if-then rules, decision trees, and machine learning (including deep learning)
Machine Learning
A subset of AI that includes abstruse statistical techniques that enable machines to improve at tasks with experience. The category includes deep learning
Deep Learning
The subset of machine learning composed of algorithms that permit software to train itself to perform tasks, like speech and image recognition, by exposing multilayered neural networks to vast amounts of data.
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Adoption Barriers – HELLAS

Production Side

- Small land ownership
- Scattered Ownership
- Traditional Practices
- Poor Knowledge
- Need for better consulting services to farmers

Technology Side

- Payloads are expensive
- Limited connection with tractors and other machinery
- Relatively small drone performance

Thank you

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