GeoPard Agriculture

All-in-One Precision Ag Platform and API
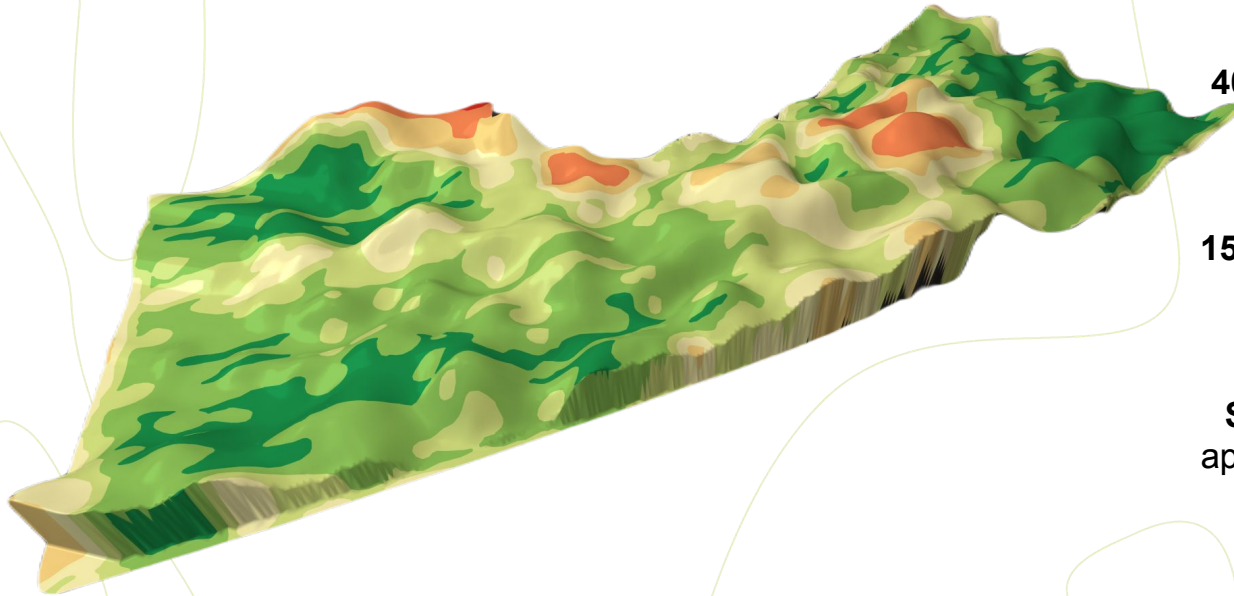
June 2024

geopard.tech

docs.geopard.tech

dmitry.dementiev@geopard.tech

Digital Twin of a Field

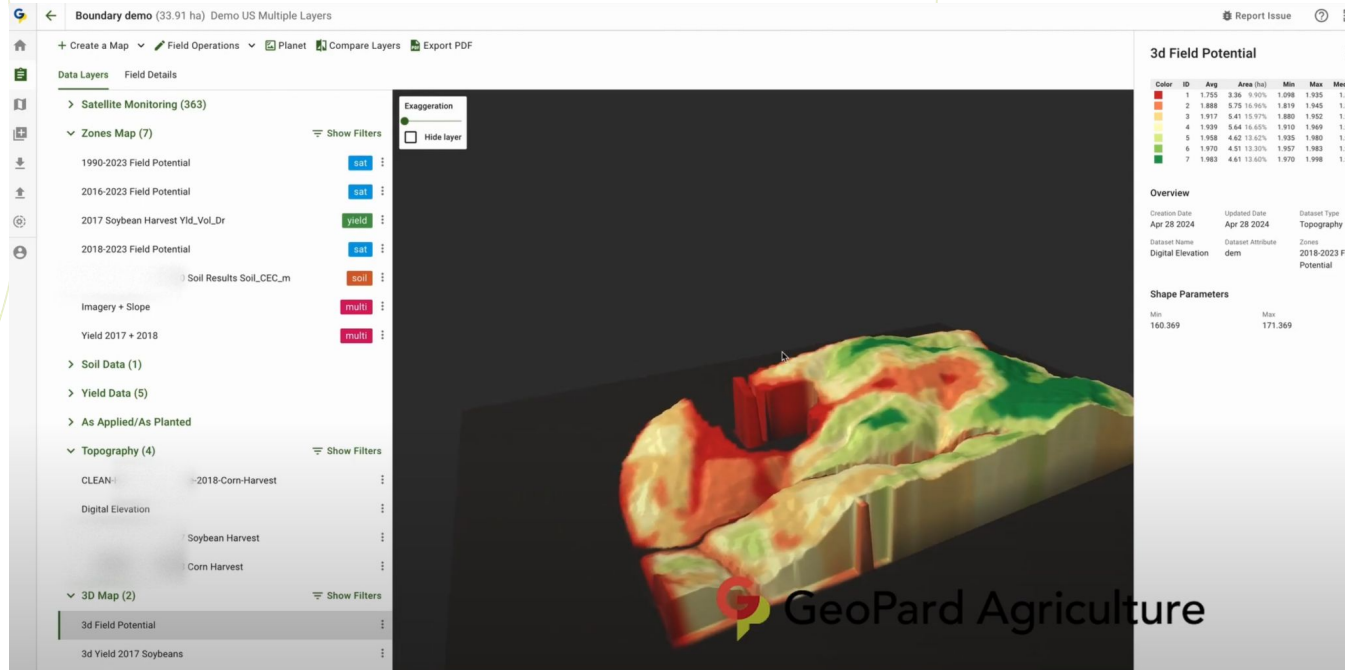**400%** - average difference of yield in **high** and **low** crop productivity zones

40% - share of ag inputs costs in crop production

15% - economic efficiency from optimal distribution of Ag input resources

Sustainable farming - variable rate application, no-till, cover cropping, crop rotation, carbon markets

Pricelessly for Environment - reduction of fertilizers, crop protection and water usage

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Simplify complexity

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1 Min Demo Video

[Youtube video link](#)

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About GeoPard

[GeoPard](#) is an agriculture intelligence platform that enables crop farming agribusinesses to increase ROI and integrate data-driven sustainable agriculture practices using cutting-edge spatial data analytics and AI algorithms.

GeoPard automates workflows to create Variable Rate Application maps for seeding, fertilizing, and crop protection based on various data sources such as satellite imagery, yield, soil, topography, machinery data, and custom agronomic logic (including multi-layers & equations).

GeoPard provides its solution as White-label, On-premise, API, web, and mobile applications.
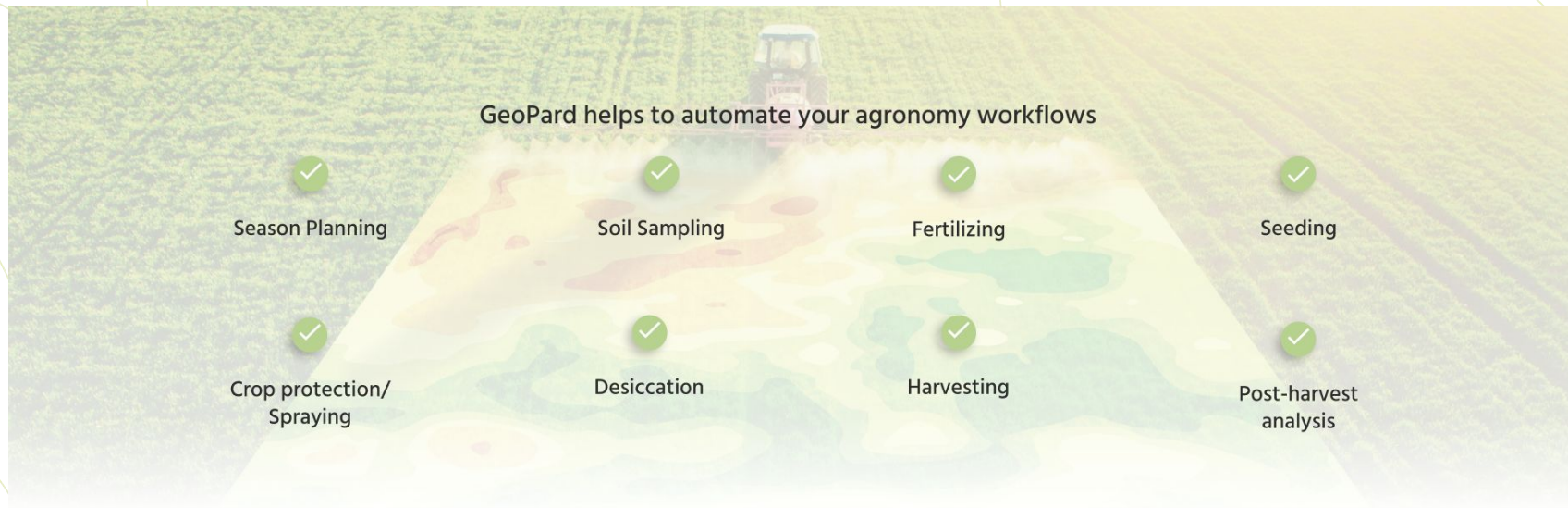
Value for Clients

GeoPard is committed to advancing soil health using state-of-the-art spatial technology. Our platform integrates remote sensing, sensor, topography, and machinery data, providing an all-in-one solution tailored for precision & sustainable agriculture. By transforming farm data into actionable insights, we aim to optimize yields and minimize costs. Above all, we prioritize data security, ensuring that all information remains under the exclusive ownership of our clients.

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# Automated Platform for Precision Agriculture

Satellite data
- Multispectral: LANDSAT4-9, SENTINEL2, PLANET

Machinery data
- As-Applied datasets of fertilizing, sprayings
- As-Planted data
- Yield data: Grain moisture, Protein, Oil Content

High-density ground scanner data
- Electrical conductivity
- Soil moisture & Nutrients

Soil sampling data
- Laboratory analysis

Topography
- LIDAR
- ASTER, SRTM, Local country data
- Based on GPS data

Variable Rate Application maps for PrecisionAg
- fertilization
- desiccation
- seeding
- soil sampling
- crop protection

Equation Based Analytics
- Profit Maps
- Nutrient Use Efficiency
- Uptake Calculations
- Accuracy of As-Applied

Custom Analytics Pipelines

Scouting & Soil sampling recommendations

Benchmarking
- field heterogeneity
- field potential
- field current performance
- yield limiting factors

Integration with the John Deere Ops Center

Biodiversity & Regenerative Ag

API consumers
- Platforms and Services
- Mobile App
- Web Apps

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Agricultural Season with GeoPard

GeoPard helps to automate your agronomy workflows

Season Planning

Soil Sampling

Fertilizing

Seeding

Crop protection/ Spraying

Desiccation

Harvesting

Post-harvest analysis

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How It Works

Automated powerhouse for sustainable and precision agriculture

- VR maps based on multiple data layers
- Flexible agronomic logic: apply any math/formula/equation to calculate recommendations
- Support of all common data types: satellite imagery, radar imagery, machinery data, scanners and sensors
- Automated solution for recommendations >> Hyper-Automation of agronomy
- Simple UX for fast manipulation with complex agricultural data
- Powerful API for integration into customer solutions and business processes
- Enabler for transition into Sustainability and Carbon efficient practices
- A.I. & Big Data
- Mobile apps with offline mode

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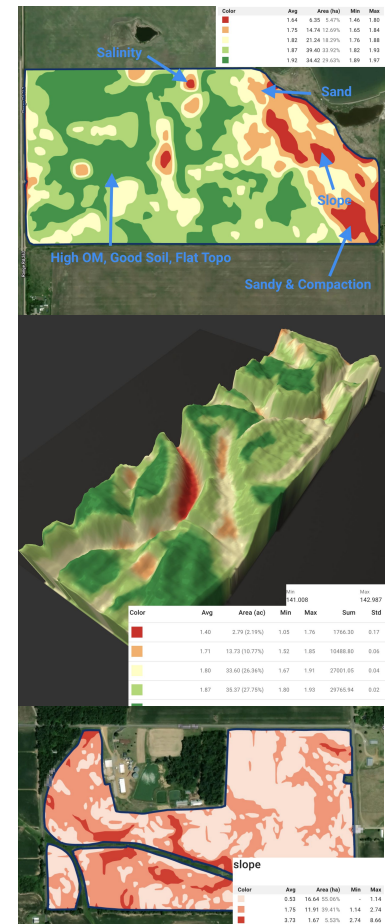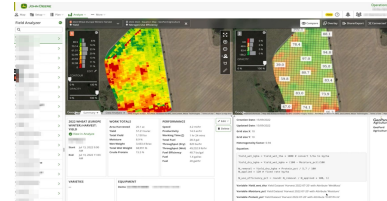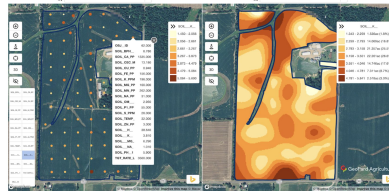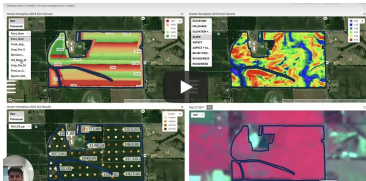
Team

Build solutions as one team for 10+ years in Precision Agriculture

2012	ZONER.AG precision agriculture platform	**2015**	BAYER / xarvio Digital Farming Solutions	**2019**	GeoPard
Co-founders of Zoner. The solution was popular in the Canada, US & eastern EU. Acquired by Bayer in 2015.		Technical Managers of Bayer Xarvio Digital Farming (now BASF).		Co-founders of GeoPard Agriculture	
Developed VRA maps & soil sampling engine widely used in the US, Canada, Europe		Mastered integration and developed foundation of Xarvio Field Manager, incl. GIS engine		**Automated decision support system recommendations and post-harvest analytics**	

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Variable Rate Use Cases

VR fungicide application

Data: Current vegetation & bare soil
Crop: Wheat

32% less crop protection applied
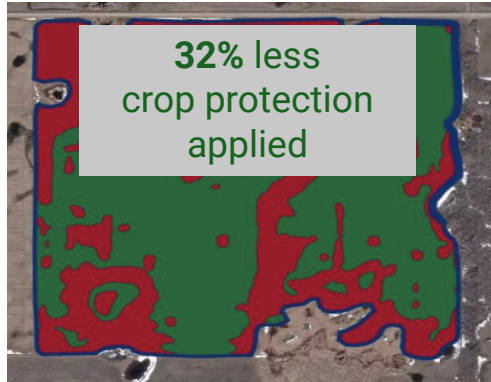
VR seeding

Data: Soil sampling (Organic Matter) + Topography + Last 15 years Field Potential
Seeding rate: 60k-85k/ha
Crop: Corn

20% cost saving on ag inputs
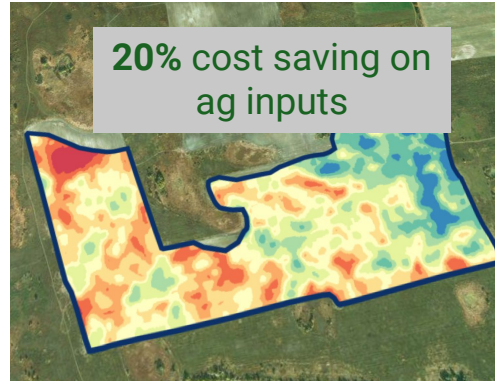
VR fertilizing

Data: ground scanners (SoilOptix, GeoProspectors, Electrical Conductivity), Topography, Historical vegetation
Crop : Canola

30% less nitrogen applied

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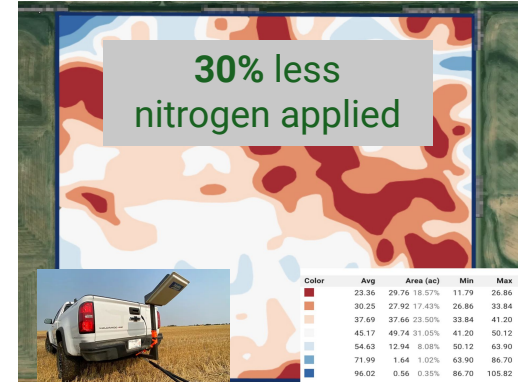
Variable Rate Seeding maps based on Electrical Conductivity soil scanner data

Verified:

- Seeding VRA map for Barley
- Spraying VRA after Drone Spray Application
- Upcoming Fertilization and Seeding VRA maps

[Documentation](#)

Corteva Use-case

WHO: Corteva Agriscience, Ag inputs manufacturer, USD 14.2B revenue, 21 000 employees.

SOLUTION: Automated Prescription maps & farm data analytics via API

RESULTS: Launch Smart Farming commercial apps in EU countries in just 1 year

AWS Blog post

JohnDeere Ops Center Integration
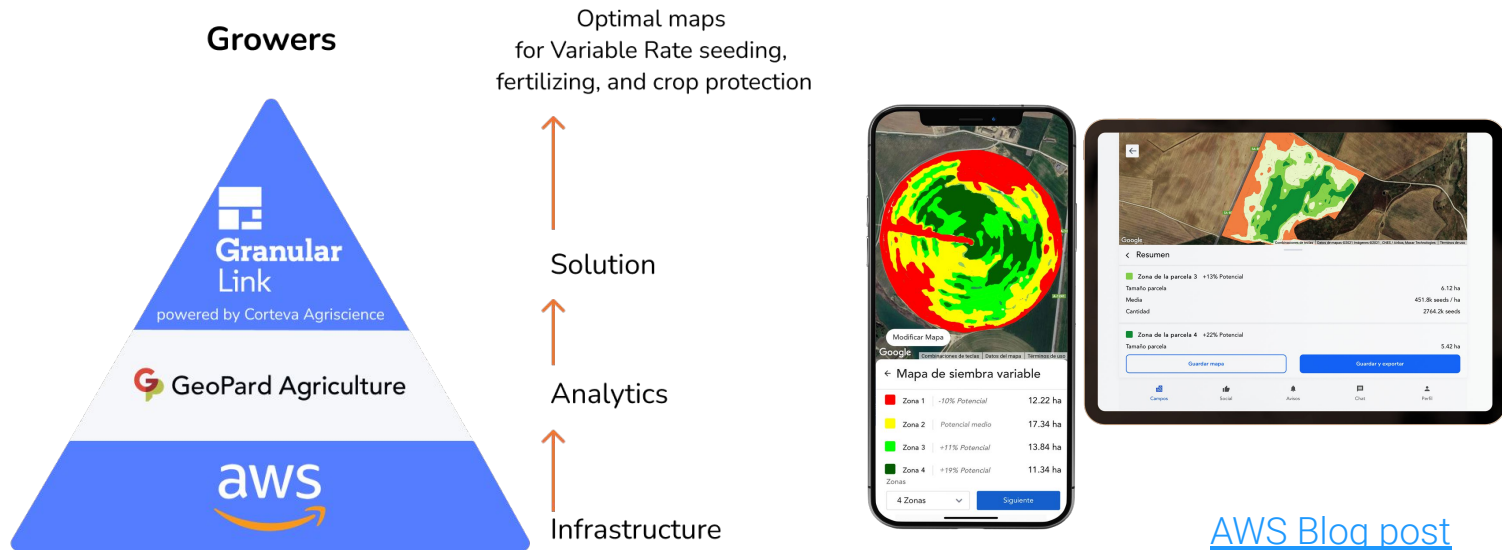
Deere & GeoPard workflows

GeoPard seamlessly integrates with the John Deere Operations Center, bringing advanced analytics to the forefront of precision farming.

Our platform enhances the capabilities of John Deere tech, providing dealers and farmers with actionable insights for optimal agricultural outcomes.

Start Free. Empower Your Operation Center Now.

GrainSensing HarvestLab data analysis

Use-case LVA, John Deere dealer helps farmers to calculate Fertilizer use efficiency by analyzing Protein, Harvesting, As-Applied data in GeoPard. Read the use-case

- GeoPard augments Ops center with analytical layers: topography, soil, Profit mats, NUE maps, cleaned/calibrated Yield
- Data automatically flows bi-directionally
- geopard.tech/johndeere
- Integration Overview and Tutorial

- Work Plans creation

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Yield Aggregation, Cleaning & Calibration
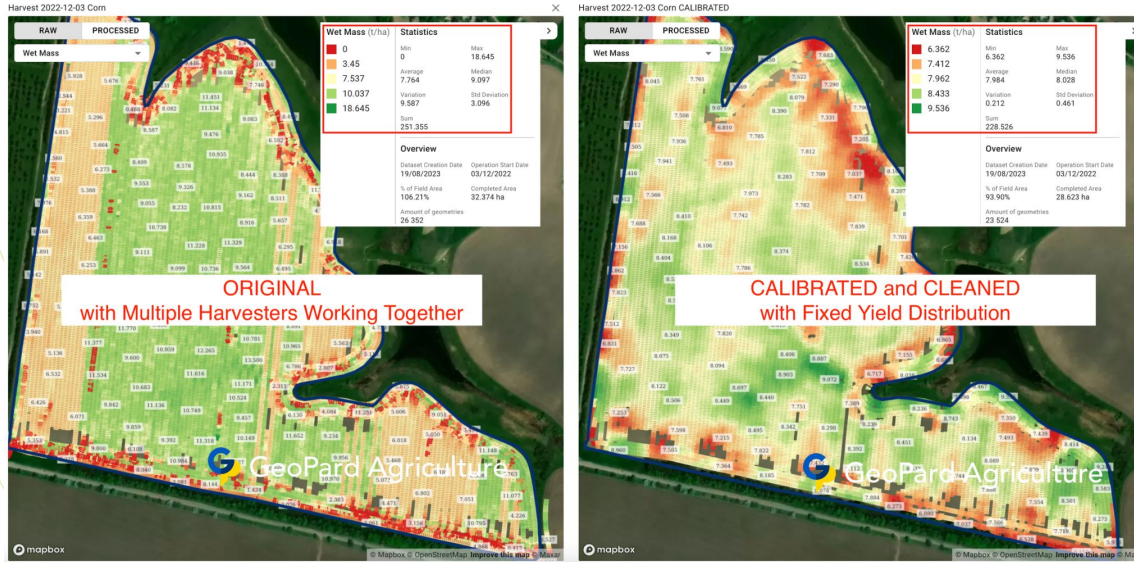
A.I. based automated yield cleaning & calibration
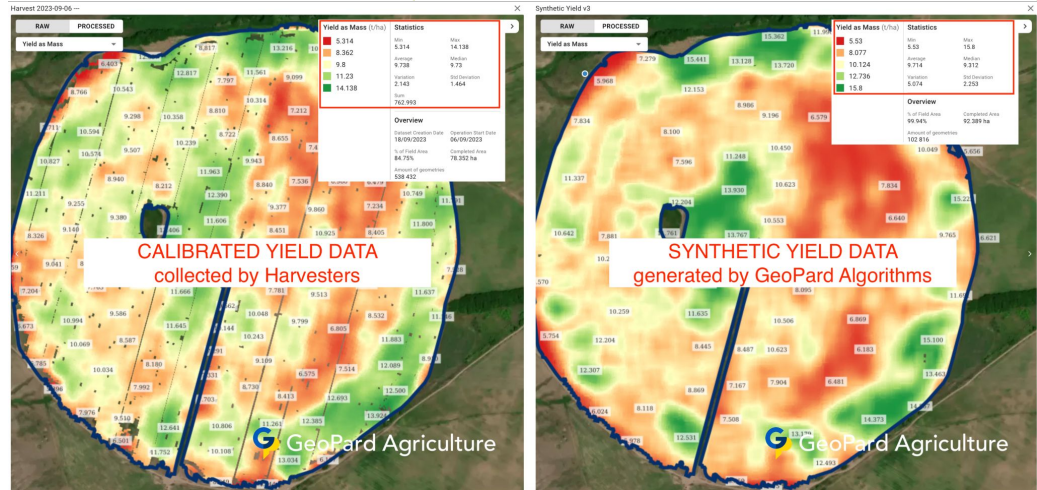
Tutorial

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Synthetic Yield Maps

87% Accuracy

Based on total or average yield
GeoPard creates Yield dataset
[Read more](#)

CALIBRATED YIELD DATA
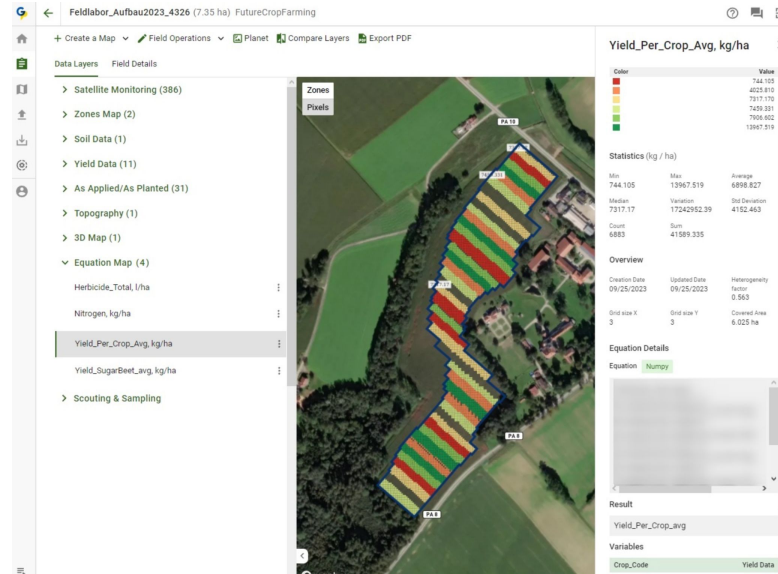collected by Harvesters

SYNTHETIC YIELD DATA
generated by GeoPard Algorithms

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Automated Scouting Tasks

Reduce Field Visits & Fuel Consumption

[Read more](#)

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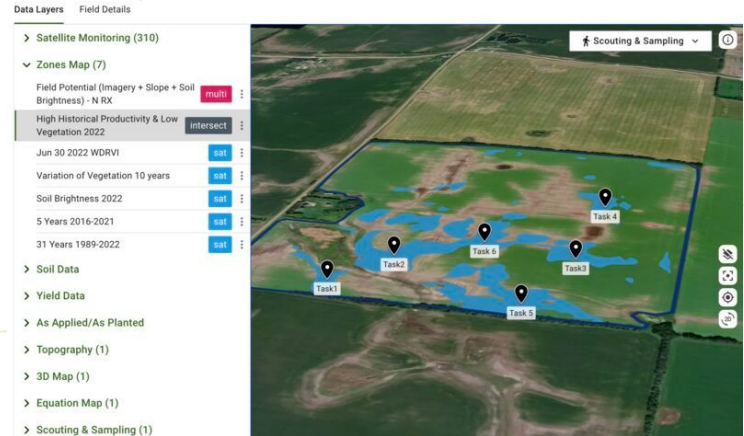
Measure Regenerative Farming Practices

Read: Visualizing Economic Impacts of Sustainable Farming

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LfL

Multi-layer Maps

Delineation of management zones based on a combination of any data layers available in GeoPard with the flexibility to set a weight for each layer.

Example: 8 Years Historical Productivity (weight=1) and Slope (weight=-1)

Popular layers combinations:
- Satellite imagery (historical or in-season) and EC data
- Soil Sampling and Topography
- A mix of multiple vegetation indices

Avg	Area (ha)		Min	Max
0.37	8.73	4.53%	0.20	0.42
0.48	24.44	12.68%	0.42	0.52
0.56	38.77	20.11%	0.52	0.60
0.63	42.70	22.15%	0.60	0.66
0.69	39.34	20.41%	0.66	0.73
0.76	29.36	15.23%	0.73	0.81
0.85	9.43	4.89%	0.81	0.97

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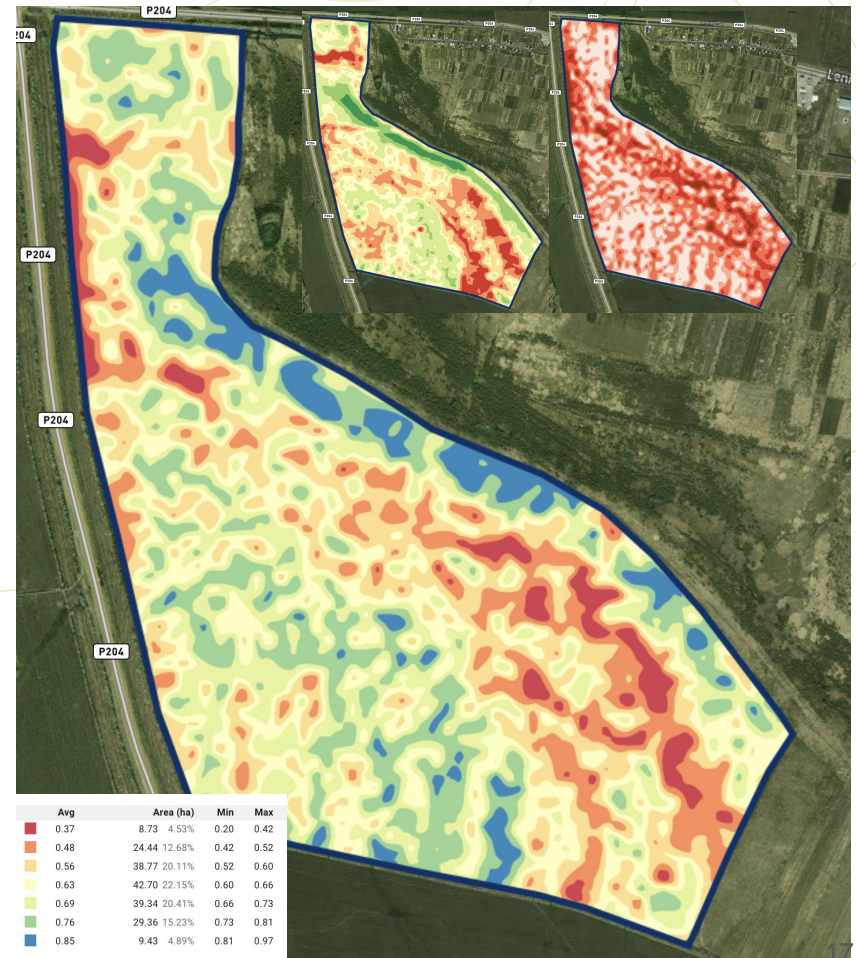
Automated Field Potential Maps

Automated multi-year (up to 30 years and
the last 6 years stacked) field potential maps. Patented.

The heterogeneity index helps
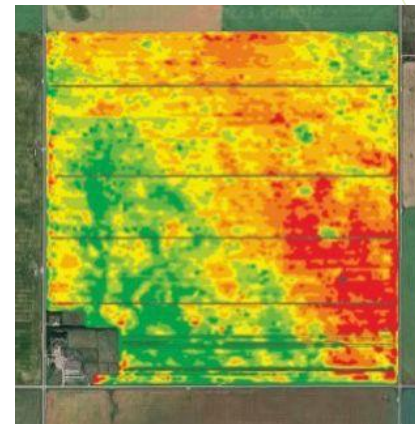benchmark fields and prioritise ag operations.
Blog: Multi-Year Zones
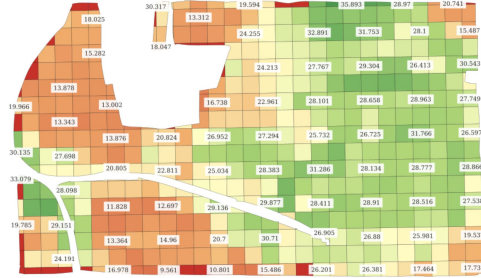Blog: Heterogeneity Factor

GeoPard Field Potential   VS   Yield data
maps

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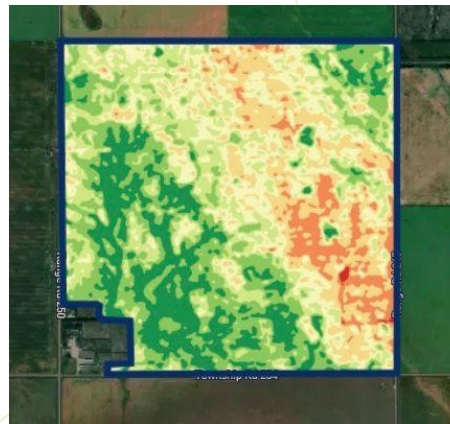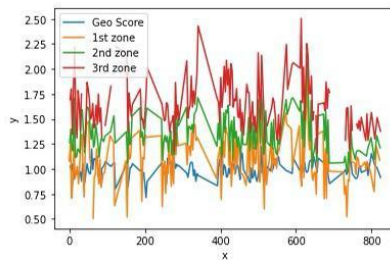
Equation based Analytics

- Integrate multiple data layers.
- Use GeoPard templates or **create your formulas**.
- Calculate sub-field level ROI and economic efficiency.
- Integrated Variable Rate recommendations.
[Blog post with examples](#)

Tri-State: Indiana and Michigan Liming Rates for Organic Soils

PDF Source

When the Target pH is 5.3 and the soil pH is < 5.3, then the LR = 37.6−(7.1 x soil pH).
When the Target pH is greater than 5.3 and the soil pH is < 5.3, then the LR = [37.6 x (7.1 x soil pH)] + [(target pH−5.3) x 5.0].
When the Target pH is greater than 5.3 and the soil pH is > 5.3, then the LR = [(target pH−soil pH) x 5.0]

Equation in Python

```
if targetpH == 5.3 and soilpH < 5.3:
    rerturn  37.6−(7.1 x soilpH)
elif targetpH > 5.3 and soilpH < 5.3:
    return  (37.6 * (7.1 * soilpH)) + ((targetpH−5.3) * 5.0)
elif targetpH > 5.3 and soilpH > 5.3:
    return  ((targetpH−soilpH) * 5.0)
else:
    return defaultLimeRate
```

Variables from datasets

targetpH

soilpH

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VR Recommendations based on Equations

Lime Rx based on SoilOptix pH

Phosphorus Corn Recommendations
(South Dakota State University)


Potassium Removal based on Yield

Nitrogen: Target vs Applied

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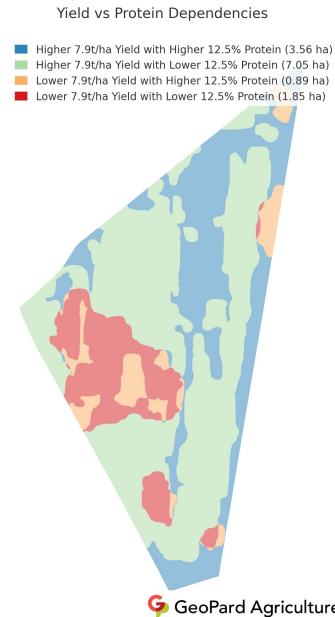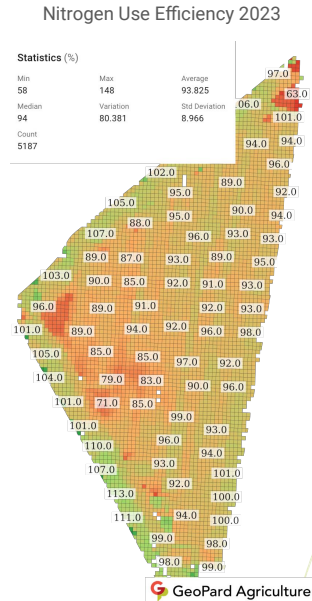# Batch Analytics

GeoPard enables creating of maps for multiple fields simultaneously

Key features:

- Generate maps for any field group, including Profit Maps and VRA maps for seeding, spraying, fertilizing, or Uptake calculations.
- Calculated field averages and **total input volumes for all fields to efficiently plan purchases**. Use any GeoPard or custom formula (including efficiency, Fertilizer Use Efficiency, Profit maps, Fertilizer uptake, or based on satellite imagery)
- GeoPard automatically smartly links variables to layers and attributes (no need to manually map the Yield Dry variable to the Yield dataset or pH to soil sampling pH - GeoPard does it for you)

GeoPard Agriculture
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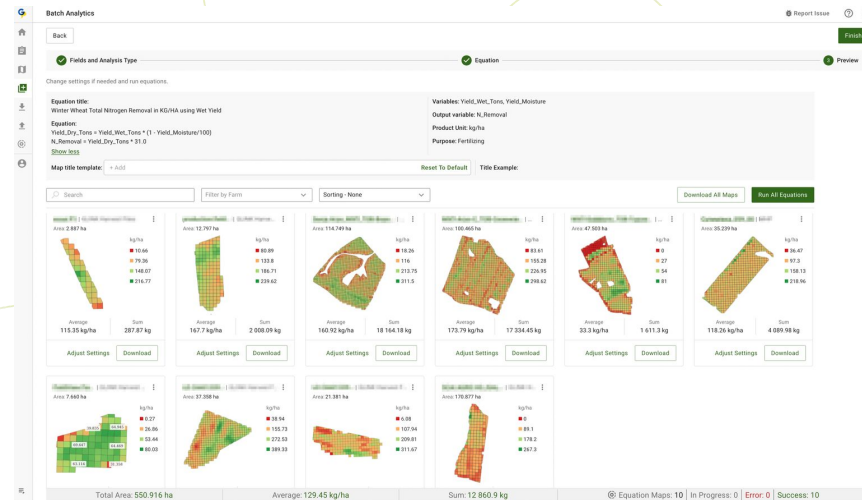
Nitrogen Use Efficiency Calculations

Use-case with a German JohnDeere dealer LVA, NUE, N Uptake, N Surplus based on GrainSensing HarvestLab, Yield

Nitrogen Use Efficiency 2023

Yield vs Protein Dependencies

- Higher 7.9t/ha Yield with Higher 12.5% Protein (3.56 ha)
- Higher 7.9t/ha Yield with Lower 12.5% Protein (7.05 ha)
- Lower 7.9t/ha Yield with Higher 12.5% Protein (0.89 ha)
- Lower 7.9t/ha Yield with Lower 12.5% Protein (1.85 ha)

Fertilizer Use Efficiency

Potassium Use Efficiency
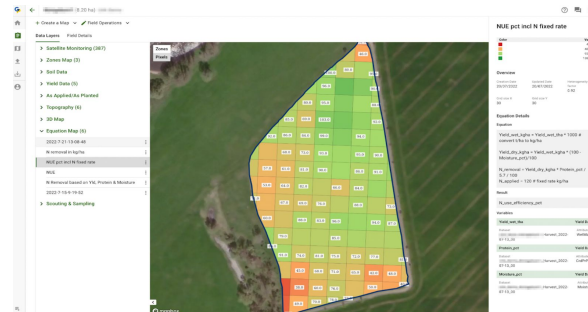
Nitrogen Use Efficiency

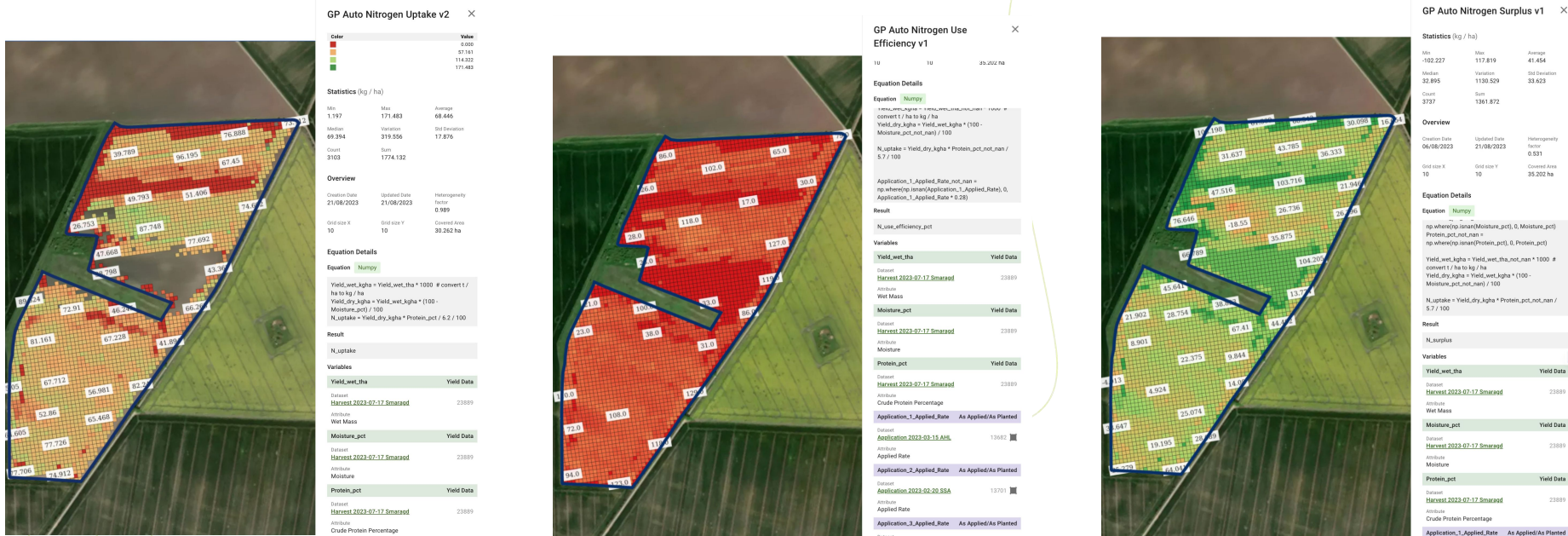Linked to the field factual data as-applied fertilizer, protein, and yield

GeoPard Agriculture
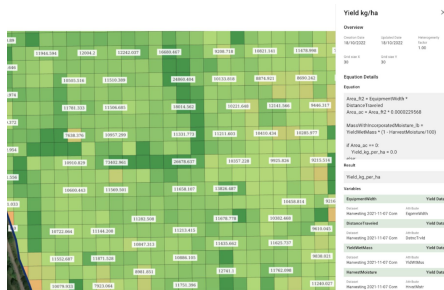Simplify complexity

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Nitrogen Uptake & Surplus

Nitrogen Uptake

Nitrogen Use Efficiency

Nitrogen Surplus
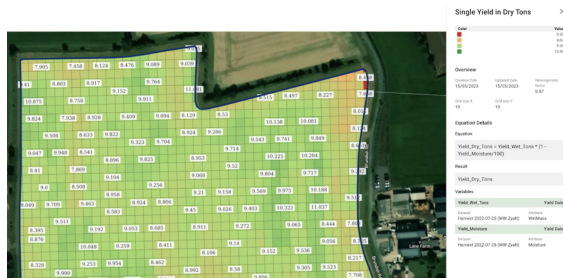
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Yield Trends

Yield Calibration and Conversion based on DistanceTraveled(ft), EquipmentWidth(ft), HarvestMoisture(%), YieldWetMass(lb)

Yield Trend above/below Average

Dry Yield Calibration based on HarvestMoisture (%) and YieldWetMass (lb)

Yield Trend for 4 Datasets

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As-applied vs Rx
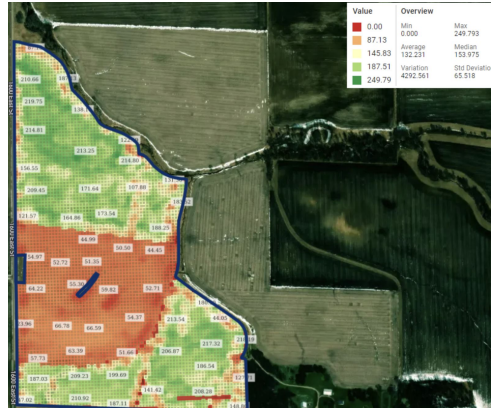

Cluster As-Planted Data to evaluate the Application
Accuracy:
1) nodata 2) below acceptable range 3) in acceptable range
4) above the acceptable range

[Read more](#)

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Yield Aggregation, Cleaning & Calibration

Merging 2 Yield Datasets, harvested in Different days

Combining and Calibrating datasets

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Profit Maps
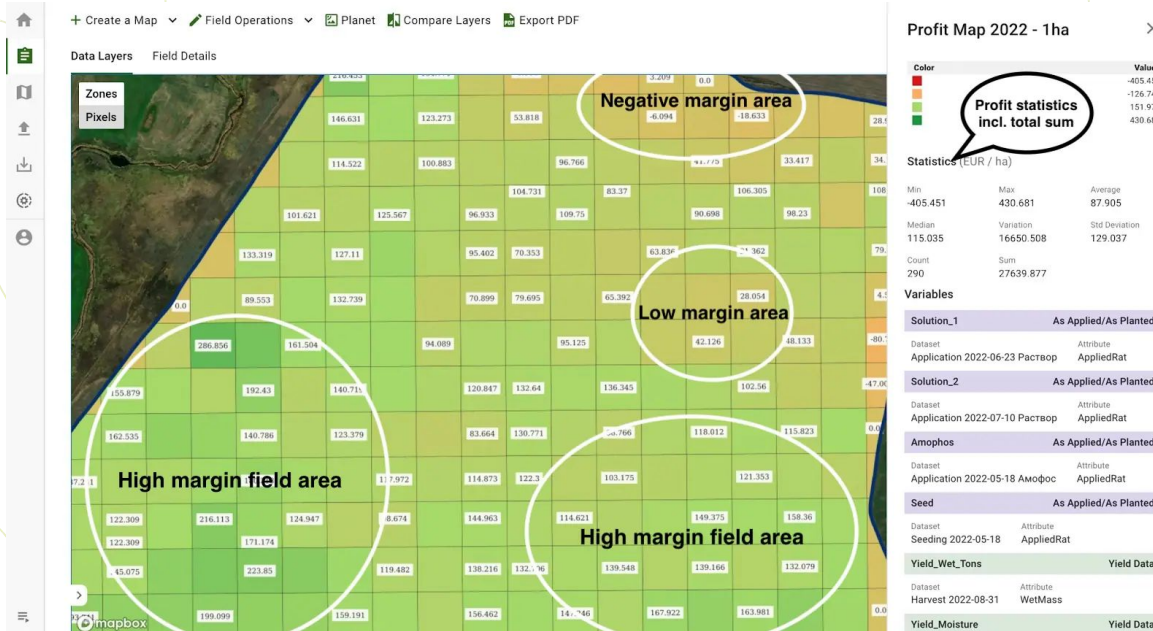
Cross-Margin Profitability maps are calculated based on factual farm data: as-applied (fertilizer, crop protection), as-planted, harvesting.
[Read more](#)

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Use-Cases From Brazil

Multi-layer farm
data analytics &
correlation analysis

Lucas Rios do Amaral, Professor, PhD,
Specialist on Precision Agriculture
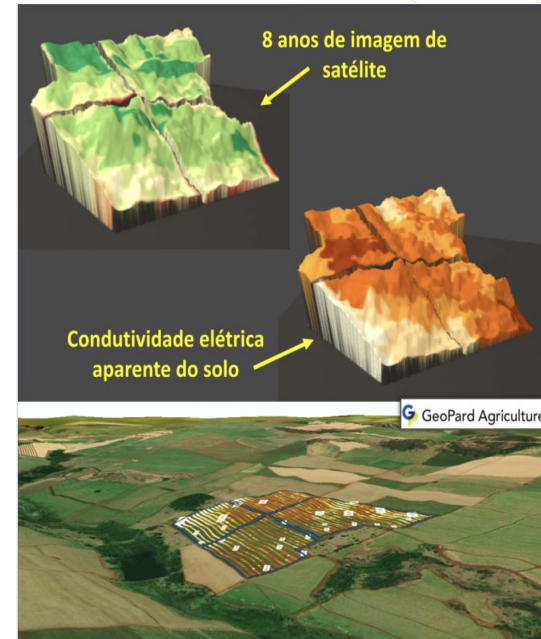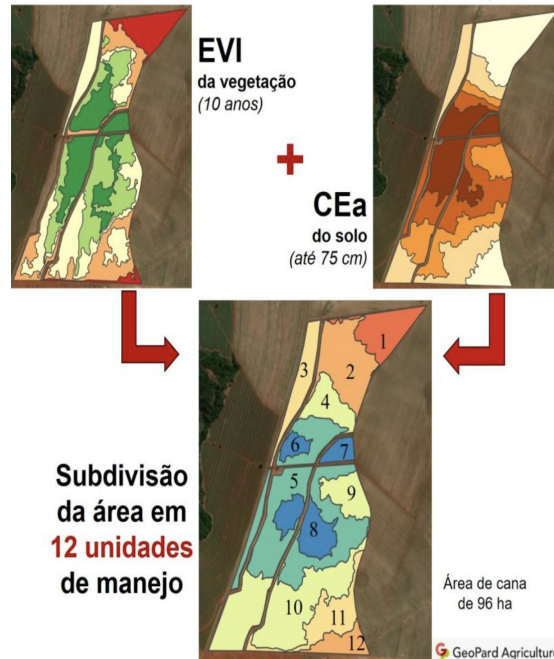
Equations: Use Cases - Yield Stats & Slope for VRA
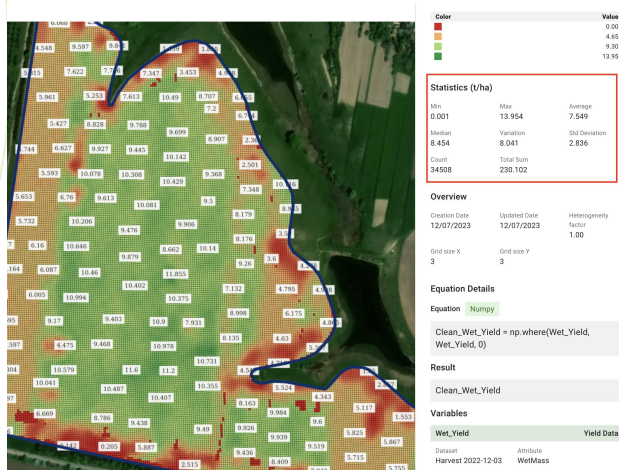
Yield Distribution (Statistics) including
Total Collected Yield

Convert Slope into Factor for VRA
Fertilizing, Seeding, Crop Protection

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3D Maps in Browser

Learn geospatial dependencies between data layers.

Combine **a base layer** (topographic, slope, relief positions, soil properties, or vegetation distribution) and **a cover zones map** (zones from yield, historical vegetation, organic matter, electrical conductivity, pH distribution).

3D model is visualized right in the browser without need of installing any additional software or plugins.
3D Maps - GeoPard Agriculture

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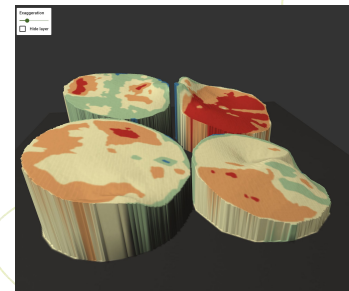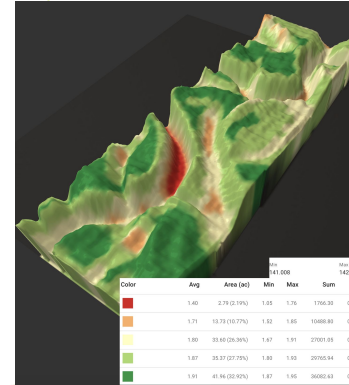
Topography Profile

Complete topographic profile including
Elevation, Slope, Aspect, HillShade, Relief
Position, Ruggedness, Roughness built on top
of Remote Sensing or Machinery Datasets

Example: Slope and Relief Position maps.

relief position

Color	Avg	Area (ha)		Min	Max
	-0.04	14.39	47.64%	-0.19	-0.02
	0.00	14.70	48.67%	-0.02	0.02
	0.04	1.12	3.69%	0.02	0.14

slope

Color	Avg	Area (ha)		Min	Max
	0.53	16.64	55.06%	-	1.14
	1.75	11.91	39.41%	1.14	2.74
	3.73	1.67	5.53%	2.74	8.66

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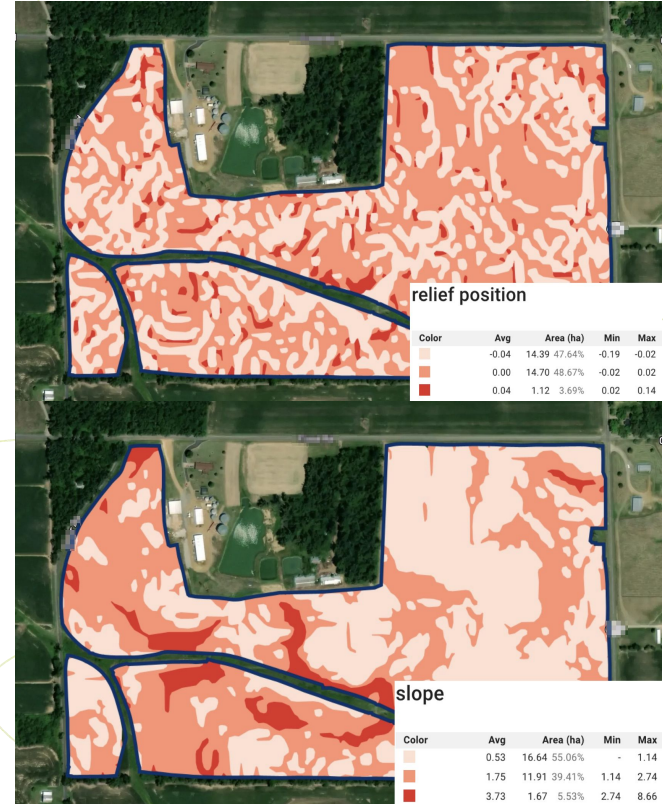
Use-Case: Automated Scouting

Automated detection of locations that need to be scouted.

Some examples:
- Estimate expected yield of the whole field by checking the development of crops in a certain place
- Unexpected low vegetation zones
- Scout yield limiting locations

Based on GeoPard unique maps such as field potential, stability, current productivity, multi-layers maps & cross analytics.
Read more

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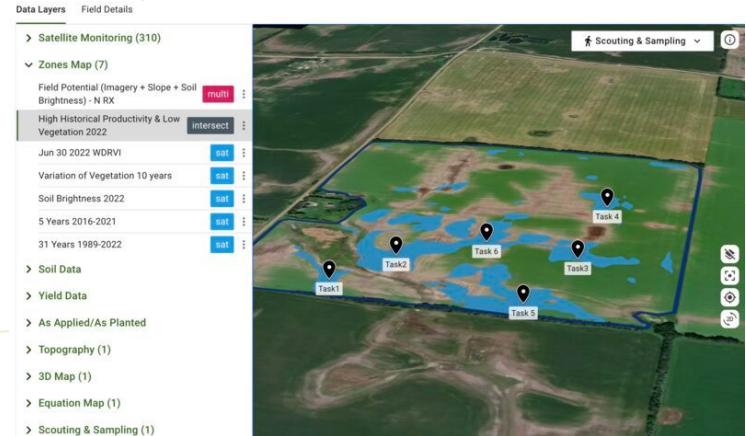
Soil sampling

Planning of soil sampling (zonal & grid), VRA maps based on soil data

Blog: Soil data analytics

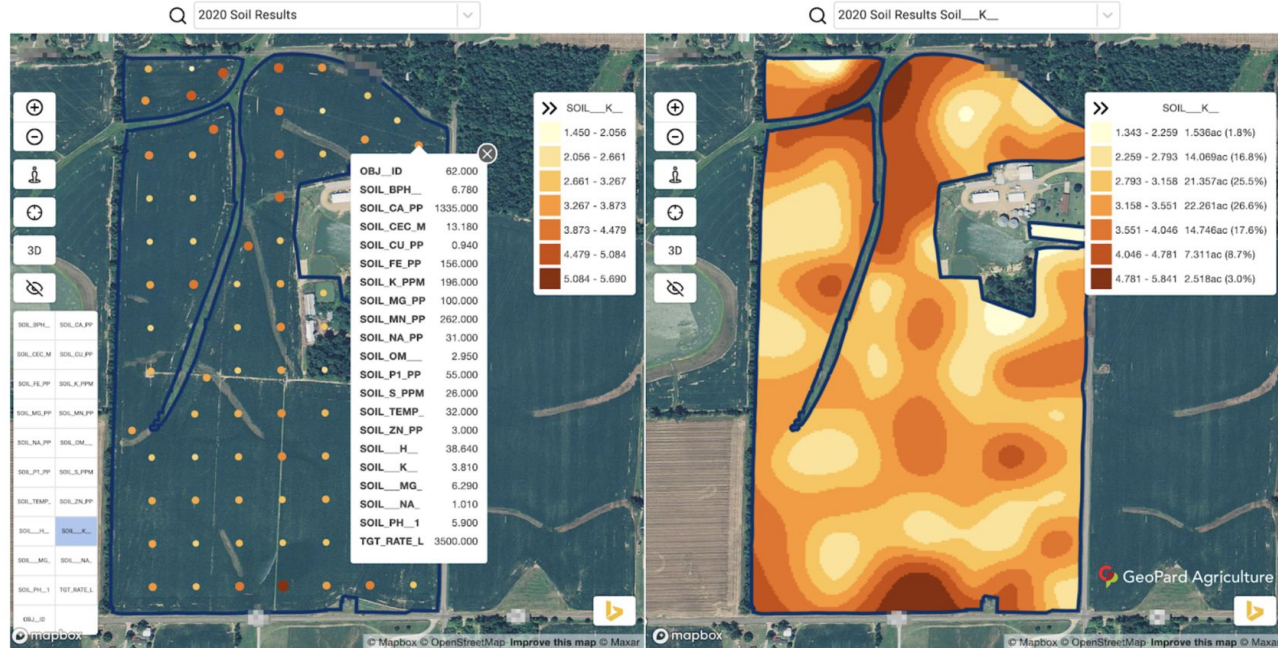# Use-Case: Detection of Yield Limiting Factors
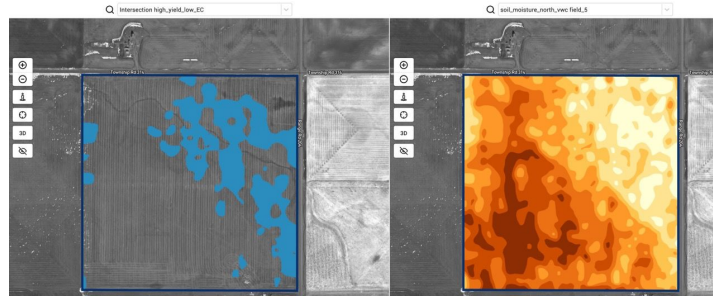
Yield / Soil Moisture correlation
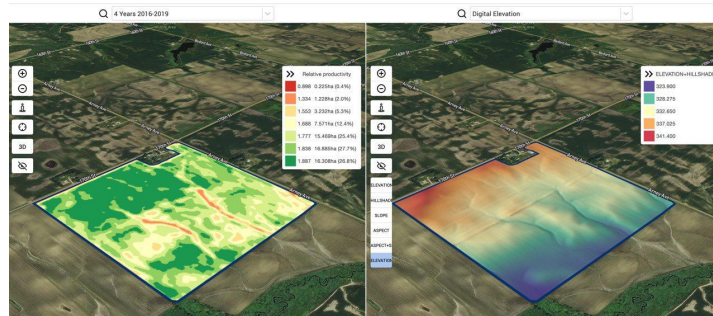
LIDAR topographic analytics

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VRA Maps, Cost Calculation and Export

Create Variable rate application (VRA) maps by adding rates to any management zone map.

Costs calculation for Rx maps - know your costs per zone and per product.

VRA maps are compatible with most agricultural machines and can be exported as a **shapefile**, **ISOXML** or to **JohnDeere Ops Center**

Zones Adjustments

Merge and split zones feature allows to make a few important things:

- Split polygons
- Merge polygons
- Draw strip trials
- Hand-free drawing tools
- Assign a polygon or a complete zone to another class Blog: Merge and Split zones

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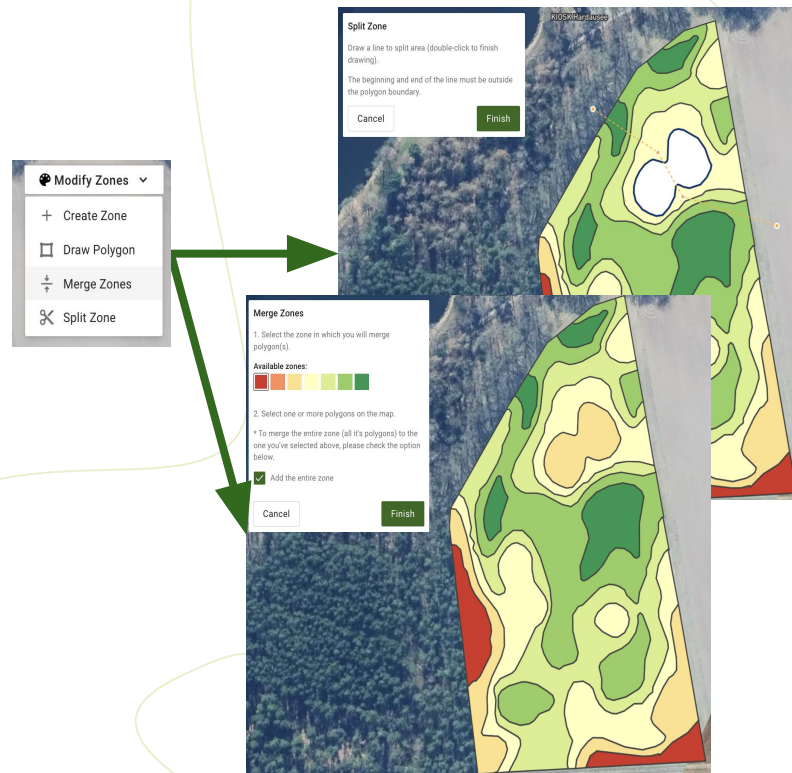
Soil Brightness Index

Soil brightness works as a proxy for soil organic matter, sands, and salinity areas, and is becoming an increasingly important index for studying changes in soil conditions over time.

Relevant in measuring and monitoring soil degradation and soil erosion patterns.

Color	Avg	Area (ac)		Min	Max	Sum
	0.67	0.61	1.24%	0.64	0.69	185.82
	0.70	11.60	23.55%	0.67	0.72	3585.26
	0.71	15.45	31.35%	0.69	0.73	4933.49
	0.72	16.03	32.53%	0.71	0.74	5204.84
	0.74	5.58	11.33%	0.72	0.75	1836.29

GeoPard Agriculture
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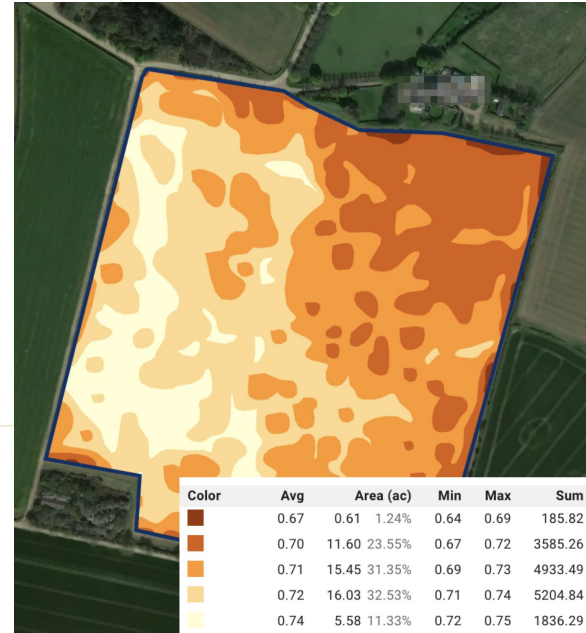
Stability Maps / Change Detection

Detect [the most changeable and stable spots](#) in the field during any period: the last 1-2 weeks or 1-2 months or even a couple of years (stability and variation of vegetation from season to season).

Coming: Combine with the latest image to see the positive or negative trends for every pixel.

Avg	Area (ha)		Min	Max
0.10	33.37	37.76%	0.07	0.11
0.12	37.30	42.21%	0.11	0.13
0.14	14.35	16.23%	0.13	0.17
0.19	2.87	3.24%	0.17	0.24
0.29	0.49	0.55%	0.24	0.36

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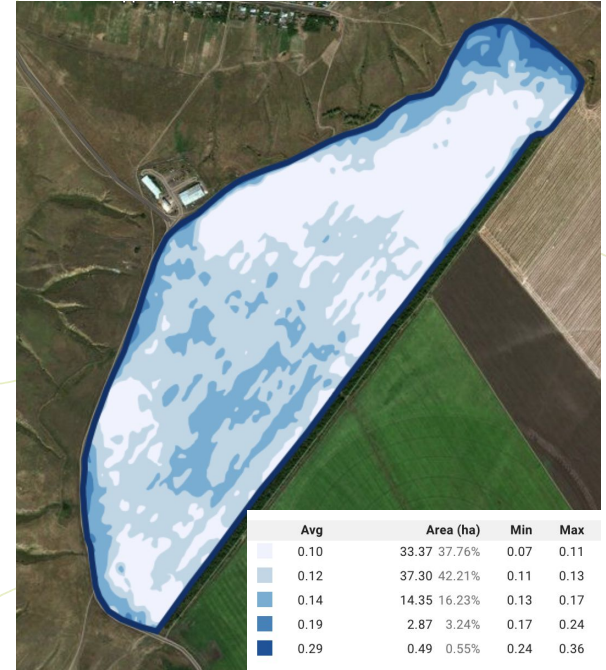
Intersection of Data Layers

[Overlapping among management zones](#) based on different layers to define dependencies between data layers, to identify the most interesting/valuable areas for extended analytics (scouting, soil, plant sampling), and to improve agronomic practices.

Example: Influence of high slope to low historical crop productivity.

GeoPard Agriculture
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As-Applied and As-Planted Data Analytics

Monitoring of the VRA execution results including a comparison of planned and applied maps.
Useful for the calculation of ROI of Variable Rate technology.

Example: Comparison planned and executed VRA maps.
Blog post - Accuracy of Rx vs As-Applied

GeoPard Agriculture
Simplify complexity
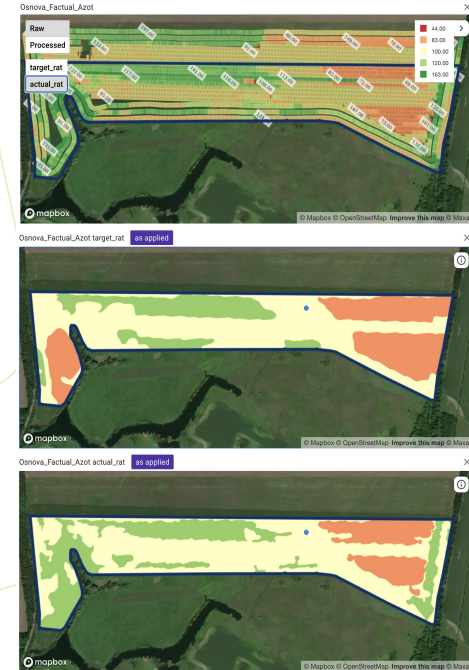
Yield Data Analytics

- Batch Import of harvesting data
- Automated Processing: Cleaning & Calibration
- Visualization & Analytics of all attributes
- Statistics per attribute on subfield level (moisture, protein, oil, per field, zone, pixel)

Read an article in our blog

GeoPard Agriculture
Simplify complexity
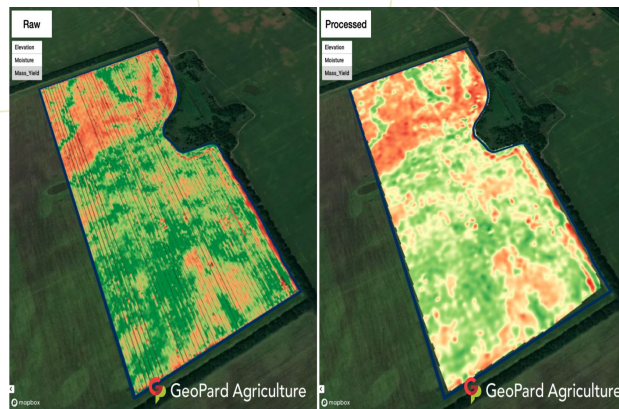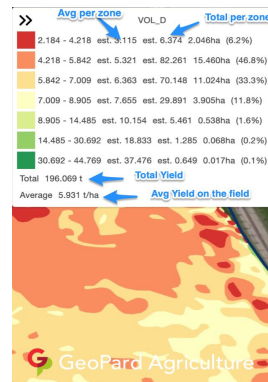
Yield Auto-Cleaning and Auto-Calibration

- AI & Rule-based models enable automated yield data cleaning & calibration
- Automatically calibrated data from several harvesters
- Smart Cleaning of abnormal values and j-hooks
  [Yield Cleaning Tutorial](#)

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Simplify complexity
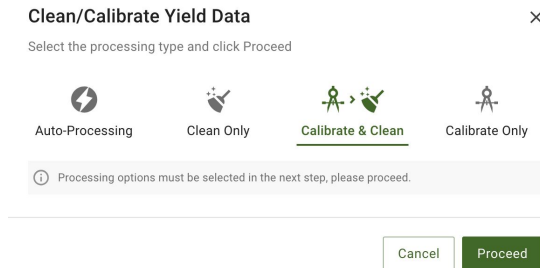
Trial Management & Analytics, Per Static block or Dynamic (e.g. yield per harvester)

Average Yield per harvester

Yield per zone, including Trial block

[Trial analytics Tutorial](#)

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Evaluation of Efficiency of VRA

Separately evaluate each zone both statistically and geospatially, then compile the results.

Links: Trial Analytics

Current and Historical Imagery

- Support field and region level with indices: RGB, NIR, EVI2, LAI, NDVI, GNDVI, IPVI, GCI, RCI, SAVI, OSAVI, NDWI, WDRVI, SBI, NDMI, MSI, CCCI, MCARI, TCARI, MCARI/OSAVI, TCARI/OSAVI
- Time-series analysis
- Accurate cloud and shadows detection
- Automated management zones for each new non-cloudy image during the season with configurable parameters (index, number of zones, min size of polygon)
- VRA maps - your own rules for rates calculation
- Export pixel-based imagery data to utilize in further analysis/models
- Data sources:
    - Sentinel 2 (2015 - ...)
    - Landsat (1988 - ...)
    - Planet (2015 - ...)
    - Hyperspectral imagery (2022)

NDVI   Yearly ⌄

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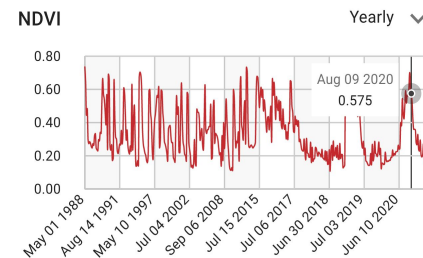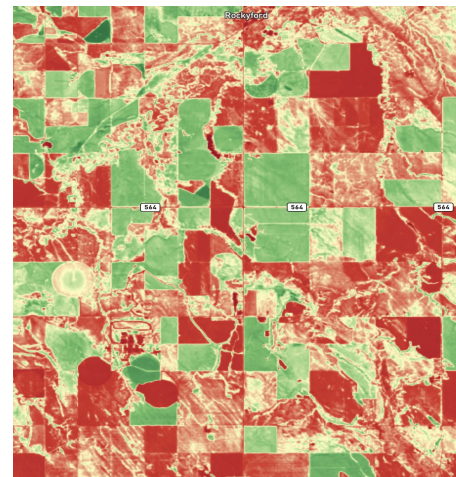
Relative Soil & Grain Moisture

- The index determines vegetation water content. It is useful for finding the spots with existing water stress in plants
- Lower NDMI values mark the spots where the plants are under stress from insufficient moisture
- On the other side, lower NDMI values following the vegetation peak highlight the spots that are becoming ready for harvesting first
  More in blog
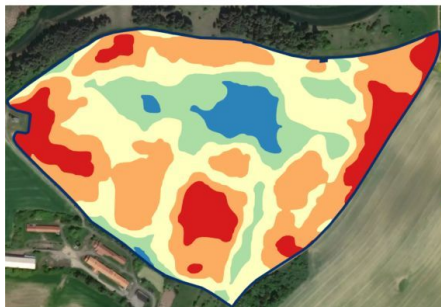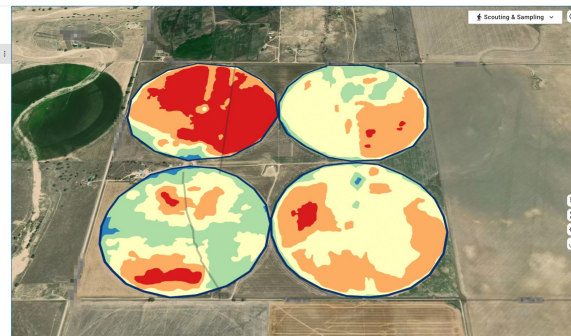
Best-In-Class Clouds And Shadows Detection

GeoPard provides high accuracy of clouds and shadows detection using proprietary algorithms.

The algorithm's accuracy is about 95%, while competitors have ~80% accuracy.

Enables **Automation of Analytics based on Imagery**

Advanced image filter allows looking at partially cloudy and cloudy images to verify decisions.

GeoPard detected that the field is partially located under shadows

The icon represents cloud cover for a particular field and image

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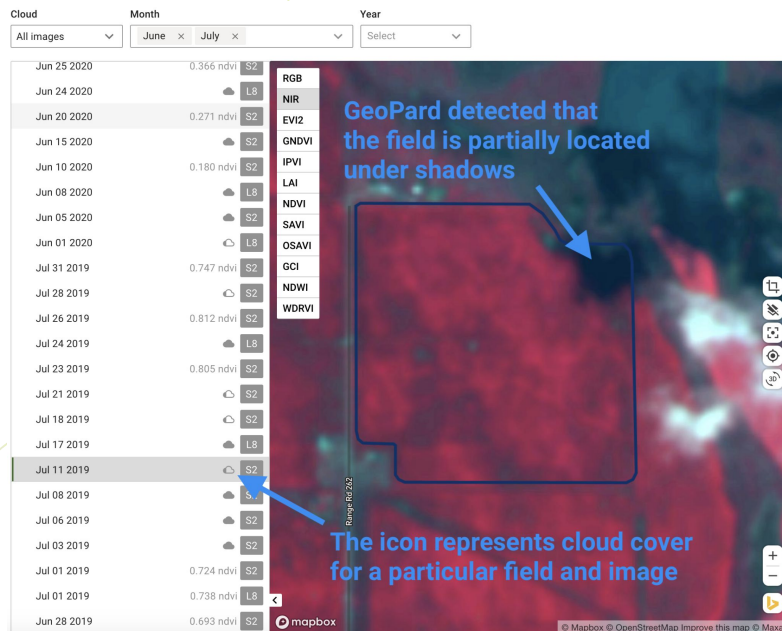
Planet Labs Imagery Analysis and Rx Creation

- Automated data processing includes:
- Clouds/shadow detection
- Data normalization and cleaning
- [Order imagery in 1 click](#)
- [Analytics products and VR maps based on Planet imagery](#)

Sentinel-2   VS   Planet Scope

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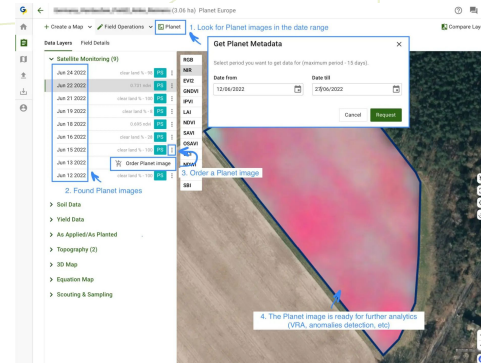
Mobile Application

Sync between mobile and web apps

- Online access to all the field datasets and VR zones
- Offline zones and soil maps and scouting capabilities including planning and executed actions with comments and photos

  Platforms: IOS, Android. Mobile and Tablets

  While Label applications

  Mobile apps tutorial

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Simplify complexity
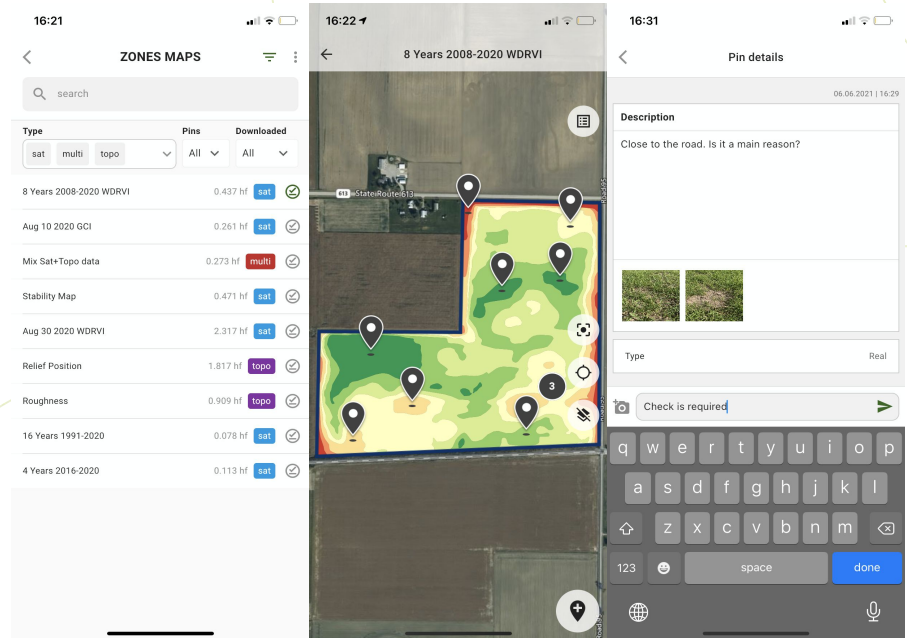
Powerful API and Automation

- All services are available for integration via API
- GraphQL
- OAuth 2.0 protocol
- Geodata: WMS, WFS
- The user interface for Administration
- User interface widgets for direct integration into other platforms
  [Read more](#)
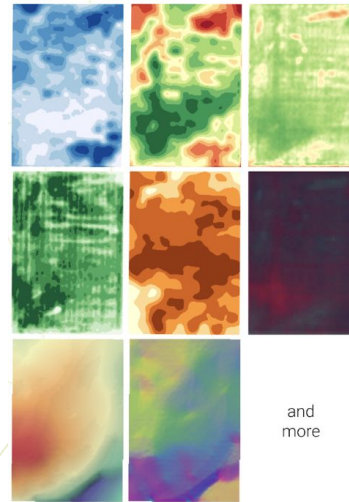
○ boundary
○ soil samples
○ yield monitor data
○ custom rules

Farm Management Software

Ag Service Providers

Crop Production Companies

Digital Marketplaces

API

R&D Departments

Insurance Platforms

○ VRA maps
○ custom management zones
○ topographic maps
○ soil maps
○ yield maps
○ vegetation indices with 3m resolution
○ raw data
○ change detection

and more

Ag Inputs and Machinery Producers and Distributors

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Data Compatibility

✅ Raven Slingshot and Viper Pro 4	Shapefiles
✅ Trimble	Shapefiles and Isoxml
✅ John Deere GS3 and GS4 data	GS3 details, GS4 details
✅ John Deere	MyJD Ops Center integrated, see details in our blog post
✅ AGCO	ISOXML and shapefiles
✅ CNH	ISOXML/shapefiles supported
✅ Topcon/TAP	Shapefile supported
✅ Mueller	ISOXML/Shapefiles supported, details here
✅ ISOXML	Claas, Topcon, Dickey John, CNH and others
✅ AgLeader Monitors	Shapefile support, details here
✅ Amazone / Amatron	Shapefile, ISOXML, Amatron 3 details, Amatron4 details
✅ GeoJson	Generic vector data format. Is supported by most GIS programs including Esri ArcGis, QGIS. Available for API users
✅ Shapefile	Generic vector data format. Is supported by most GIS programs including Esri ArcGis, QGIS
✅ API / Widgets for integration of GeoPard analytics into other systems.	

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Simplify complexity

Statistics for Zones

Calculate statistics on zone level to determine how accurate the measurements are.

Statistical metrics:
- minimum
- maximum
- average
- median
- sum
- standard deviation

Title		Number of Zones	Data Classification Type	Min Polygon Area in m2	
2016-2021 Potential		5	Natural breaks	1000	Run Analysis

Color	Avg	Area (ac)	Min	Max	Median	Sum	Std
	1.48	0.24 (0.42%)	1.30	1.61	1.49	165.92	0.06
	1.61	5.13 (8.97%)	1.39	1.82	1.62	3659.38	0.07
	1.72	10.85 (18.95%)	1.58	1.85	1.72	8358.38	0.05
	1.80	19.34 (33.78%)	1.72	1.88	1.81	15800.20	0.03
	1.86	21.70 (37.89%)	1.81	1.92	1.87	18243.71	0.02

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Statistics for Machinery Datasets

Calculate statistics for every attribute collected by machinery during agricultural operations
(Seeding, Fertilizing, Crop Protection, Harvesting) to determine how accurate the operation was executed and total applied number of agricultural input.

Statistical metrics:
– minimum
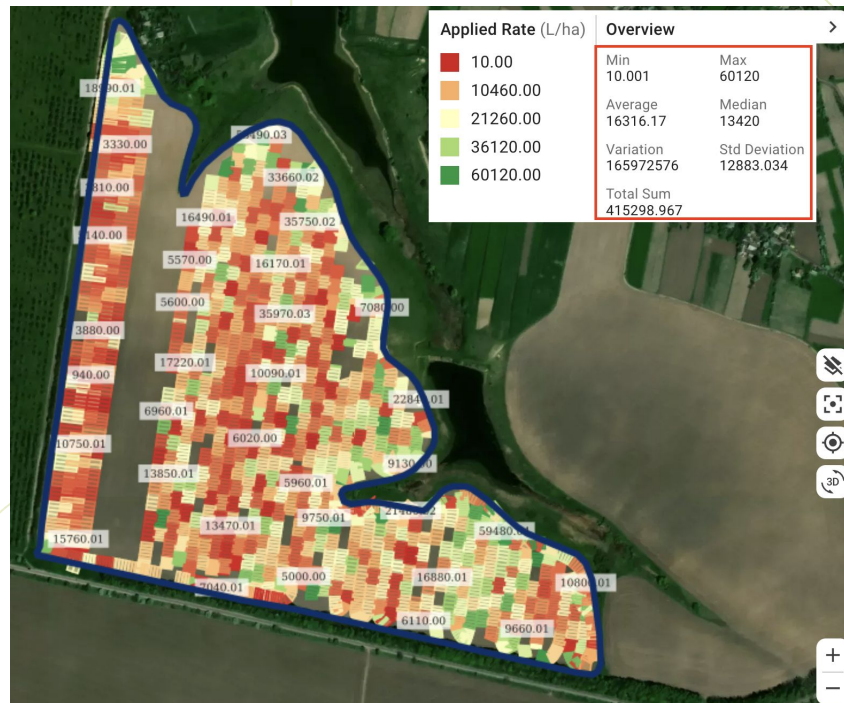– maximum
– average
– median
– total sum
– standard deviation

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PDF Reporting

Export as PDF any data layer including Imagery, Yield, Soil, As-Applied, Topography, Zones and Equations

A report can aggregate up to 60 data layers

It includes stats per attribute

2. Zone Maps

2.1. 1988-2023 Field Potential

Overview

Creation Date	Updated Date	Data Classification Type	Polygon min area	# of zones	Heterogeneity factor
23 Aug 2023	23 Aug 2023	Equal count	500	5	0.22

EVI2

Color	ID	Avg	Area (ac)	Min	Max	Median	Std Dev	Sum
	1	0.36	6.26 19.73%	0.35	0.47	0.36	0.01	1007.15
	2	1.14	6.45 20.30%	0.35	1.80	1.29	0.47	3328.39
	3	1.76	7.23 22.76%	1.66	1.81	1.77	0.03	5656.17
	4	1.80	6.56 20.66%	1.79	1.81	1.80	0.01	5284.25
	5	1.81	5.26 16.56%	1.80	1.82	1.81	0.00	4298.02

Data Layers

Satellite Monitoring

Index	Satellite images (28):
EVI2	27 Jul 2023, 12 Jul 2022, 5 Sep 2021, 7 Jul 2020, 8 Jul 2019, 28 Jun 2018, 22 Jun 2016, 23 Aug 2015, 28 Jul 2014, 16 Jul 2013, 20 Jul 2011, 25 Aug 2010, 6 Aug 2009, 9 Jul 2007, 29 Jul 2006, 24 Jun 2005, 30 Jun 2004, 22 Aug 2003, 21 Jul 2000, 5 Aug 1997, 26 Jul 1996, 31 Jul 1995, 29 Jul 1994, 25 Jul 1993, 31 Jul 1992, 18 Jun 1991, 28 Jun 1989, 11 Jul 1988

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Automated Heterogeneity index

Decide which fields to target first with precisionAg

Not that great variability between red (low yield) and green (high yield) zones.
Probably, you should target other fields first with precisionAg and Variable Rate technologies.

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Sustainability Index

Tillage

As-applied Fertilizer maps

Yield maps / GeoPard Field Potential maps

Cover Crops

Crop Rotation

... other factors

→

Per pixel calculated Sustainability Index

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Recommendation on Soil/Carbon Samples

Basis to start Zonal soil sampling.
Automation & UI - WIP.

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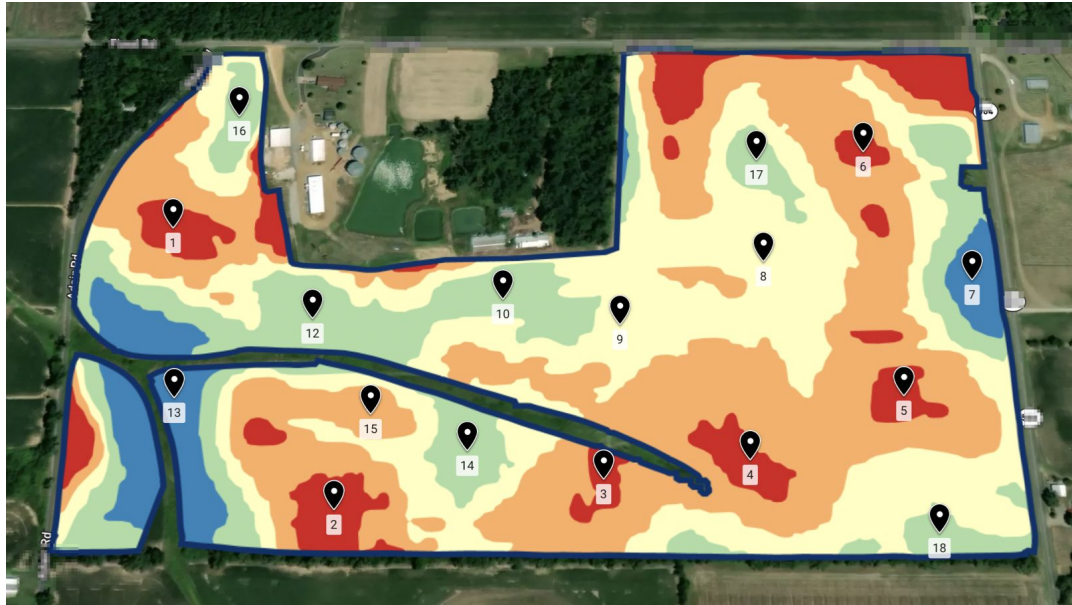
Web, Mobile, API, Widgets, White-Label

WEB: Online access to all the features.

Mobile: Online access to all field datasets and zone. Offline zones and soil maps, and scouting capabilities including planning and executed actions with comments and photos.

API: All services are available for integration via API; GraphQL; OAuth 2.0 protocol; Geo data: WMS, WFS; User interface for Administration; User interface **widgets** for direct integration into other platforms

While-Label & On-Premise applications.

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Simplify complexity
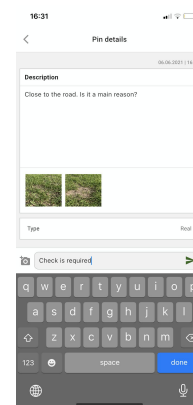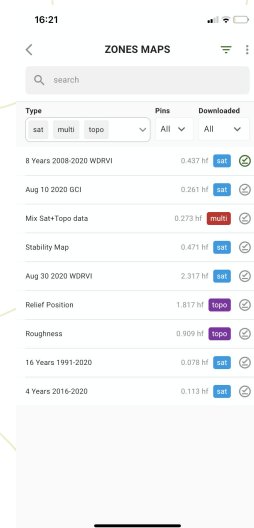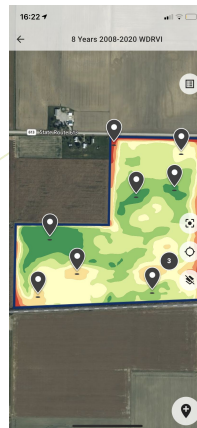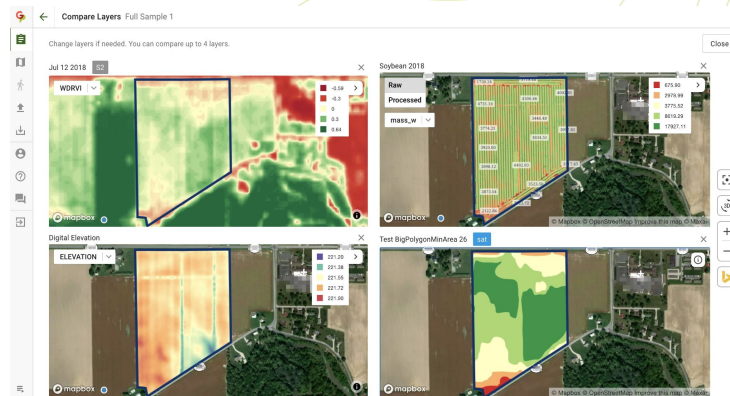
Partner Program

Partner Program
Join the GeoPard Community Partner Program and earn money by advising and bringing the solution to your network, promoting and telling how well GeoPard Agriculture works for you.

Promo materials
We will provide you with marketing materials, videos, images, case studies, product demos and a dedicated affiliate manager to support you as our partner. Feel free to add information about GeoPard on your website and use your other channels for promotion.

Clients
All clients who enter your referral code, follow your redirect link for registration or inform us of your recommendation will be identified as a referral sale. Clients receive a special bonus for registering with the referral.

Reward
The program includes payouts for bringing users into GeoPard Agriculture. You get high commissions: 25% of the annual income for the first 2 years of each referral sale. Read more about Program Terms and Conditions here.

[Become GeoPard Partner](#)

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R&D: Hyperspectral Imagery Analytics

GeoPard managed to successfully preprocess (clean, normalize), upload, calculate statistics, various indices and spectral signatures for HYPERSPECTRAL Imagery (±250 bands in comparison to ±10 bands from multispectral imagery).

Use-cases:
- Remote detection of sustainable & regenerative farming practices
- Distinguishing different plant species with similar spectral signatures
- Identifying plant biochemical composition
- Quantifying soil vegetation
- Model soil agrochemical attributes
- Carbon estimations

This is the part of the project partially funded by the EU and the Ministry of the Environment of North Rhine-Westphalia

MULTISPECTRAL/ HYPERSPECTRAL COMPARISON

Multispectral | Hyperspectral

Several Spectral Bands

Response
Wavelength (µm)

Continuous Spectrum

Response
Wavelength (µm)
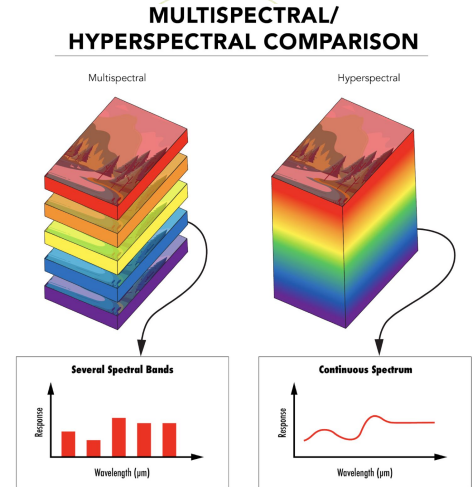
R&D: Yield Prediction Models

GeoPard deep knowledge of each individual fields allow us to create high quality Yield prediction models.

Let's know if you're interested in working with us on this topic.

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Product Vision

6 Prescriptive Modeling

Automatically Produce foresights & agronomic recommendations. From reactive to proactive pure data-driven decisions.

5 Predictive Modeling

We are here now

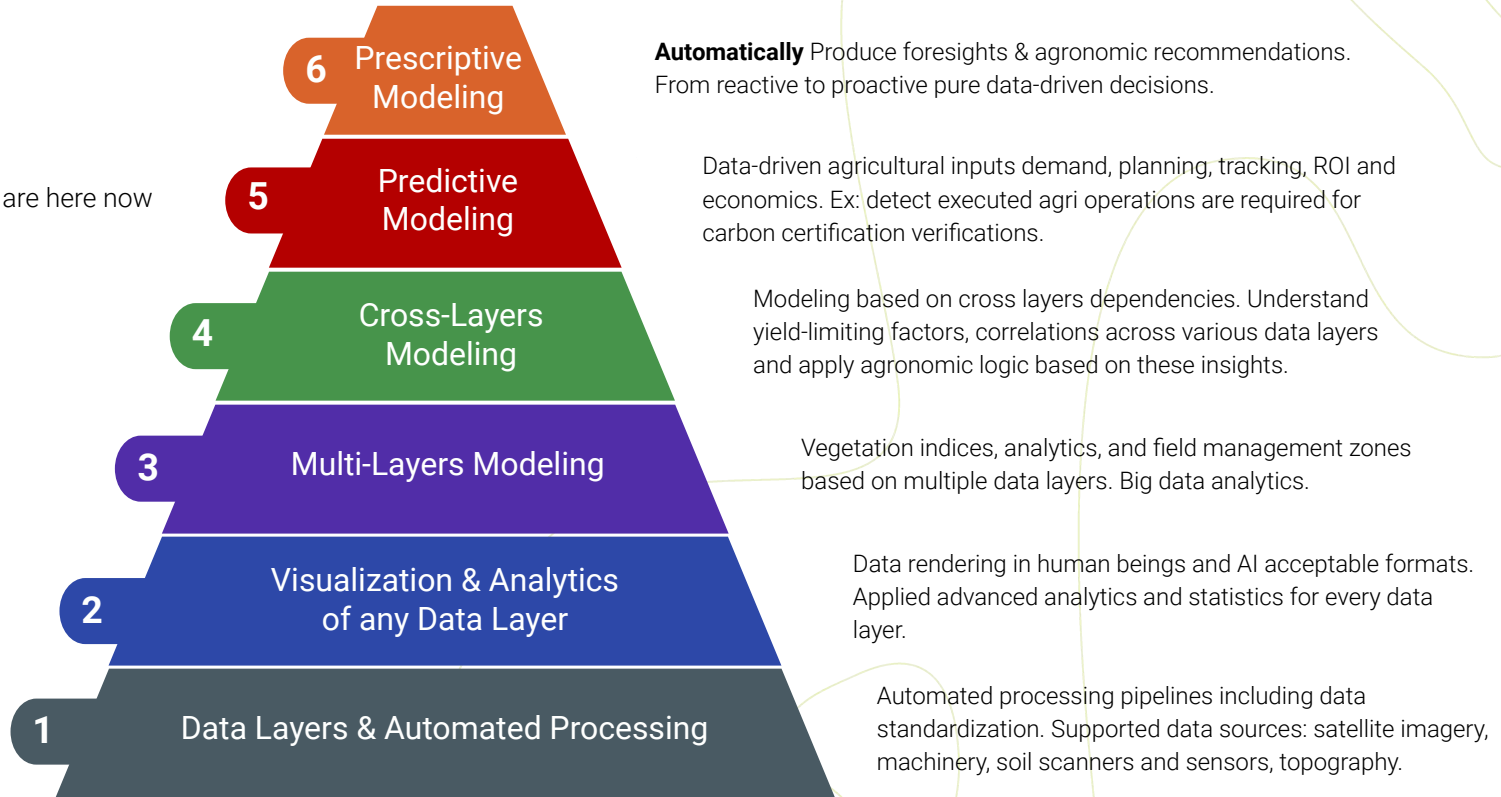Data-driven agricultural inputs demand, planning, tracking, ROI and economics. Ex: detect executed agri operations are required for carbon certification verifications.

4 Cross-Layers Modeling

Modeling based on cross layers dependencies. Understand yield-limiting factors, correlations across various data layers and apply agronomic logic based on these insights.

3 Multi-Layers Modeling

Vegetation indices, analytics, and field management zones based on multiple data layers. Big data analytics.

2 Visualization & Analytics of any Data Layer

Data rendering in human beings and AI acceptable formats. Applied advanced analytics and statistics for every data layer.

1 Data Layers & Automated Processing

Automated processing pipelines including data standardization. Supported data sources: satellite imagery, machinery, soil scanners and sensors, topography.

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Documentation

docs.geopard.tech - web, mobile, API

John Deere Ops Center Integration

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Thank you!

Dmitry Dementiev, CEO, Co-Founder

email: dmitry.dementiev@geopard.tech

- geopard.tech
- docs.geopard.tech
- Request a Demo
- Create free account, apply coupon code "GeoPard20" for 20% discount