

# Site visit (Plant-based) Agri- & FoodTech

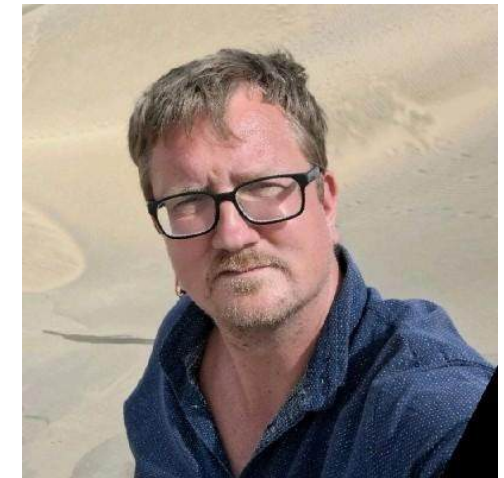
## Stefan van Gestel

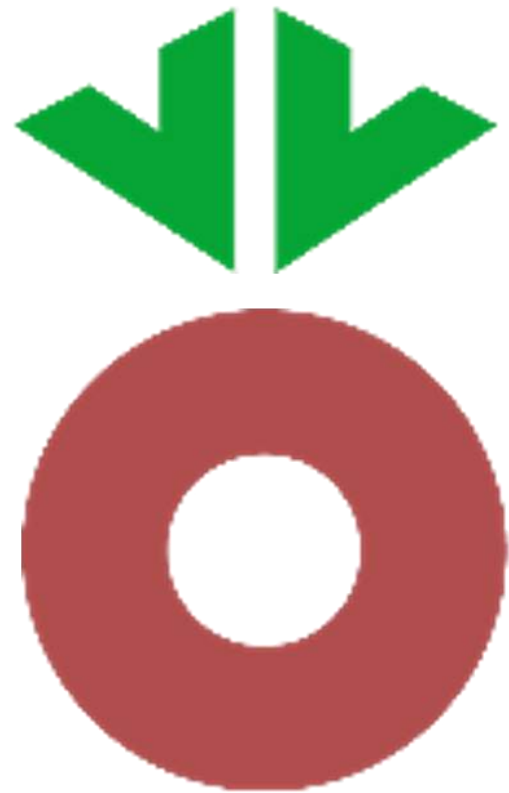
Smart Farming Field Crops  
Province of Noord-Brabant  
[svgestel@brabant.nl](mailto:svgestel@brabant.nl)



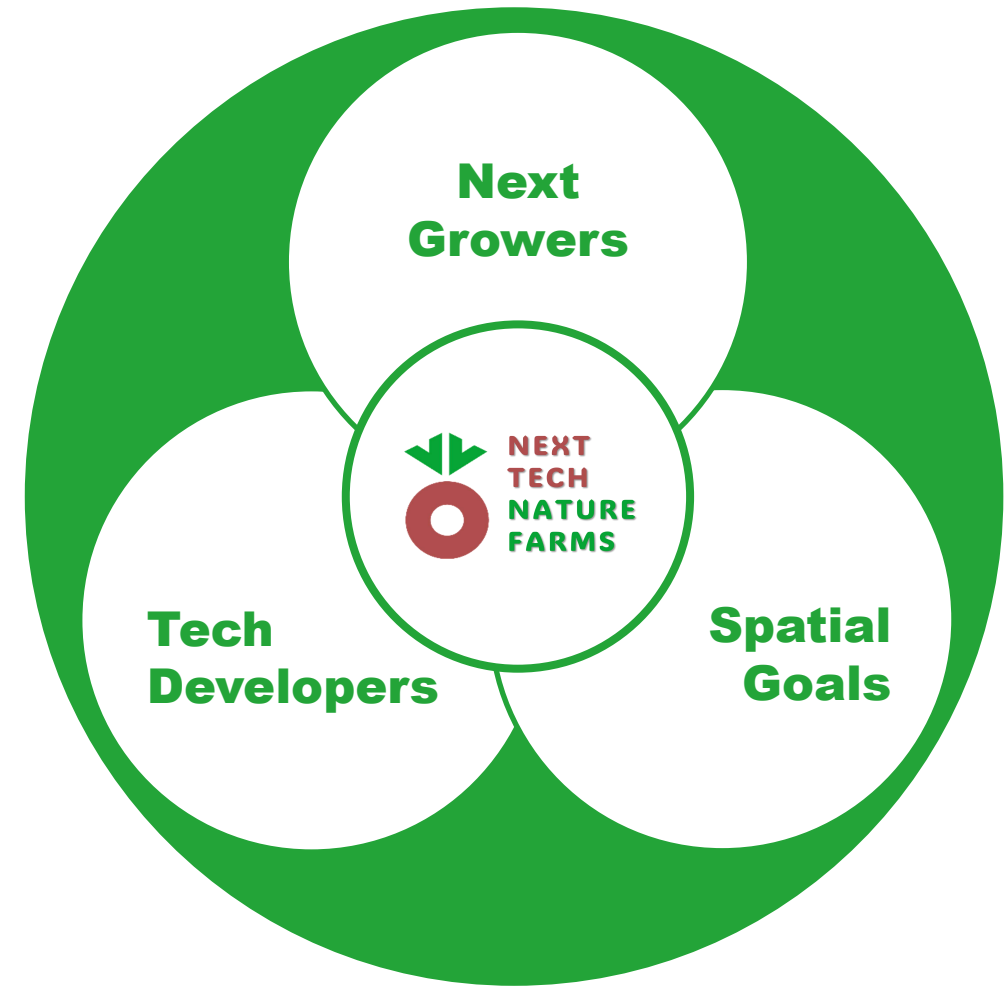
## Paul van Zoggel

Programme Developer  
VDBorne Campus & WUR  
[paul.vanzoggel@wur.nl](mailto:paul.vanzoggel@wur.nl)

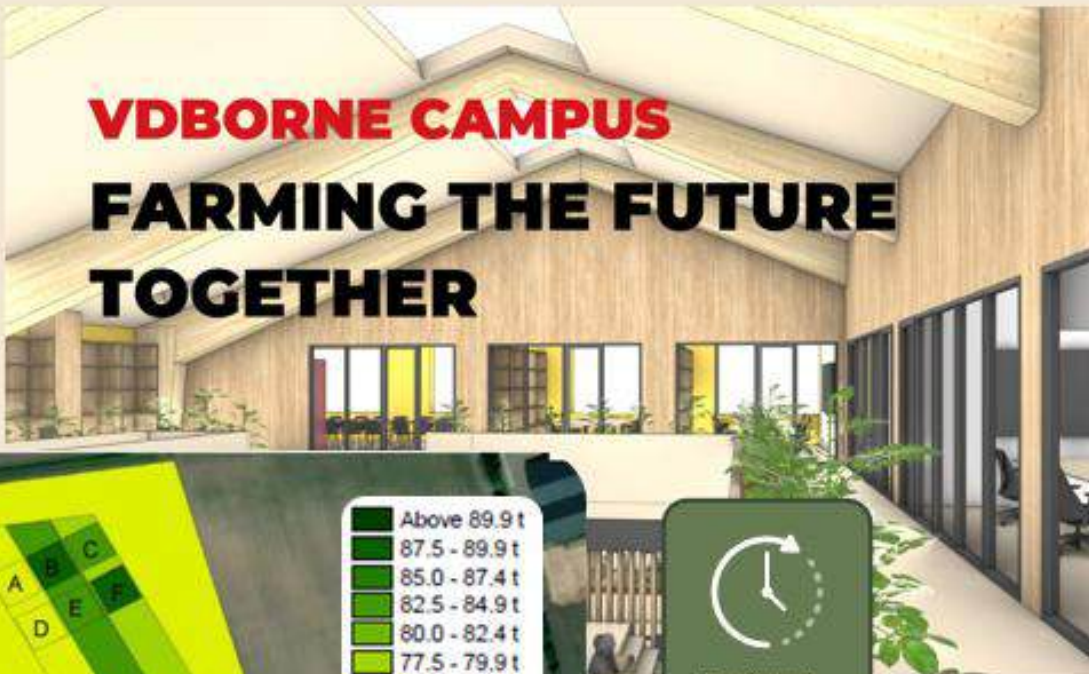




# NEXT TECH NATURE FARMS







# VDBORNE CAMPUS FARMING THE FUTURE TOGETHER



Since 2017

Paul van Zoggel

Program manager  
Precision Agriculture &  
Data Driven Regions



Since 2024

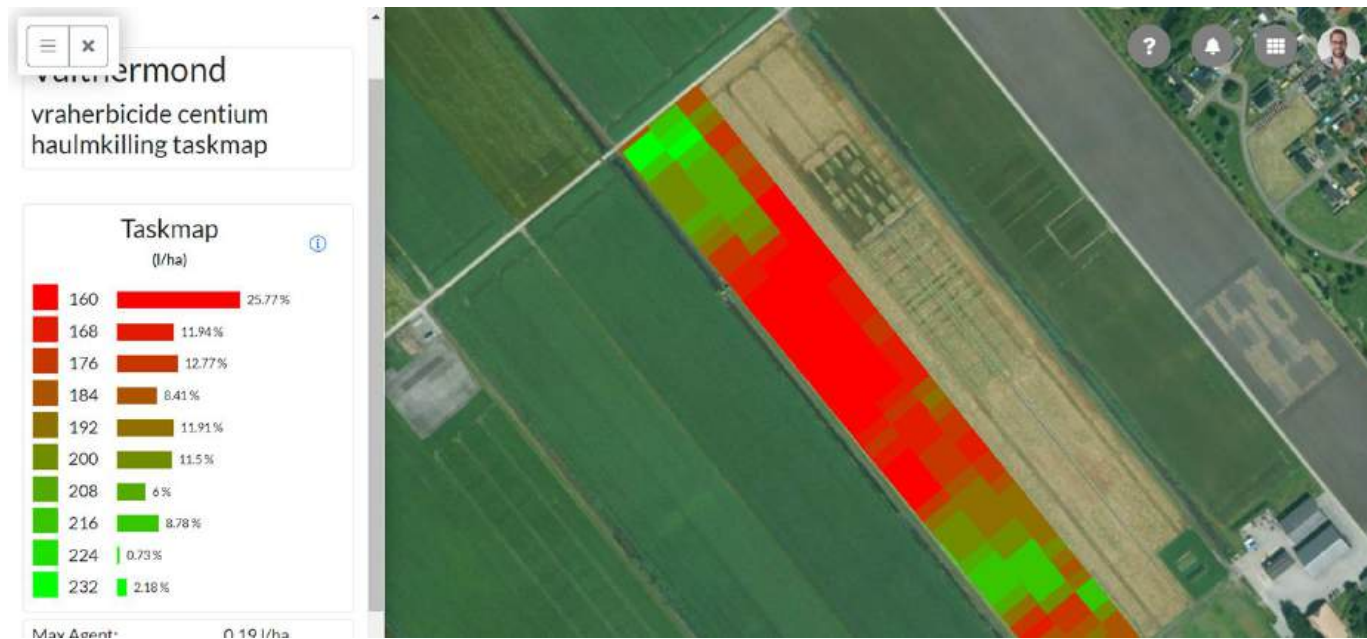


AGROSYSTEMS

Precision Future Farm







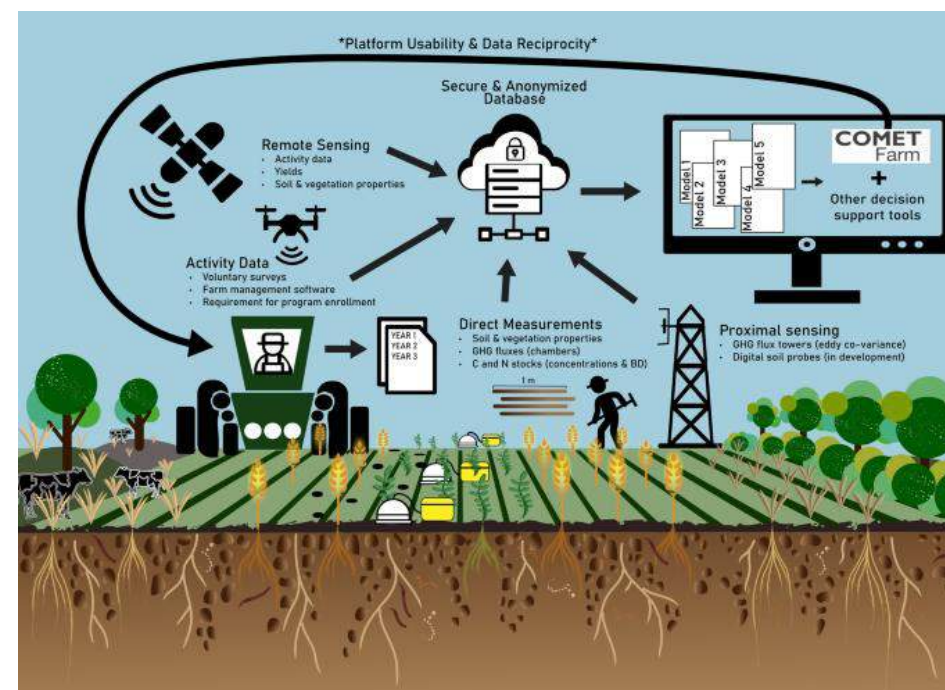
On the right Place

At the right Time

Do the right Action

# Calculator

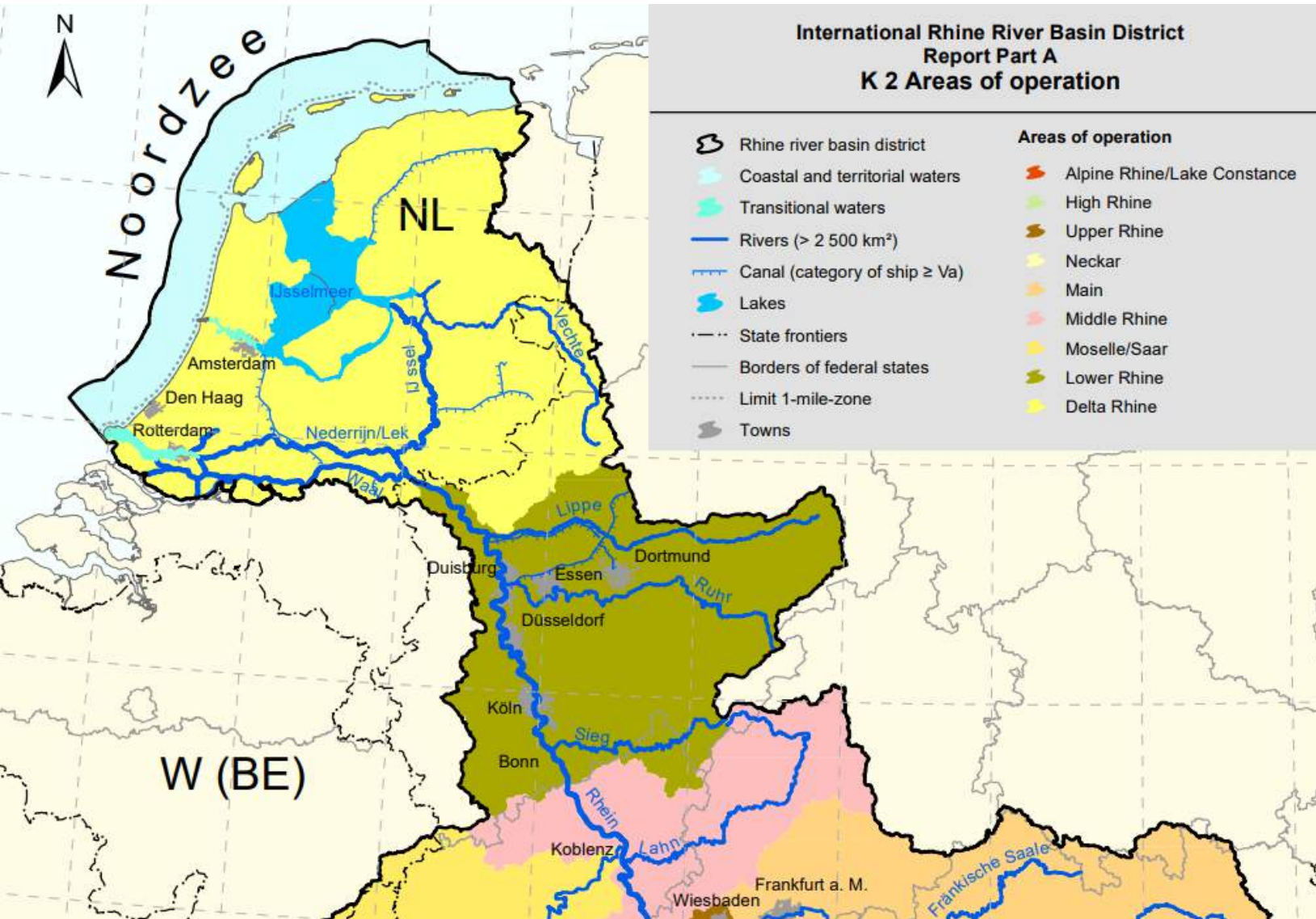
## Smart Farming



Variable Rate :  
Fertilization  
Irrigation  
Weed reduction  
Crop protection



# Smart Farming is a method to reach regional goals



## Result

All checkmarks a



**Emission risk down.  
Soillife, foodweb up.**





# Ideal Farmer...

1. Collaborates with nature
2. Collaborates with robots
3. AI helps robot and farmer in a local context

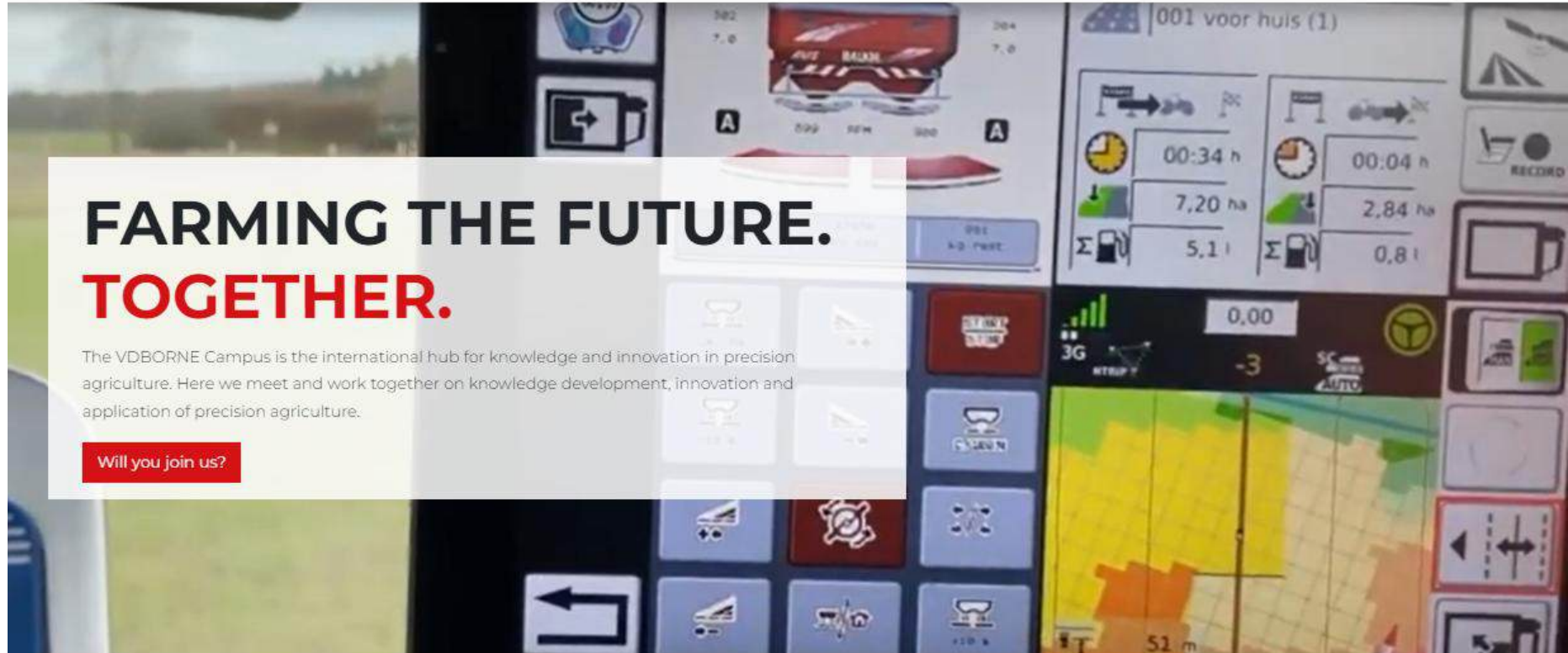




# FARM FRITES SETS MORE SUSTAINABILITY GOALS

BY POTATO BUSINESS / 29TH MARCH 2019

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## Groene Cirkel Planet Positive Fries



### Carbon Footprint Reduction

#### Factory



**40%**

Savings by replacing PE foil with bio plastic.

#### Logistics



**90%**

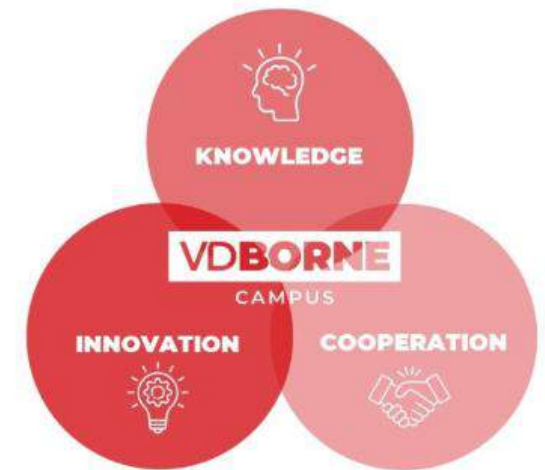
Savings by replacing diesel with biodiesel.

#### Farm



**380%**

Savings with compost instead of fertilizer, and more.



**SUPPLY CHAIN PAYS THE FARMER FOR DATA !!**




# FRIETJE PRECIES






**FRIES PRECISE  
EVERYTHING OK !**



**Groene Cirkel**  
Planet Positive Fries



**Carbon Footprint Reduction**

Factory	Logistics	Farm
 <b>40%</b> Savings by replacing PE foil with bio plastic.	 <b>90%</b> Savings by replacing diesel with biodiesel.	 <b>380%</b> Savings with compost instead of fertilizer, and <u>more</u> .



**ONLY 3 FARMERS COULD DELIVER (SMART) FARMING DATA.**

**ON HOLD.**

**FRIETJE PRECIES**




**a. LABOUR INTENSIVE STRIPCROPPING**

**b. PROCESSING CHAIN NOT FITTING**

**“EXPENSIVE HOBBY STATUS”**

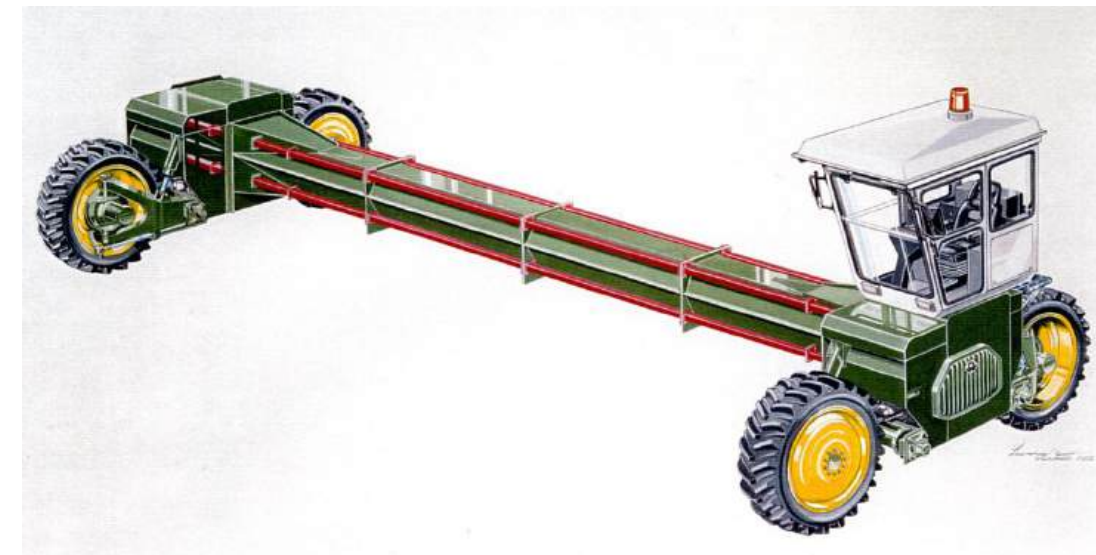




**DATA SOLVABLE**



**TECH SOLVABLE**





# North-Brabant Food Chain 3.0



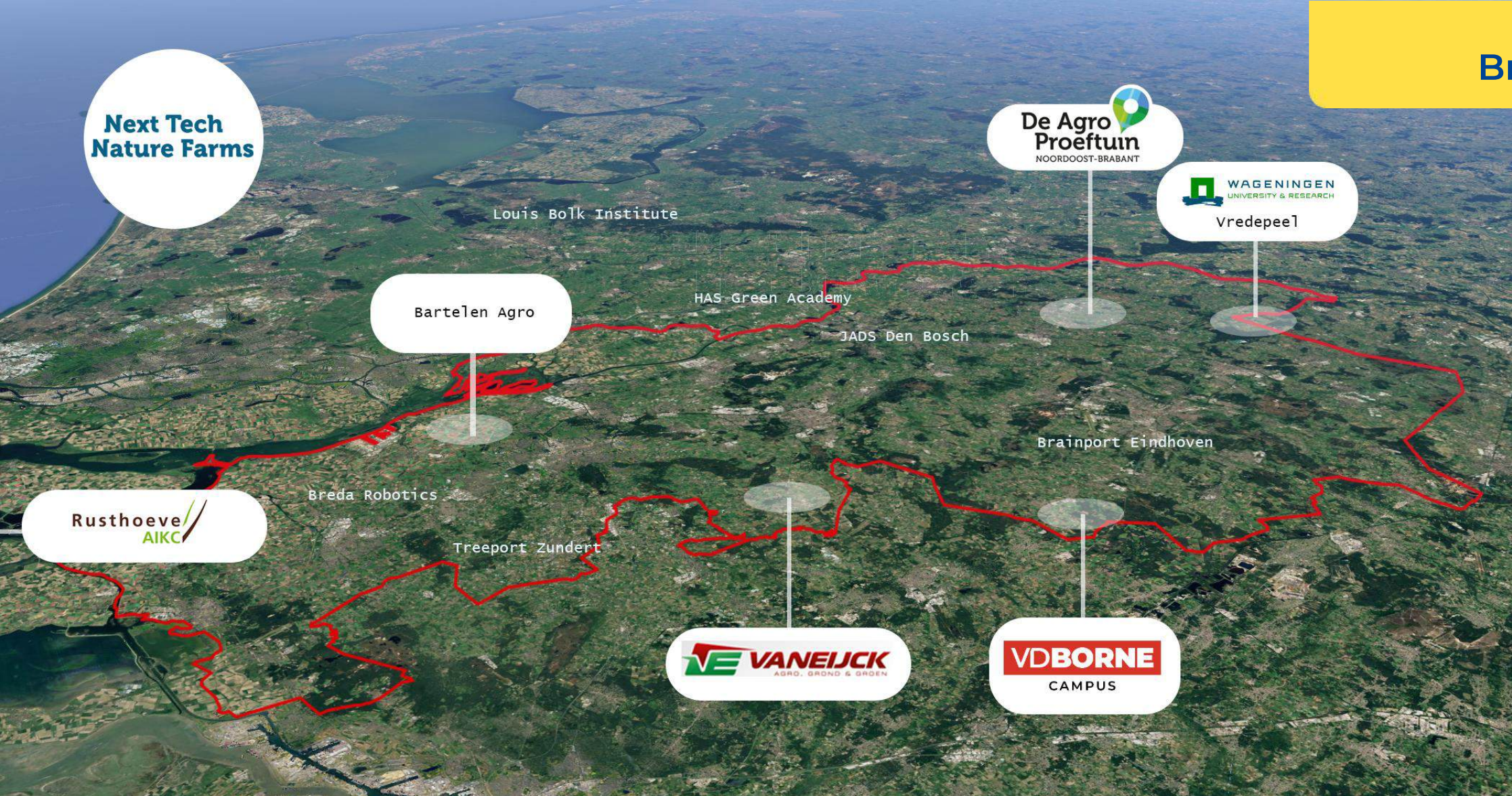


# Smart Farming in Brabant – Next Tech Nature Farms

Brabant wide collaboration

## Developing clusters with Open Field Crop Fieldlabs

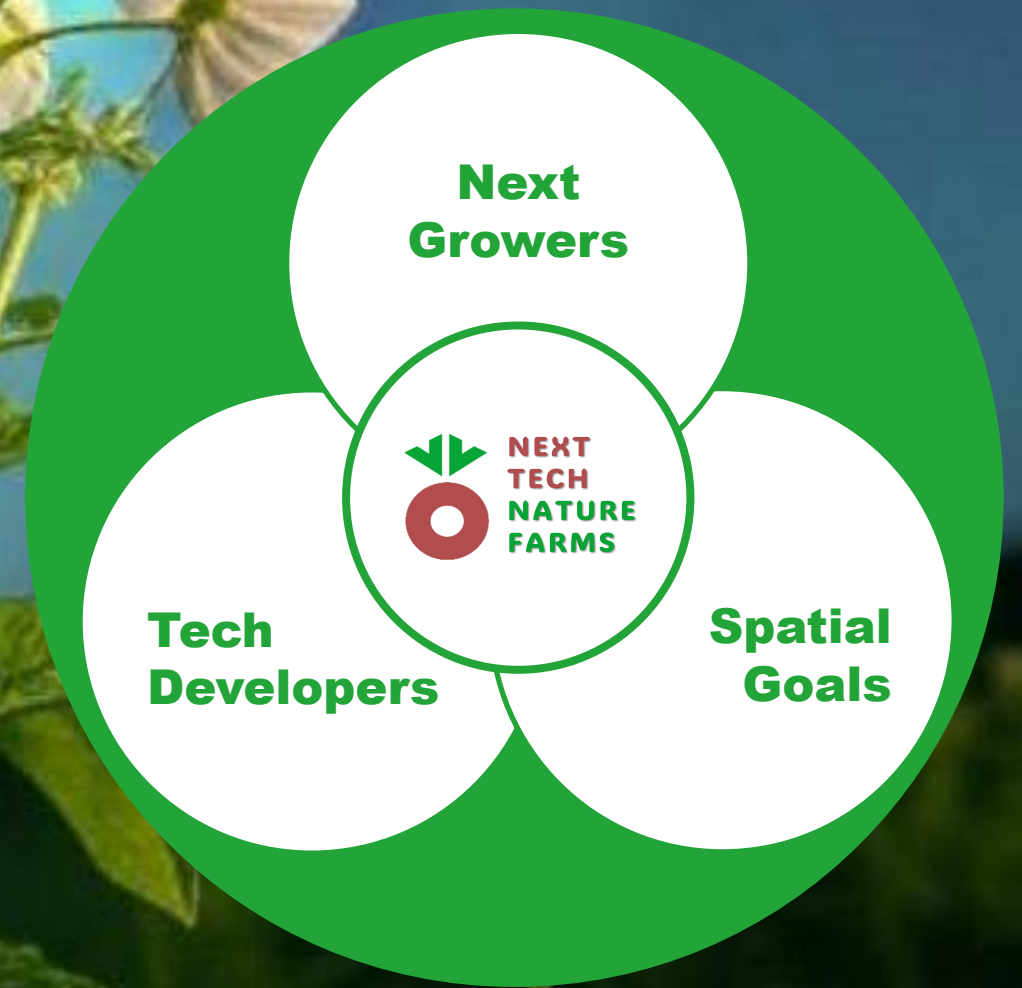
Both fundamental research / experimentation sites and applied practice experimentation sites.





# Smart Farming in Brabant – Next Tech Nature Farms

Contribute to addressing challenges for farms of the future by accelerating innovations in automation and digitalization



Involved parties :

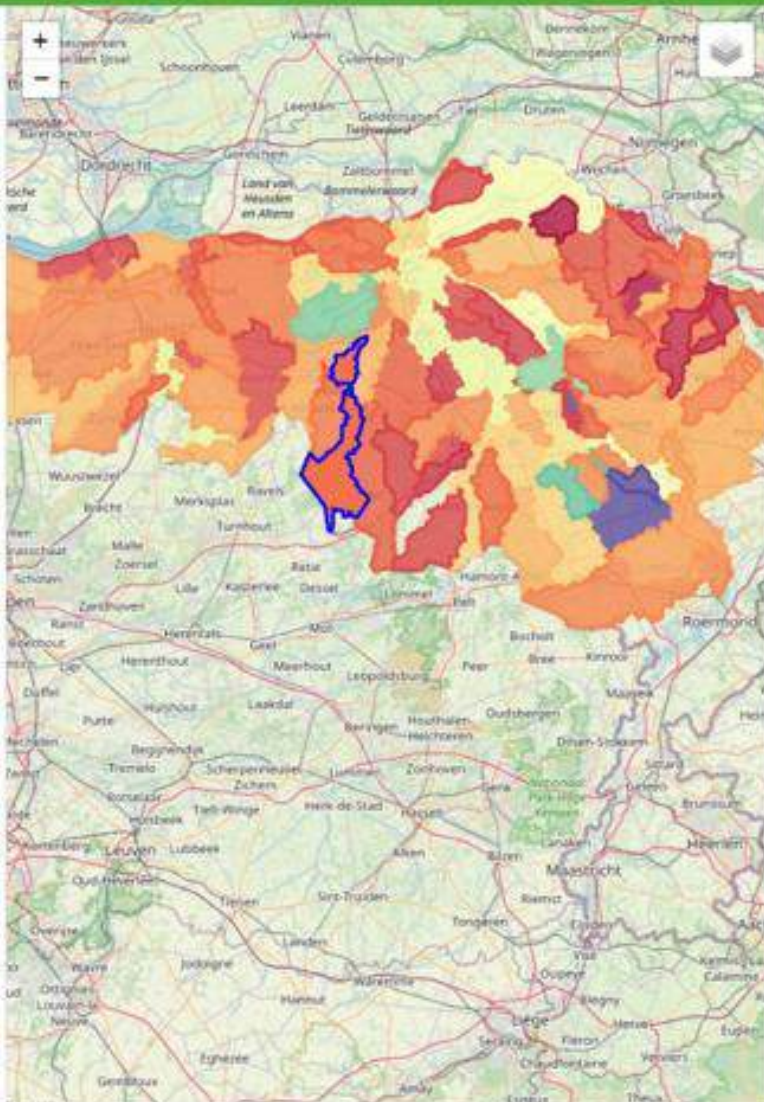
AgriFood Capital - Brabant Development Agency (BOM) - REWIN West-Brabant, Regio West-Brabant - VDBorne Campus - Wageningen University & Research - Stichting Breda Robotics – ZLTO - Province of Noord-Brabant.



# Smart Farming in Brabant – Next Tech Nature Farms

Brabant demo

Provincial Goals Brabant Scale



Selecteer een gebied op de kaart

Selecteer data om te tonen

3 jaren rotatie | NL BRP 2024 data | Rotatie - gewasgroep | Hectare calculator

Filter data

Eiwitgewassen:

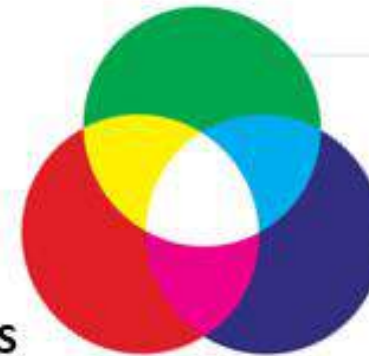
Voorgewas: --- geen ---

Gewas: --- geen ---

Volggewas: --- geen ---

Jaar gewas: 2023

REGIONS



ROBOTS

ROUTINES

Resultaten

Search:

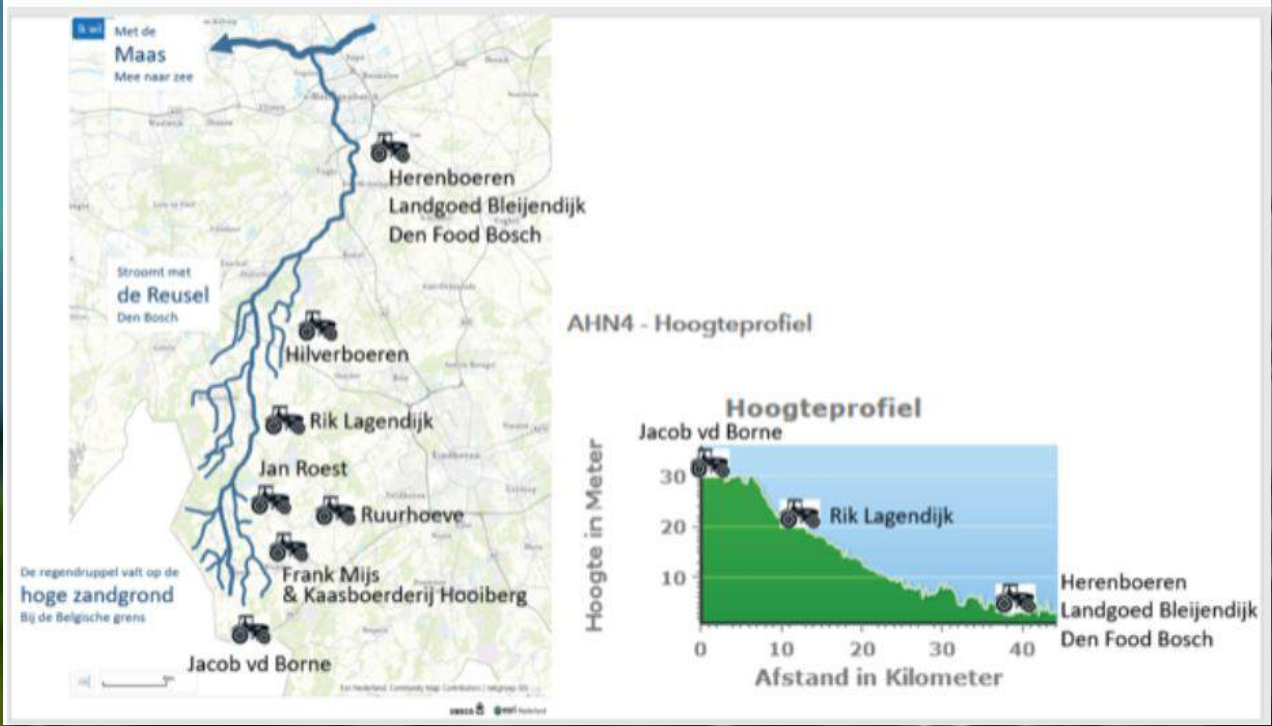
Aantal percelen	Oppervlakte	Voorgewas	Gewas	Volggewas
1	5.5	Mais, corncobmix	Aardappelen, consumptie	Bieten, voeder
1	9.6	Sierconiferen	Aardappelen, consumptie	Tuinbonen, groen
1	0.0	Wintertarwe	Agrarisch natuurmengsel	Agrarisch natuurmengsel
1	9.6	Aardappelen, consumptie	Bieten, suiker	Zomertarwe
1	7.5	Wintertarwe	Bieten, suiker	Spinazie

Using data and AI to make informed decisions on which smart farming fit Where to reach spatial (ecologic and economic) Goals.



# Smart Farming in Brabant – Next Tech Nature Farms

## Water Way Collaboration Scale

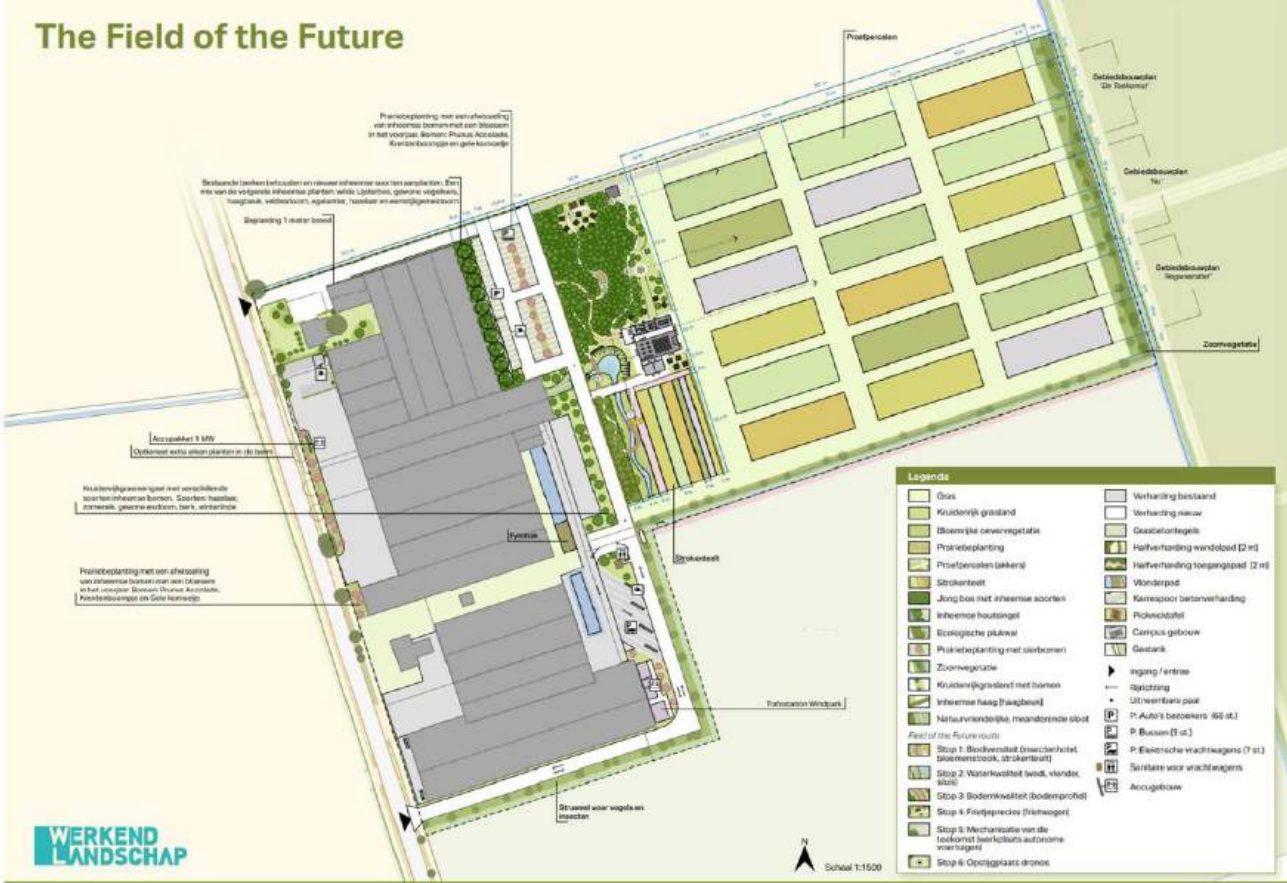


Province of Brabant, Water boards, Municipalities, Farmers and Tech suppliers collaborate. Personal interest Stefan, Smart Hydrology is part of the Farming answer.



# Smart Farming in Brabant – Next Tech Nature Farms

## Field of the Future Scale



Data driven farming, Automated Robotics Farming and Regenerative Farming meet at VDBorne Campus Field of the Future



# Smart Farming in Brabant – Next Tech Nature Farms

Cluster vorming rondom Fieldlabs Van  
Eijck & Bartelen



For vegetable crops, high tech meets  
at Van Eijck Fieldlab

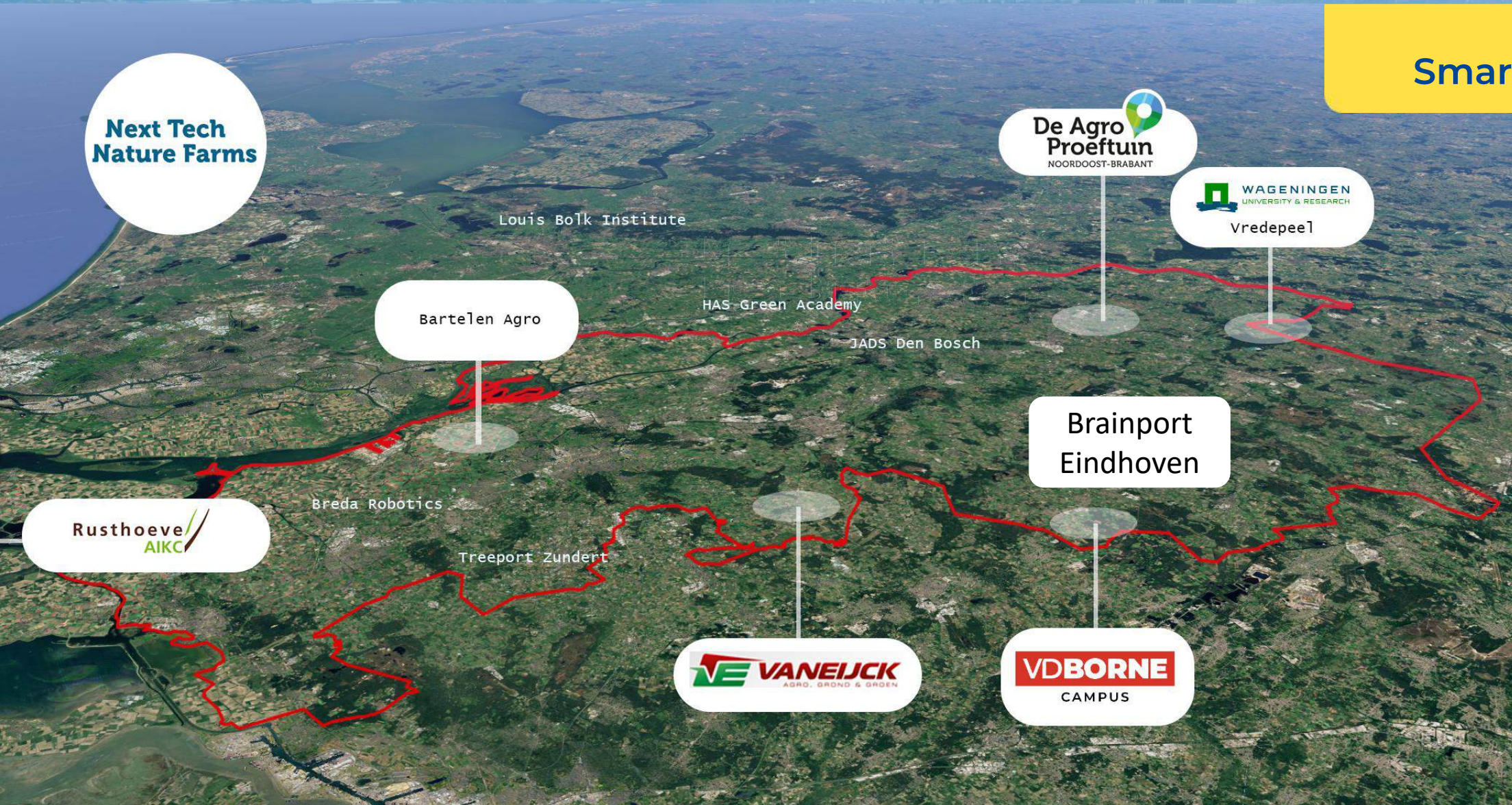
For clay soils, high tech meets  
at Bartelen Agro



# Smart Farming in Brabant – Next Tech Nature Farms

## Smart Farming Brabant Playground

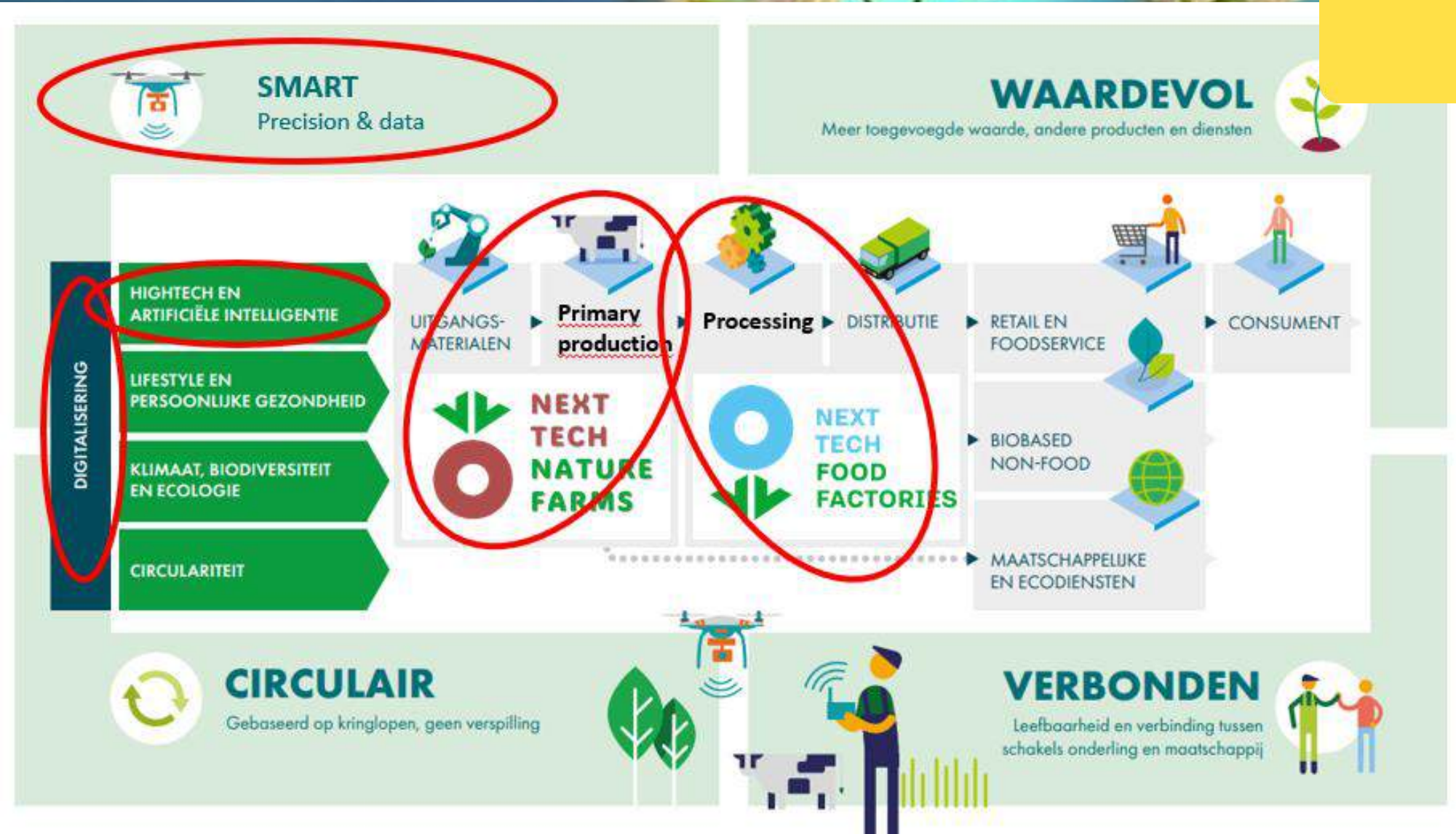
Smart Farming Brabant has field labs for all field crops on both sand and clay soils. Brabant is a playground for (inter) national high tech farming clusters





# Smart Farming in Brabant – Next Tech Nature Farms

Questions?





# Site visit (Plant-based) Agri- & FoodTech

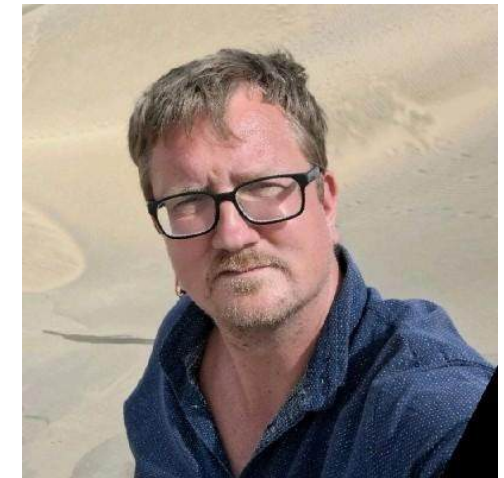
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[paul.vanzoggel@wur.nl](mailto:paul.vanzoggel@wur.nl)





# Scale-Up Plant Brabant

Marjan Welvaarts & Jonica de Bruijn

## SCALE UP PLANT OF EUROPE

26 March 2025

**BRABANT**



# SCALE UP PLANT OF EUROPE

26 March 2025

**BRABANT**



# NICE TO MEET YOU!

Marjan Welvaarts

Program Manager Agrofood

[mwelvaarts@bom.nl](mailto:mwelvaarts@bom.nl)



Brabantse Ontwikkelings Maatschappij



Jonica de Bruijn

Program Manager Plantbased

[j.debruijn@rewin.nl](mailto:j.debruijn@rewin.nl)



**BRABANT**

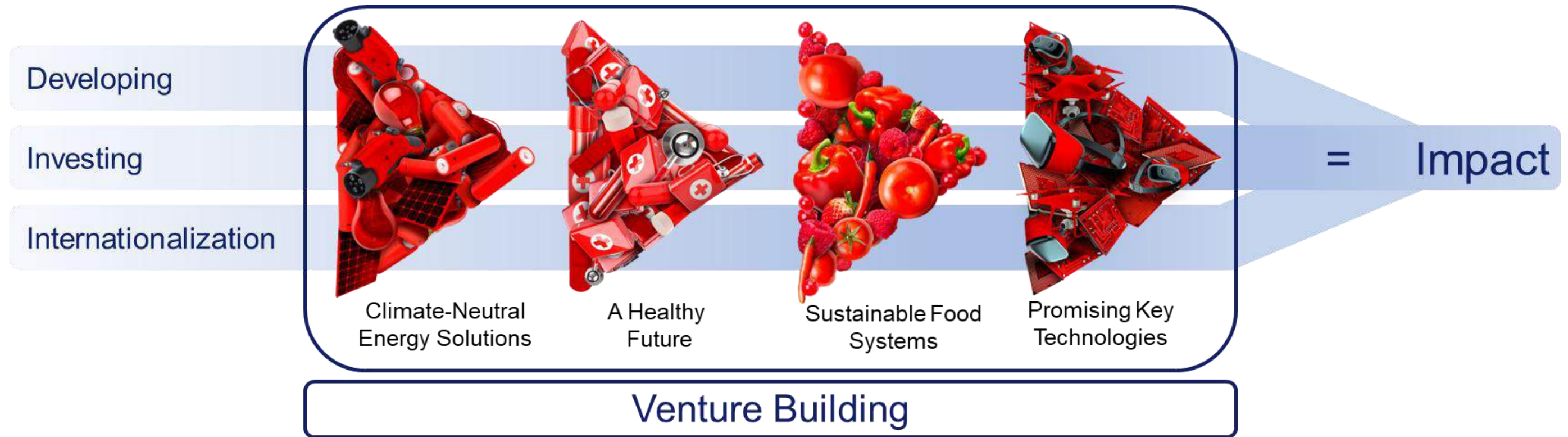


# Agenda

- Introduction BOM
- The Brabant ambition
- Why Brabant?
- How revitalizing the food transition
- The Plantbased Network



# Our mission: Bolstering the Brabant economy in a sustainable manner





# Our core competences



## Developing

- ▶ New earnings model
- ▶ Bolstering the ecosystem
- ▶ Development programs



## Investing

- ▶ Start ups
- ▶ Scale ups
- ▶ Energy projects



## Internationalization

- ▶ Access to innovation regions and networks around the world
- ▶ Promoting Brabant



# Our Ambition

## Brabant : Scale – up Plant of Europe

To establish Brabant as Europe's leading scale-up hub for  
plant based food innovations



# We focus on

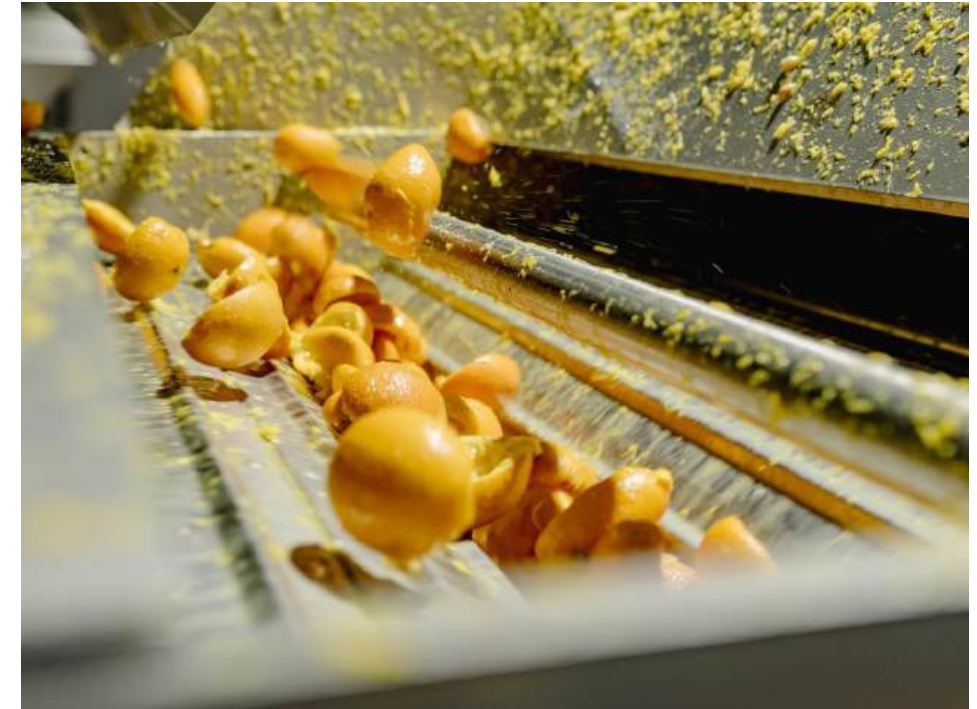
## ▶ Plant based



## ▶ Fermentation



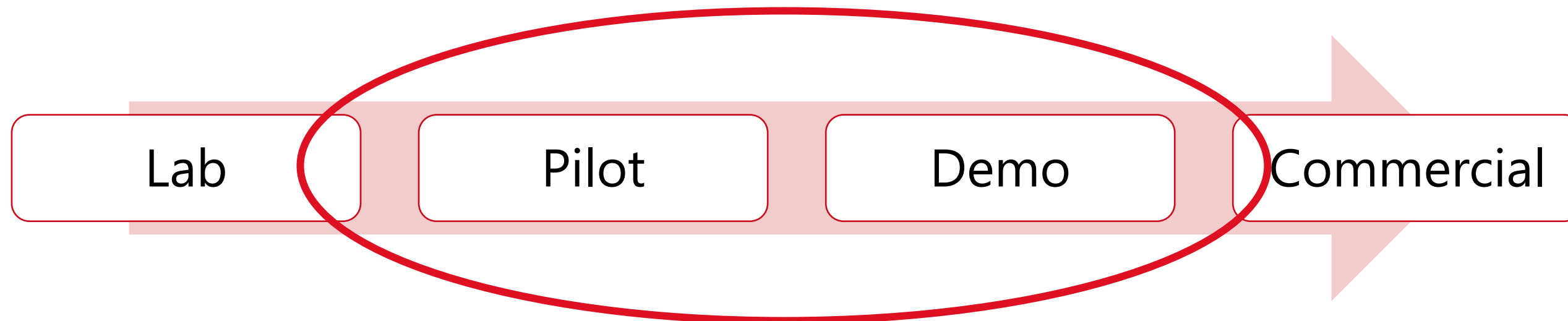
## ▶ Side streams





# Why Brabant?

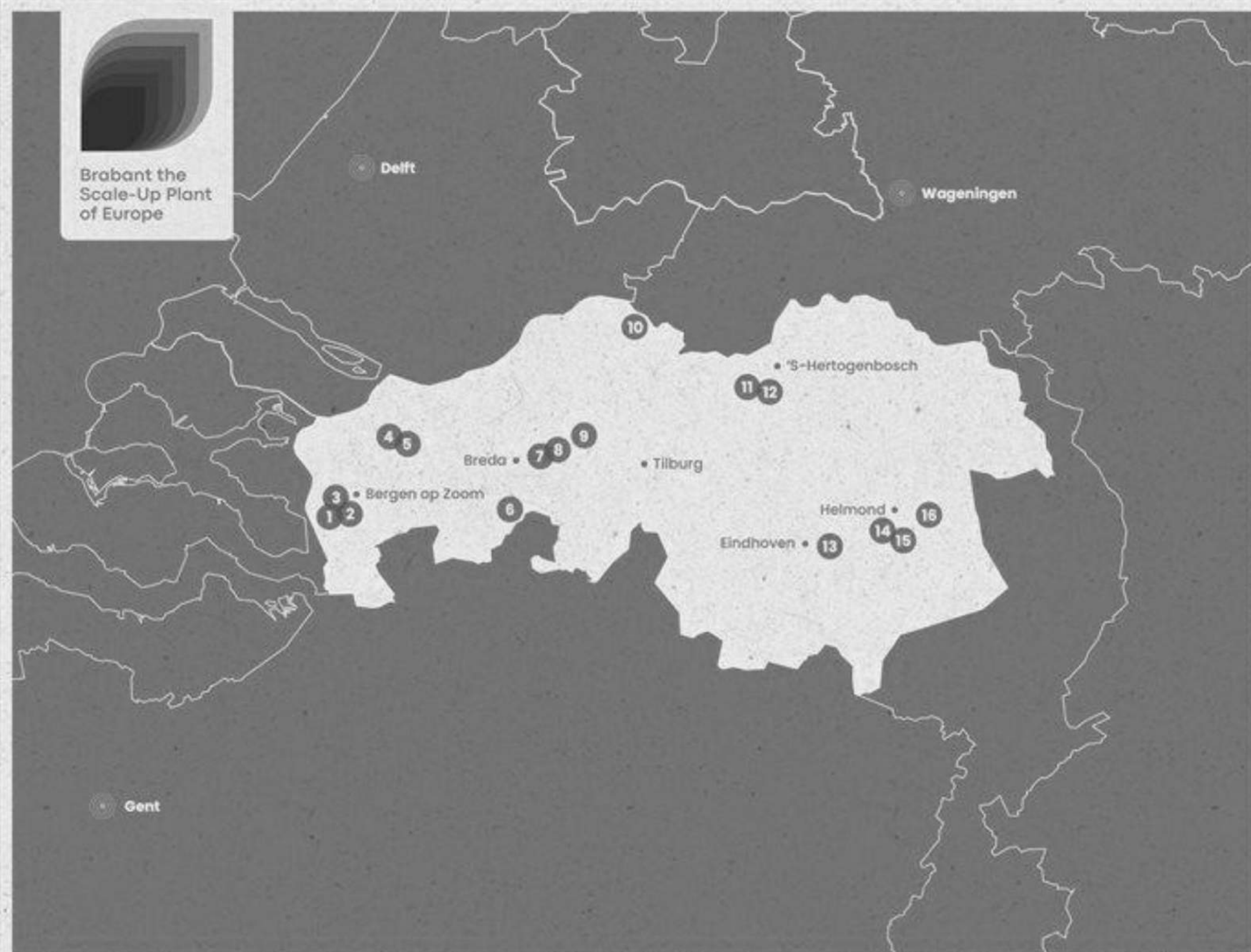
- ▶ Complete value chain
- ▶ Feedstock basis
- ▶ Strong knowledge institutes
- ▶ Strategic location
- ▶ Proven scaling ecosystem
- ▶ Great Plantbased Network
- ▶ Incentives







Brabant the  
Scale-Up Plant  
of Europe



## Scale-Up Facilities

- |   |  |
|---|--|
| <b>1 Delta Agrifood Business</b><br>Open innovation and expertise center for business and education | <b>9 Side Stream Innovation Valley</b><br>Open innovation for Food & Biobased business |
| <b>2 VARTA</b><br>Valorization lab  | <b>10 Nutrilab</b><br>Laboratory for food, feed and agro                               |
| <b>3 Stabican</b><br>Contract development & analytical testing services                             | <b>11 Studio Fava</b><br>Food development  |
| <b>4 Inicio</b><br>Pilot & Demo Facility  | <b>12 HAS Food Technology Centre</b><br>Research, practical tests and demonstrations   |
| <b>5 Cosun Innovation Center</b><br>Research center   | <b>13 SBMC</b><br>Flexible lab space and state-of-the-art equipment for biomaterials   |
| <b>6 Rootz</b><br>Knowledge and innovation center   | <b>14 Food Tech Brainport</b><br>Innovation Hub  |
| <b>7 MNEXT</b><br>Variety of facilities and applications at Avans University                        | <b>15 Bodec</b><br>From Lab to Large-Scale Production                                  |
| <b>8 BioscienZ</b><br>Contract research fermentation services                                       | <b>16 GEA ATC</b><br>Application and Technology Center                                 |

Innovation Hotspots



# Plantbased Value Chain Brabant



VABIA  
 Duynie Group  
 Rodenburg  
 PROTIX



**New Tech & production partners**

RIVAL FOODS, GEA, Studio Fava

**New Tech & production partners**

GEA, bodec, HUIJBREGTS GROEP, INICIO, BioscienZ, driessen, food extrusion

**New Tech & production partners**

INICIO

**Smart Farming & New crop development**

Vazera, VDL, MTA, VDBORNE AARDAPPELEN, RIJK ZWAAN



# How revitalizing the food transition



▶ Strengthen and unlock scale-up facilities



▶ Enhancing collaboration in the chain



▶ Organizing funding



▶ Acquiring and guiding innovations



▶ Lobby & positioning



# CASE: Fiber Foods

From jack fruit from Uganda to  
plantbased or hybrid products

**FIBER  
FOODS**





# CASE: Revyve

From yeast to a texturising ingredient





# CASE: The Protein Brewery

From sugars to Fermotein;  
a complete protein





# CASE: Peel Pioneers



From orange peels to  
functional ingredients





# Region

Why plantbased in West Brabant?

- Unique regional **characteristics** (fertile soil, strategic location between large ports, vast agri-food knowledge & experience)
- **Momentum** through major transitions (agriculture, food, materials, energy)
- A lot of effort and initiatives + shared willingness to pull together.

## As from summer '23

- Optimization through more coordination (REWIN)
- With a strong plant-based proposition (our regional 'offer')



# Cluster

## The Plantbased Network!

- An active **ecosystem** that facilitates and drives the plant-based transition by joining forces and encouraging others to join in.
- A vessel for building **thought leadership** and activating the world around us in viewing plant-based as 'the new normal'
- The **unique link** between entrepreneurs, educational and knowledge institutions and the government. Within West Brabant and beyond.
- Members **share** knowledge, funnel opportunities and business to each other where possible and innovate together.
- Members have an '**ambassador**' role.



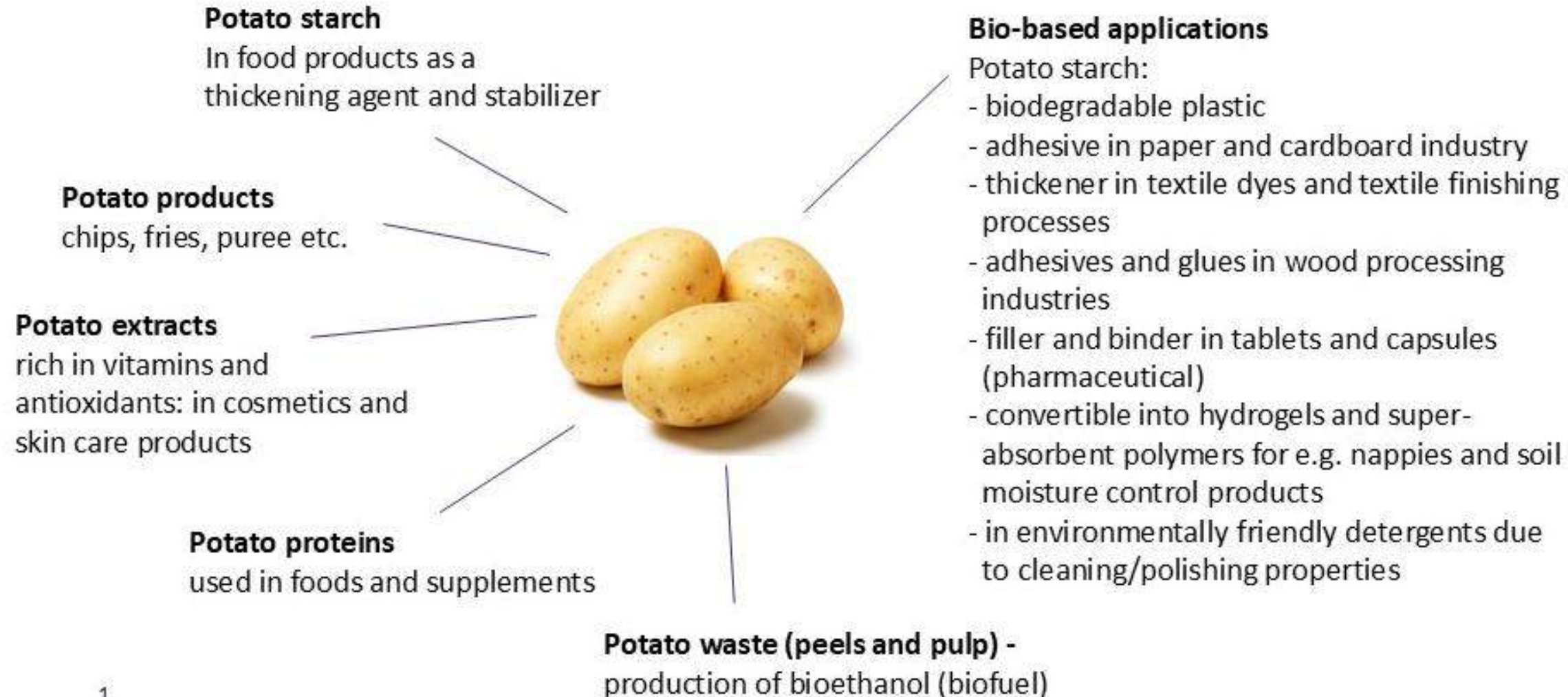


<https://www.linkedin.com/company/het-plantbased-netwerk>





# The potato





# HOW CAN WE COLLABORATE?

...



**THANK YOU**

**BRABANT**



# Smart Food Processing – Next Tech Food Factories

## Lisanne van Oosterhoud

Program manager

Next Tech Food Factories

## Simon Maas

Industry & (inter)national collaboration

AgriFood Capital

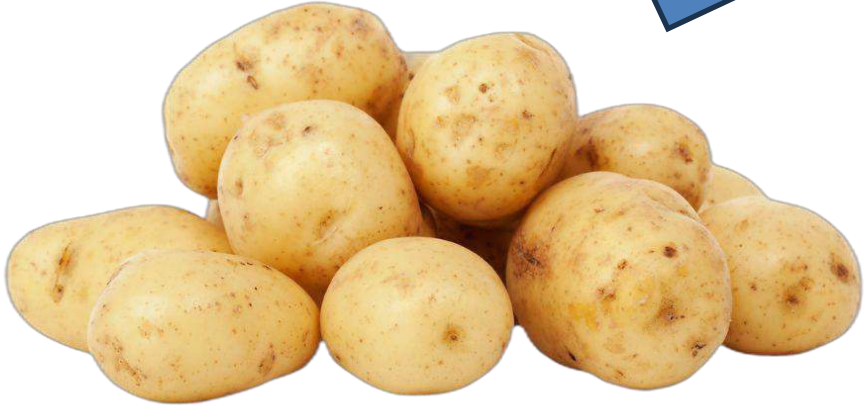
## Bram de Vrugt

Managing director

QING Food Automation



# Smart Food Processing – Next Tech Food Factories





# Smart Food Processing – Next Tech Food Factories



Contribute to addressing challenges for the food processing industry by accelerating innovations in automation and digitalization



Provincie Noord-Brabant





# Smart Food Processing – why?

**main reasons for food processing**

- increasing availability
- altering antioxidant levels (more vitamin C vs more lycopene)
- convenience
- tailoring to specific needs (TOFU)
- food safety
- increasing diversity
- changing flavour & texture
- reducing food waste
- decreasing price
- fortification & enrichment (Vit. D, LOW FAT)
- preserving nutritional quality

eufic

**FOODDRINK EUROPE**

## Unleashing Europe's largest manufacturing industry

The size, scale and strategic importance of the industry demonstrates why food and drink should be at the heart of the EU's competitiveness, sustainability and security ambition.

- 291,000 manufacturers:** The EU hosts 291,000 food and drink companies, of which 99% are SMEs, with a collective turnover of €1.1 trillion
- Largest employer in manufacturing:** The sector provides 4.6 million jobs, paying €110 billion in wages
- Supporting Europe's rural communities:** Processing companies are part of Europe's rural socio-economic and cultural DNA
- Closely connected to European agriculture:** The sector turns approx. 70% of Europe's farmers' produce into high value-added products
- Mostly micro enterprises:** 235,000 food and drink companies employ fewer than 9 people
- #1 exporter:** The EU is the world's #1 food and drink exporter, with €182 billion in exports (and #2 importer)
- Investing in innovation:** €2.1 billion is spent on research and innovation by just 10 EU companies
- Reaching consumers with 1.5 billion meals a day:** The sector takes pride in producing safe, quality food and drink products which are enjoyed all over the world

Source: Food Investment & Resilience Plan, Food & Drink Europe (2024)



# Smart Food Processing – challenges and opportunities



Labour shortage



Sustainable production and products




Higher quality demands



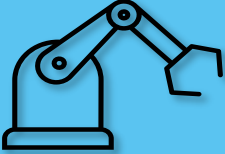
Increasing food safety



Efficient and flexible production



Sensors to monitor real-time critical control parameters



Sensor integration and implementation



Smart Data management



Connectivity in food companies and in the food value chain



Human centric transformation and implementation strategy



# Smart Food Processing – What do we provide?

Advice and guidance on the application of smart technologies

Subsidies for projects in the field of automation, digitization, and robotics

Access to a strong network in the food and high-tech sector

Possibility to test and validate within testing facilities

Participation in events and meetings for knowledge sharing

**AgriFood  
Capital** 

ZO MAKEN WE HET VERSCHIL



# Smart Food Processing – projects



Implementation of innovation projects at SMEs

International



Strengthening and connecting European test facilities and living labs for the food processing industry

International



Implementation and business support for digitalization

International



Strengthening the innovation ecosystem and innovation projects

National



# Smart Food Processing – SS4AF – Partnership

The image features a map of Europe with 40+ NUTS2 regions highlighted in red. Surrounding the map are logos of various partner organizations, including:

- Foodvalley
- OnePlanet Research Center
- SeAMK
- AgriFood Lithuania
- TH OWL
- FPI Food-Processing Initiative e.V.
- INNOSKART Digital Cluster
- Gospodarska zbornica Slovenije
- KD RIÜ
- volia
- CIMES
- InnovAlliance
- Agri Sud-Ouest
- AgriFood Capital
- FF Flanders' Food
- wagralim
- Bretagne Développement Innovation
- itg
- clúster alimentario de galicia
- ain
- FOODSCALE HUB

20+ partners , being agrifood and/or technology clusters & RTOs

40+ NUTS2 regions represented in the partnership

100+ solutions applied at SME level in last 5 years



# Smart Food Processing –network of testing facilities

Establish an interconnected network of Living Labs as accelerator for the implementation of Deep Tech innovations in the agri-food industry.





# Smart Food Processing – Testing facilities @ QING



TEST & VALIDATION IN ARNHEM NL

FOCUS ON FOOD PROCESSING



Provincie Noord-Brabant





# Smart Food Processing – Testing facilities @ QING



**FOOD AUTOMATION  
=  
DEALING WITH DIVERSITY**

### PRODUCT

- Shape
- Color
- Rigidity
- ...

### DEVIATION

- Defects (cuts, breaks, etc.)
- Mold
- Appearance
- ...

### CLIENT REQUIREMENTS

- Quality
- Packaging
- Size
- ...

"THIS IMAGE IS GENERATED BY AI"



# Smart Food Processing – Testing facilities @ QING

## STAQ

Introducing STAQ: The Future of Food Automation



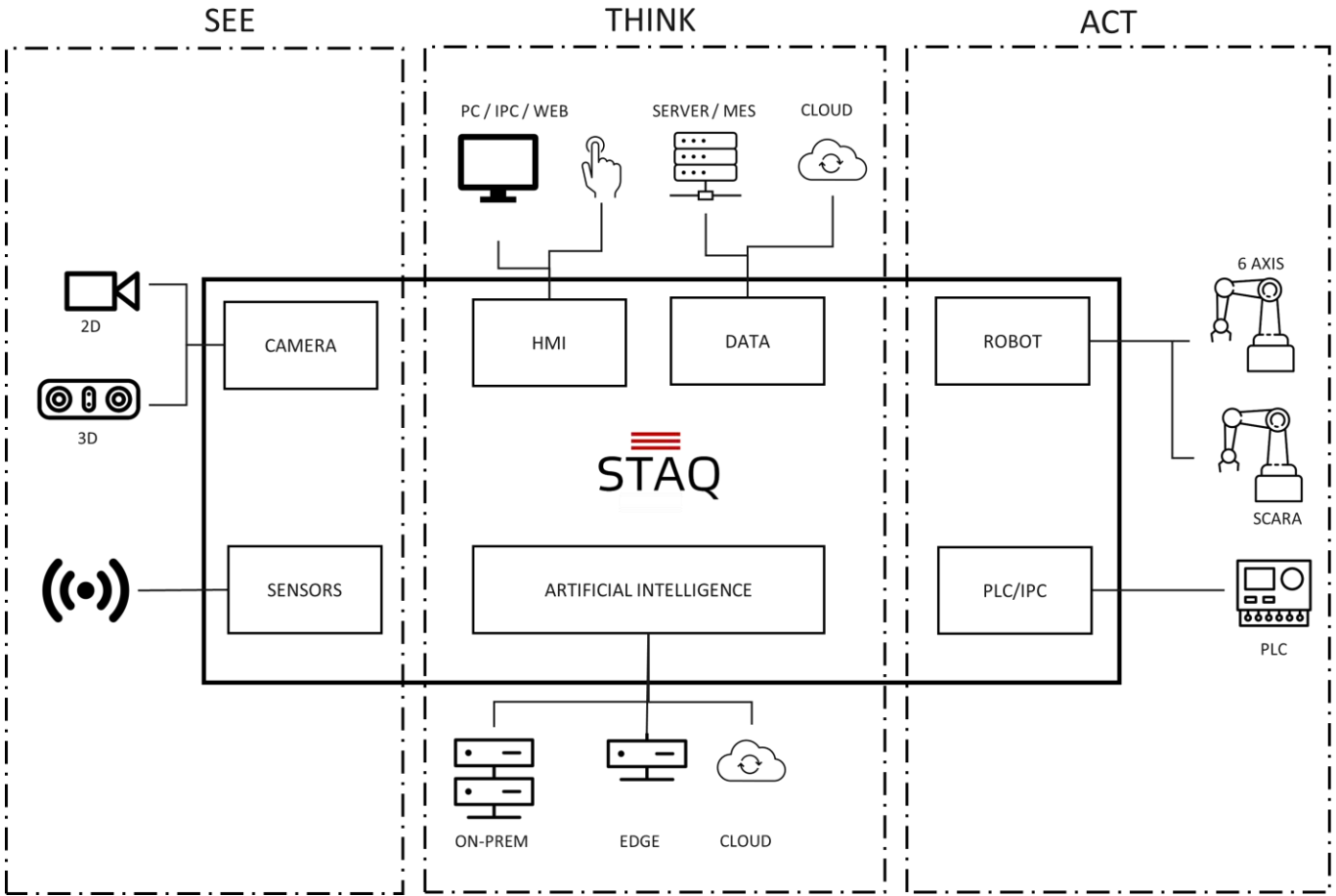
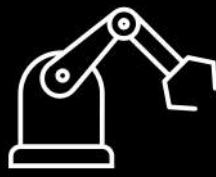
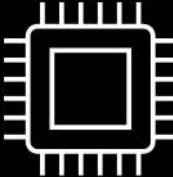
SEE



THINK



ACT





# Smart Food Processing – Testing facilities @ QING



## SYSTEMS

- Robotics
- Gripping
- Vision hardware
- Sensors

## TECHNOLOGY

- STAQ
- Artificial Intelligence
- Simulation / Digital Twin

## IN HOUSE EXPERTISE

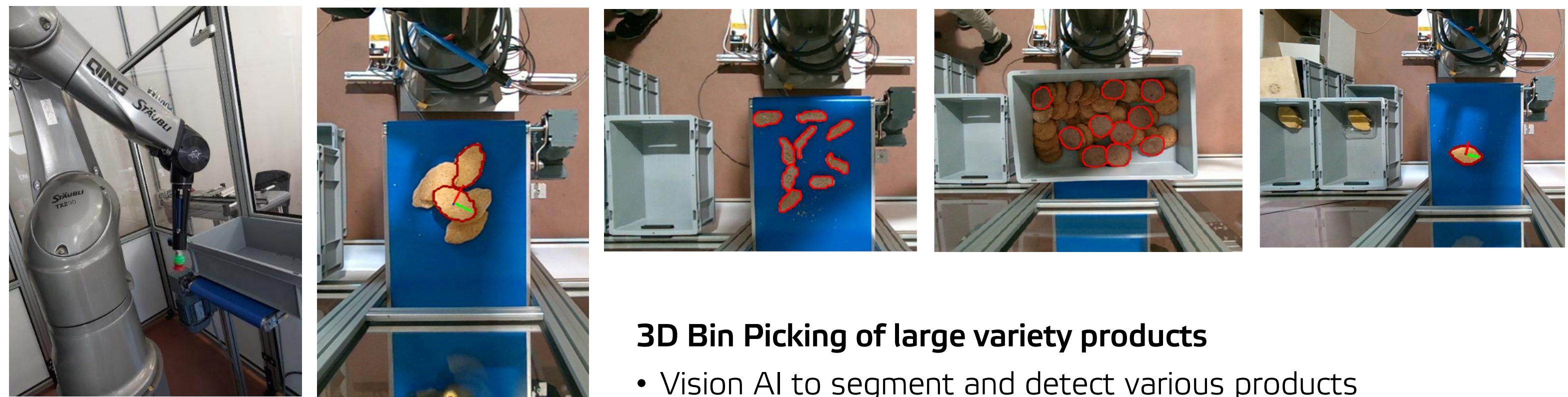
- AI & Data
- Automation
- Robotics
- Gripping
- System Engineering
- Testing

## INTERNATIONAL EXPERTISE NETWORK

- Technology Suppliers
- Food Producers
- Knowledge Institutes
- Universities
- Machine Builders / OEMs
- Fieldlabs



# Smart Food Processing – Testing facilities @ QING

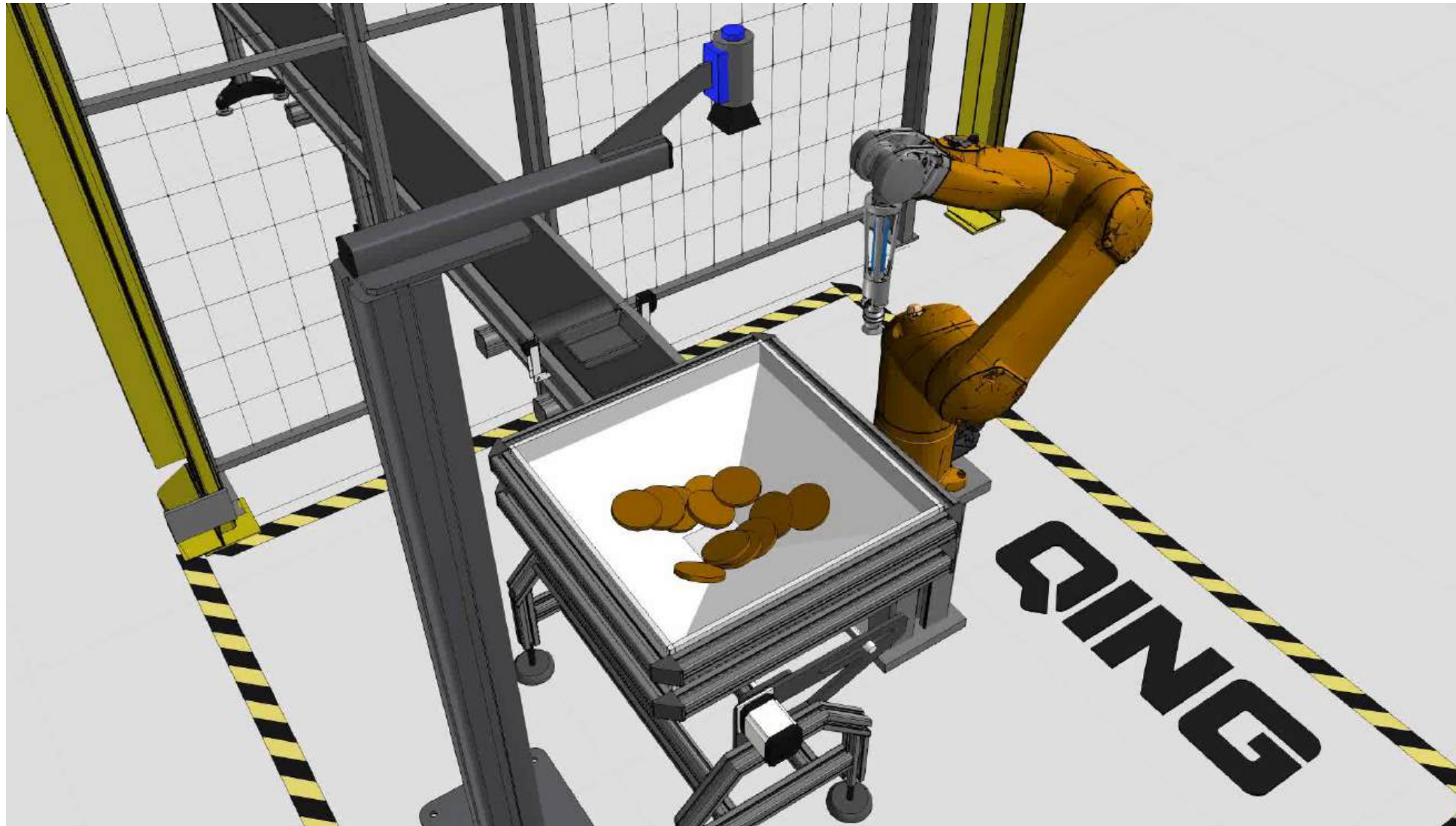


## 3D Bin Picking of large variety products

- Vision AI to segment and detect various products
- STAQ to determine position, orientation and pick strategy
- Various gripping options for handling the products
- Physical testing and demonstration of feasibility



# Smart Food Processing – Testing facilities @ QING



## CAPACITY SIMULATION

- Used results from test as input
- System design based on requirements client
- Various scenarios
- Results: Concrete insights in capacity, feasibility and business case



# Smart Food Processing – Testing facilities @ QING

## RESULT

- Lower risk for food producer
- Step closer to investing in new technologies
- Great example of how T&V addresses the needs and accelerates tech adoption



# Smart Food Processing – Testing facilities @ QING

QING



**Bram de Vrugt**  
Managing Director  
M: +31 (0)6 5169 8364  
E: [BDVRUGHT@QING.NL](mailto:BDVRUGHT@QING.NL)  
W: [WWW.QING.NL](http://WWW.QING.NL)

**TESTING AND VALIDATION DIRECTLY IMPACTS  
THE ADOPTION RATE OF NEW TECHNOLOGIES  
BY REDUCING RISKS AND PROVIDING  
INSIGHTS IN THE BENEFITS**



Provincie Noord-Brabant





# Smart Food Processing – Possibilities for collaboration?

Do you see possibilities to collaborate or want to be in contact?

We are happy to hear from you!





# Site visit (Plant-based) Agri- & FoodTech

**Janny van der Heijden**  
Strategist food transition  
Province of Noord-Brabant

**Jip Jordaan**  
Project manager  
Food Waste Free United



**Provincie Noord-Brabant**

# Janny van der Heijden

Strategist Foodtransition  
Program Agriculture & Food





**2.6** million

inhabitants

**5,081** km<sup>2</sup>

terms of area

## Brabant in Facts and Figures:

- 2.6 million inhabitants as of January 1, 2023
- 5,081 km<sup>2</sup> in terms of area
- 56 municipalities
- 700 startups in Brabant (2022)

Top 3 most innovative regions in the Netherlands





WATERSCHAPPEN

OMGEVINGSDIENSTEN

GEMEENTEN

INITIATIEFNEMERS

PROVINCIE



# Combating Food Waste



**Ambition :**

50% less waste in 2030 than in 2015



# Priority: Reduce foodwaste



## **Sustainability and Circularity**

- Preventing CO2 emissions and preservation of natural resources

## **Economic impact**

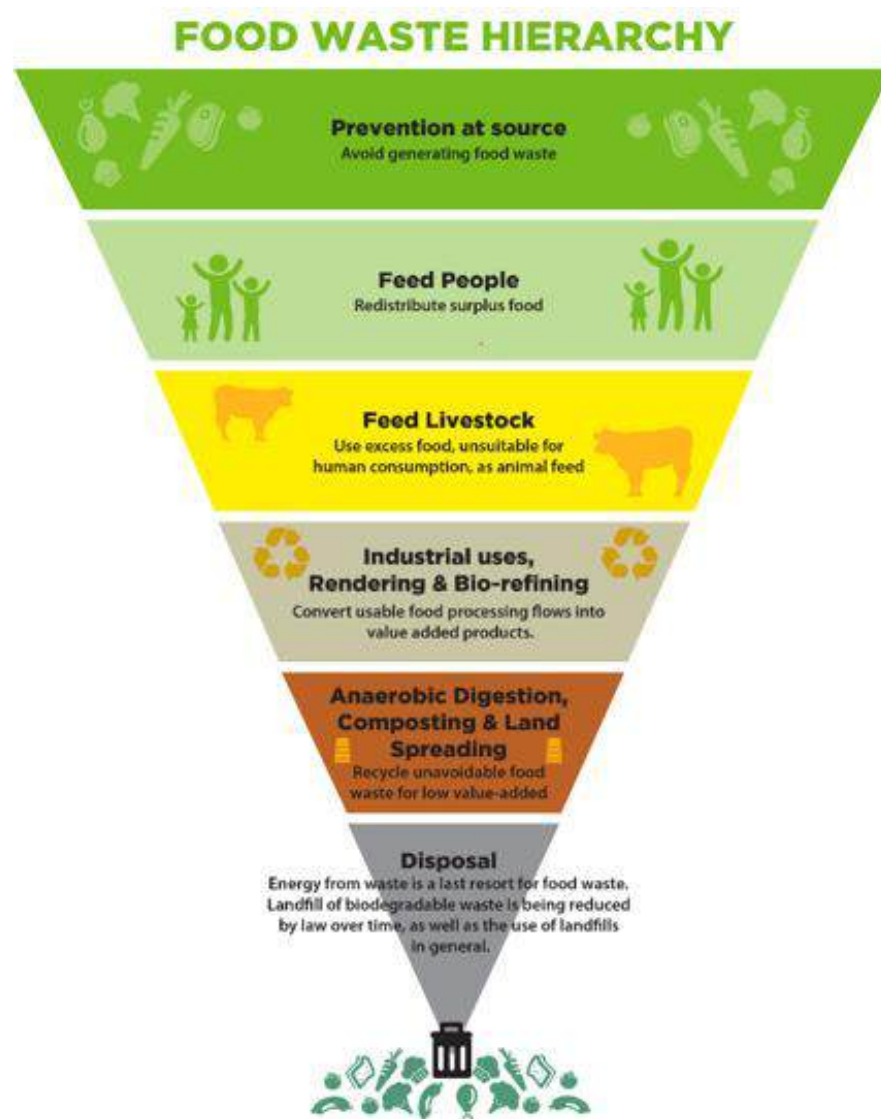
- Financial loss for farmers, producers retail and consumer.
- Innovations: technological solutions to minimise food waste

## **Social responsibility**

- Fighting poverty
- awareness among citizens



## How?



- We **stimulate** and **create policy** for a **circular economy**.
- We **stimulate** and **facilitate coöperation** in the **chain**.  
When companies and organisations join forces and jointly develop innovative solutions to process residual food flows, we limit food waste.
- We **focus** our **support** on **initiatives** in which a lot of **added value** is created with small flows as well as projects with large volumes and therefore **a lot of impact**.  
Our focus is on **closing the business case, impact** (in tonnes and economic) and **scaling up initiatives**.
- We are a **partner** in **Food Waste United** and help make the Circular Food Center possible





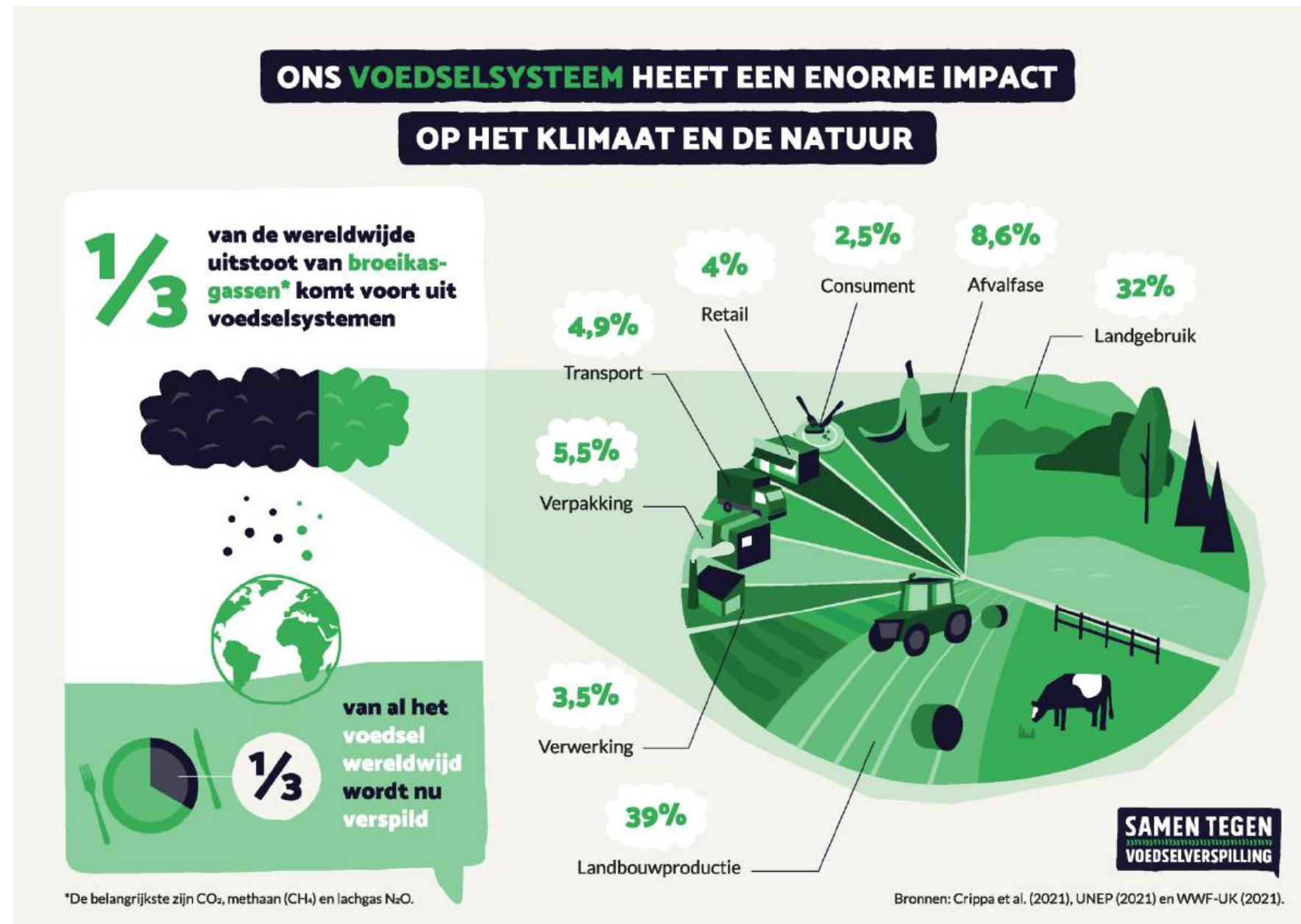






# Food waste

**FOOD WASTE FREE  
UNITED**



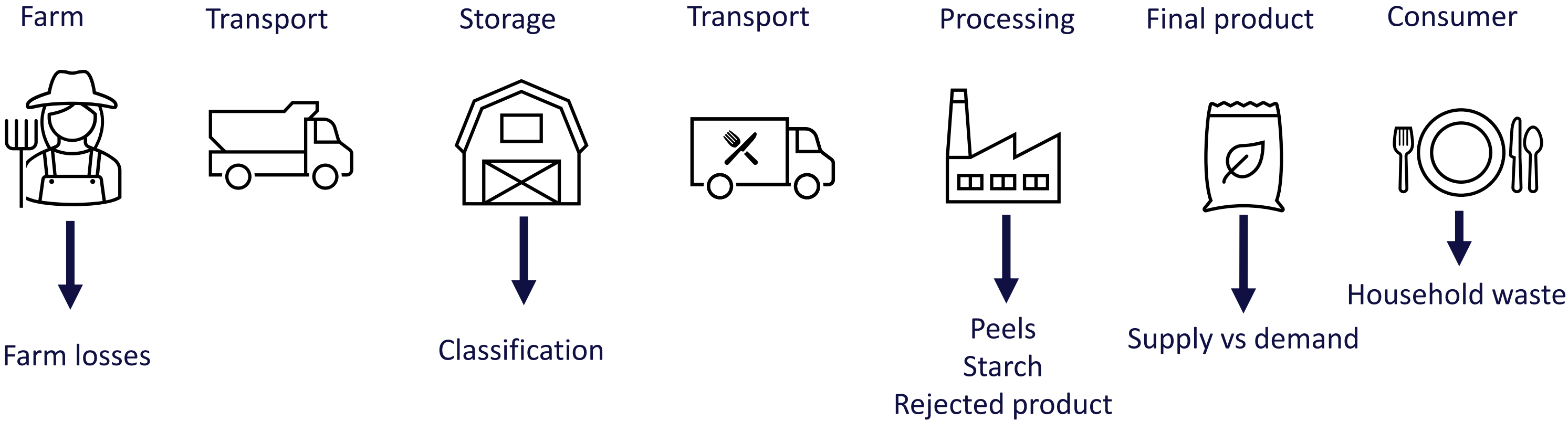


# Food waste – top 3 climate solution





# Potato processing









# Stakeholders

**FOOD WASTE FREE  
UNITED**



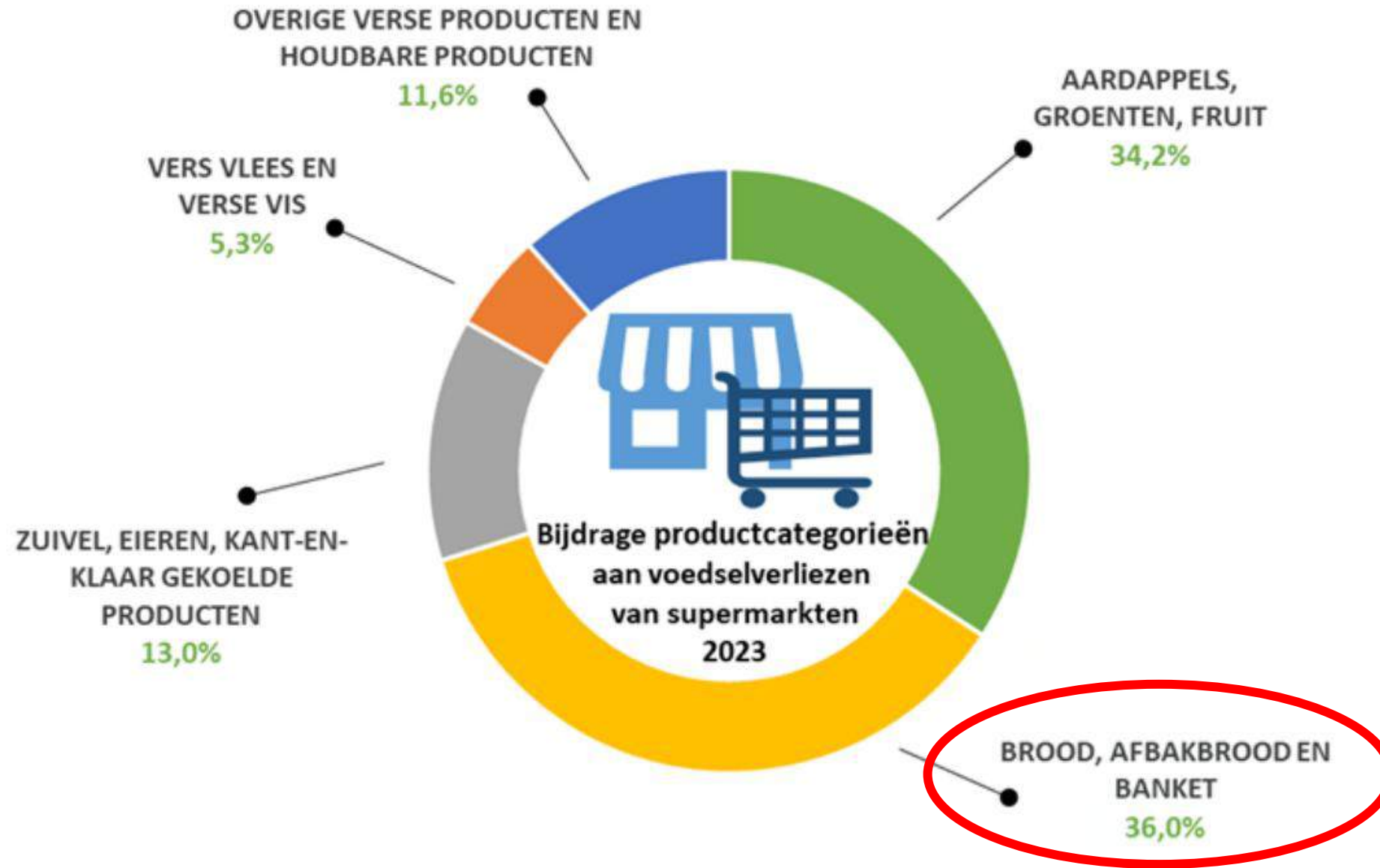






# Food loss in Retail

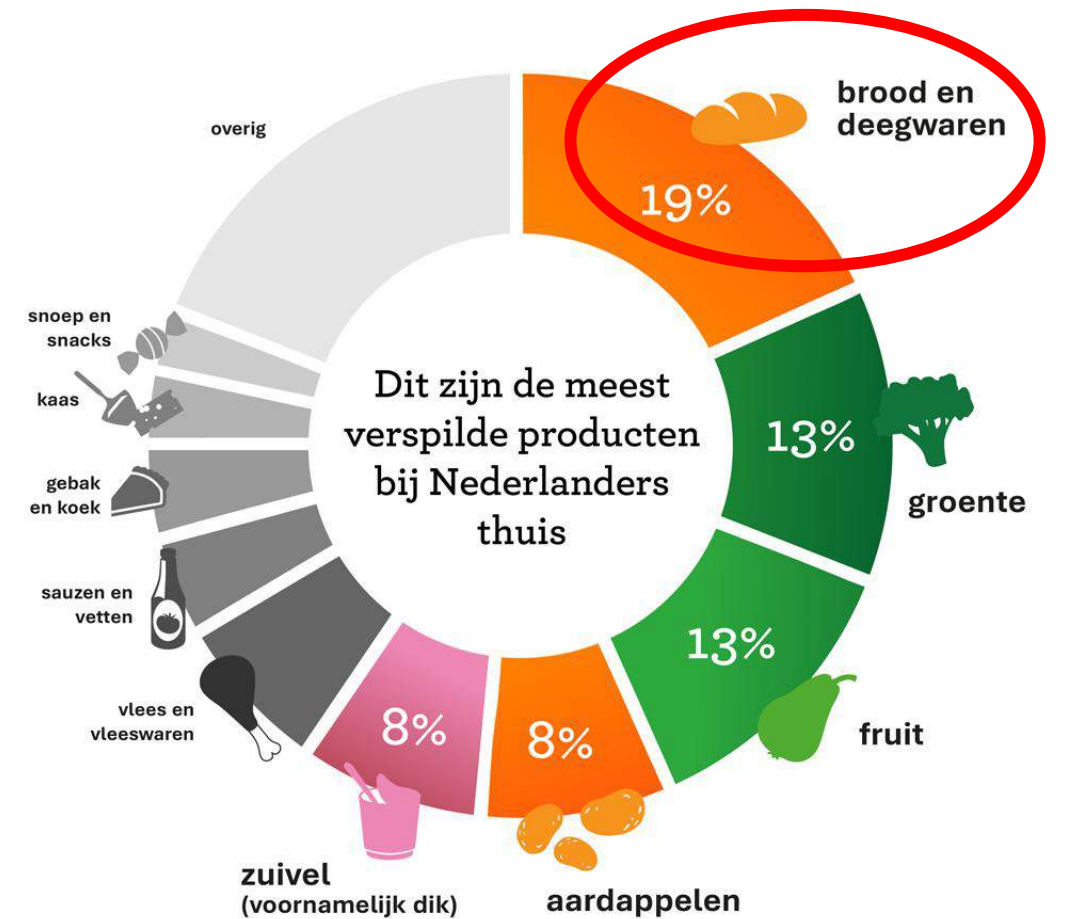
**FOOD WASTE FREE  
UNITED**





# Bread

- Most wasted product in NL
  - 700.000 loafs too many per day
- 20 + monitoring partners
  - ~75% of the Dutch (industrial) bread market
- 5 years



Food loss on consumer level



# Waste free bread & pastry cluster













Questions?

[Jip@samentegenvoedselverspilling.nl](mailto:Jip@samentegenvoedselverspilling.nl)

[jvdheijden@brabant.nl](mailto:jvdheijden@brabant.nl)