



Futuristic Farming?!

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Advisory board Ministry of Economic Affairs
Chairman Economic Plan Dronten topic Agriculture
Expert commission Nitrogen The Netherlands and Flanders

Talent for growth



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Aeres University



- Almere: Nature, Food & Urban Green
- Dronten: Agrofood en Entrepreneurship
- Wageningen: Sustainable learning and development



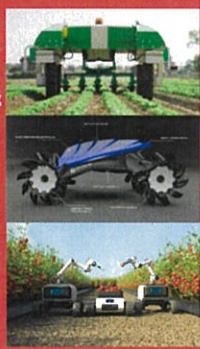
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Agro Technology Education programmes

BSc Agrotechnology & Management
Business Administration
Combination of Business Administration & Smart Farming

BSc Agrotechnology & Engineering
Arable farming & horticulture
Combination of technology & crop production

Master Agricultural Entrepreneurship

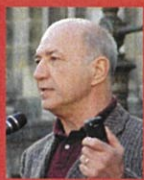


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How to feed the world in 2050?



My source of inspiration



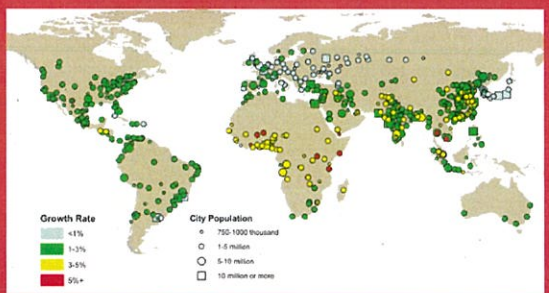
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The Urgency

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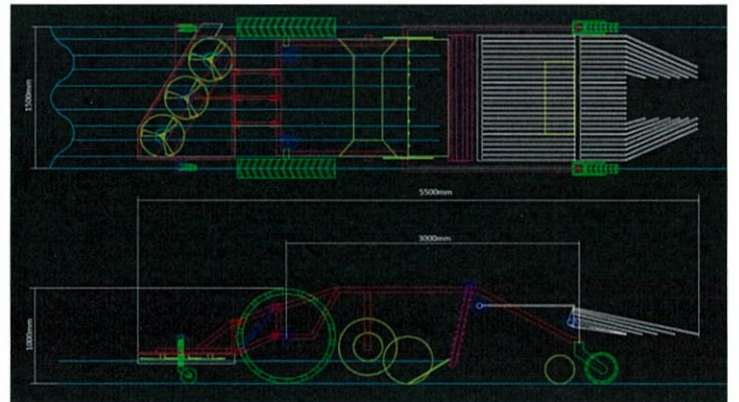
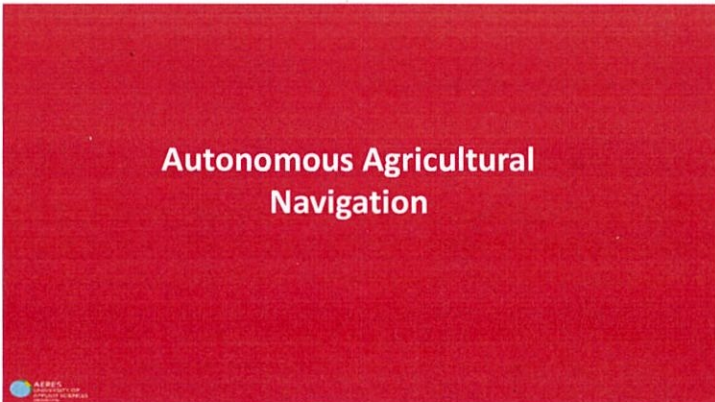
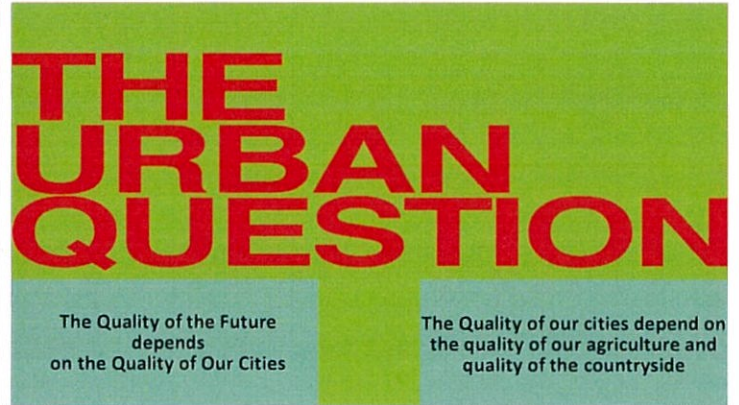
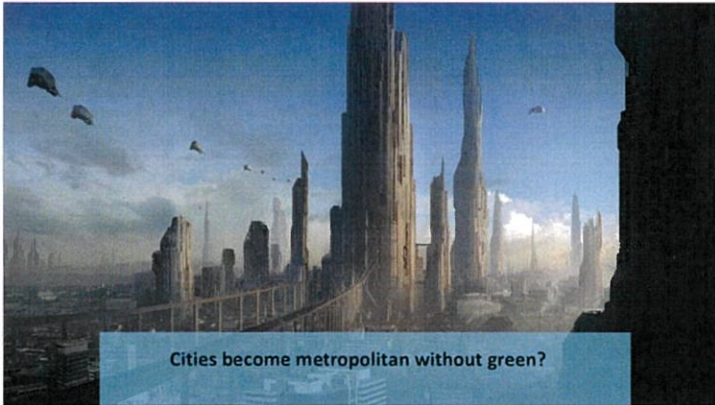
Growth of Cities

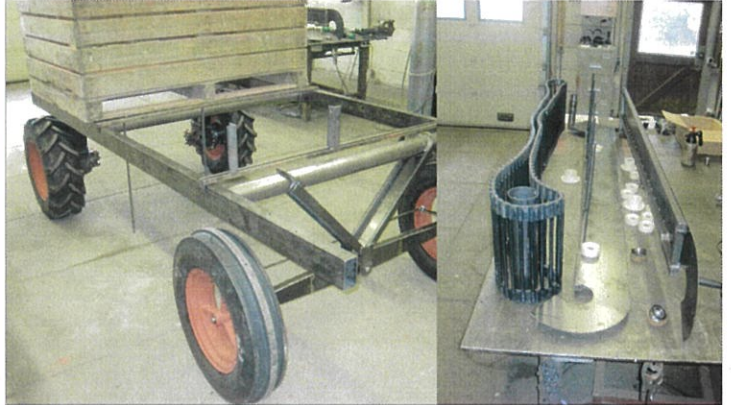
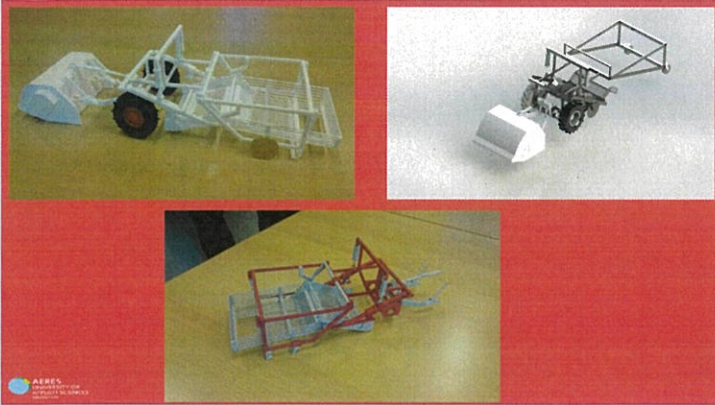


Growth Rate
Green: <1%
Yellow: 1-3%
Orange: 3-5%
Red: 5%+

City Population
● 750-1000 thousand
○ 1-5 million
○ 5-10 million
□ 10 million or more

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Future 2025-2033

8 Year programm DARE

- Inholland: AI
- Saxion: Robotics & Mechatronica
- NHL-Stenden: sensing
- Aeres: Precision Farming & Engineering

Artificial Intelligence in agriculture

Arthur Radeburg, 1954

AI in flowers

eagle-linkflowers.com

AI as tool to detect diseases



A person is holding a smartphone, taking a photo of a potted plant. The phone's screen shows the camera view with a yellow bounding box around the plant, indicating AI detection. The background shows several other potted plants on a yellow grid surface.



Data ophalen – METEN

Pasture Reader –
Gras lenght measurement

Veriscan

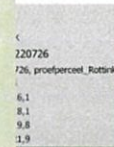
NIR sensor mesttank

PreciSIAandbouw
Meetgegevens Pasture Reader, grashoogte in cm
Noord-Sleey, Emmen

220726
726, proefpercent_Rottink
6,1
8,1
9,8
1,9

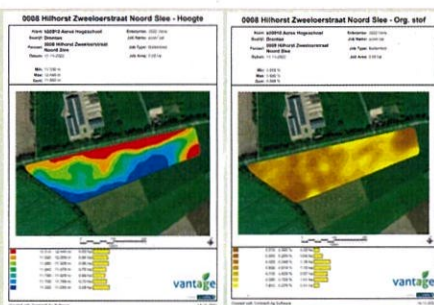
Veriscan

NIR sensor mesttank

[illegible]

Veriscan

NIR sensor mesttank

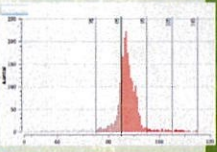
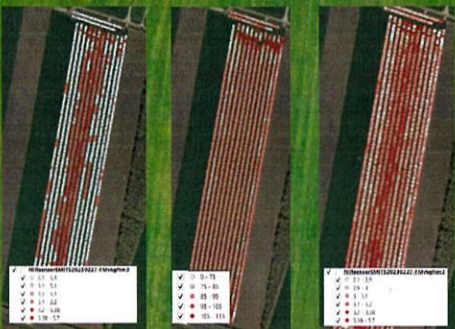


Data interpretern

Qgis

- isoXML
- Shapefile

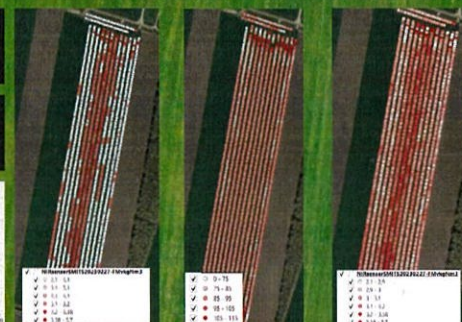
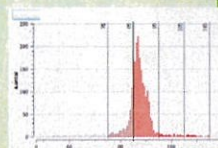
Excel



ARRES

ARRES

Excel



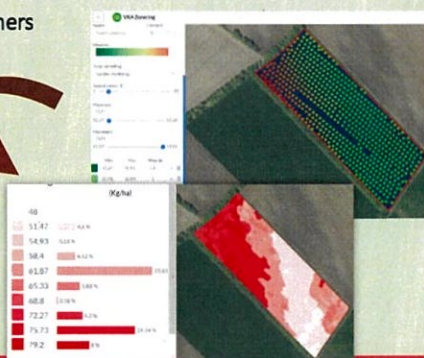
Application done by farmers

Software

- Farmworks
- Farmmaps

File types

- isoXML
- Shapefile



Tracks or tyres?



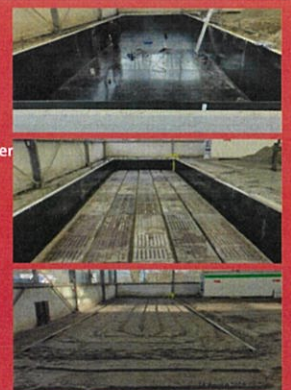
The left image shows a yellow tracked vehicle, likely a bulldozer, operating in a muddy, forested area. The right image shows a red off-road vehicle with large, treaded tyres operating in a similar muddy environment.





Soil Field Lab

- World wide unique
a 'swimming pool with soil instead of water
- Preventive soil investigation
- Compaction, moisture, tires, weight
- Hydro-physical research



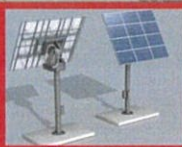


New topics

WHAT waterstof @AeresFarms ?

Self-sufficiency and fuel application

- Tractors
- Agri-robots
- Heating
- Mobile technis



Development of TechCoach concept in European setting towards regional circumstance



Hope from Aeres



I love it when a plan comes together



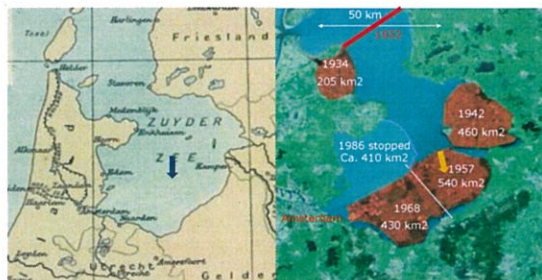


Agenda

1. Welcome and introduction
2. Explain on Farm of the Future concept
3. Field visit
4. Closure



Get to know each other



<https://www.youtube.com/watch?v=J1oY7NFB82o>

Wageningen

Welcome @ WUR Field Crops

WUR Field Crops
Practical and applied research in open field agriculture.

= Advanced agronomy in practice



Lelystad location
~ 1000 ha of arable fields
Experimental fields

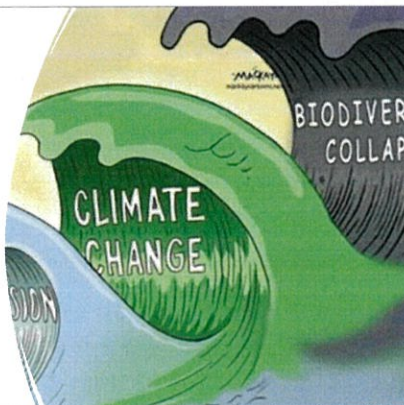
- crops & varieties
- crop protection
- farming technology
- farming system

'commercial' fields
Labs, greenhouses, energy projects

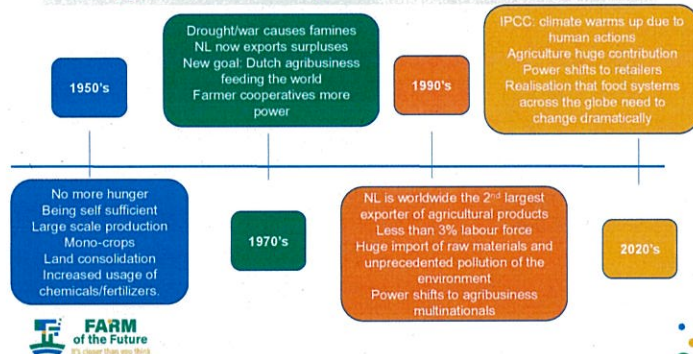


1. Why Farm of the Future?

There is a sense of urgency to change.



Short agricultural history of the Netherlands



Changing context - food production 21st century



2. What is the Farm of the Future?

A Dutch initiative exploring the options for profitable and sustainable farming.



Four components of the Farm of the Future



Stakeholder platform

- Programme Council
- Partners
- Stakeholders – farmers, governments, companies, civil society organisations, financial institutions, etc.



Innovative platform

- Developing new innovations
- Agenda-setting via roadmap
- Collaboration



Field lab

- System demonstration, test platform
- Testing and improving the system
- Gaining experience
- Testing innovations in practice



National network

- Farms of the Future in other regions and sectors

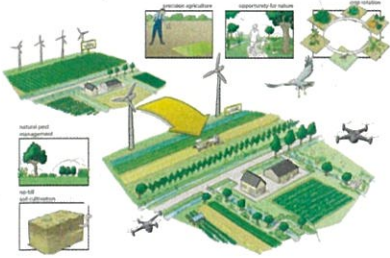


3. How did the FotF develop?

On the basis of agroecological principles supported by technology and through extensive multistakeholder consultation rounds.



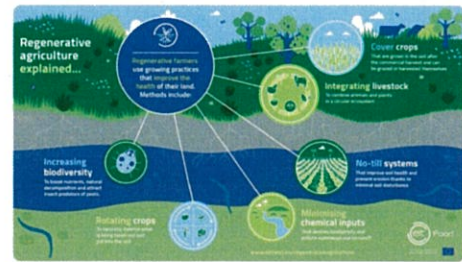
Including nature inclusive principles



Looking at a farm from a worm's or bee's perspective:

- Providing habitats for species: micro fauna, soil life, insects, mammals, birds, water organisms, etc.
- Providing infrastructure for nature networks;
- Landscape, tourism, cultural aspects.

Including regenerative agriculture principles



Advanced technology

- Low and high-tech
- Sensing and actuation
- Heavy on controlled traffic



Cultivation system fieldlab

- No fossil energy, positive energy balance



Solar-energy



Hydrogen



Cultivation system fieldlab

- Increased biodiversity (x4)





2024. Jacob van de Borne potato farm
(2025.9.16)



ARABLE FARMING, SANDY SOIL

Reusel, Noord-Brabant, The Netherlands
 Location fields: 80% Belgium
 20% The Netherlands

Connected Farmers: 120
 Co-Workers: 6
 Main Crop: Potatoes
 Other Crops: Wheat, Barley, Corn
 Unions, Parsnip, Peas

190 POTATOE FIELDS
 Average field size: 3ha
 Average corners: 6 per field = 13% overlap
 Storage capacity: 32.000 tonnes

PRECISION TECHNOLOGY since 2006
PRECISION FARMING since 2009

PRECISION FARMING.

VDBORNE POTATOES

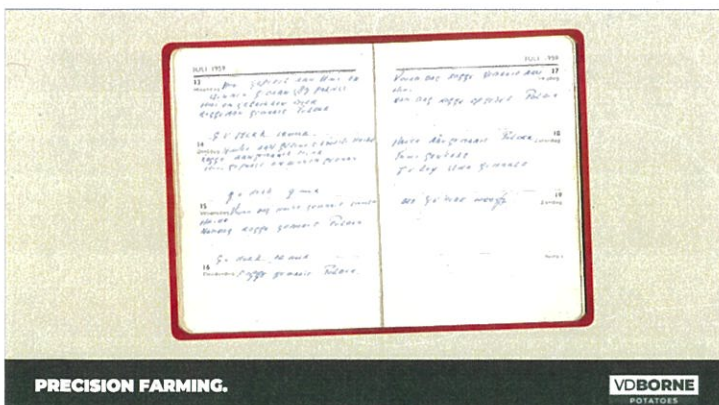


WHAT IS THE DEFINITION OF PRECISION FARMING?

Time (interval)
 Location (GPS)
 Application (VRA)

PRECISION FARMING.

VDBORNE POTATOES



WHAT IS THE ACCURACY OF PRECISION FARMING?

100% POPULATION FARMING
 Crop Level
 750BC - 500 AD
 ROMAN PERIOD

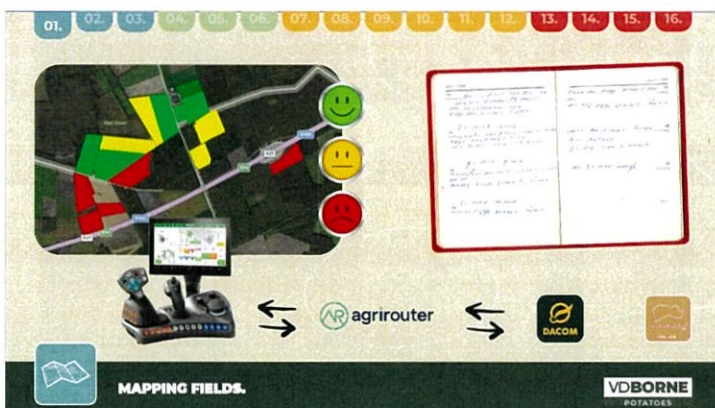
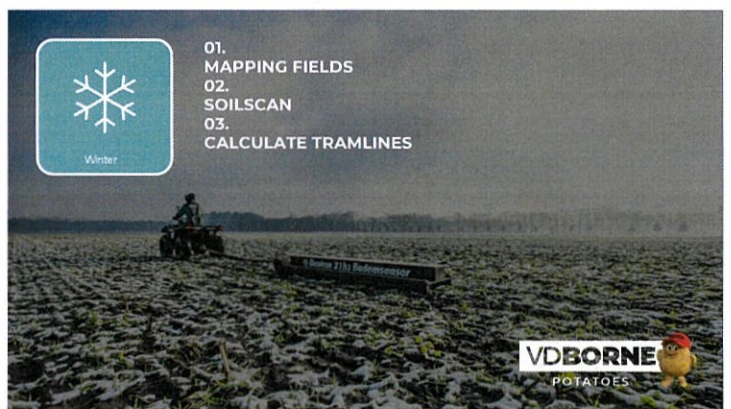
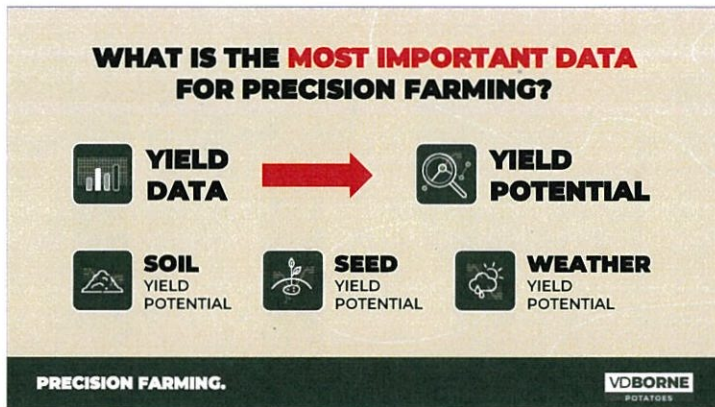
90% POPULATION FARMING
 Zone Level
 AFTER WWII
 1800 HANSHOLT

5% POPULATION FARMING
 Field Level
 21st CENTURY
 LAND CONSOLIDATION

1% POPULATION FARMING
 Farm Level

PRECISION FARMING.

VDBORNE POTATOES



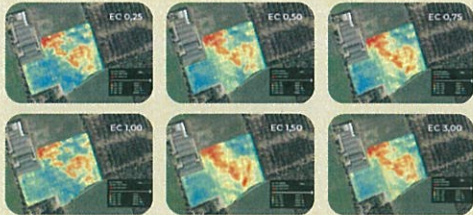
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SOIL MASTERS

SOILSCAN. VDBORNE POTATOES

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SOIL MASTERS

SOILSCAN. VDBORNE POTATOES

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SOIL MASTERS

SOILSCAN. VDBORNE POTATOES

01. 02. 03. 04. 05. 06. 07. 08. 09. 10. 11. 12. 13. 14. 15. 16.

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



CALCULATE TRAMLINES.

VDBORNE POTATOES

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CONTROLLED TRAFFIC FARMING

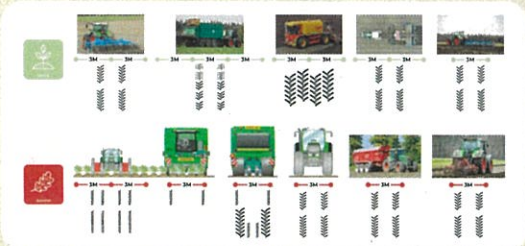
- Controlled traffic farming has an average of 7% more yield



CALCULATE TRAMLINES.

VDBORNE POTATOES

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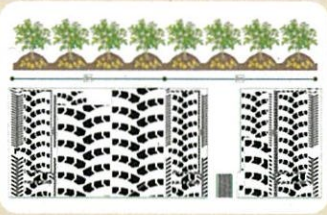
CALCULATE TRAMLINES.

VDBORNE POTATOES

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CURRENT SITUATION

Random traffic

CALCULATE TRAMLINES.

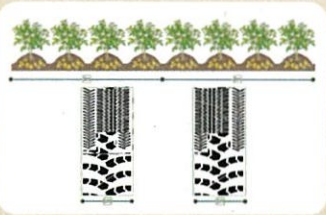
VDBORNE
POTATOES

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DESIRED SITUATION

Controlled traffic

- At least 2/3 non-wheeled
- Soil compaction in traffic lanes equal to soil compaction in current situation

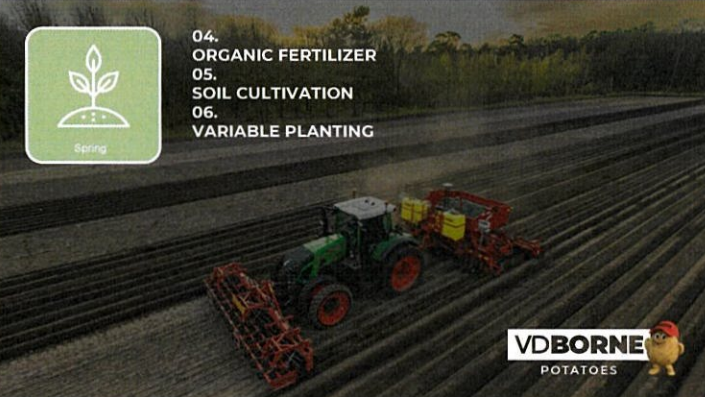



CALCULATE TRAMLINES.

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04. ORGANIC FERTILIZER
05. SOIL CULTIVATION
06. VARIABLE PLANTING

Spring



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ORGANIC FERTILIZER.

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01. 02. 03. 04. 05. 06. 07. 08. 09. 10. 11. 12. 13. 14. 15. 16.




Nitrogen Enriched Organic Fertiliser (NEO)

- ✓ Stikstof uit lucht toegevoegd als plantbeschikbaar nitraat
- ✓ Verlaging pH (naar 5 - 6)
- ✓ Stoppen ammoniak en methaan emissies
- ✓ Mest geur verwijderd

N2 **Applied**

ORGANIC FERTILIZER.

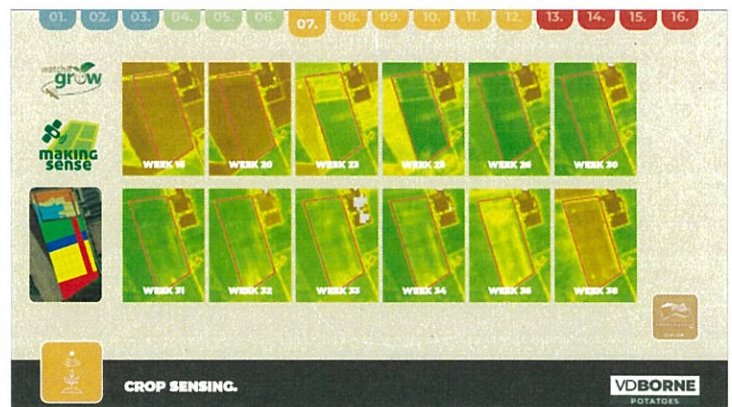
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ORGANIC FERTILIZER.

VDBORNE
POTATOES





01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16

HARVESTING WITH YIELD MEASUREMENT

- Direct display of yield levels and differences
- Car weight and yields are automatically recorded



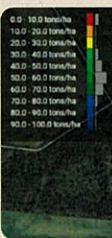
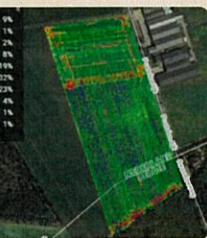




HARVESTING.

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POTATOES

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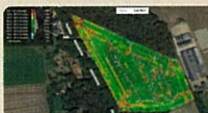




HARVESTING.

VDBORNE
POTATOES

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CAMERA QUALITY MEASUREMENT

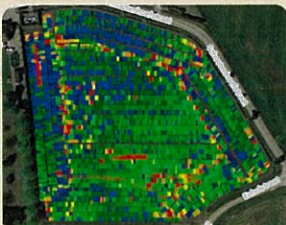
- Size distribution
- Length in mm



HARVESTING.

VDBORNE
POTATOES

01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16






HARVESTING.

VDBORNE
POTATOES

01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16

PRECISION STORAGE

- Automated quality control and traceability
- Direct display of field positions in the potato storage
- Climate control + weather forecasts + electrical use forecasts = cost optimization
- Automated weight loss measuring in bulk storage
- Indoor navigation for quality piking on demand







STORAGE.

VDBORNE
POTATOES

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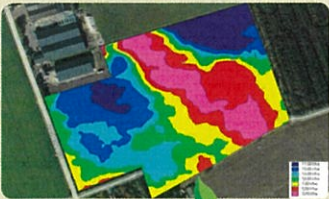





STORAGE.

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ORGANIC FERTILIZER.

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- Nitrate leaching
- Soil health
- Water infiltration

COVER CROP.

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CYCLE OF PRECISION FARMING.

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SUSTAINABILITY.

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100% BOERVRIENDELIJK
en het beste moment voor de bodem

PRECISIE LANDBOUW
multicolor, variëren en ook groen en
de groenheid van de bodem

PASTINAAK
BATAAT &
AARDAPPEL

FRIETJE PRECIES.

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POTATOES

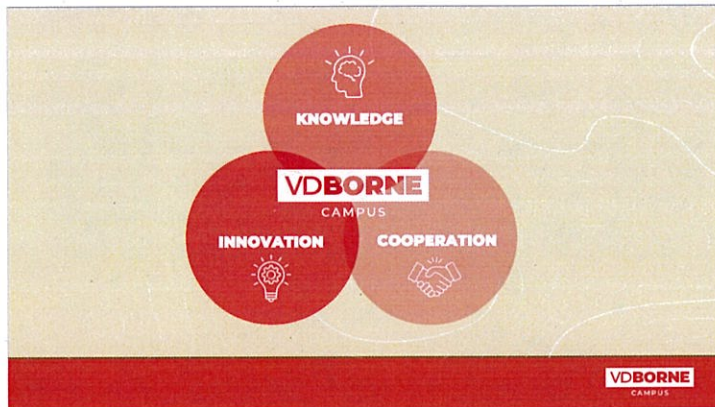
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CAMPUS



VAN DEN BORNE CAMPUS.

VDBORNE
CAMPUS



VDBORNE CAMPUS FARMING THE FUTURE TOGETHER

**TIME TO COLLABORATE
WORK TOGETHER ON GOALS**

We facilitate meetings, networking and cross-border collaboration with like-minded people within our international community!

- Precision Days
- Events
- Market Adoption
- Domain Solutions
- Triple Helix community

**TIME TO LEARN
KNOWLEDGE DEVELOPMENT**

We develop and share practical knowledge and intelligence about precision agriculture that really helps the sector move forward!

- Lectures and presentations
- School learning fields
- Smart Farming Academy
- E learning
- Demonstrations
- Lecture and meeting rooms

**TIME TO INNOVATE
DATA, AI and TECH**

We develop, test, demonstrate and validate new innovations in the field of Precision farming to accelerate adoption!

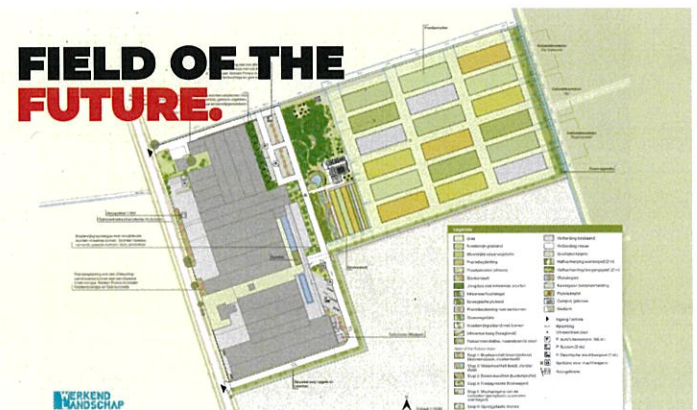
- Test and Validation Center
- Trial fields for third parties
- Data Platform Engineering
- Drone airport
- Field of the Future
- Coaching and consultancy

VDBORNE CAMPUS

SMART FARMING ACADEMY.

SMARTER FIELD
SMARTER PEOPLE
SMARTER PLANET

VDBORNE CAMPUS



BUSINESS OVERVIEW.

VDBORNE POTATOES

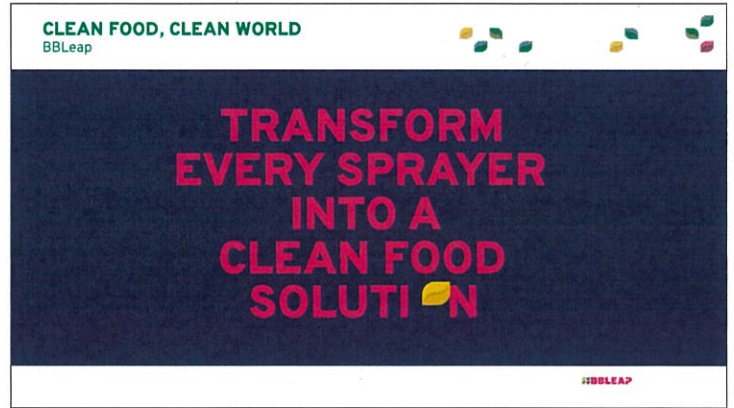
THANK YOU FOR YOUR ATTENTION.

Scan here and Join the academy

@VandenBorneAardappelen
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@vandenborneaardappelen
jacobvdborne
van-den-borne-aardappelen

VDBORNE POTATOES

375-7 5. BBLeap
(2025.9.16)



PROBLEM
There Is No Planet B

We recognize the pressing environmental challenges in agriculture and are committed to driving change. Our solution focuses on precise chemical applications for sprayers to fight these challenges, less chemicals needed.

- Carbon Reduction
- Water Quality
- Nitrogen Reduction
- Soil Health
- Biodiversity

CURRENT SPRAYING PRACTICES

- TAKING RISK** (Over-spraying)
- LEACHING FIELDS** (Over-spraying)
- BULLY CROPS** (Over-spraying)

BBLEAP

SOLUTION
Transform Every Sprayer into a Clean Food Solution

New & existing sprayers
can't spray on plant precision.
We remove all existing spray technique:

Hardware: We install our modular "Leapbox" spray system.
Software: We connect to our online "Leapspace" platform.
Solution: Sprayer can now execute on plant level. Real-time with our "Leapeye" cameras or based on data with "Leapcat"

BBLEAP

BREAKING BARRIERS IN SPRAYING
BBLeap's Technological Edge

| FEATURE | BBLEAP | COMPETITION |
|---|--|--|
| 1. High-Speed, High-Precision Spraying | "Best coverage independent of my speed" | Slow valve opening results in poor spray patterns and no coverage in valleys or different speeds. |
| 2. Perfect Spraying, Eliminating Risk Zones | "I held my field back from Phytophthora and raised my yield" | Requires extra chemicals as buffer for coverage problems, increasing chemical use and environmental impact. |
| 3. Consistent Application Rate, Reduced Risks | "BBLeap ensures that the grass dosage is optimal & consistent" | Independent roller can't keep up to 100% in some areas and below 50% in others, causing crop damage and higher chemical use. |
| 4. Plant-Level Precision with Application Maps | "96% of the crop was unharmed in growth" | Limited grid resolution and operator error lead to missed savings and less efficient applications. |
| 5. Consistent Pressure for Optimal Droplet Size | "I always have the right droplet size, volume, and coverage" | Other systems (including Pikt) adjust pressure variability, leading to inconsistent droplet size and reduced spray quality. |
| 6. The Grower's Advantage | "Your spray quality improves harvest" | Higher chemical costs, increased crop stress, and environmental impact due to low precision, less efficient systems. |

BBLEAP

GO-TO-MARKET
Use Local Hero and his 360°

LOCAL HERO 360°

STRATEGY

- 1. SELECT REGION**
→ Technological Adoption
→ Experience with Precision Ag
→ Pressure for sustainability
- 2. IDENTIFY LOCAL HERO**
→ Identify local hero
- 3. GIVE HERO A STAGE**
→ Build a stage
→ Connect with environment
- 4. BUILD COMMUNITY**
→ Use trusted advisors
→ Build community & reach new growers
→ Use grower's network to reach new growers

SCALABLE

YEAR 1 - BBLEAP IN THE LEAD

YEAR 2 - WORKING TOGETHER

YEAR 3 - PARTNER SELLS INDEPENDENT

Example: 100% sales Denmark

Example: 100% sales Australia

All sprayers in the world are ready for our solution



IMPROVING YIELDS ON A DAILY BASIS



Passionate for Clean Food, Clean World



CURRENT TRA

Growers & Growing



NEXT STEPS
Join Us for Clean Food Clean World

