



We preserve nature's gifts

# Farm to Fork: a Sustainability Strategy in Action

Professor Philippe Haspeslagh, Chairman Ardo



# ARDO in a nutshell

- European leader in freshfrozen vegetables (18% M/S) and number two in freshfrozen herbs (35% M/S) for retail , industry and foodservice.
- Resulting from the 2014 merger of two Belgian companies with agro roots, founded by separate branches of the Haspeslagh family.
- 2019/2020 turnover: Euro 1.2 billion (of which 200 in North America)
- 21 sites from Denmark to Portugal, 4000 employees.
- Working with 4000 farmers and producer organisations through farm protocols and agronomist support
- Combining family entrepreneurship and professional management



Minimum Impact, Maximum Output  
Sustainable Agriculture - Ardo

# The GOAL

## ● MINIMUM IMPACT

- No detectible chemical residues in ALL our final product !
- Reducing the use of pesticides, fertilizer and fungicides
- Protecting/improving soil structure
- Optimising the use of water

## ● MAXIMUM OUTPUT

- Improving regularity & productivity of crops and hence provide stable income for our farmers
- Improving the quality of our products
- Increasing the trust in Ardo's products among our clients
- Protecting the safety and health of our farmers and employees



# Big Opportunity



100 crops



4000  
farmers



50 000 ha



17 growing  
regions

## Big Challenge

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# Preventive actions

**Prevent** rather than correct the problems

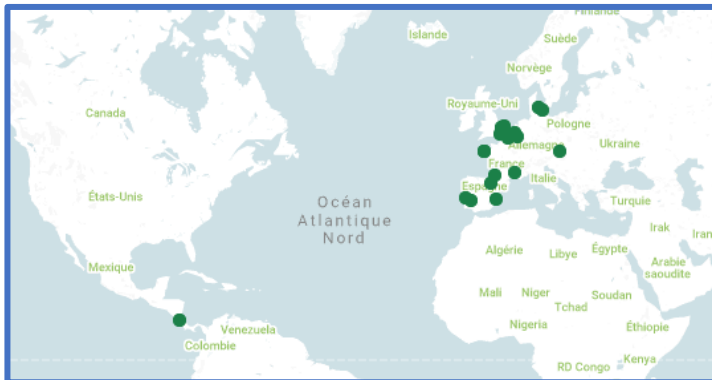
Every crop in the right time and place – Good farmers  
– Best technics (Soil – Seed – Varieties – Sowing)



# Every crop in the right time and place

## Agro-climatological conditions

- 17 growing zones
- Open air, full field
- Seasonality
- Risk spread



## Crop Rotation

- Best growers
- Soils adapted to crop needs
- Ex. Peas: minimum crop rotation of 1 in 6 years



## Soil structure

- Damage of today will have impact many years to come
- New harvesters on tracks
- Analysing and improving the regularity of soil





# Seeds and sowing

Increased Precision

## Quality control

- Germination
- Vigour
- Coating
- 100% non GMO
- Testing 250 varieties



## Precision Sowing

- Homogene fields
- Better germination

## GPS

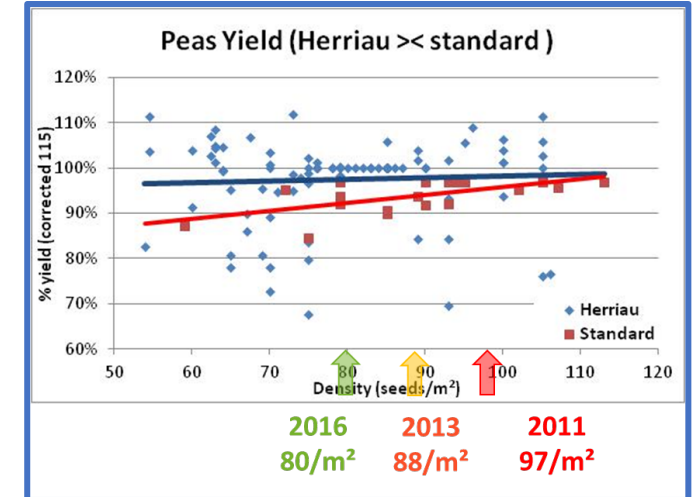
- Reduce overlap



Precision >< Standard  
Spinach sowing in dry conditions

## Reduce sowing density

- Possible with precision sowing
- Less plants = less diseases
- And higher yield





# Corrective actions

Crop protection

Fertilization

Irrigation

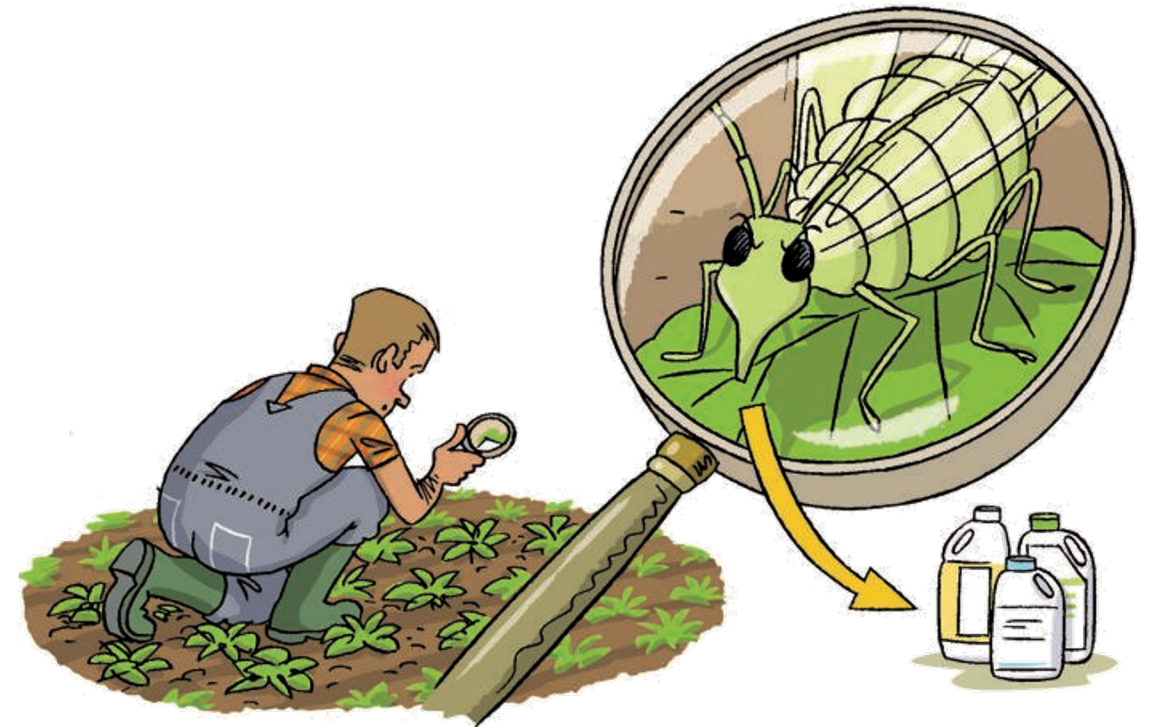
Minimal impact on the environment – High precision



# Active field management

## “Nip in the bud”

- 60 local agronomists assisting the farmers
  - Early identification of the risks
  - Rapid intervention
  - Improved efficiency of corrective actions
- Weeds
  - Pests & Diseases
  - Foreign materials
  - ...



# Spraying technique

Increased  
Precision

- Anticipate
- Best equipment (nozzles, gps, section steering)
- Correct products
- Effect of additives

## Benefits:

- ✓ Increased efficiency
- ✓ Reduce losses to environment
- ✓ Lower doses
- ✓ Higher yield and quality



0,1 mL water +  
additive



1 mL water

## Example: fungicide trial in green beans

T0 Boutons Verts T1 - 8 jours		T1 1 <sup>ère</sup> fleur		T2 - 1 <sup>ère</sup> gousse à 1 cm T1 + 4 jours		T3 1 <sup>er</sup> filet à 3-4 cm T1 + 11 Jours T2 + 7 jours		IFT
Produit	Dose/ ha	Produit	Dose/ ha	Produit	Dose/ ha	Produit	Dose/ ha	Number of Full doses/ha
-	-	SWITCH + TOPSIN	0,8 kg 1,6 l	-	-	PICTOR + TOPSIN	1 kg 1,6 l	3.8
-	-	PICTOR + TOPSIN	1 kg 1,6 l	-	-	SWITCH + TOPSIN	0,8 kg 1,6 l	3.8
-	-	PICTOR + TOPSIN *	0,5 kg 0,8 l	PICTOR + TOPSIN *	0,5 kg 0,8 l	SWITCH + TOPSIN *	0,5 kg 0,8 l	3
-	-	SWITCH + TOPSIN *	0,5 kg 0,8 l	PICTOR + TOPSIN *	0,5 kg 0,8 l	PICTOR + TOPSIN *	0,5 kg 0,8 l	3
PICTOR + TOPSIN *	0,5 kg 0,8 l	PICTOR + TOPSIN *	0,5 kg 0,8 l	SWITCH + TOPSIN *	0,5 kg 0,8 l	-	-	3
SWITCH + TOPSIN *	0,5 kg 0,8 l	PICTOR + TOPSIN *	0,5 kg 0,8 l	SWITCH + TOPSIN *	0,5 kg 0,8 l	-	-	3
PICTOR + TOPSIN *	0,5 kg 0,8 l	SWITCH + TOPSIN *	0,5 kg 0,8 l	-	-	-	-	2
TÉMOIN	-	-	-	-	-	-	-	0

-25% fungicide  
applied: equal level of  
protection!

Equal level of  
protection

Insufficient

Not harvestable



# Fertilizer application

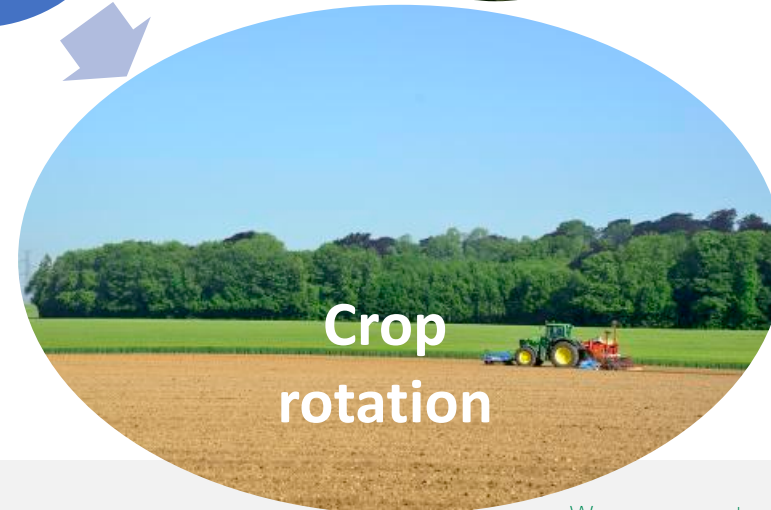
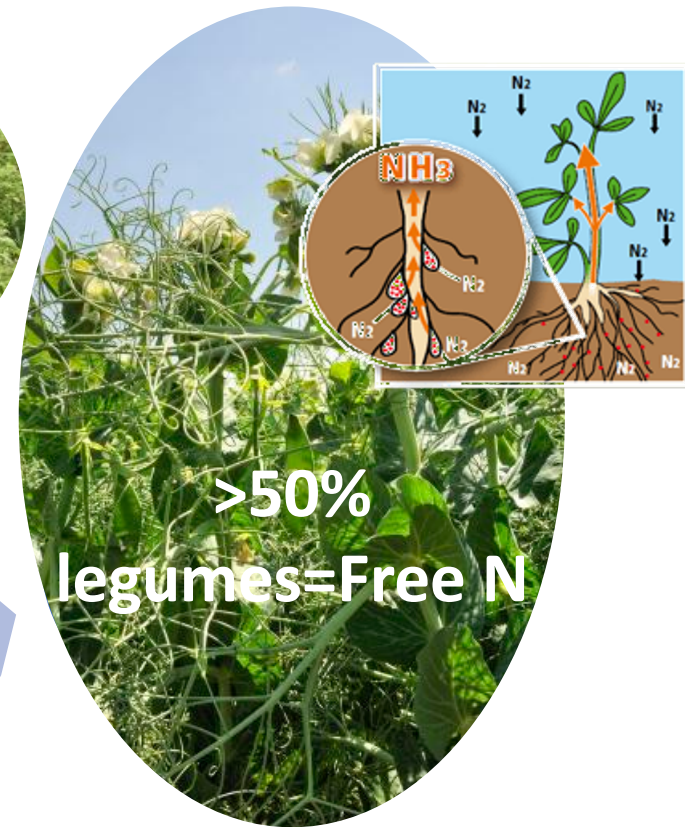
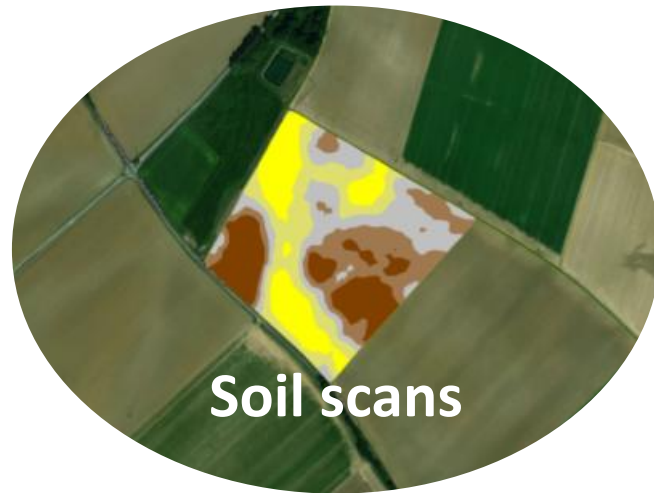
Increased  
Precision

Only when necessary - Based on soil sampling

	Before (Units N)	Now (Units N)
Winter Spinach	220	160-220
Spring Spinach	180	120-180
Autumn Spinach	160	80-160
Beans (first crop)	60	0-60
Broad Beans	60	0-40
Carrots	80	0-60
Brussels Sprouts	220	120-220

Year after year,  
More yield  
with Less fertilizer

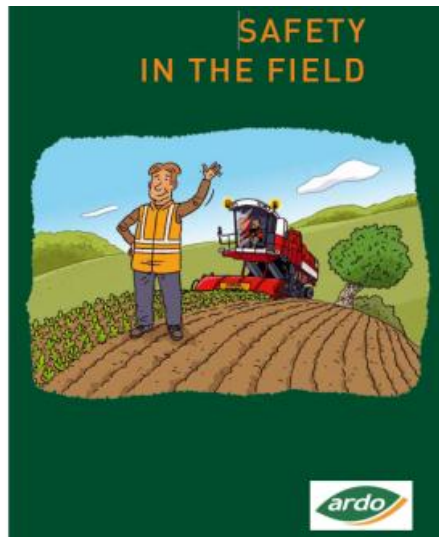
# Healthy soils



# Safety

## Raise awareness to work in a safer way!

- Brochures with rules
- Visible clothing
- Safety audit also in the field



Many of us know someone who has had an accident in recent times, be it a near miss or more serious.



In Saint Sever, an agronomist wanted to check the adjustment of a Herriou drill. He tried to mount on the machine when it was operating, but his foot slipped and one leg was trapped under the back roll. He was then pulled by the machine until another person informed the driver that he was under the machine. This accident could have ended much worse than 2 weeks away from work!



In Austria the driver of a pea harvester was going too fast on a gravel road. The machine started swaying and because the machine was driving close to the edge of the road, it fell into the ditch next to the road and fell over on its side. Luckily nobody was hurt, but the driver suffered from shock.



In Beer, a farmer was working close to an ungated Power Take-Off. His loose clothing was caught by the PTO and his hand and was severely injured. After enduring several surgical operations, this farmer has today a hand with only 2 fingers left and little mobility.



### rule 3

#### WHEN A MACHINE BREAKS DOWN...

- **Think before you act :**  
when a machine breaks down or gets blocked, take time to think about the best solution to solve the problem.



- **Always stop the machine before intervening with moving parts**
- **Pull out the key to prevent** another person to start the machine
- **Sound the horn before starting** as a warning signal.



- **If there is no other option** and you really need to work on a moving machine,  
**NEVER DO THIS ON YOUR OWN.** Get somebody that is on standby to stop the machine in case of emergency.



- **Use a safety support when** lifting the machine !



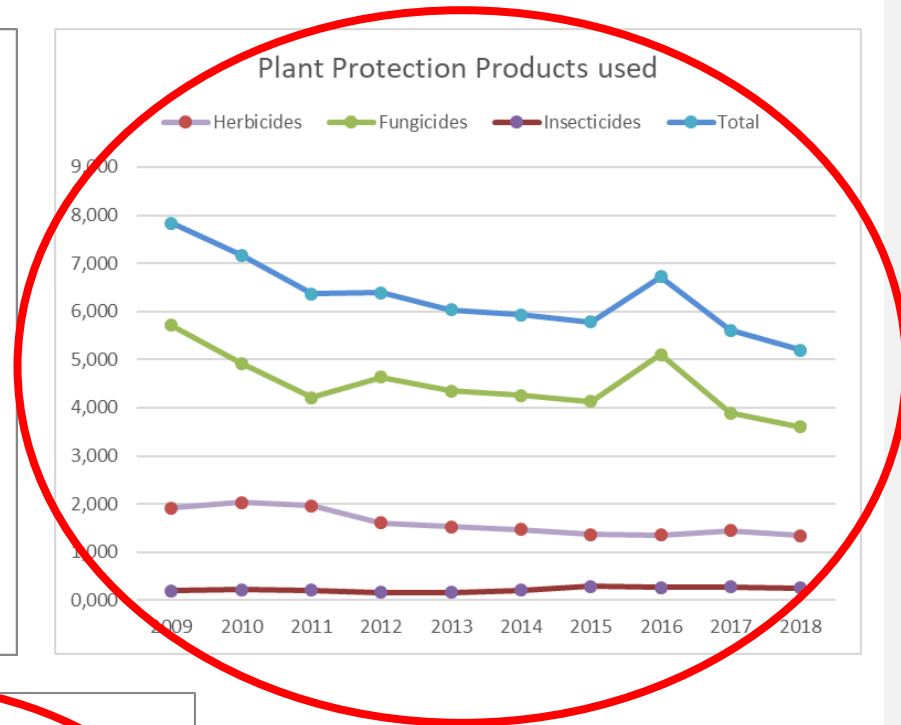
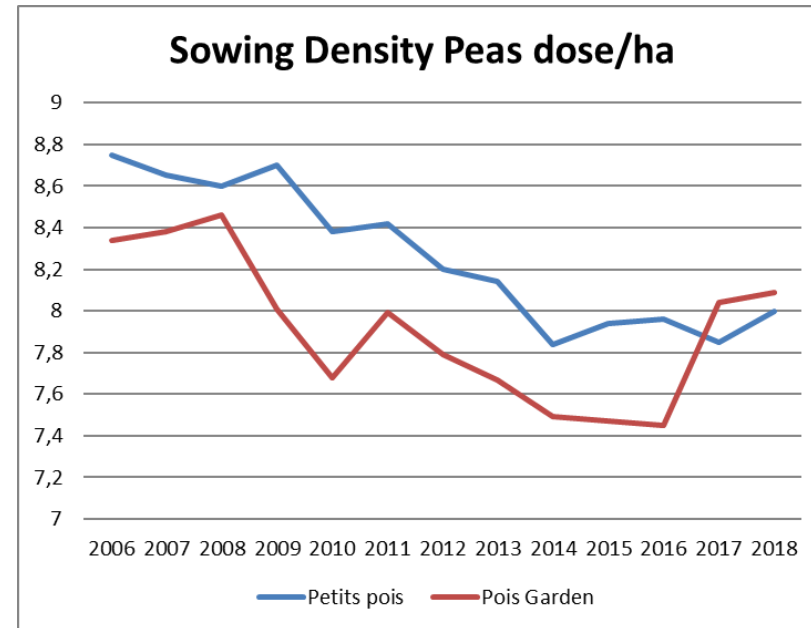
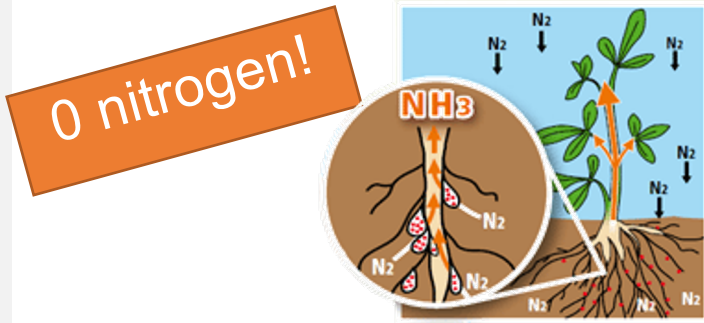


Minimum impact, maximum output, but what are the results?

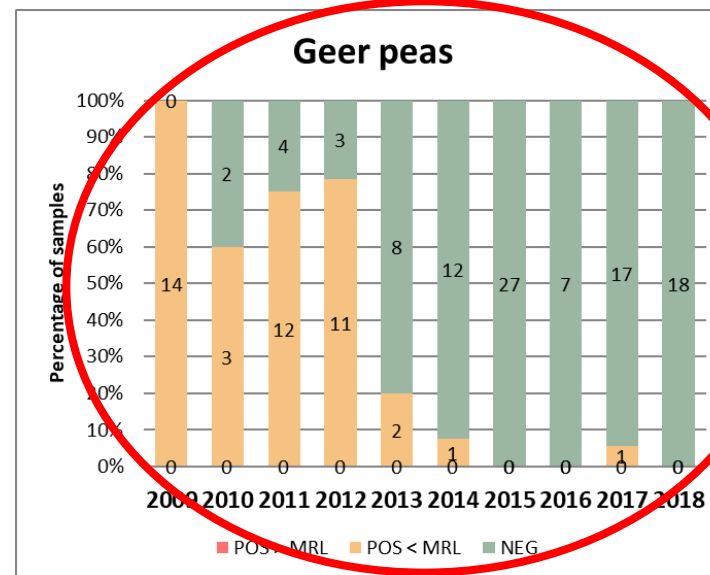




# Less is more...



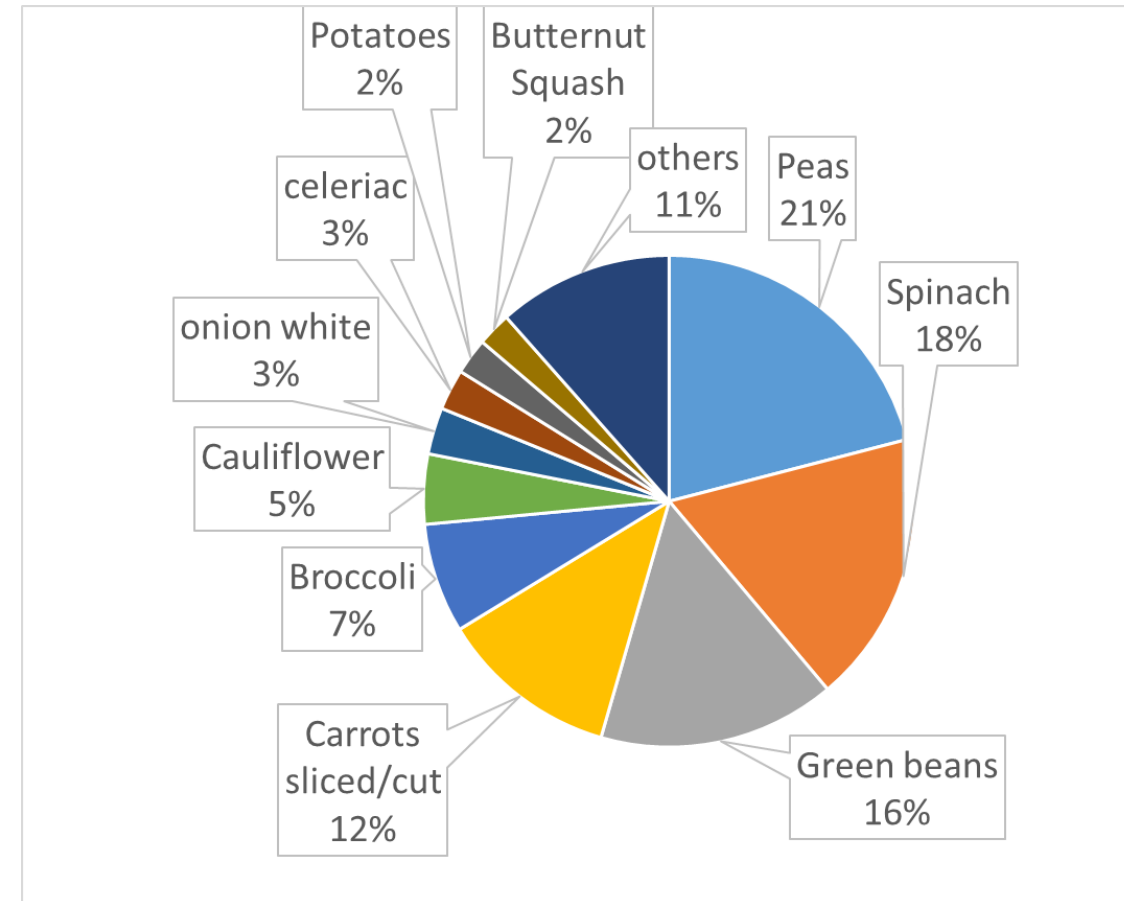
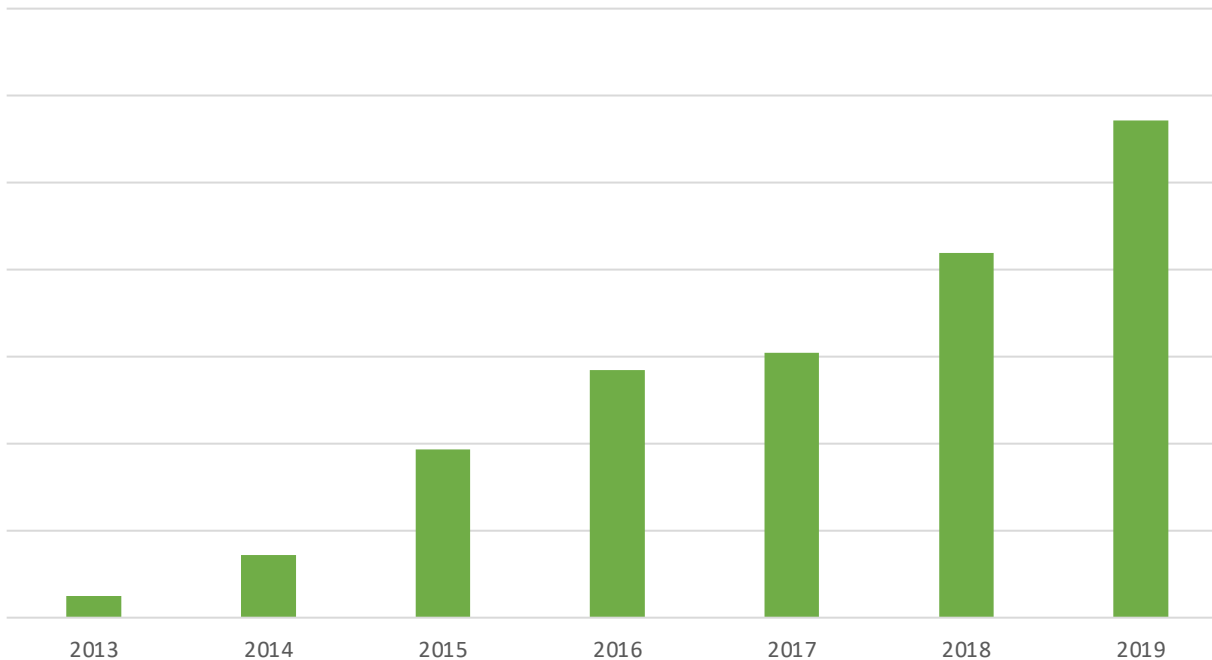
**GUARANTEED  
RESIDUE FREE**  
2019: 74%  
2020: 80% est



**MIMOSA Peas**

# Taking the lead in Organic: 10% of ha

Volume organic vegetables sold 2013-2019



# High tech organic farming

Flevopolder (NL)

RTK-DGPS  
Position

30 cm wide  
tracks

3,15 m

6,30 m

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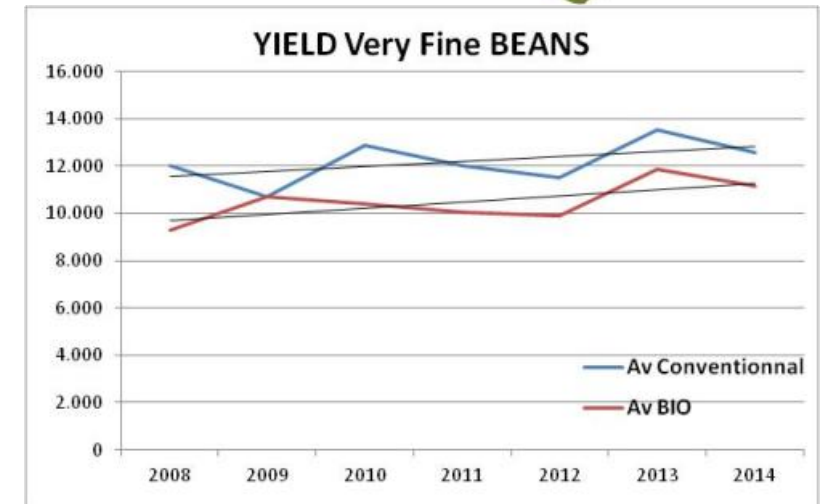
# Results

On average organic crops yield 20% less than conventional

Technology is key to:

- Reduce manual labour
- Close the gap between organic and conventional

- Weed control (GPS, image analysis, ...)
- New varieties
- Organic Plant Protection Products
- ...





# Innovation: anticipate the future agriculture



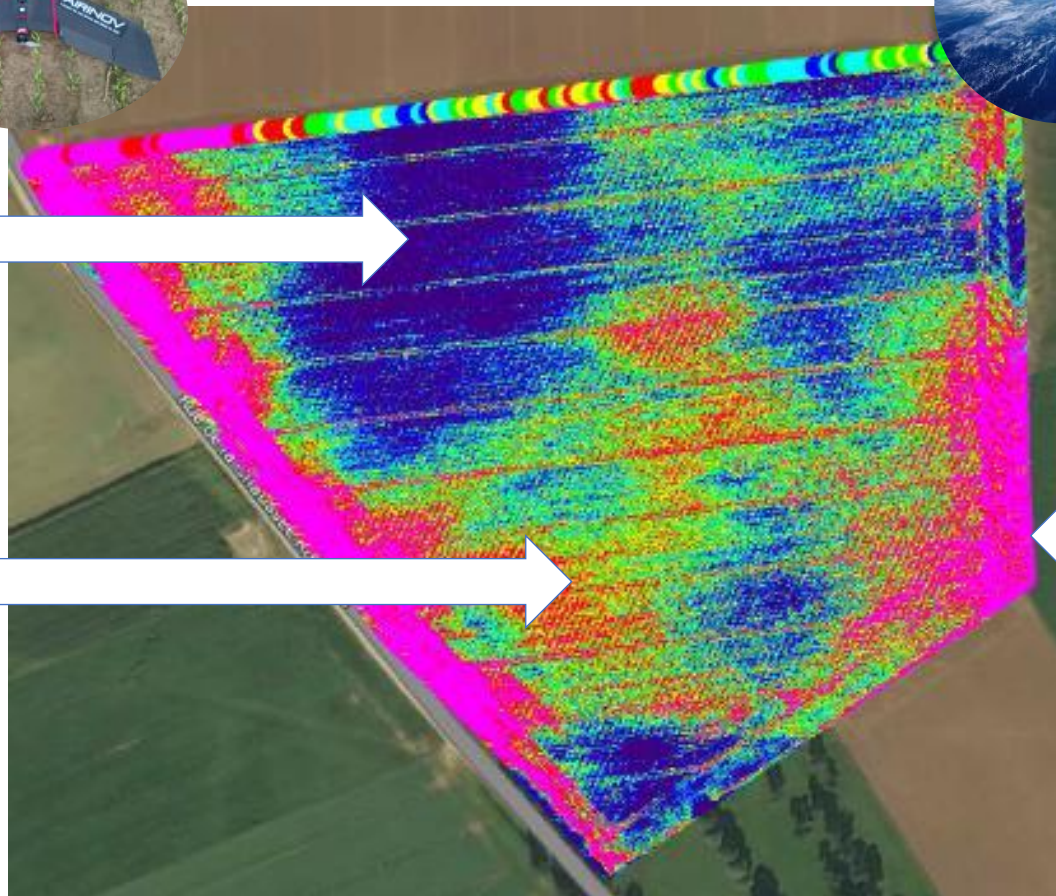
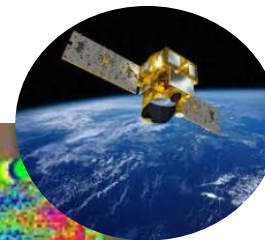
## 4 fields of application:

- Sowing
- Nitrogen fertilization
- Fungicide
- Lime

## 3 Basis of information:

- Veris soil scanner (Electroconductivity – pH – Organic matter)
- Drone (Vegetation index NDVI)
- Satellite (Vegetation index)





0,870 - 0,954	59035 pts.	
0,828 - 0,869	59499 pts.	
0,786 - 0,827	58935 pts.	
0,737 - 0,785	58415 pts.	
0,673 - 0,736	58758 pts.	
0,569 - 0,672	58895 pts.	
0,128 - 0,568	58724 pts.	

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# SPOT SPRAYING – through the use of Robots





# Sustainable Agriculture for Ardo is part of a wider sustainability commitment



# Circular Economy



Contract grown vegetables

Fresh Vegetables



Cold Store -24°C

Frozen vegetables

Cold

Heat

Re-use water

Used water

Clean water  
Irrigation Network

Water treatment



Steam

Electricity

Cogeneration

Vegetable Residues



Biomethanisation

Digestate

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# Biodiversity

## Nature areas

- Hollogne-sur-Geer



- Zundert



## Bees

- Flower borders, bee hives, insect hotel



## Other actions

- Raise awareness
- Birds of prey, field birds





# What our agronomists asked me to tell:

- They applaud the Farm to Fork efforts by the Commission, but:
- The difference in application of directives across member states makes their job very difficult.
- The current deadlines for implementation of treatment elimination decisions may be ok for the fresh market but not for the freshfrozen business which has a 1 ½ year business cycle.
- Elimination of many seed treatments results in more chemical treatments in the field, and worse overall impact.
- Still lacking clarity how things will be measured:
  - How will one measure the 50% pesticide reduction: active ingredient or total product?
  - What standard measurement of the carbon footprint of agricultural production?

Overall they are excited however to lead the way in our sector !



# Thank you

