

The background of the slide features five lightbulbs, each mounted on a green stem with several long, pointed leaves. The lightbulbs are arranged in a slightly curved line across the top half of the image. The stems and leaves are in sharp focus, while the lightbulbs are slightly blurred, creating a sense of depth. The overall color palette is dominated by greens and browns, with the white and yellow of the lightbulbs providing contrast.

Cooperative Innovative Farming

LAGF 09 / 24 / 2014

Elies Lemkes – Straver, MA
CEO at ZLTO



THE
WORLD'S
SMARTEST



Brainport
Eindhoven

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WWW.PSV.NL
TWITTER.COM/PSV
BOOK.COM/PSV

PHILIPS

freo°



MANDERMAKERS
KUIJENDS

VBL



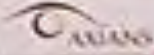
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MANDERMAKERS
KUIJENDS

VBL



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freo°
18
R. GUARDADO



Outline

1. Organisation and context
2. Vision: 'Cooperative Innovative Farming'
3. Smart-farming: experience, results and challenges
4. The Netherlands, a Living Lab
5. Invitation to cooperate

Organisation and context



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ZLTO



Farmers
connect &
innovate

ZLTO: our region



Agri & food

Nutricia
Sligro
Heineken
Jumbo supermarkten
Heijmans
Masterfoods
Vion
HAS Hogeschool
Friesland Campina
Essent
Unilever
...



Hightech

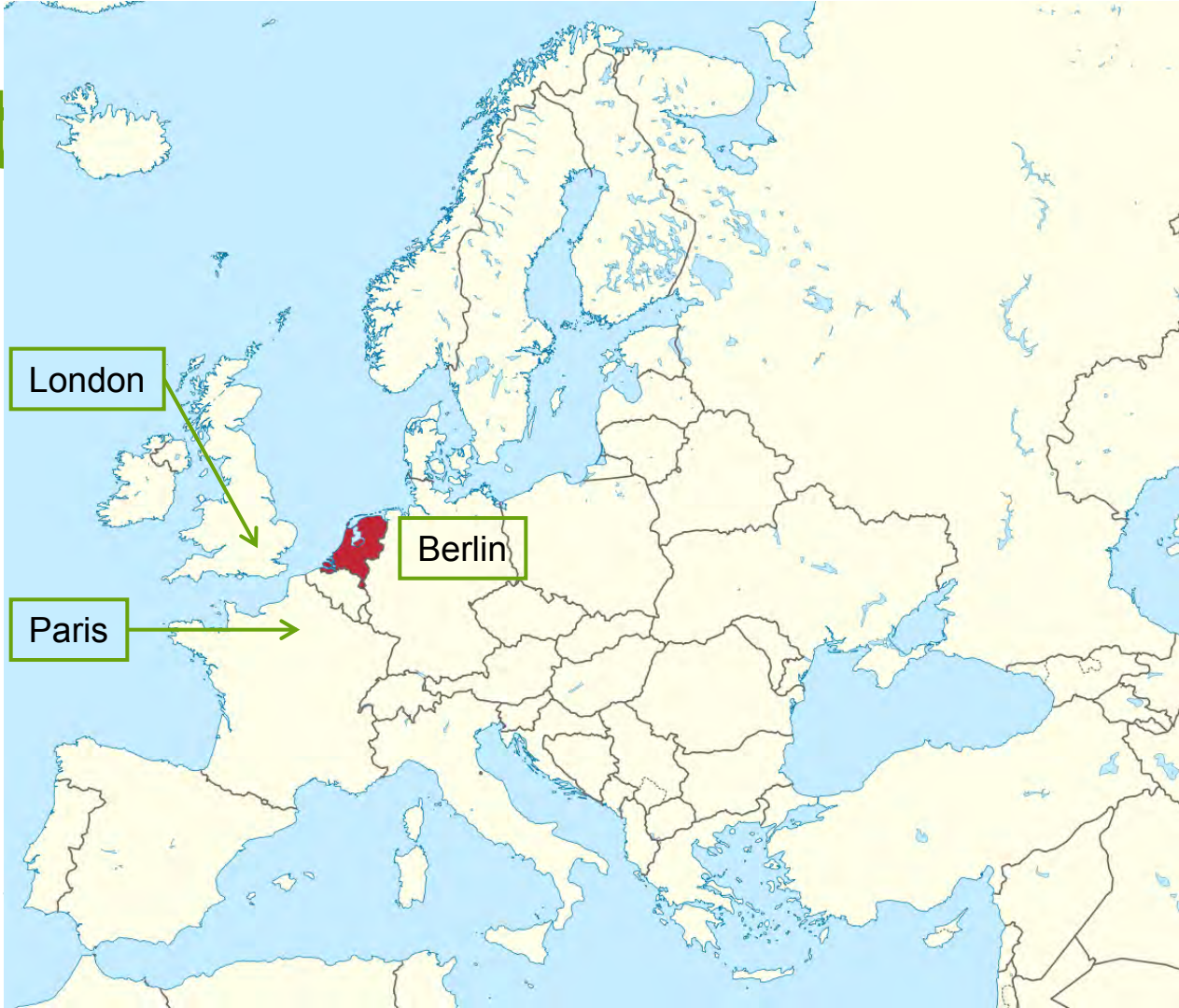
ASML
Philips
Brainport Region
Eindhoven University of Technology
Royal DSM
NXP
Océ
DAF Trucks
VDL groep
Vanderlande Industries
Fei Company
Sioux Group
Neways Technologies
...



Our region

- Broadband: NL in Top 5, fastest and most widespread broadband connection
- Our region: even better!
 - 94% of the inhabitants are broadband internet connection
- Smartest region in the world
 - Most innovations per inhabitant
 - Most patents per inhabitant
 - Public-Private-Partnerships

Net



London

Berlin

Paris



The Southern Agriculture and Horticulture Organization (ZLTO) represents the interests of entrepreneurs working in green areas. Around 16,000 farmers and growers in the South-Netherlands are members of our association. Together with them, we work to produce healthy food innovatively and sustainably.

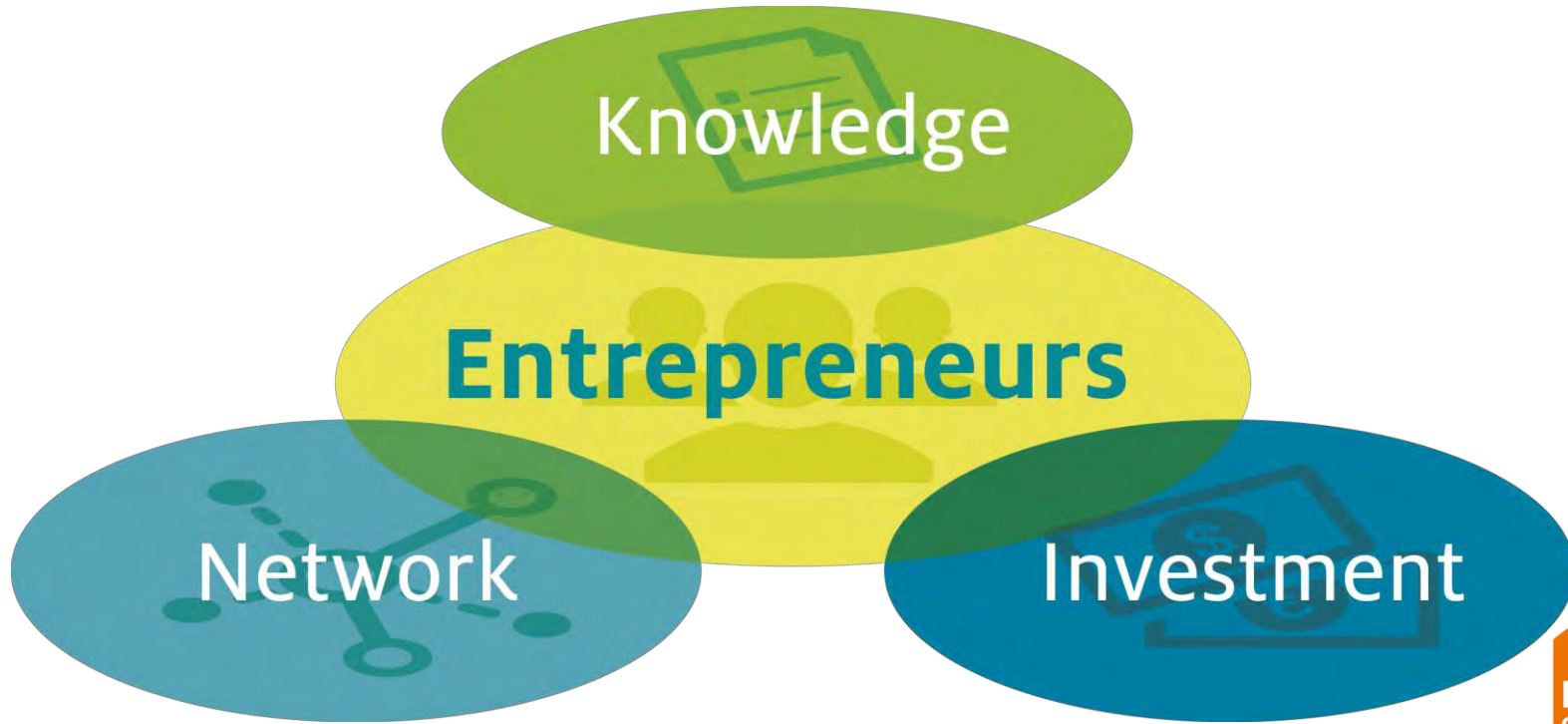


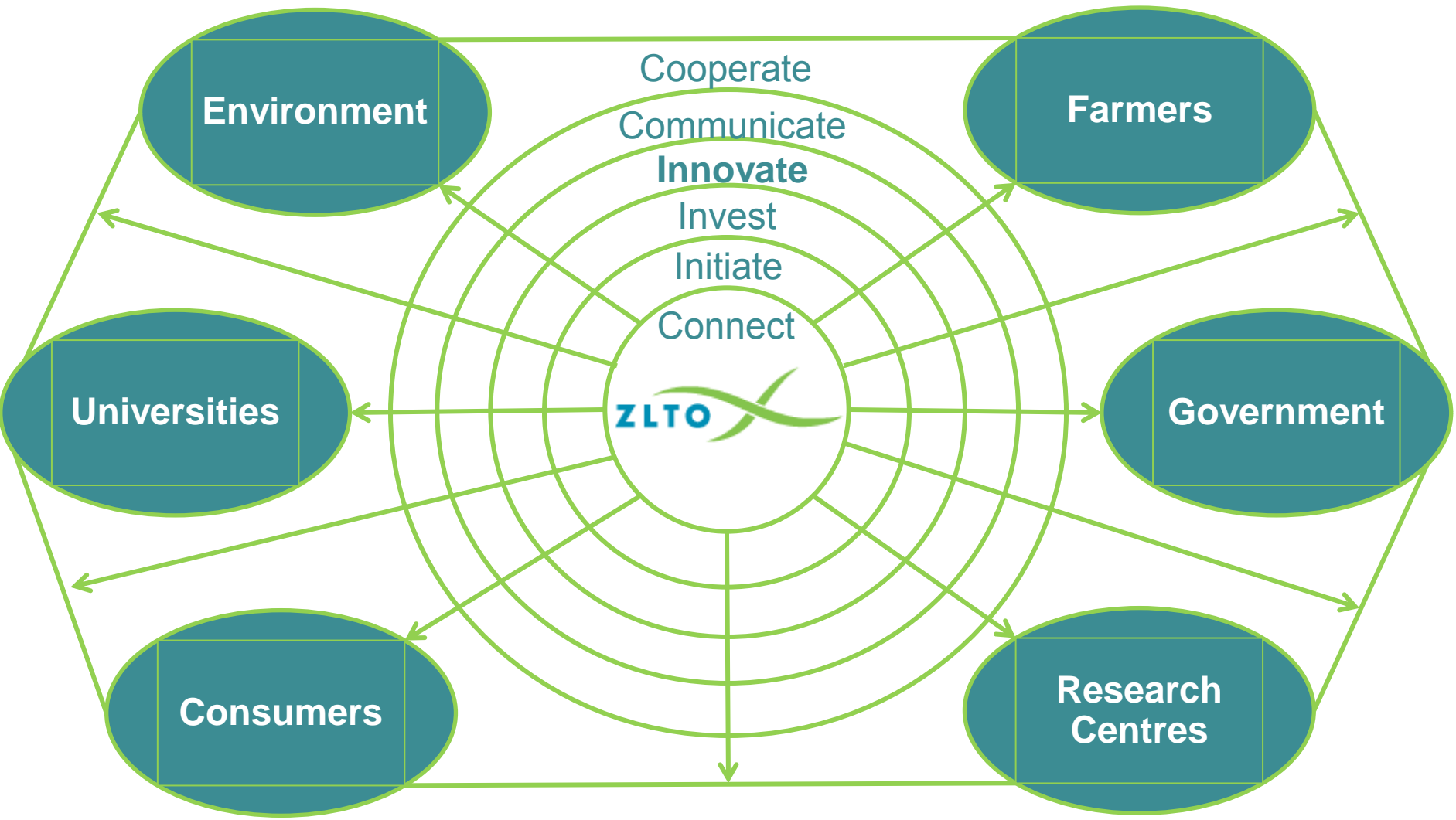
- World class agriculture
- World smartest high tech region
Brainport

ZLTO: a Farmers association



ZLTO entrepreneurial triangle





Future Farming – Healthy Living



connecting technology and design



connecting society and environment

Cooperative Innovative Farming

Our mission

Ensure continuity of the agricultural livelihood with technology

Our vision

Enhancing:

- efficiency (more output, less input)
- transparency (information sharing)
- taking responsibility (towards environment and society)





GPS-satelliet

Data-satelliet

Beregenen

Datameting

Datameting

RTK-paal

Mini-robots

Mini-robots

Datameting

ZLTO VISIE OP GEOTECHNOLOGIE



Smart-farming: experience, results and challenges



Top 5 exporting countries

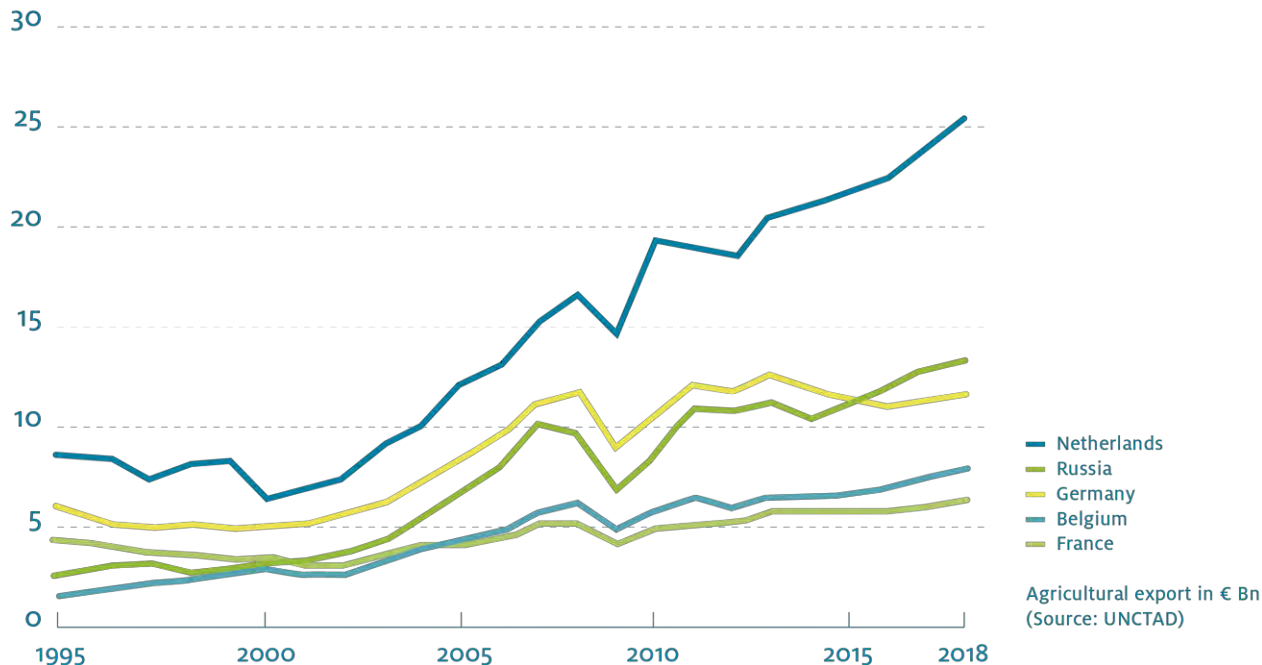


Source: World Bank

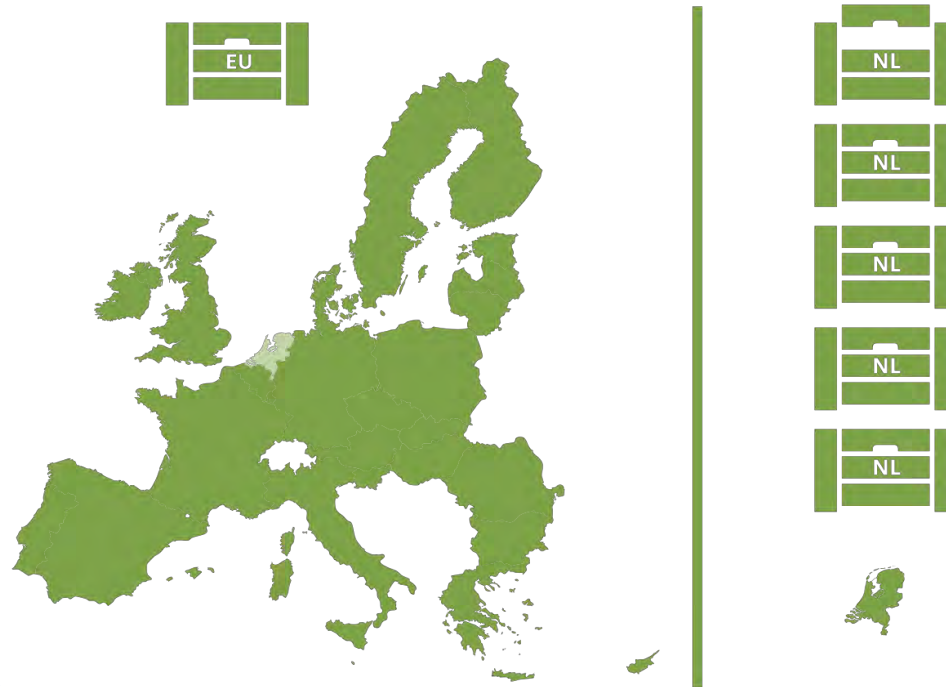
Export projected to increase

As the #1 European exporter

the Netherlands is a key player in the global agrifood supply chain



NL is 5 times more efficient than EU



Source: World Bank

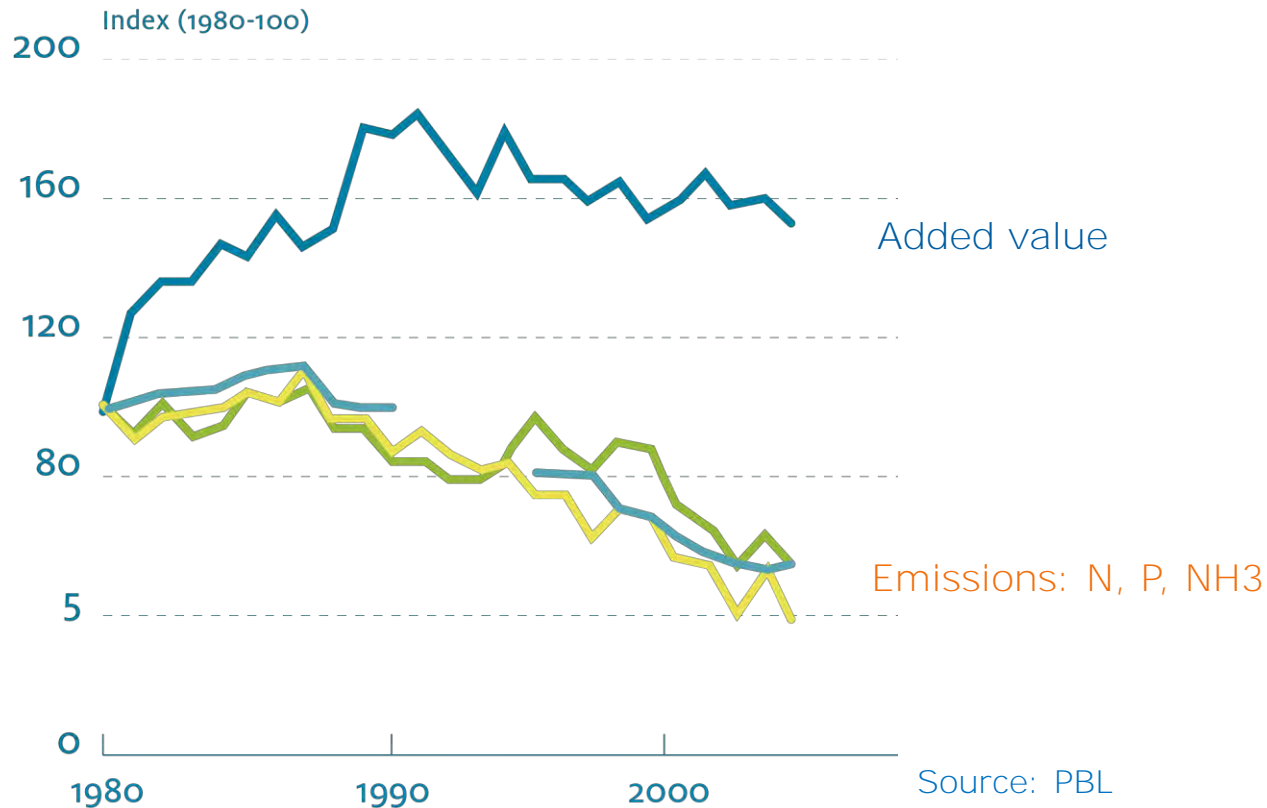
High productivity



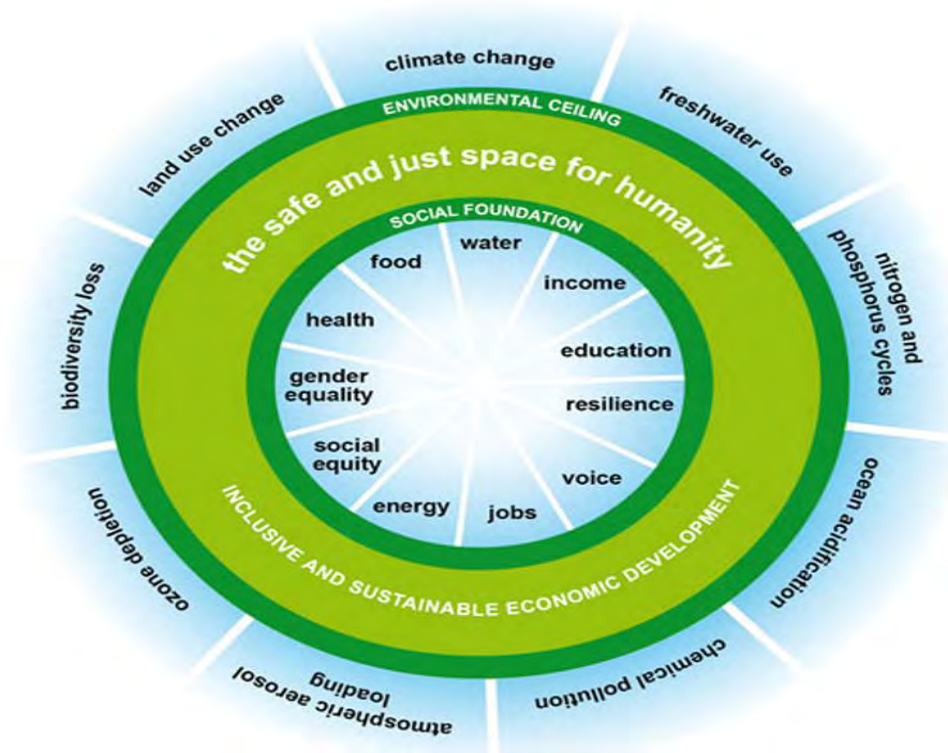
times as efficient as	
China	80,3
Mexico	15
Brazil	11,3
Germany	1,9
United States	1,2



Decrease emissions



Planetary Boundaries: sustainable production



The challenges we face

- Fight poverty: increase productivity
- Fair and transparent trade & logistics
- New challenging employment



Fighting Poverty – Increasing Productivity



Precision Agriculture

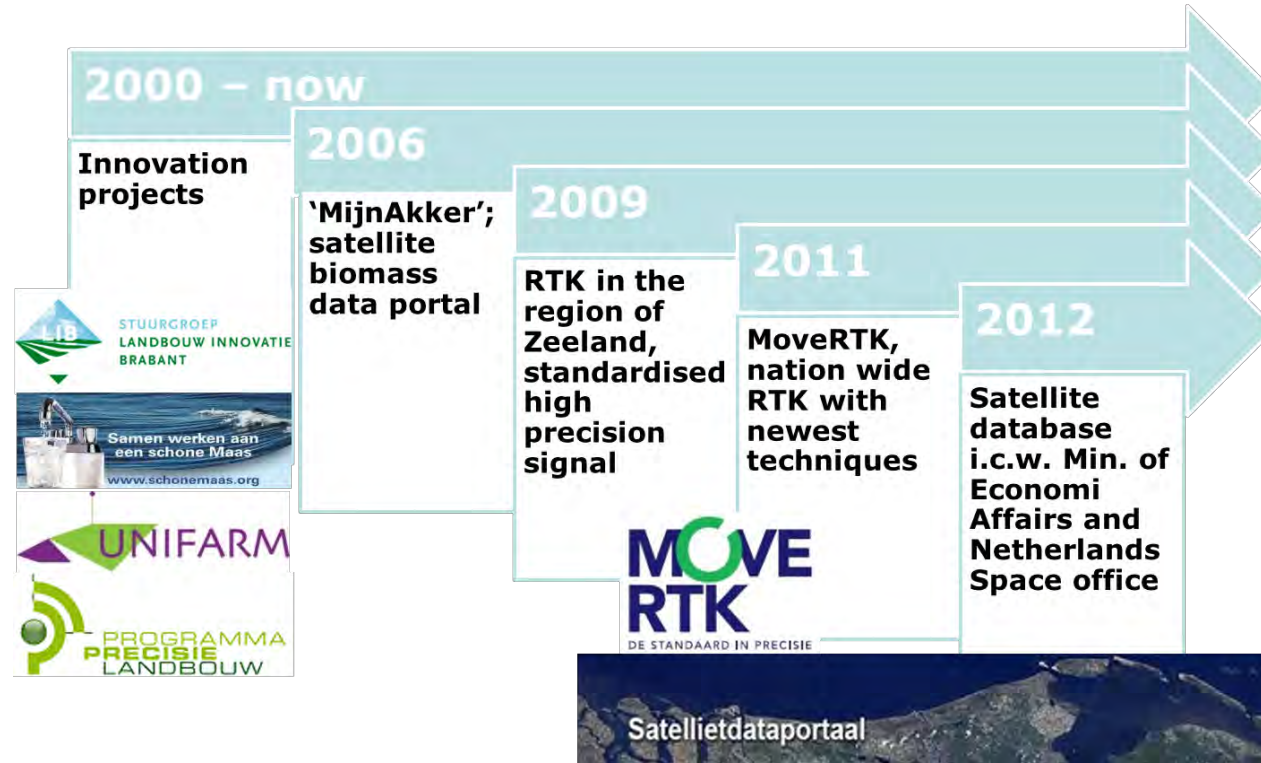


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ZLTO: over 10 years in smart-farming



Use of Precision Agriculture

The Netherlands



50-65%

Aided guidance/GPS

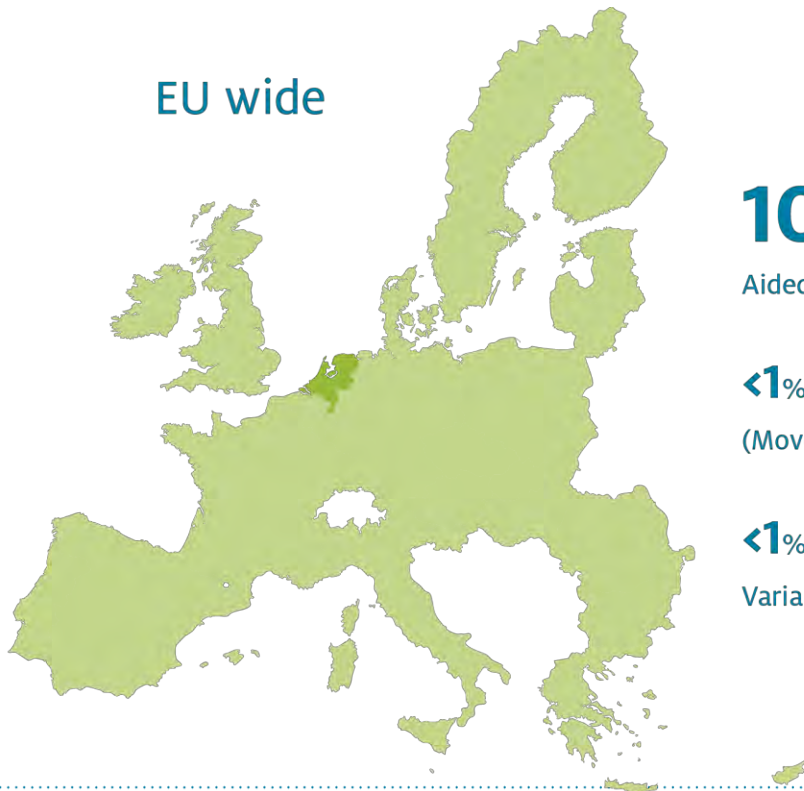
8%

(Move)RTK

2-5%

Variable Rate Application

EU wide



10%

Aided guidance/GPS

<1%

(Move)RTK

<1%

Variable Rate Application

Greenhouse horticulture



Animal Husbandry



© ZLTO



New strategies



© ZLTO



Fair and transparent trade & logistics



© ZLTO



Geo tracking & tracing in manure logistics



Animal transport: tracking & tracing



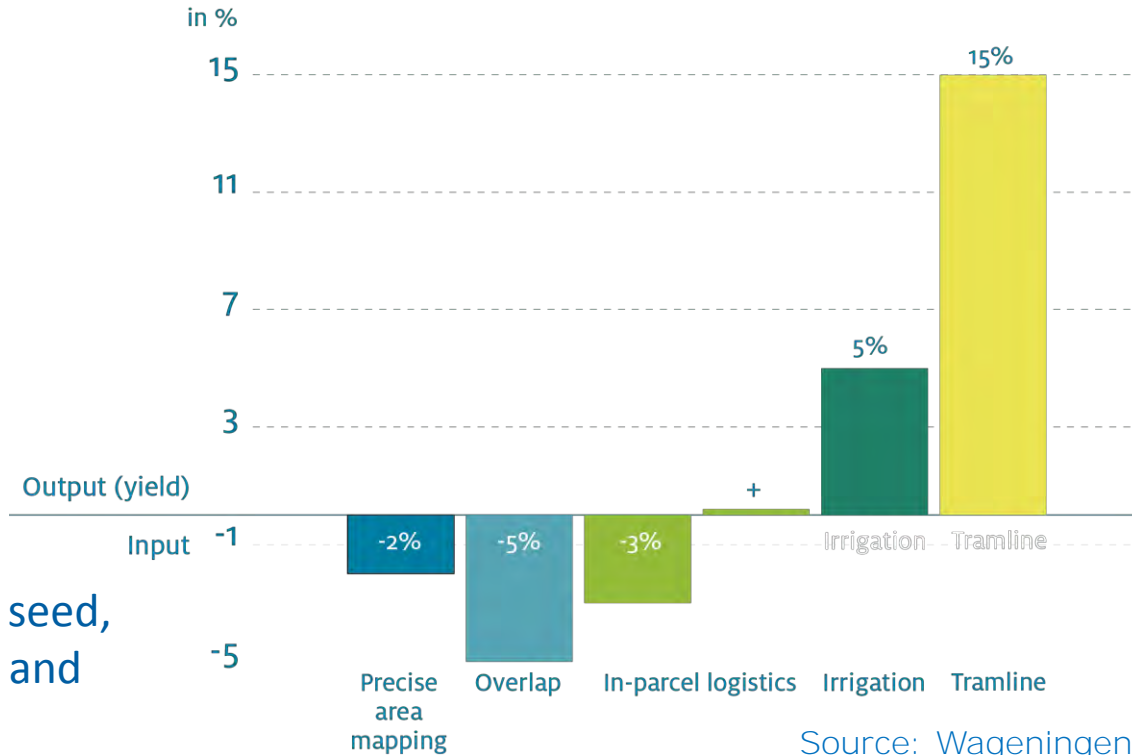
Geo ICT in consumer logistics



New Challenging Employment



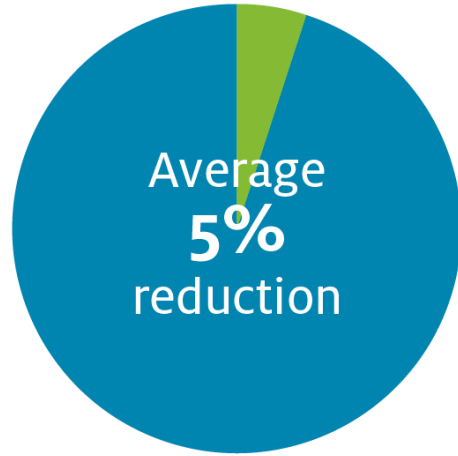
Advantages of Precision Agriculture



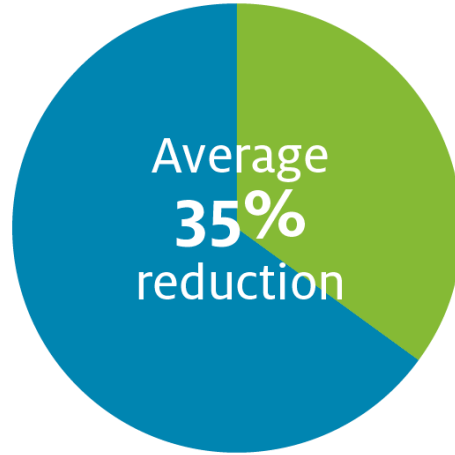
Inputs:
water, fertilizer, seed,
crop protection and
diesel



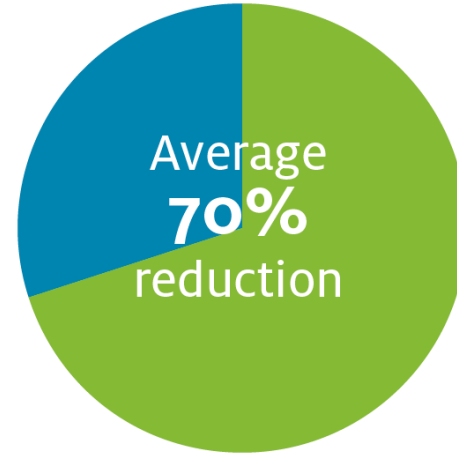
Extra advantages of integrated agriculture



Section wide
per ha



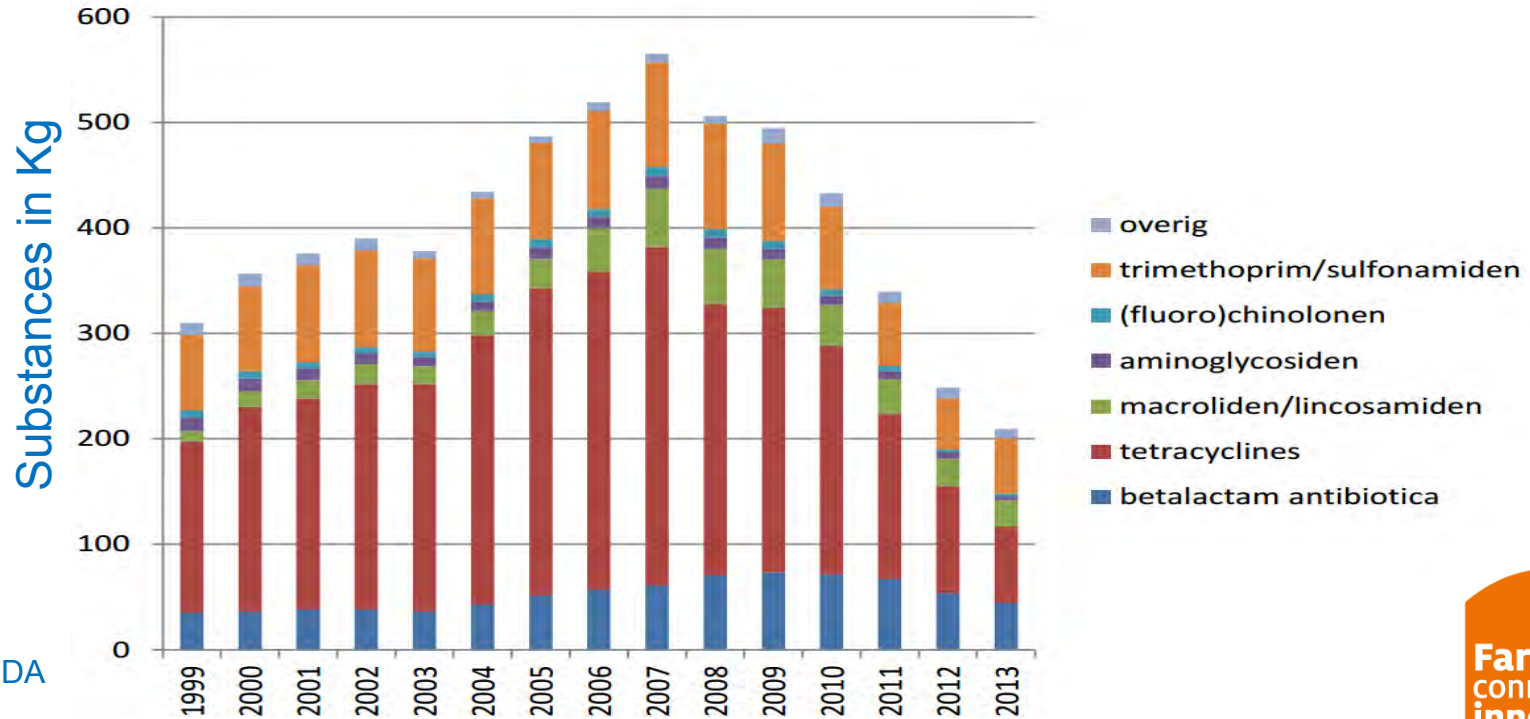
Variable
10m² to 30m²
20%-50% reduction



Plant specific
2 cm²
50% to 90% reduction

Source: Wageningen (UR)

Reduction of antibiotics



Source: SDA

© ZLTO

Chances of GeoICT in 5 years plants



Sub-parcel/plant specific application of H₂O, N, P, etc.

© ZLTO



Integrated techniques for plant specific treatment

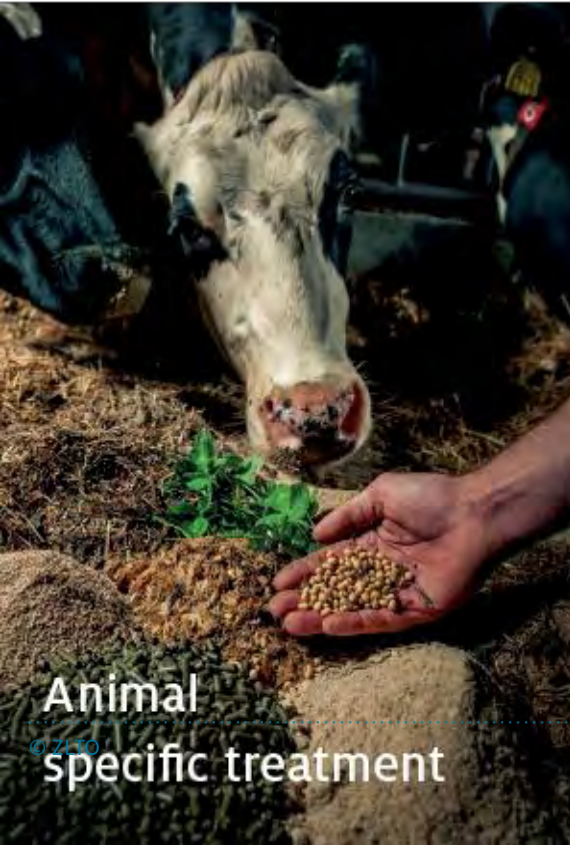
ZLTO



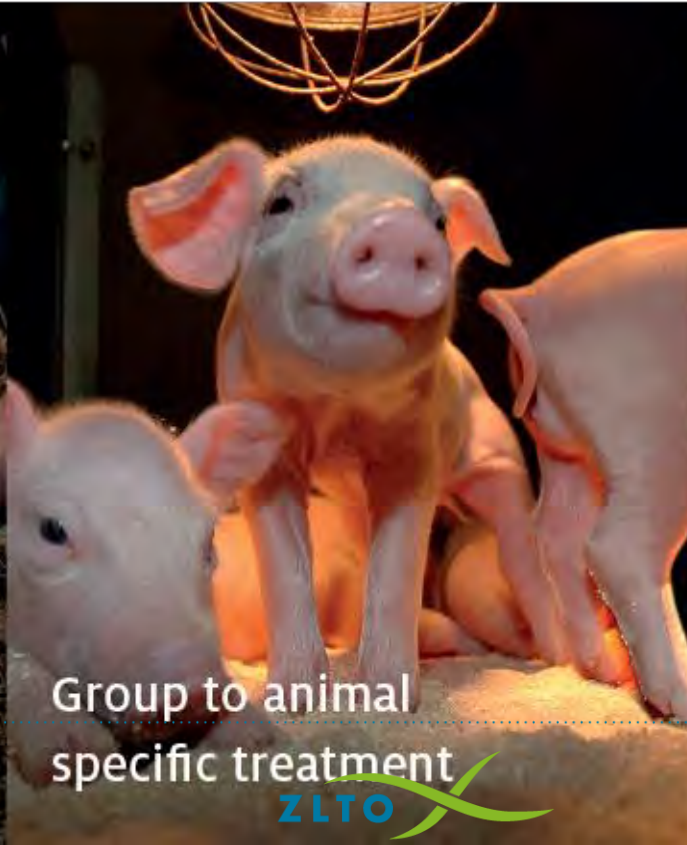
Farmers and contractors sharing cultivation data



Chances of GeoICT in 5 years animals



Animal specific treatment



Group to animal specific treatment

ZLTO



House specific to group specific treatment





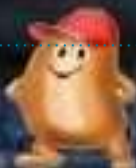
Living Lab NL



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Farmers
connect &
innovate



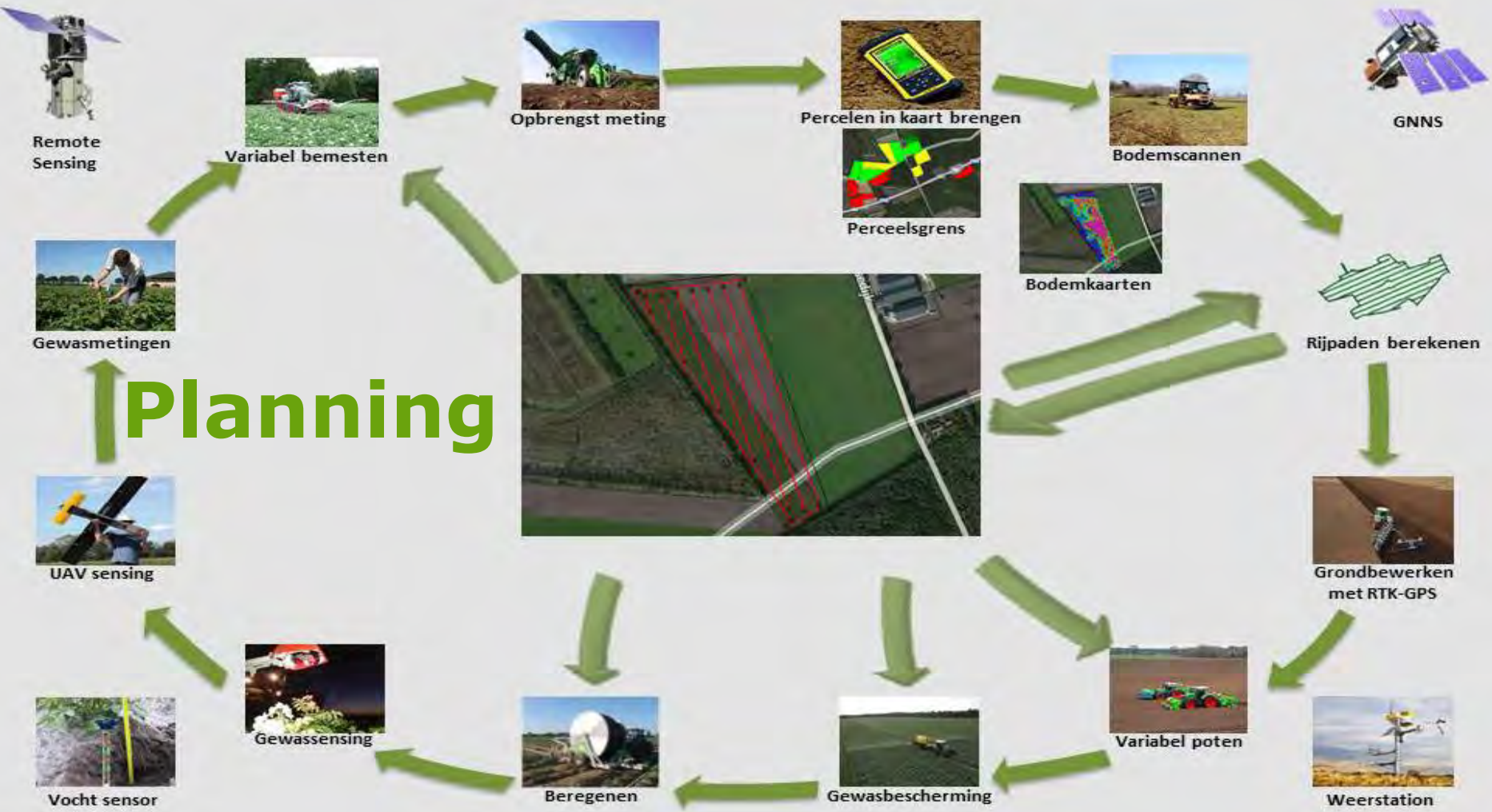


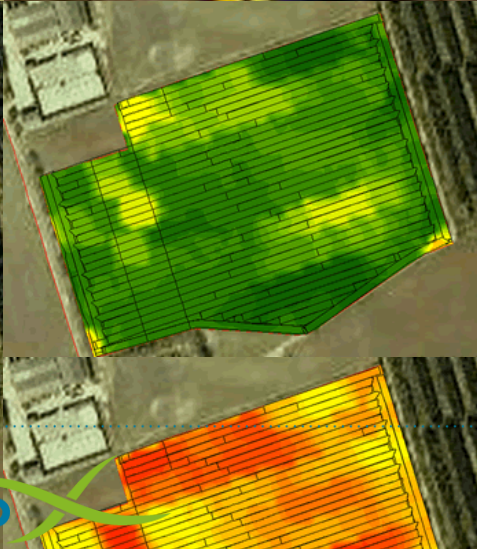
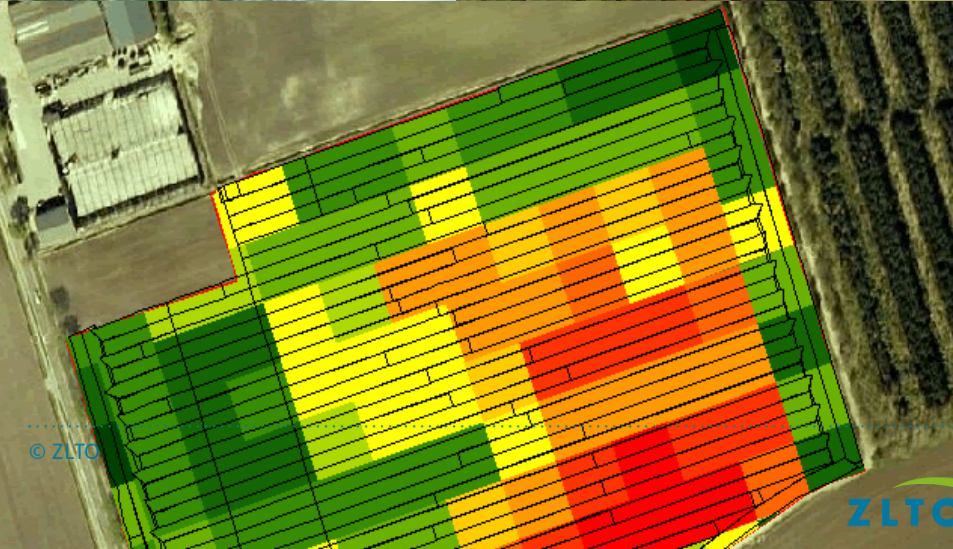
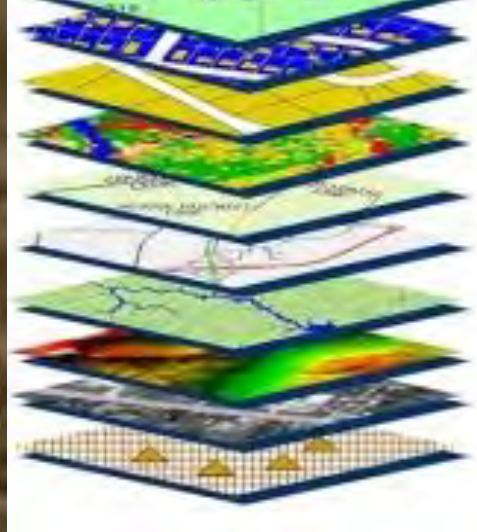
Integrated Management Cycle



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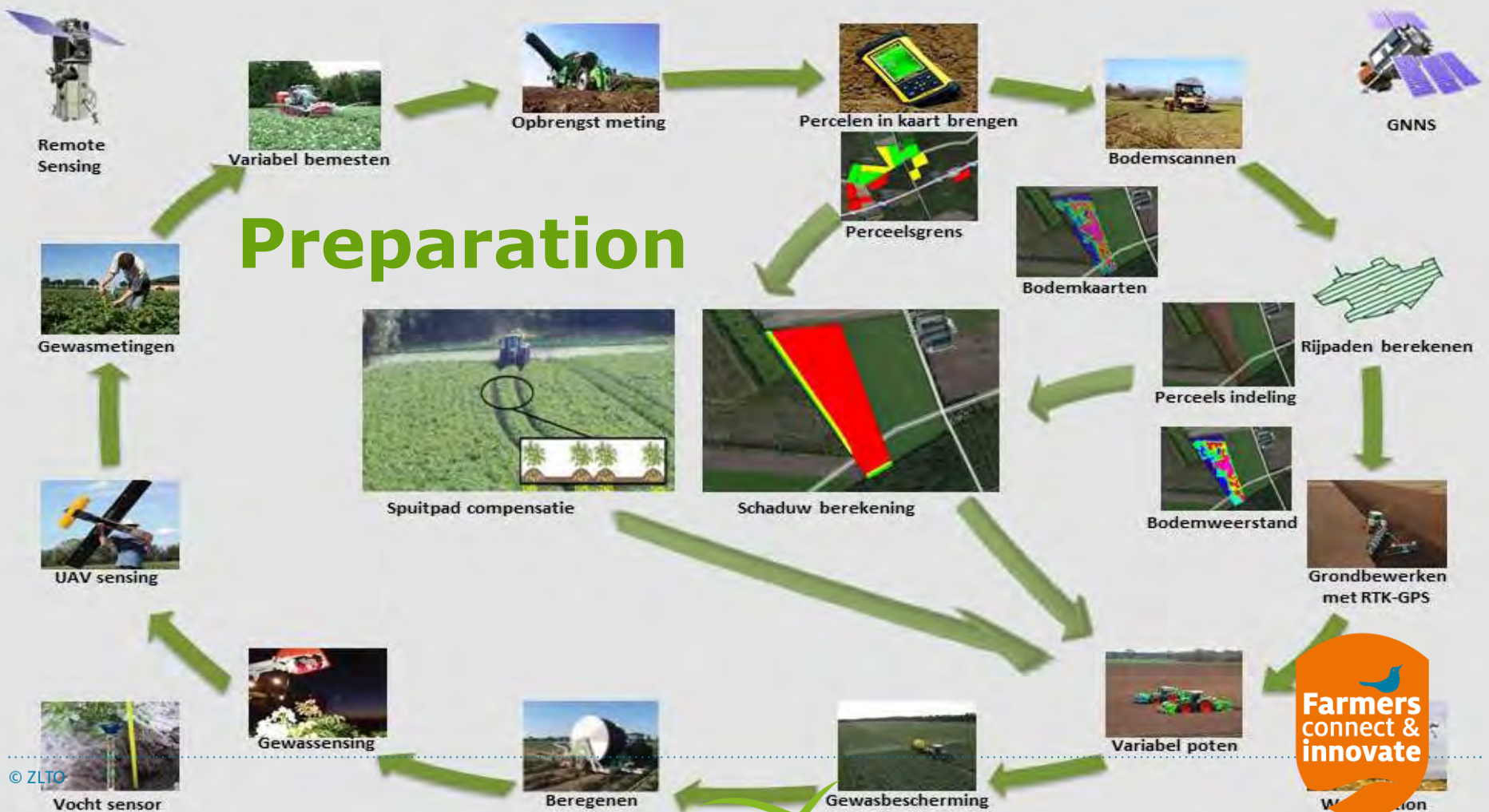
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31-8-2010

Preparation

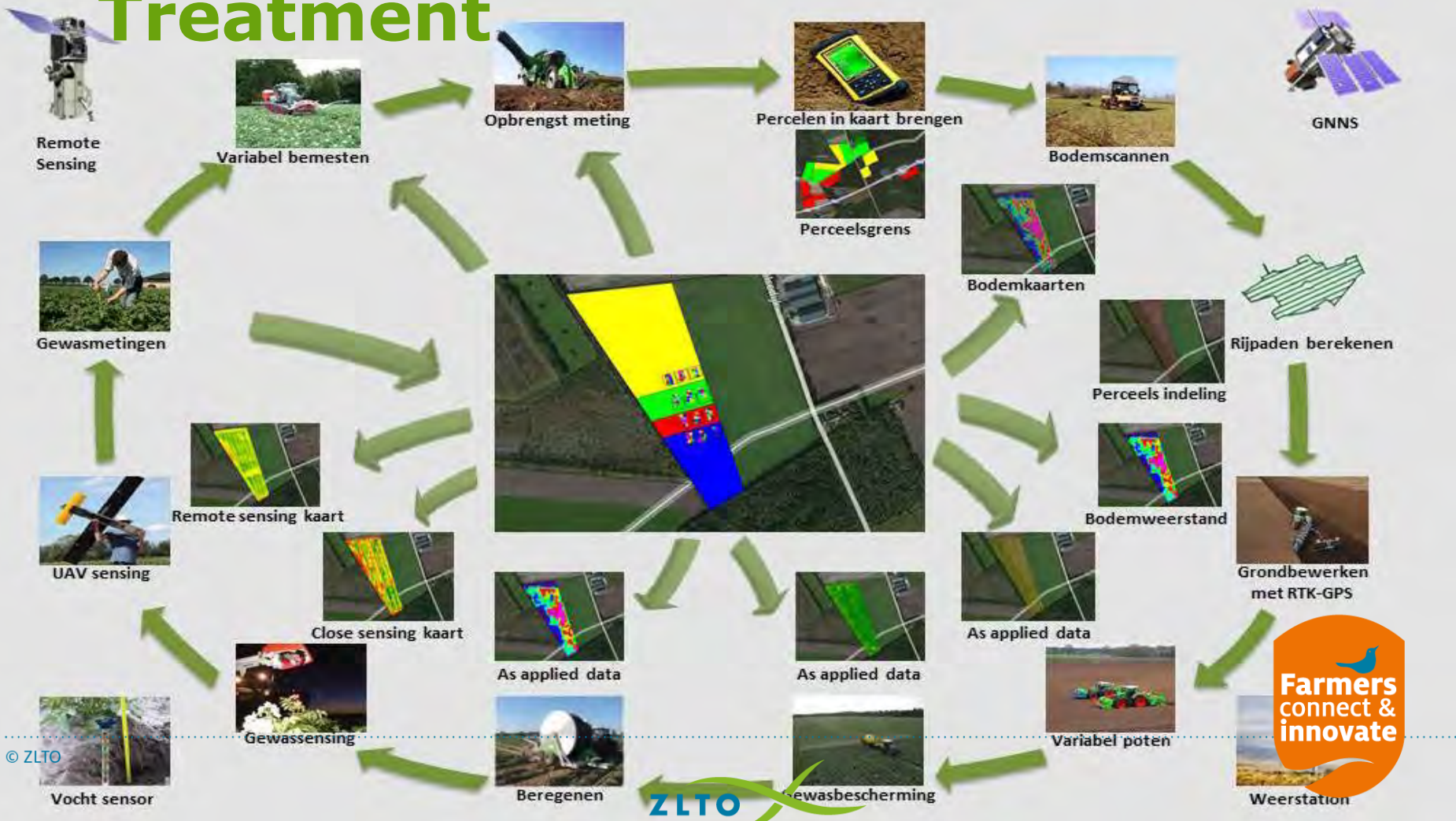




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Treatment





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Harvest

Remote Sensing

Variabel bemesten

Opbrengst meting

Perceelen in kaart brengen

GNSS

Bodemscannen

Bodemkaarten

Rijpaden berekenen

Perceels indeling

Bodemweerstand

Grondbewerken met RTK-GPS

As applied data

Variabel potten

As applied data

Gewasbescherming

Beregenen

Gewassensensing

Vocht sensor

UAV sensing

Gewasmetingen



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Remote Sensing



Variabel bemesten



Opbrengst meting



Percelen in kaart brengen



Bodemsctannen



GNNS



Rijpaden berekenen



Grondbewerken met RTK-GPS



Weersta...



Variabel poten



Gewasbescherming



Beregenen



Gewassensing



Vocht sensor



UAV sensing



Gewasmetingen



Information comes to the farmer



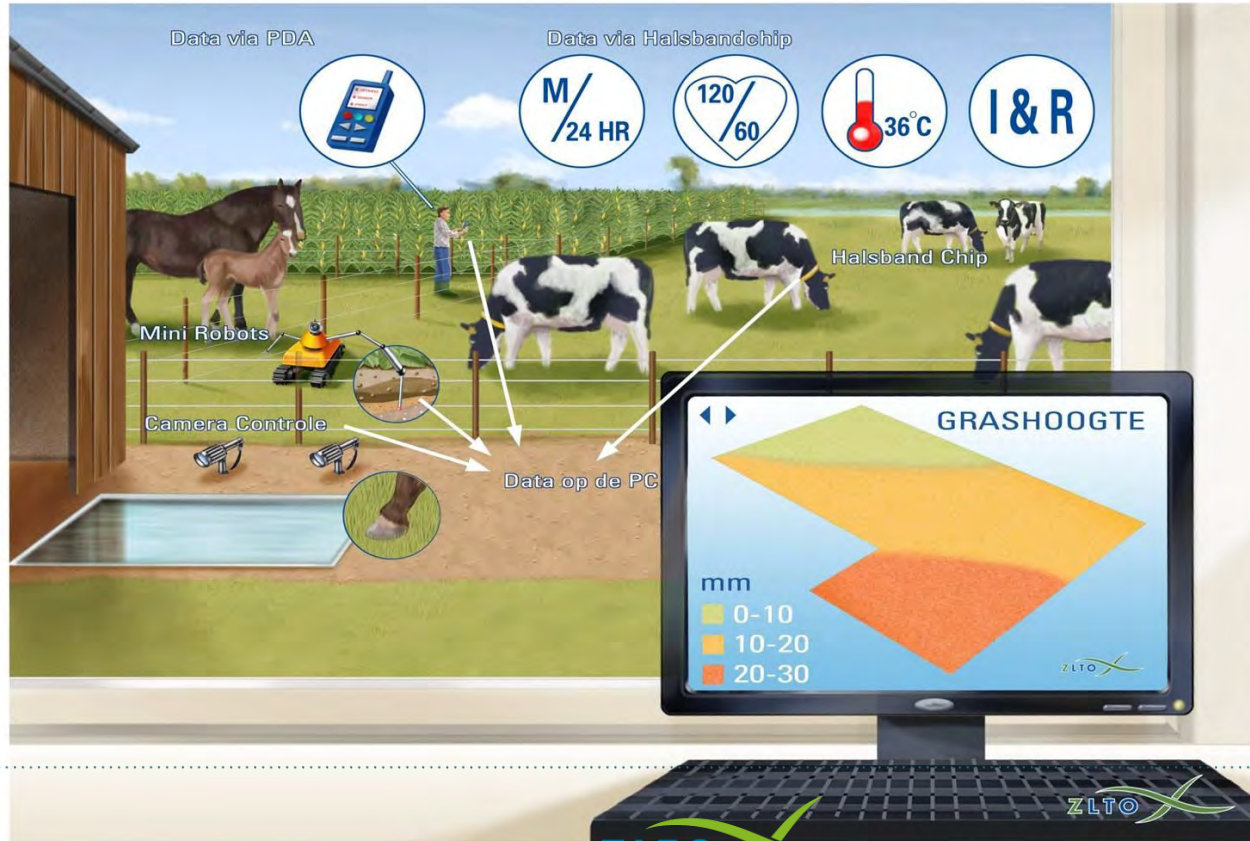
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Clear actions



Precision Agriculture in Animal Husbandry



Dutch government: Topsector policy



Hightech systems en materials
64.120

Chemistry
2.150

Agriculture & food
59.050

Creative industry
97.020

Energy
1.270

Life sciences & health
2.290

Transport & storage
23.820

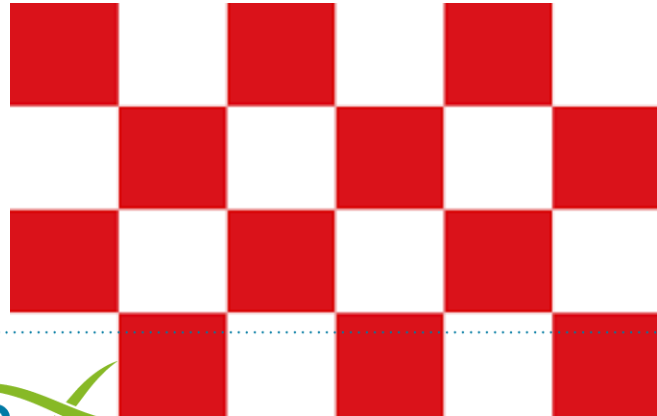
Horticulture & Propagation Material
18.460

Water
2.820

The Netherlands: Living Lab for smart-farming

Top sector policy:
focus on innovation, international
business, human capital,
sustainability, market and society

Agri&Food Innovation Programme:
innovation, new businesss, living
labs, new products.



ZLTO in EU Horizon 2020



H2020: €70 billion (2014 to 2020)

1. Excellent Science (€24 b)
2. Industrial Leadership (€17 b)
3. Societal Challenges (€31 b)

Food, Energy and Health

"Europe move towards smart, sustainable, inclusive growth, and along the way to tackle its pressing societal challenges"



ZLTO in EU Horizon 2020



ZLTO in EU Projects:

Focusgroup Precision Agriculture European Innovation Partnership, linked to H2020 and the rural development programme

Satisfarming: the implementation of Satellite Farming in Europe

AgriSpin: innovation brokership in Europe.

Euro Dairy Farming: Innovation in dairy Farming



Invitation to cooperate



Partners



— innovators in agriculture —



and many more...

ZLTO: your partner in smart-farming

1. Leading role in Public Private Projects
2. Excellent network: private and public sector partners (EU, NL province)
3. Access to key players and entrepreneurs in high tech and design
4. Direct connection with entrepreneurial and innovative farmers
5. Testing grounds available
6. Co-investor in innovation

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Your connection to Living Lab NL