

# AgriCircle soil & soil carbon Service



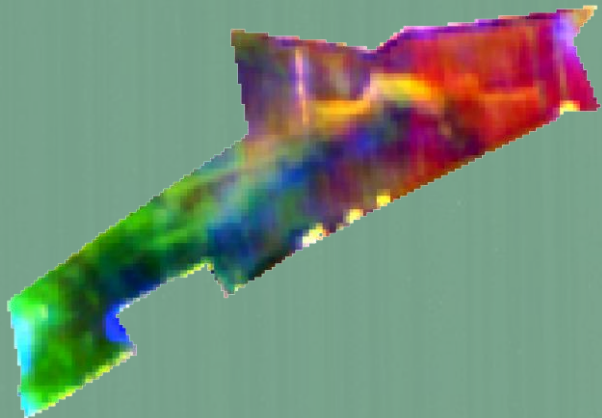
29/03/2021



# Soil Products

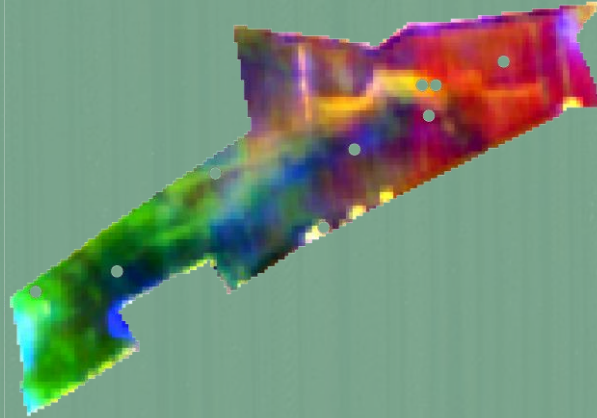
- Overview -

- Satellite and soil data driven
- Handles soil heterogeneity
- Provide guideline for soil management
- Delivers high quality soil carbon measures



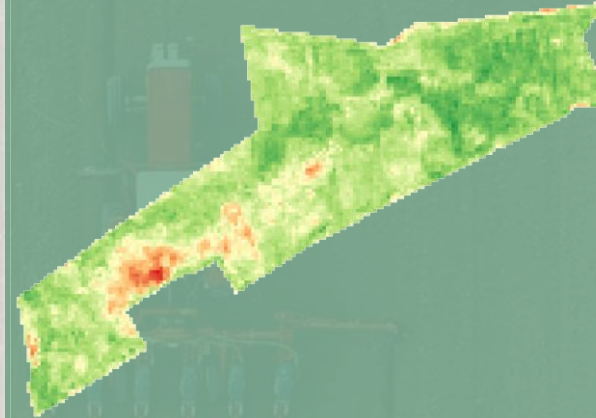
## Heterogeneity

Differences calculated using Sentinel 1 and Sentinel 2 satellites



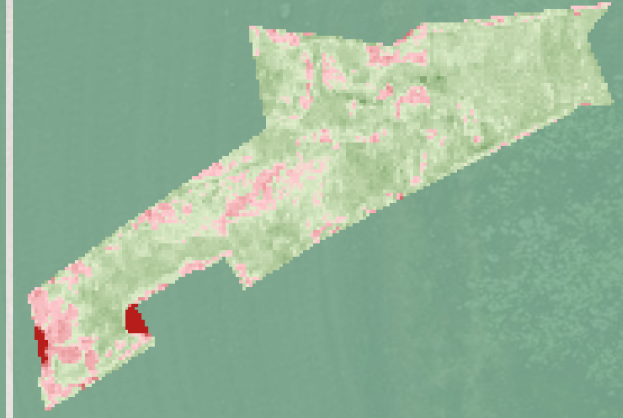
## Precision Sampling

Representative points allows precision agriculture techniques and reduced sampling points for soil carbon estimates



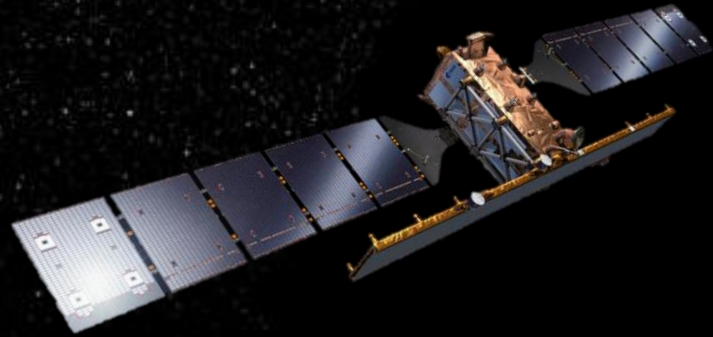
## Property & Application Maps

With more than 50K measurements, estimation of 18 different properties. Important: Soil carbon and soil carbon build up potential map



## Soil carbon

Soil carbon potential and stock estimates for most accurate and affordable carbon measures



### Sentinel – 1

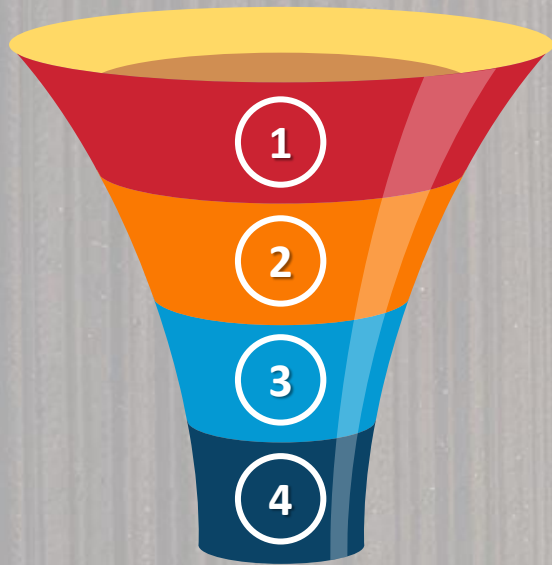
- C-band SAR
- 5 cm wave length
- 10 m resolution
- Multipolarisation
- Physical and dielectric properties

### Sentinel – 2

- Multispectral data
- 443 – 2190 nm wave length
- 10 – 60 m resolution
- Spectral properties/ Reflectances

Sentinel-1  
Time series

Sentinel-2  
Time series



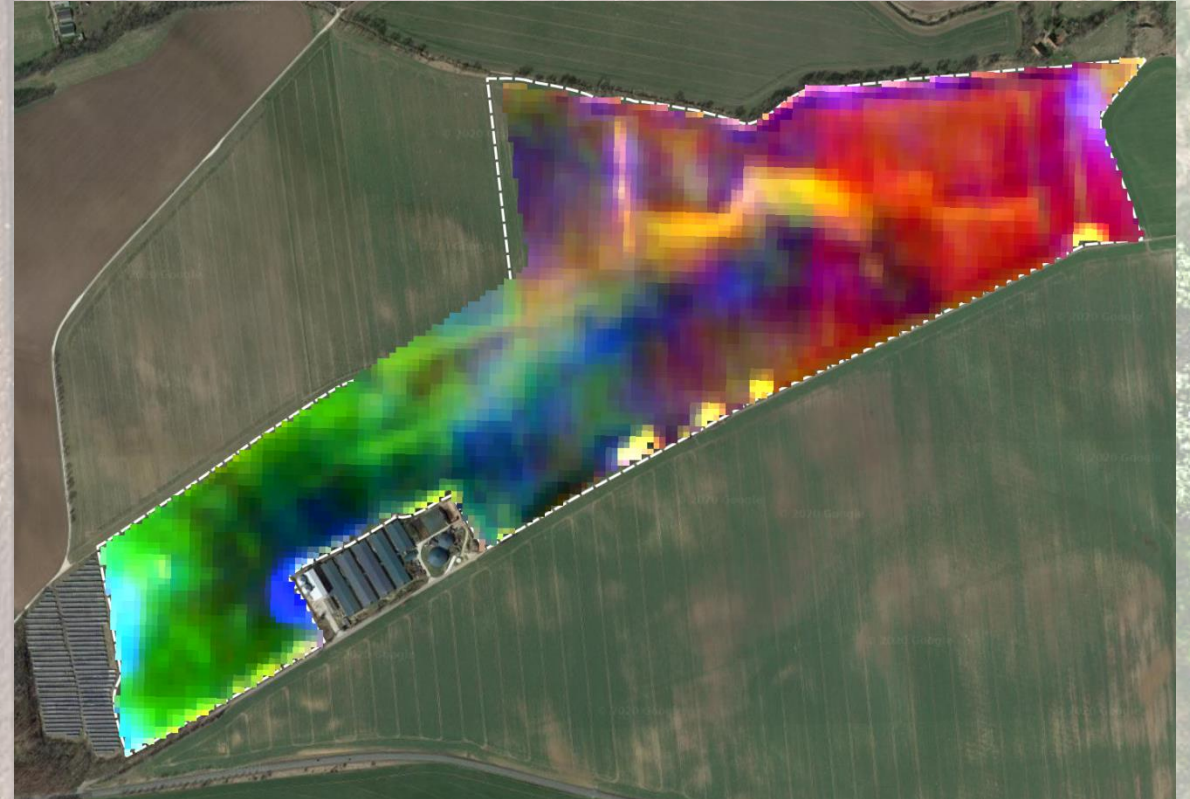
Soil maps

Soil-/Plant filter

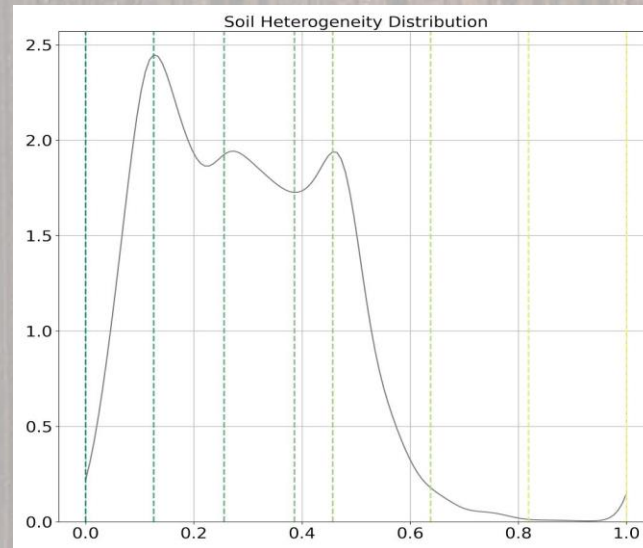
Feature RGB-generation  
from 3 satellite indices

Calculation of soil  
sampling points

Estimation of soil  
properties and  
recalibration with soil  
analysis data



- “Precision Sampling” creates 30x30m sampling zones that are most representative for the heterogeneity of a given field
- The pixels are a reflection of the fields heterogeneity and not a random selection

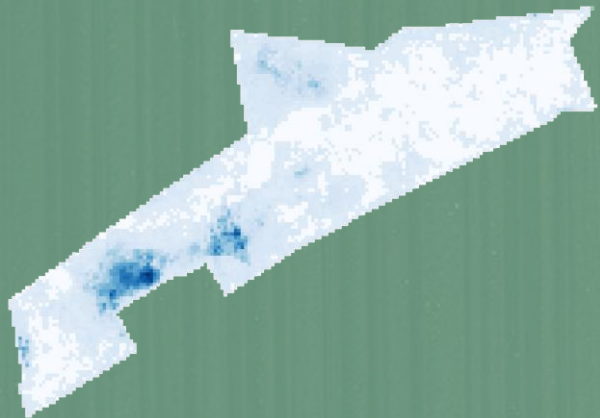




# Soil Products

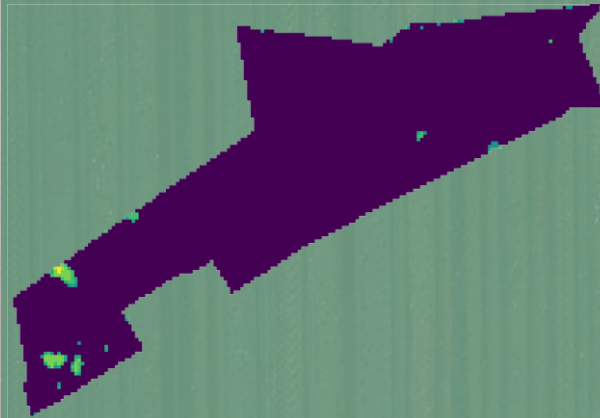
- Application Maps -

- Provides maps for soil fertilization
- Optimizes plant growth
- Optimize soil fertility while reducing cost
- Improves and benchmarks carbon sequestration



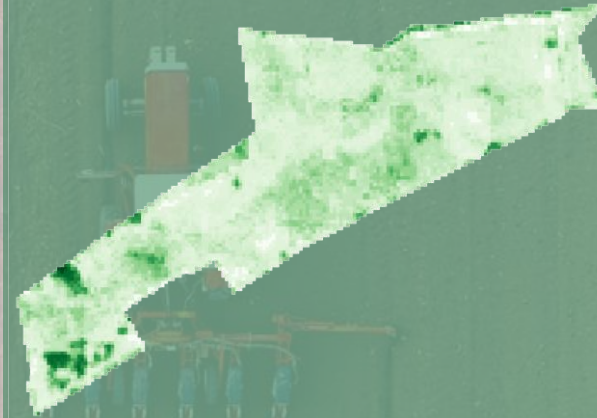
Lime

Applied to correct acidity of the soil. Depends on the pH, clay and humus



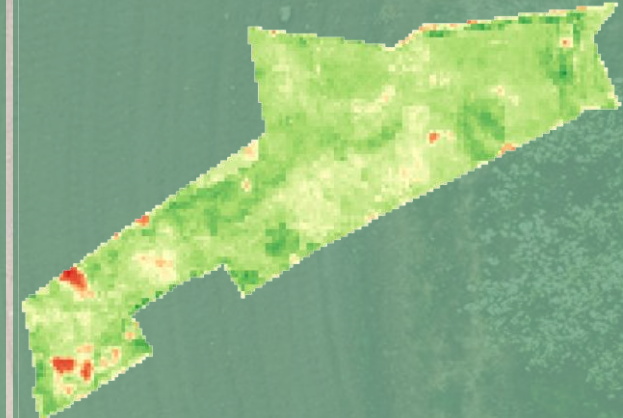
Phosphorus

Acts as catalysis in several biochemical reactions in plants.



Potassium

Regulates the plant growth through photosynthesis.



Organic Matter

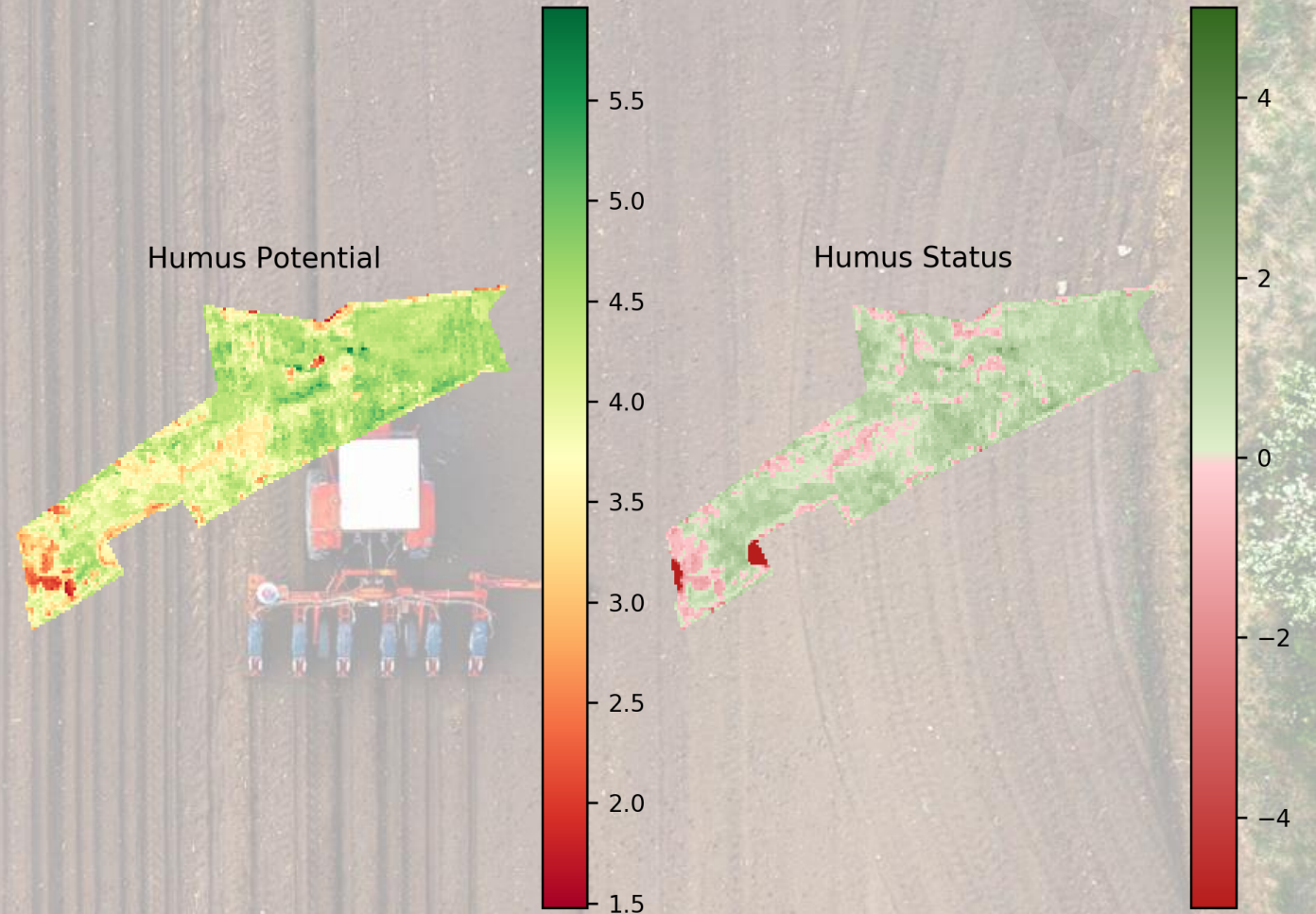
Makes minerals available to plant rootlets nutrient uptake easier.

# Improved tool and measures for carbon assessments



29/03/2021

- Soil organic matter potential:
  - Several research and studies show that soil organic matter with good «average» management can be around 10% of clay of the respective soil
  - AgriCircle estimates the amount of clay
  - AgriCircle estimates the amount of soil organic matter
  - AgriCircle shows difference in SOM to 10% of clay content





- Soil carbon stock:
  - Low number of samples with an average of 7 samples per field
  - Delivering accurate data for every 10x10m pixel
  - Showing subfield potential to improve carbon levels faster with addressing the quick wins

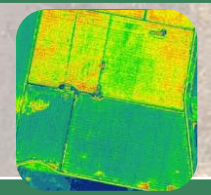




VS



- Precision Sampling is leading to 16-20 subsamples per Precision Sampling point to improve measure
- It uses standard Sampling Equipment with slightly adjusted sampling protocol
- Lower cost compared to cores drilled as per today



Differentiator	Per Field sampling	Field zone sampling	Sensor scanning	Mobile in-field sensor	Precision Sampling
Number of Samples	Low	Medium	Medium	High	Low
Cost for sampling	Medium	High	High	Low-Medium	Low
Easiness of sampling	Medium	Low	Low	Low	High
Reproducibility	Medium	Medium	Medium	Medium	High
Data resolution	Field	Zone	Zone	Spot	10x10m
Heterogeneity of Sampled Area	High	Medium	Medium	Small	Small
Reflection of «Reality»	Low	Medium	Medium	High	High
Observing differences in profile	Low	Medium	Medium	Medium	High
Suitability for Soil carbon	Low	Low	Low	Medium	High
Carbon potential estimate	None	None	None	None	First Insight
Data Calibration Accuracy	High	High	Medium	Medium	High
Overall cost	Low	Medium	High	Medium	Low

Thank you!  
See you @  
[agricircle.com](http://agricircle.com)

