



van den borne  
aardappelen



# The company

VAN DEN BORNE AARDAPPELEN



- Arable farming , Sandy soil
- Reusel, Noord-Brabant – The Netherlands
- 5 co-workers
- 180 fields, average size 3ha , average of 6 corners for each field = 13 % overlap
- Precisiontechnology since 2006, PrecisionFarming since 2009





# What is the definition of precision Farming ?



Precision Farming

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# How old is precision farming?

# Precision Farming

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JULI 1959

13 Hooi gesperst aan huis en  
Maandag binnen gedaan (87 pakjes).  
Hooi op gelrokkens moer.  
Roggeaan gehaait Polder.

g.v. Herk 10 uur.

14 Dinsdag Haver aan gelveldt Vosselse Heide  
Rogge aan gehaait moer.  
Hooi gesperst en binnen gedaan.

g.v. Herk 9 uur.

15 Woensdag Vrijdag Haver gehaait Vosselse  
Heide  
Natuurdag Rogge gehaait Polder.

g.v. Herk 10 uur

16 Donderdag Rogge gehaait Polder.

JULI 1959

17 Voorh. dag Rogge gehaait aan vrijdag  
huis  
Vrijdag dag Rogge opgezet Polder.

18 Haver aan gehaait Polder zaterdag  
Thuis gewerkt.  
TV Loy stier gehaald

BET g.v. HERK 1000 fl.

19 Zondag

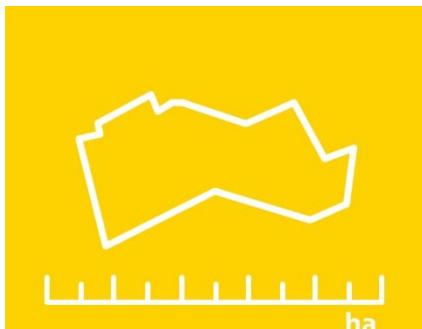
Nota's



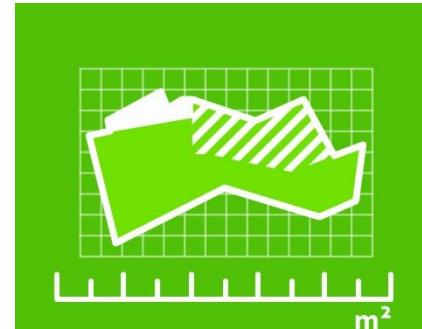
## Accuracy of Precisionfarming ?



Farm Level



Field Level



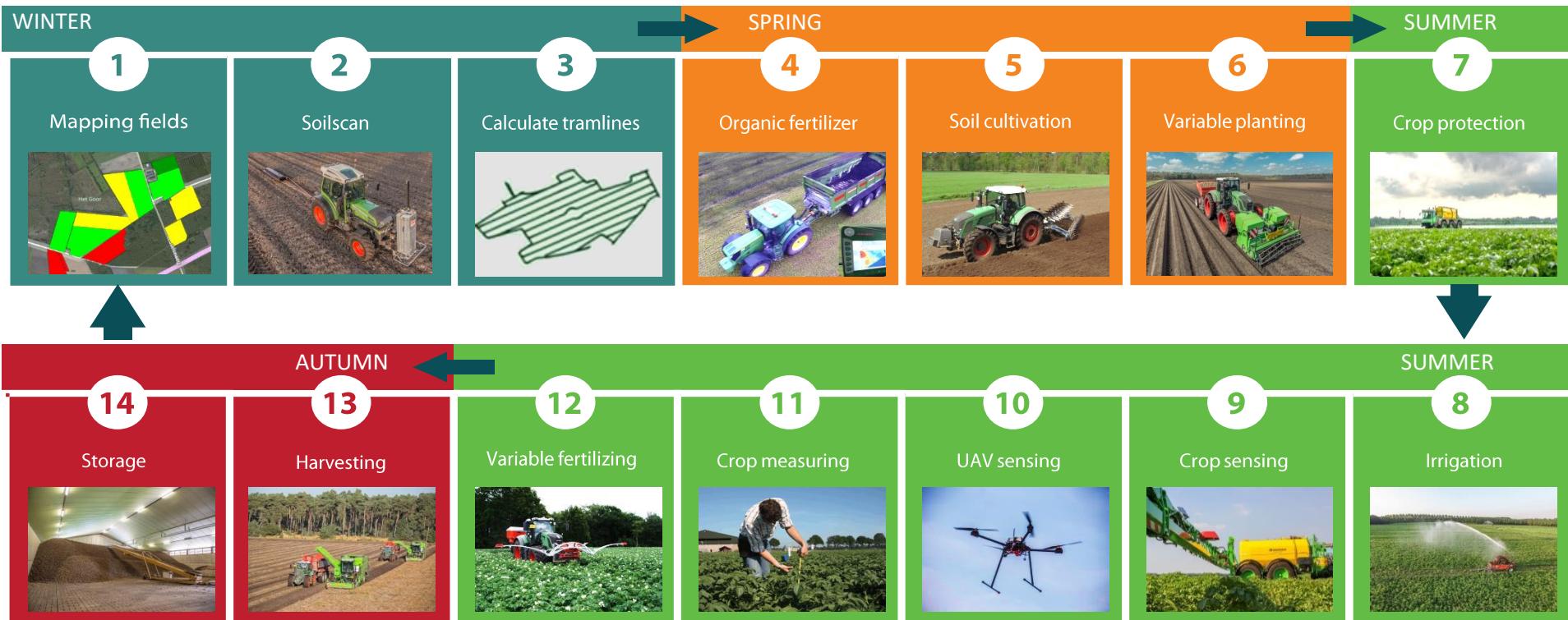
Zone Level



Crop Level

# Precisionfarmingcyclus

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# Mapping fields

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Mapping fields



VARIO  
DOC

TASKDOC™

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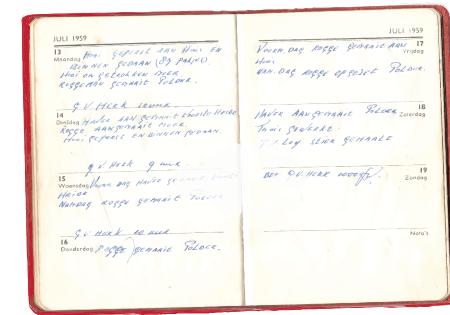
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Field Level

# Mapping fields

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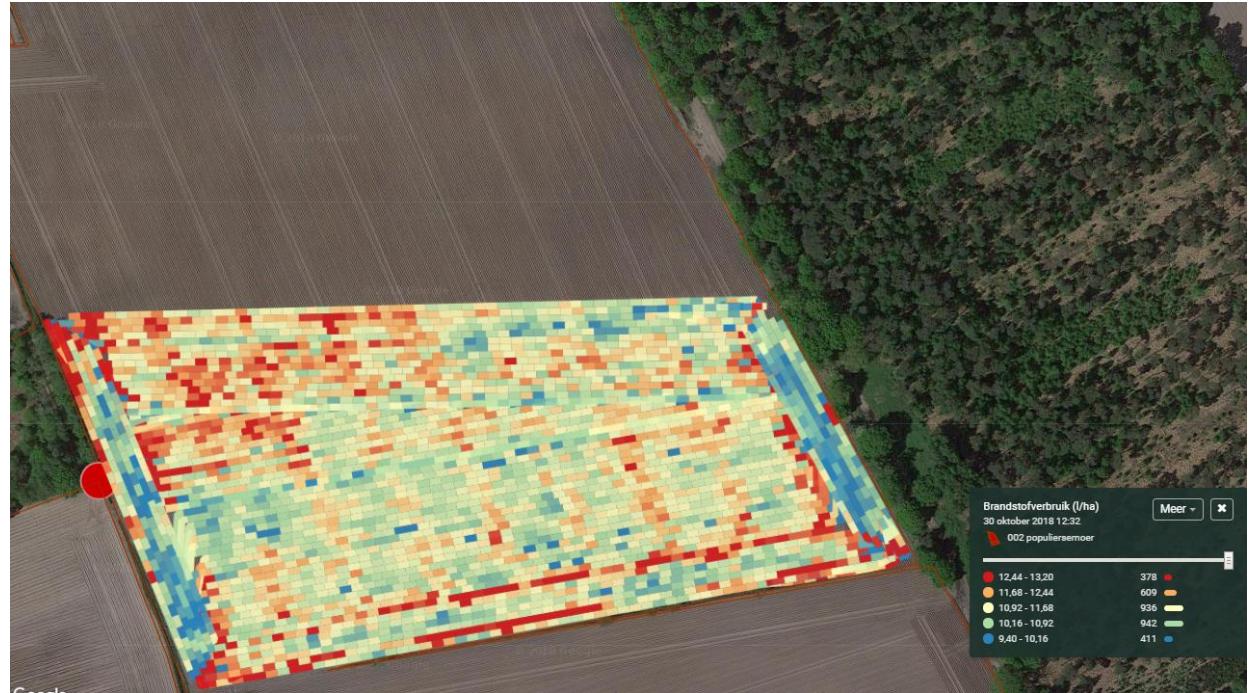


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Mapping fields



**VARIO  
DOC**  
**TASKDOC™**



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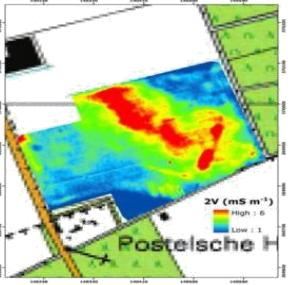
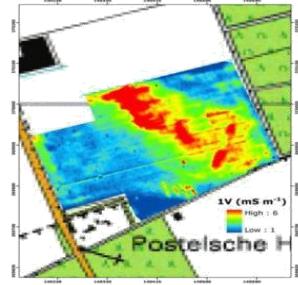
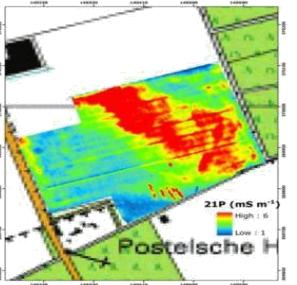
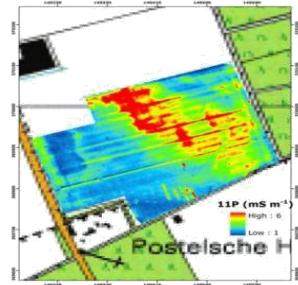
# Soil scan

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Soil scan



Zone Level

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**ORBit**  
[www.orbit.ugent.be](http://www.orbit.ugent.be)



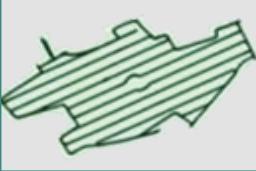
# Calculate tramlines

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3

Calculate tramlines



365FarmNet

- Optimal partitioning field
- Cost reduction by less cultivation distance
- No need for manual measuring and marking tramlines
- Combining working width of planting/sowing, crop protection, fertilization and irrigation.



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## Controlled traffic farming

- Controlled traffic farming has an average of 7% more yield



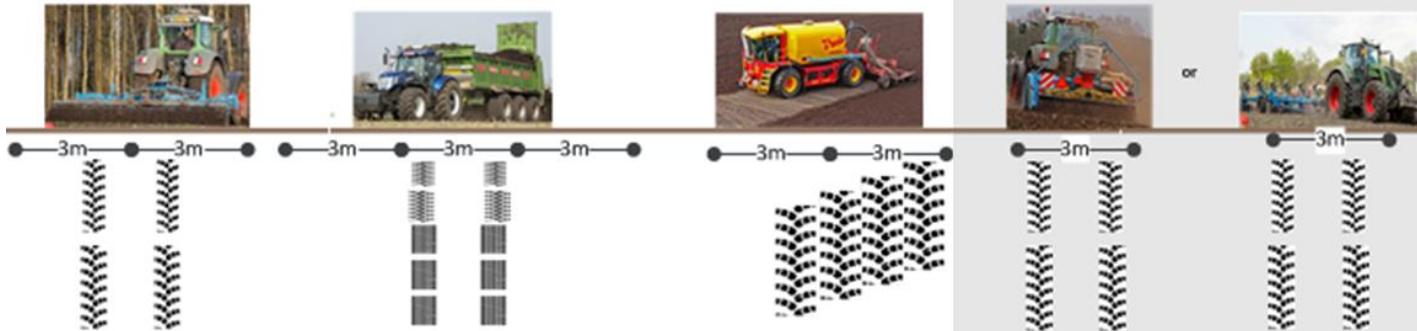
# Calculate tramlines

VAN DEN BORNE AARDAPPELEN

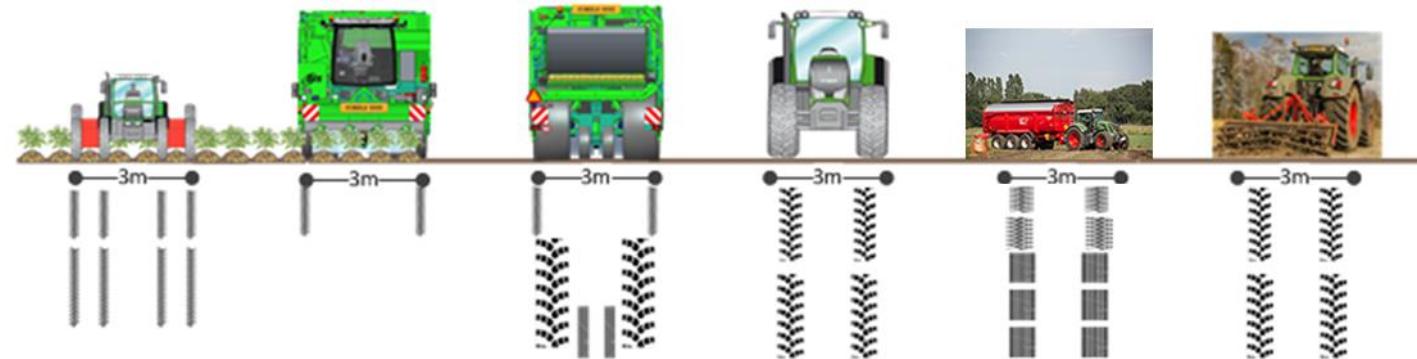


Current situation

spring



autumn



# Calculate tramlines

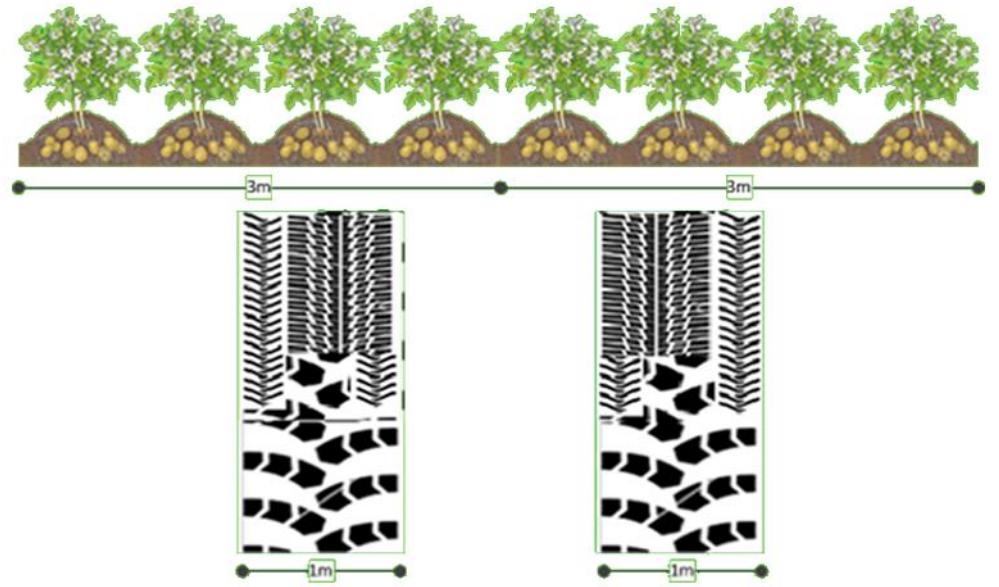
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## Desired Situation

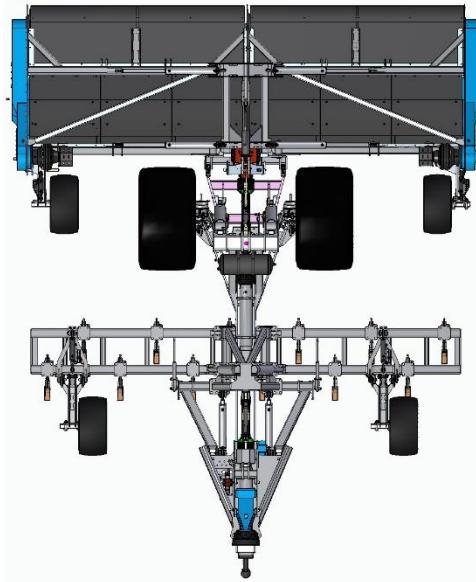
In desired situation:

- At least 2/3 non-wheeled
- On the traffic lanes not more soil compaction than applied to the whole field in current situation



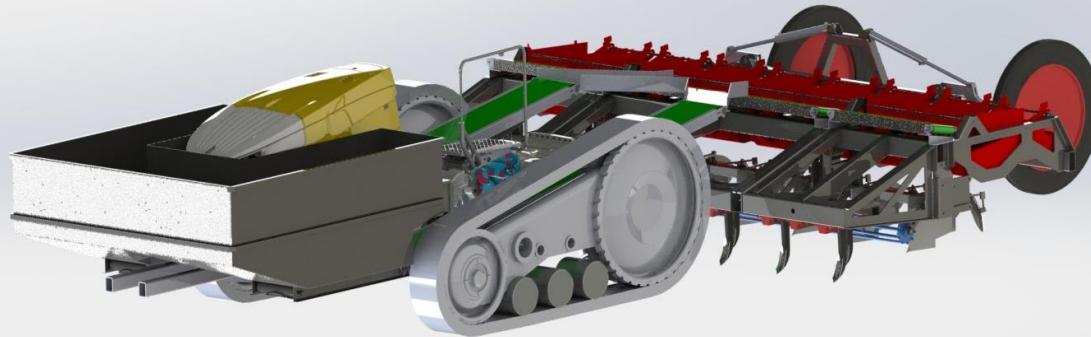
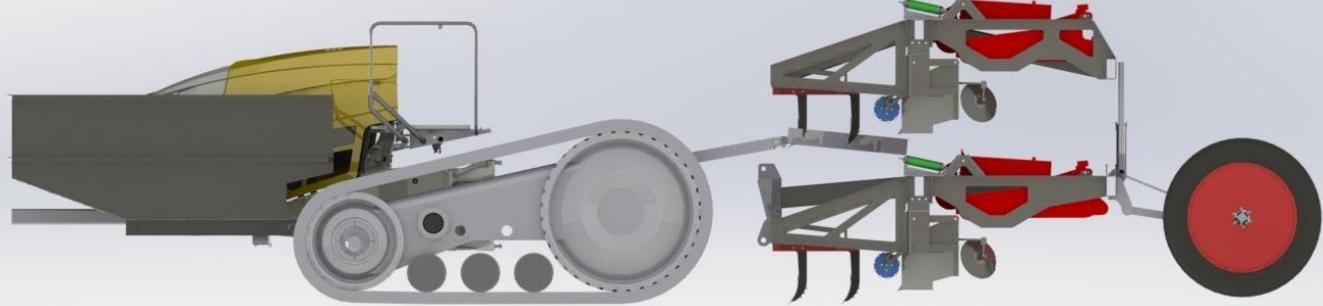
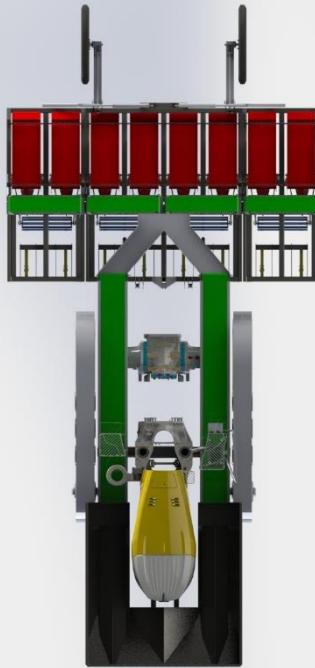
# Calculate tramlines

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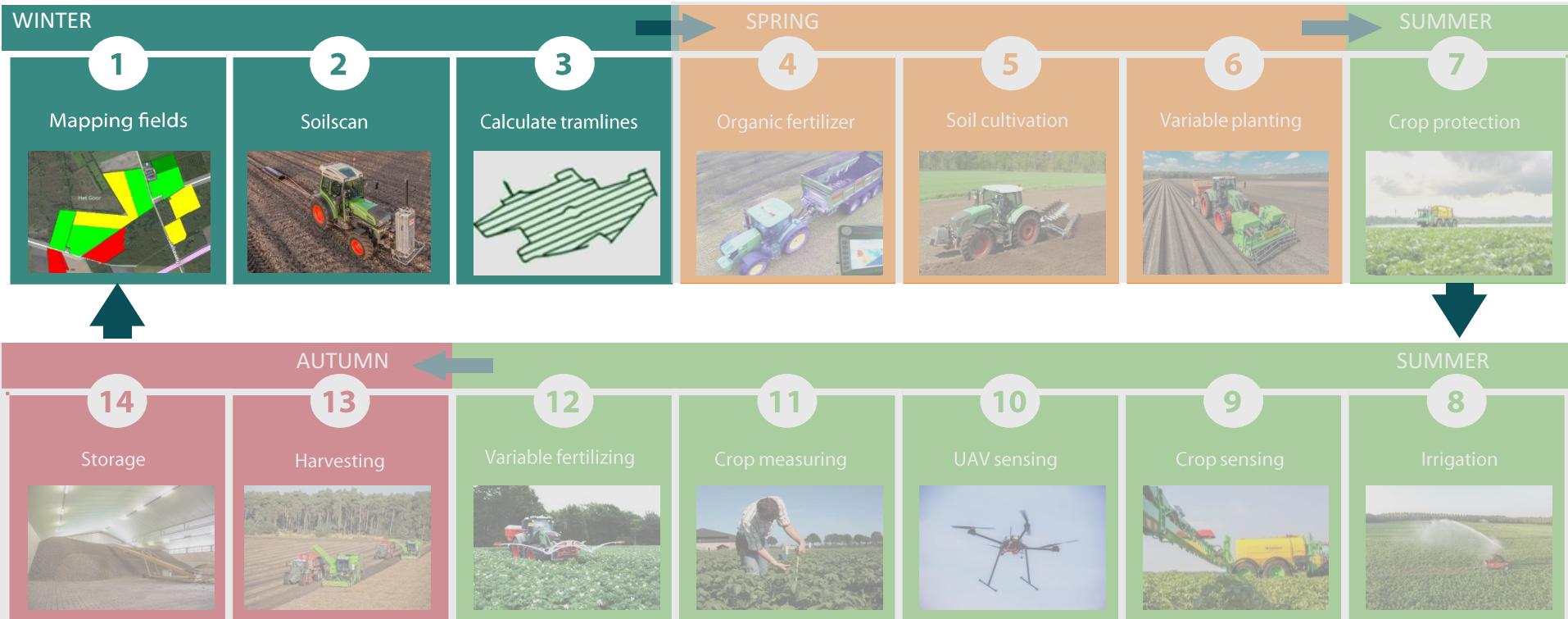
# Calculate tramlines

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# Precisionfarmingcyclus

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# Organic fertilizer

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4

Organic fertilizer



JOHN DEERE

2016 N: Application

Layer: As Applied Rate



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# Soil cultivation

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Soil cultivation



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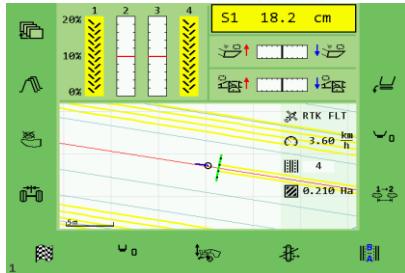
# Variable planting

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Variable planting



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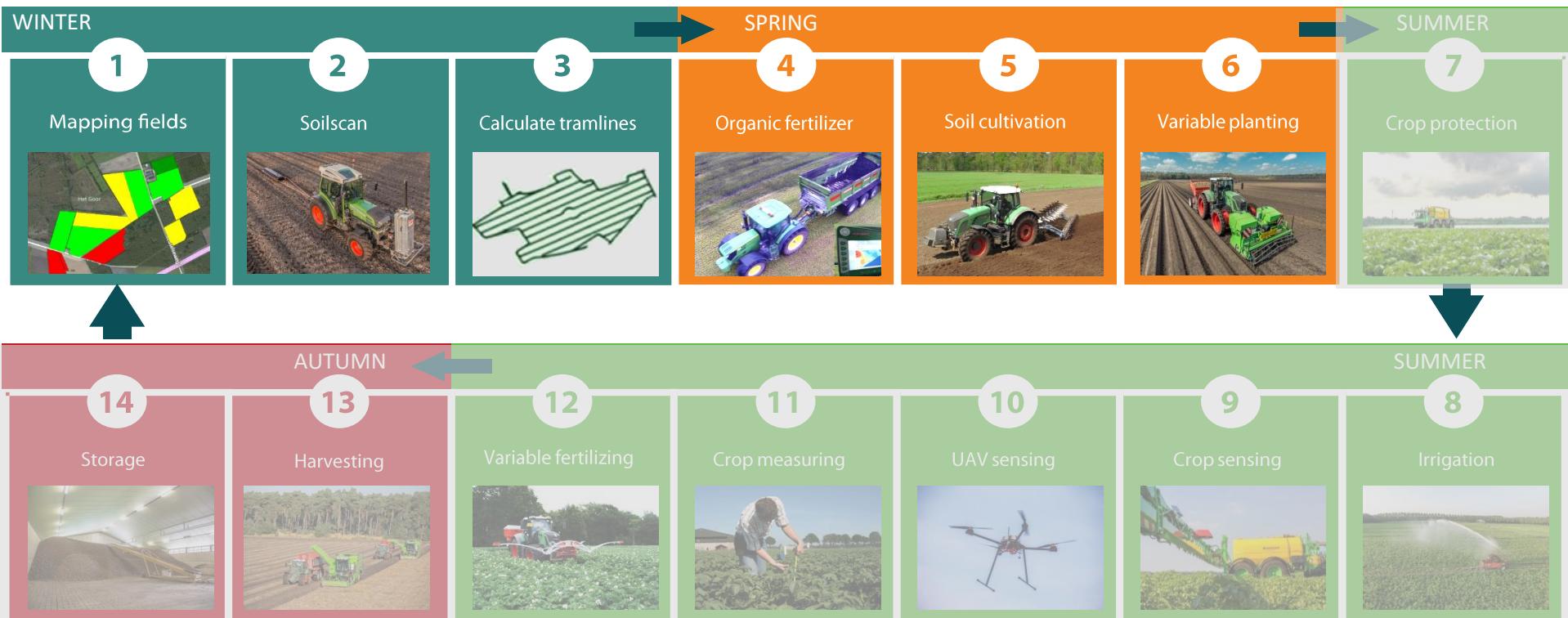
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# Precisionfarmingcyclus

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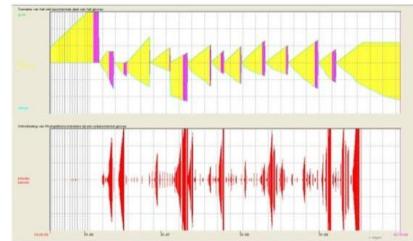
# Crop protection

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7

Crop protection



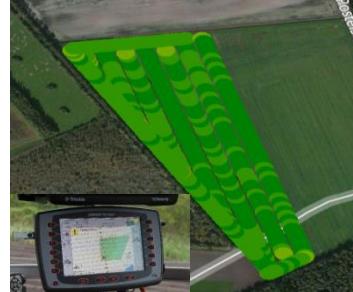
Weather data



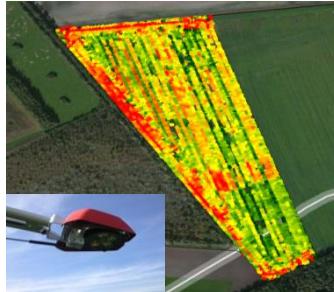
Advice



Application data



Sensor data



Remote sensing



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# Irrigation

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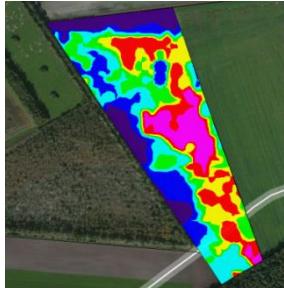
Irrigation



Weather data



Soilconductivity



Soilmoister



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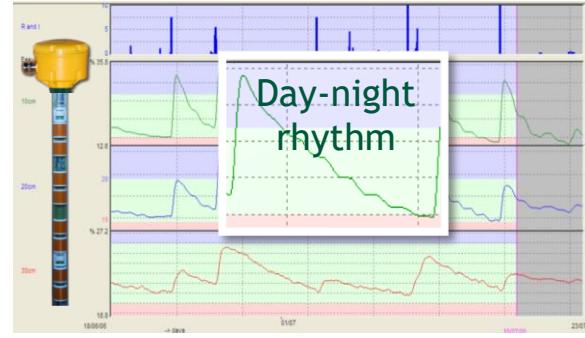
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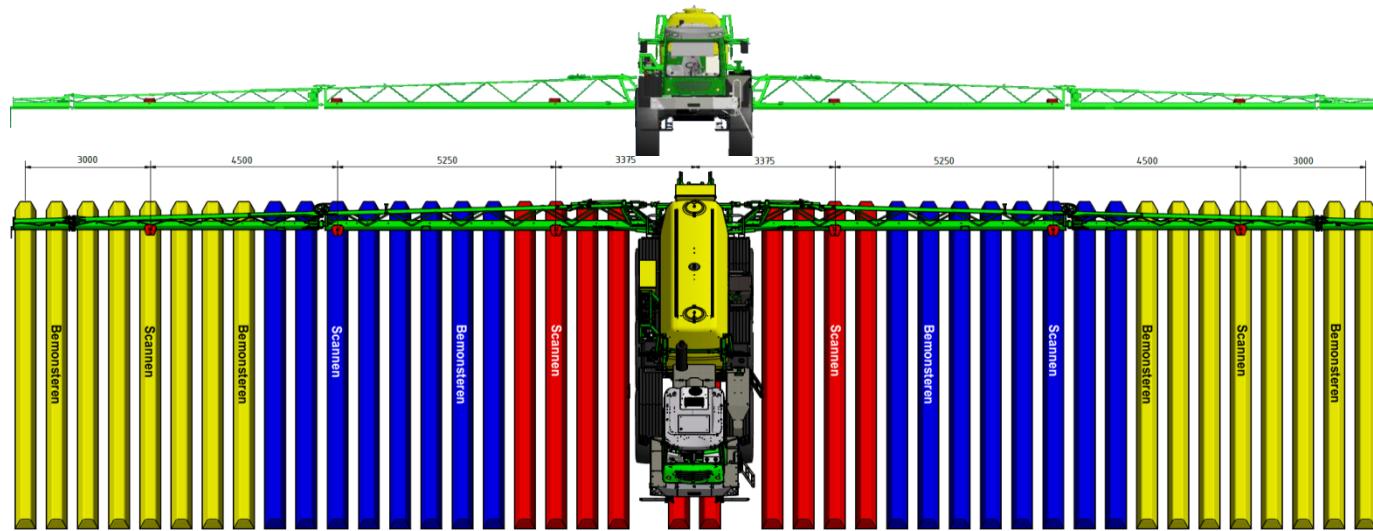
# Crop sensing

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Crop sensing



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# Crop sensing

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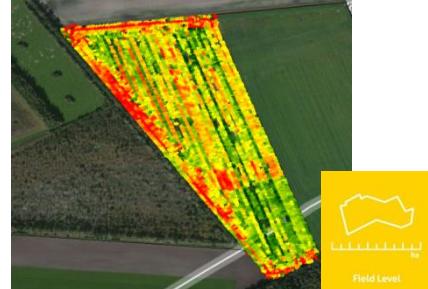


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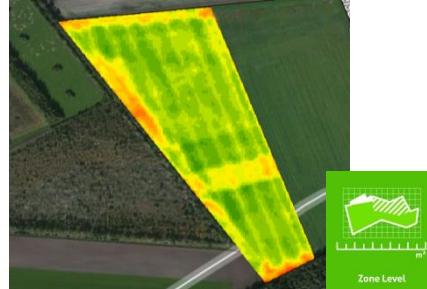
Crop sensing



Sensor data



Remote sensing



UAV sensing



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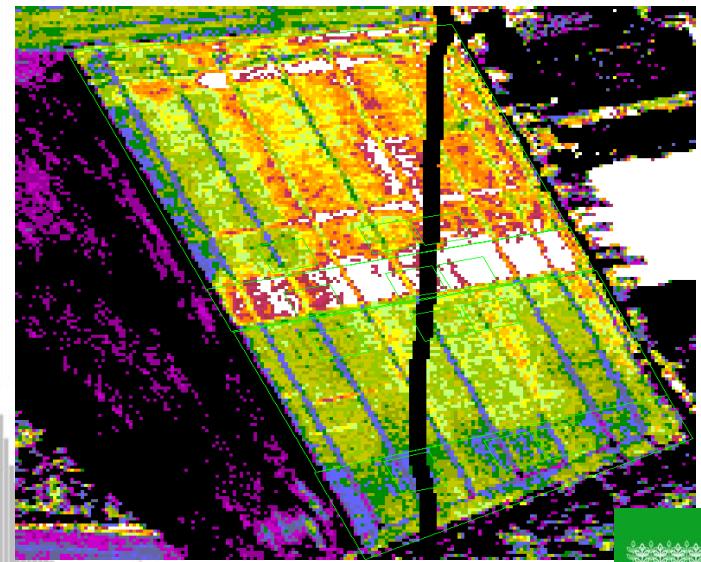
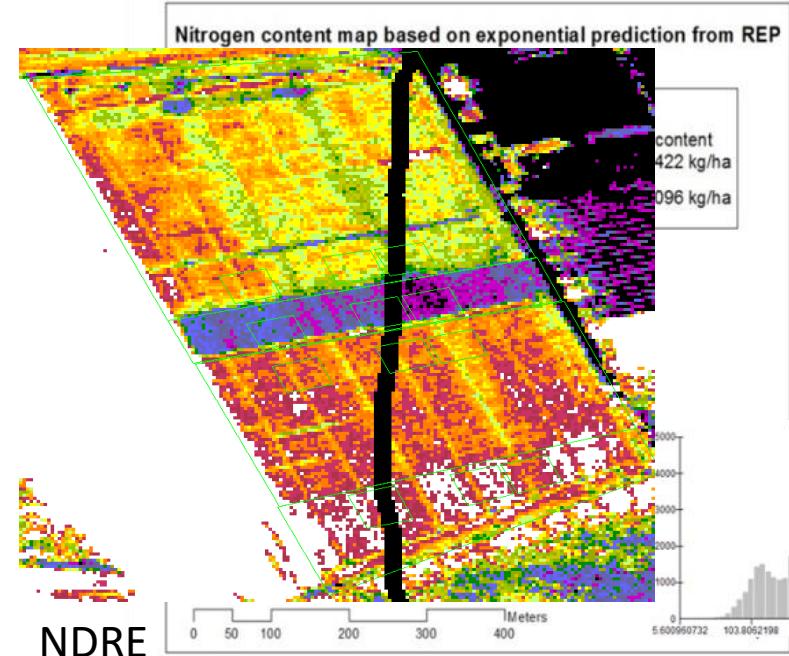
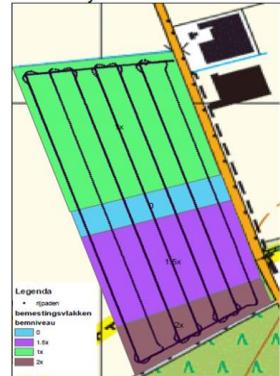
# UAV Sensing

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UAV sensing



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# UAV Sensing

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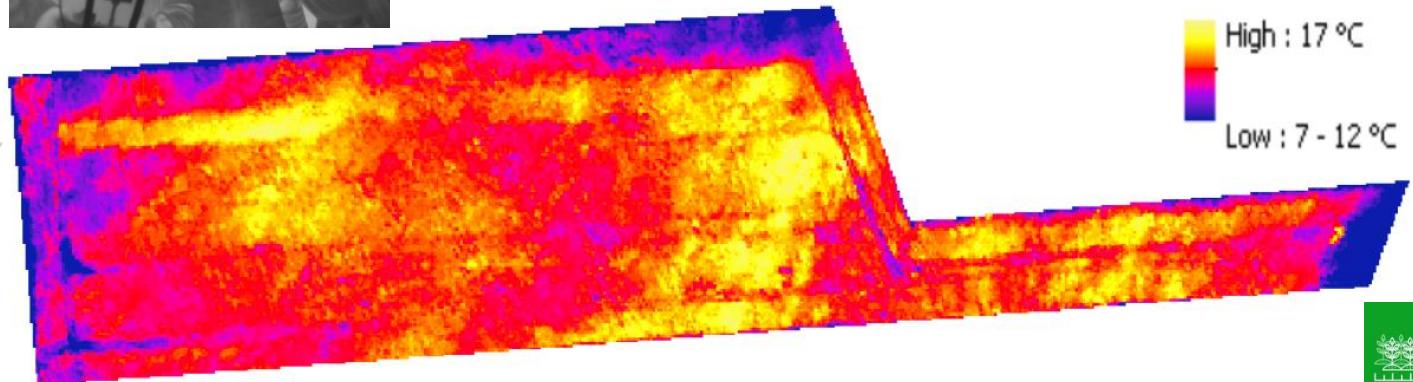


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UAV sensing



 **FLIR®**



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# Crop measuring

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Crop measuring



Increase your growth



1 m<sup>2</sup> rooien  
(3 planten)



hoogte  
grond tot top  
stengel



aantal  
stengels



aantal  
etages



weeg  
stengels +  
loof van de  
gerooide  
planten



weeg  
wortels

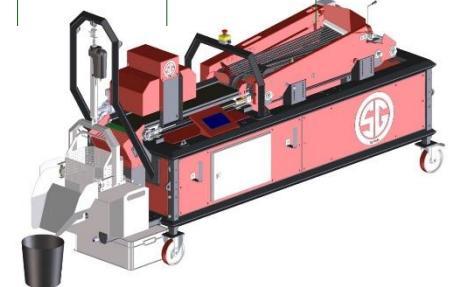


sorteer+tel  
knollen

weeg  
knollen  
per maat



weeg OWG  
+ BWG van  
hele partij



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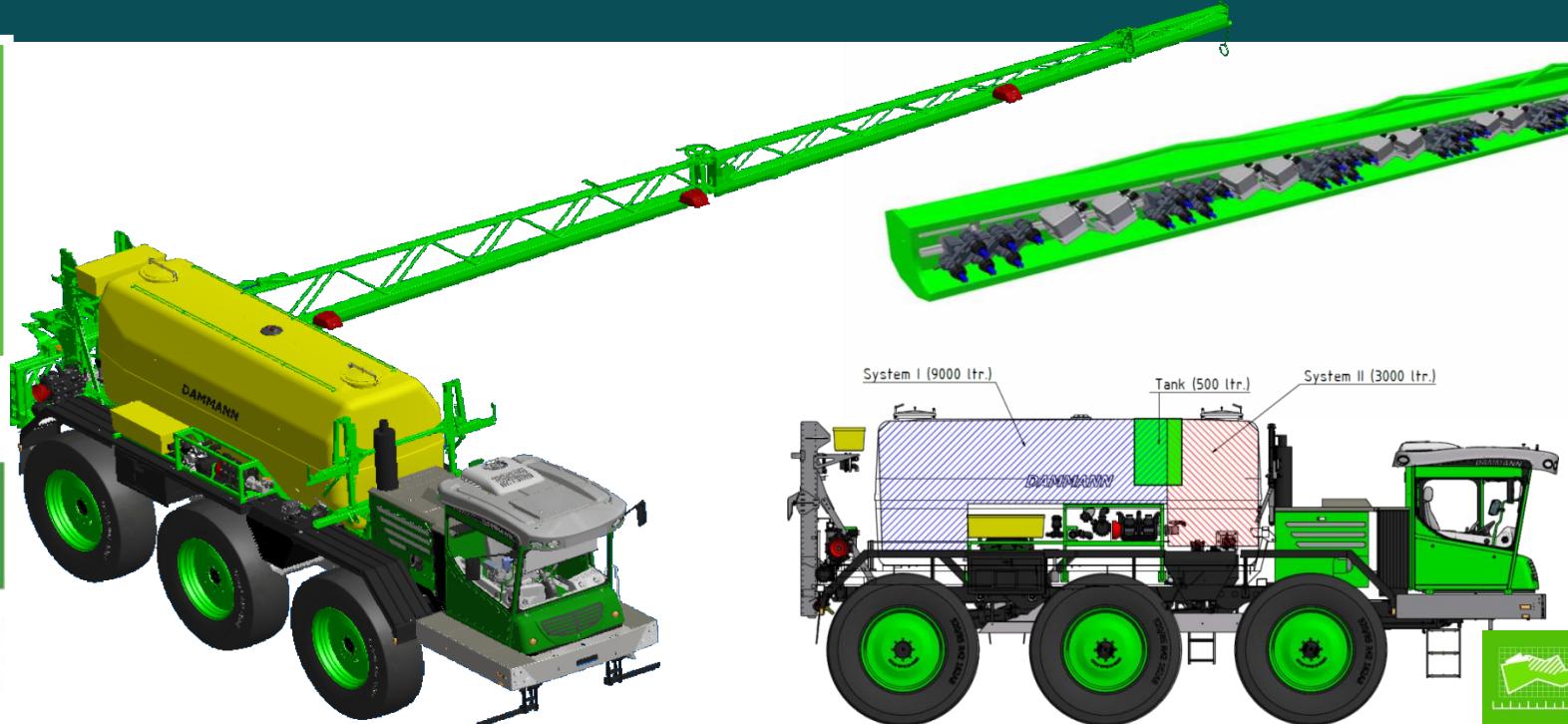
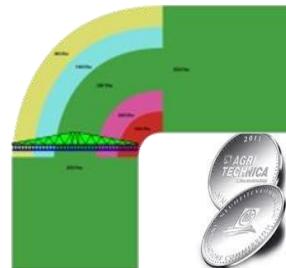
# Variable fertilizing

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Variable fertilizing



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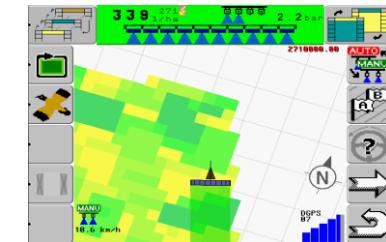
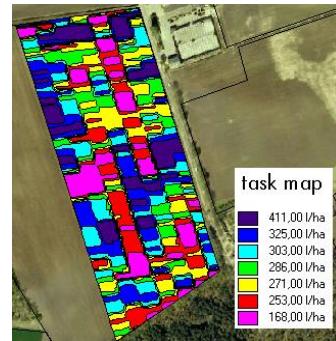
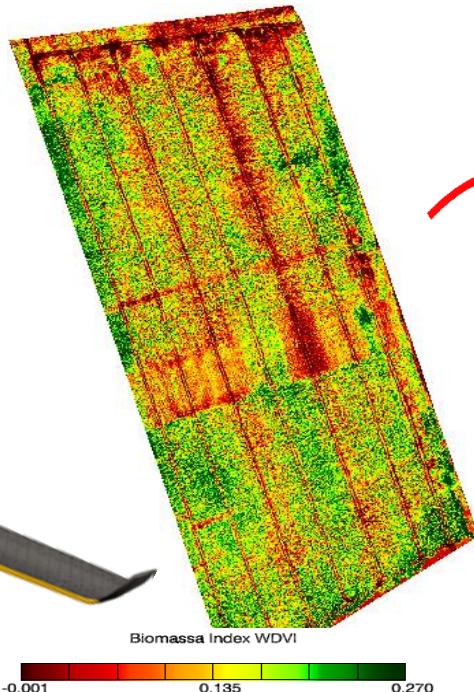
# Variable fertilizing

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Variable fertilizing



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# Harvesting

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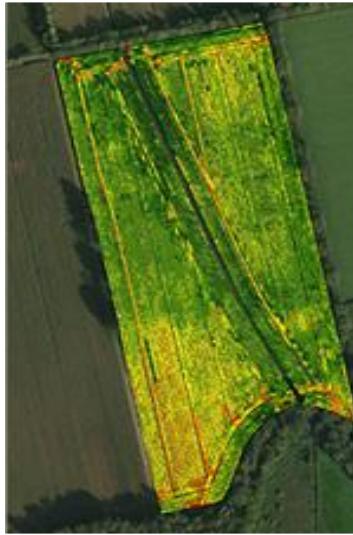


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Harvesting



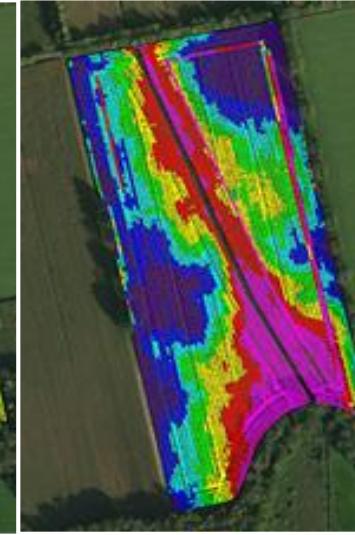
Yield



Speed



Elevation



Load nr.



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# Harvesting

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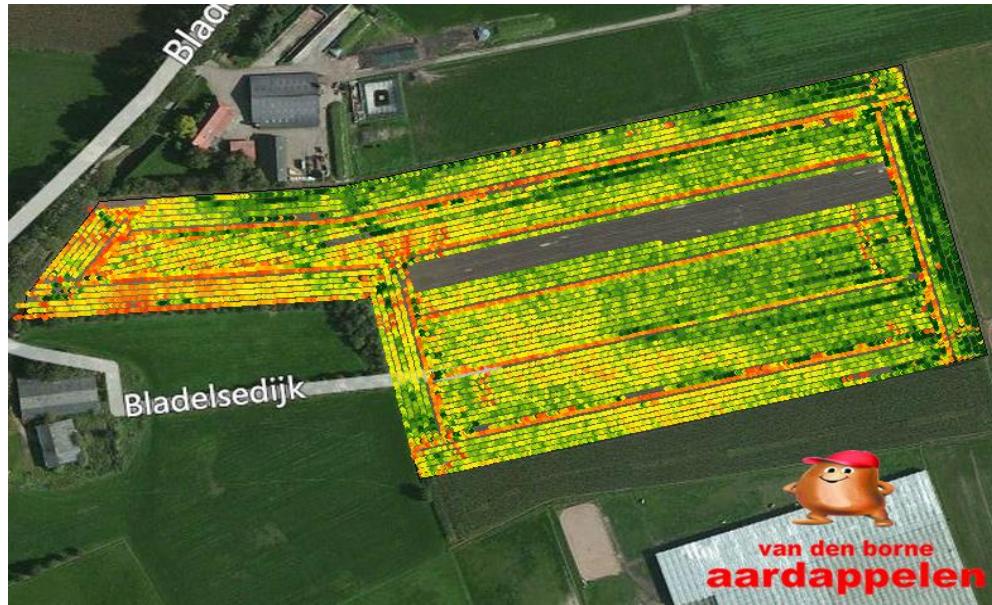


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Harvesting



Yieldpotential vs soilconductivity?



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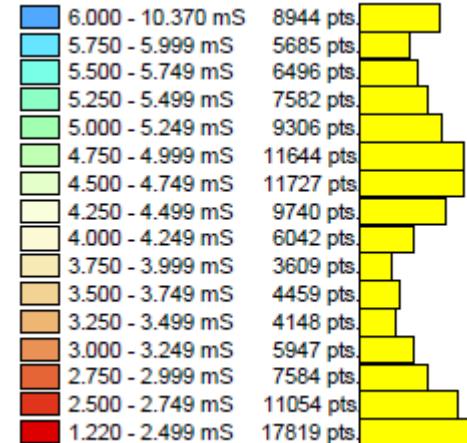
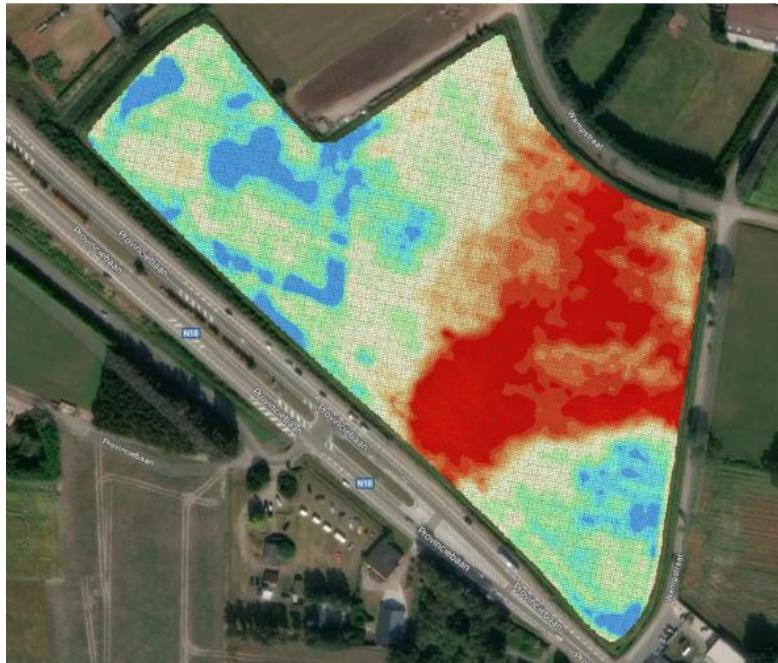
# Harvesting

VAN DEN BORNE AARDAPPELEN



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Harvesting



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# Storage

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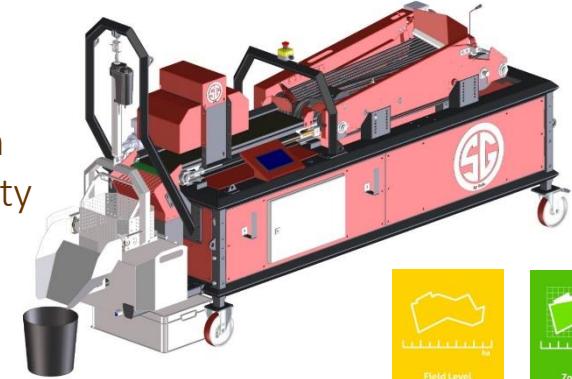
14

Storage



## Precision Storage

- Automated quality control and traceability
- Direct display of field positions in the storage room
- Climate control with weather forecast and electricity cost forecast for optimization on cost.
- Automated weight loss measuring in bulk storage.
- Indoor navigation for quality picking on demand



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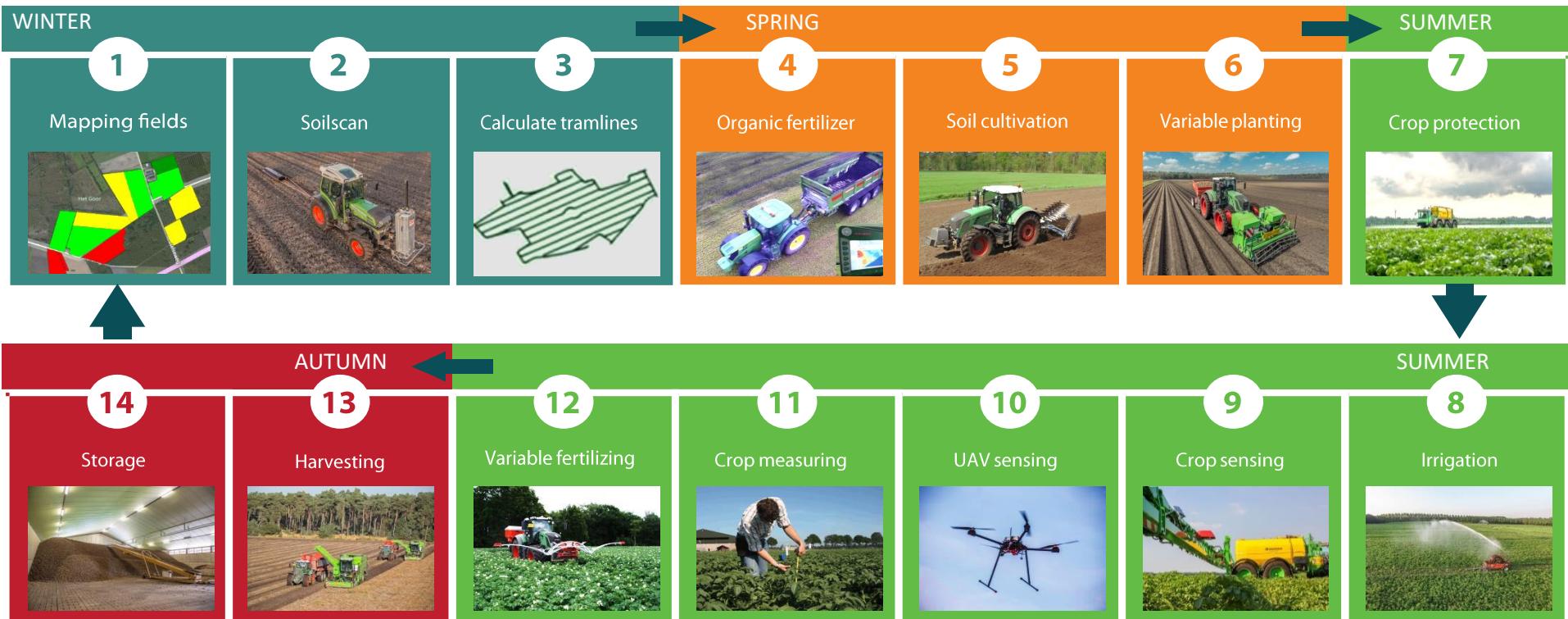
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# Precisionfarmingcyclus

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# Praktijk Centrum Voor Precisie Landbouw



Proeftuin voor  
Precisielandbouw



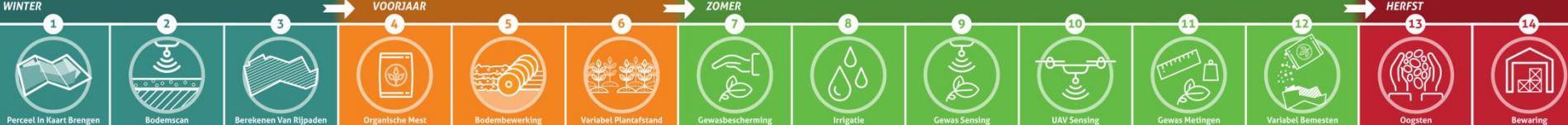
Provincie Noord-Brabant



Ministerie van Economische Zaken



Proeftuin voor Precisielandbouw wordt mede mogelijk gemaakt door bijdragen van het Europees Fonds voor Regionale Ontwikkeling, het Rijk en de provincie Noord-Brabant in het kader van OPZuid.



# 100% BOERVRIENDELIJK

een beter inkomen voor de boer



# PRECISIE LANDBOUW

met drones, sensoren en data geven we de gewassen precies wat ze nodig hebben



# Precision Farming

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INFORMATIE  
VLAANDEREN



van den borne  
aardappelen



For quality of life



Data  
Science  
School



# Precision Farming

VAN DEN BORNE AARDAPPELEN



Thanks for your attention!



Interested? Visit:

[www.vandenborneaardappelen.com](http://www.vandenborneaardappelen.com)



/jacobvdborne



/vandenborne