Vlaanderen
is landbouw & visserij

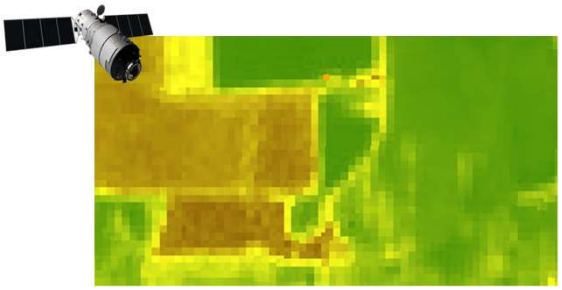
Parcel monitoring in Flanders 2019

Kristof Vanoost
Pieter Roggemans

DEPARTEMENT
LANDBOUW
& VISSERIJ

Outline

- **Context**
- **Checks by monitoring**
  - → Process + example
  - → Results
- **Good quality LPIS?**
- **What have we learned?**



Vlaanderen
is landbouw & visserij

Scope in Flanders in 2019

- **Regulation 746/2018 -** ***"The competent authority may decide to apply checks by monitoring at the level of the individual area-related aid scheme or support measure or type of operation" = blue or yellow level***

- **Basic Payment Scheme**
  → Based on eligible agricultural land
- **Greening - exemptions**
  → Based on eligible arable land
  → In line with the BPS
- **Young farmer**
  → Based on eligible agricultural land
  → + 100% administrative control of
    × professional competence
    × management responsibility

Rieg. 809/2014	Scheme					Control rate
Art. 30 a)	Basic Payment Scheme					5% (2% in Flanders)
Art. 30 b)	Redistributive Payment Scheme					5%
Art. 30 d)	Young farmer					5%
Art. 30 g)	Production of hemp					20%
Art. 31 a)	Greening					5%
		Environmentally sensitive permanent grasslands				5%
		Crop diversification				5%
		EFA				5%
			Land lying fallow			
			Landscape features			
			Buffer strips			
			Agroforestry			
			Eligible hectares along forest edges			
			Short rotation coppice			
			Afforested areas			
			Catch crops			
			Nitrogen-fixing crops			
Art. 31 b)	Greening - exempted					3%
		thresholds CD and EFA				
Art. 31 g)	Reconvert Environmentally sensitive PG					100%
Art. 31 h)	Reconvert PG (general)					20%
Art 32)	Rural Development Measures					5%
		Agri-Environment-Climate (art. 28 Rieg 1305/2013)				5%
		M10 - AMKM01 - Cultivation of paplionaceous flowers				
		M10 - AMKM03 - Mechanical weed control				
		M10 - AMKM04 - Mating disruption technique in fruit cultivation				
		M10 - BO24 - Water quality				
		M10 - BO 31 - Erosion control				
		M11 - Organic Farming (art. 29 Rieg 1305/2013)				5%

Vlaanderen
is landbouw & visserij

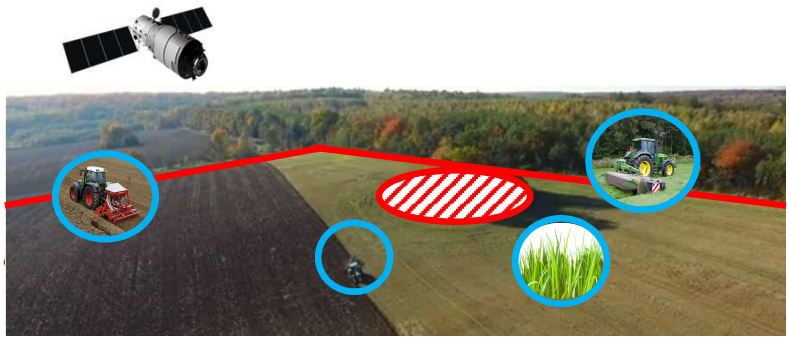
Monitoring = Good LPIS + Checks by monitoring

Checks by monitoring

- Marker "Land cover"
  - Arable
  - Grassland
  - Fallow
  - Leguminous
  - Ineligible (some types)

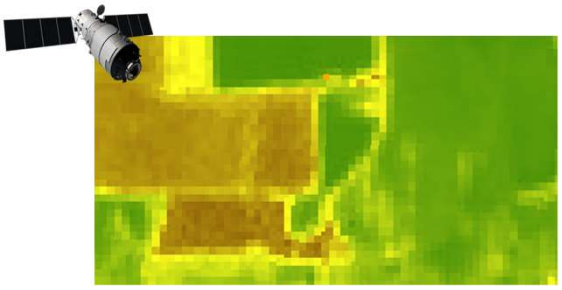
Good quality LPIS

- eligibility!
- multi-annual land cover



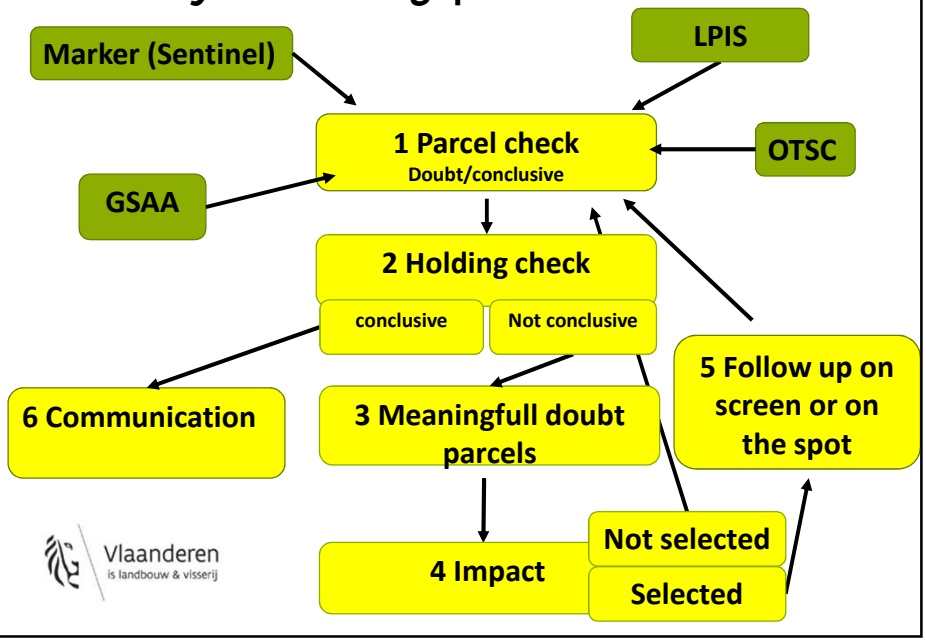
Outline

- **Context**
- **Checks by monitoring**
  - → Process + example
  - → Results
- **Good quality LPIS?**
- **What have we learned?**



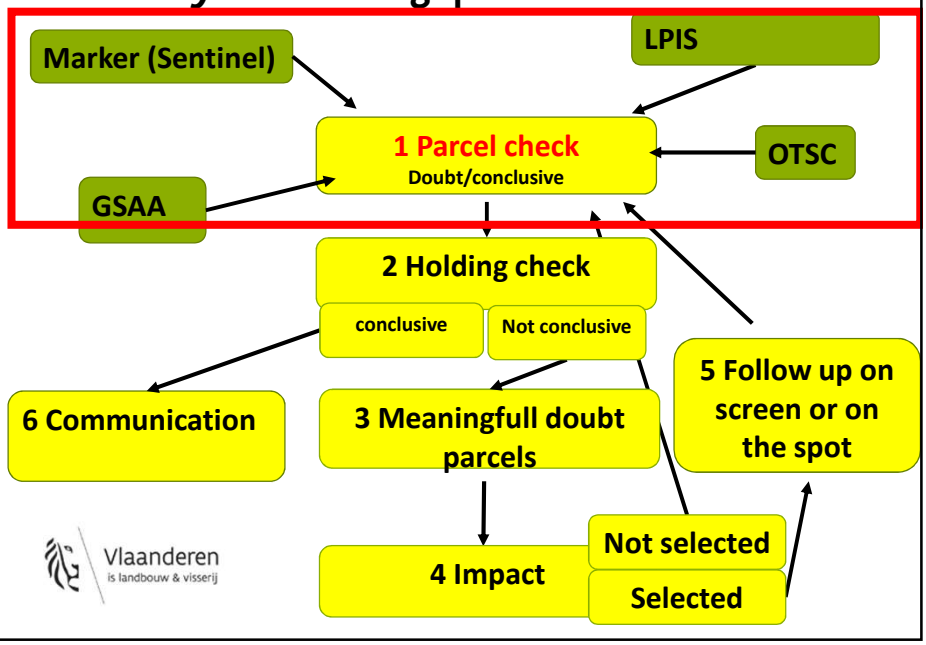
Vlaanderen
is landbouw & visserij

Checks by monitoring: process



Vlaanderen
is landbouw & visserij

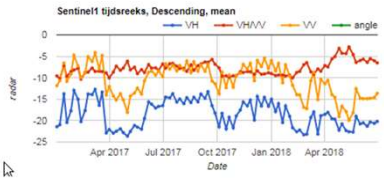
Checks by monitoring: process

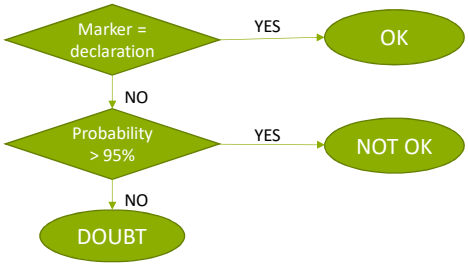


Vlaanderen
is landbouw & visserij

Parcel check – marker

- **How it works**
  - → Calculate time series for each parcel
    - × on ONDA DIAS
    - × weekly average pixel values for S1 + S2
  - → Train AI using GSAA declaration
  - → Apply AI on all parcels
  - → Parcel check result





Vlaanderen
is landbouw & visserij

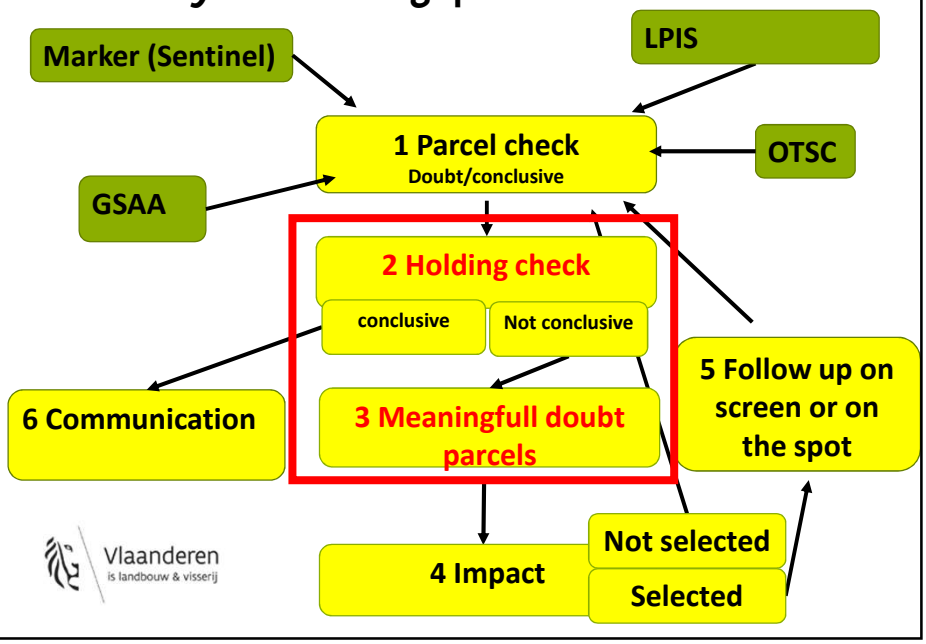
Parcel check – example

- **Farm with 50 parcels**
- **PE = 59,91, young farmer premium**

- **Parcel check result for the 50 parcels**
  - → 44 parcels GSAA = marker prediction = eligible (59,48 ha)
  - → 1 parcel (n° 25) GSAA (grassland) <> marker prediction (0,32 ha arable land, but eligible)
  - → 5 parcels doubt (2,29 ha)
    - × Eg. Parcel n° 51:
      - → GSAA = maize
      - → Marker result: Doubt
        - 40% probability grassland (<> GSAA declaration)
        - 25% probability arable
        - 19% probability fallow

Vlaanderen
is landbouw & visserij

Checks by monitoring: process



Vlaanderen
is landbouw & visserij

Holding checks – meaningful doubt

- **Based on parcel checks**
- **Different types**
  - → Eligibility
  - → Exemptions based on area
  - → Exemptions based on crops
- **If holding check is not conclusive, parcels being not conclusive (yellow) for a specific parcel check become "meaningful doubt" for that holding check.**
- **These "meaningful doubt" parcels can be sent to the next steps**
  - → calculation of "impact"
  - → Follow up (if necessary)

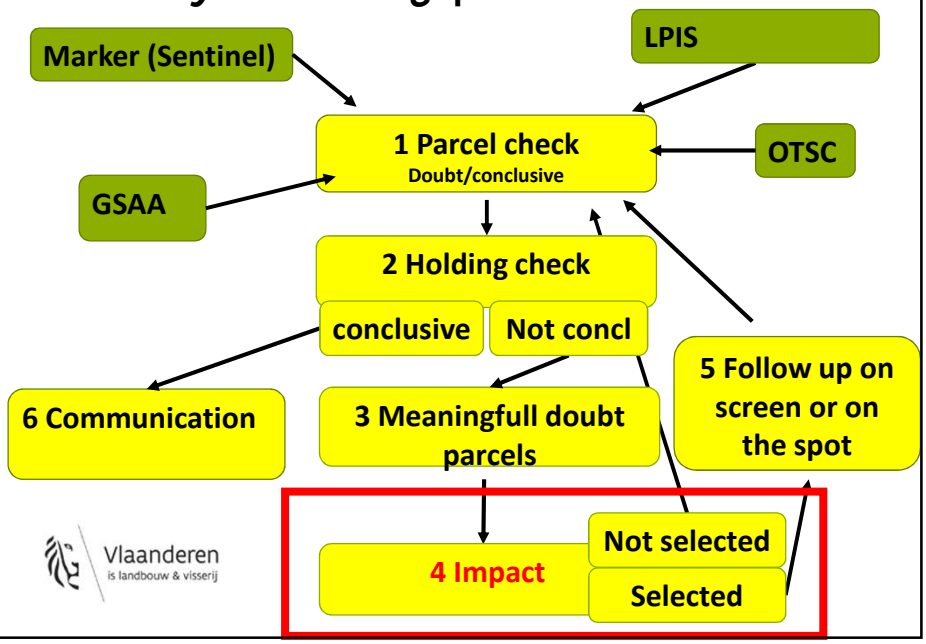
Vlaanderen
is landbouw & visserij

Step 2: Holding checks – same example

- **Check on eligible hectares (BPS, YF)**
- **59,91 PE – 59,48 ha eligible after run 2**
  - → Follow up on the spot (marker <> GSAA) for parcel 25 – potatoes = eligible
  - → 5 yellow parcels
    - × compared to PE not enough eligible parcels
    - × 5 yellow parcels flagged for follow up

Vlaanderen
is landbouw & visserij

Checks by monitoring: process



Vlaanderen
is landbouw & visserij

Calculation of the impact

- **Calculation of the financial impact of 'meaningfull doubt' parcels**
  - → Difference between eligible ha and number of PE
    - × Result = 'yellow' area ('x' ha)
  - → Calculation of financial impact = 'yellow' area ∗ added value
    - × Average value of PE (holding level)
    - × Greening (∗ 0,5076)
    - × Young farmer top up (+ €88,72 /eligible ha)
    - × PE from reserve (Flanders' average value for PE)
- **Impact <50€ - no follow up**
- **Impact between 50€ and 250€ - 5% to follow up (random)**
- **Impact > 250€ - 100% to follow up**
- **Not selected yellow parcels = GSAA landcover is accepted**

Vlaanderen
is landbouw & visserij

Calculation of the Impact - example

- Farmer has 59,91 PE
- We know 59,48 ha is eligible – difference = 0,43 ha
- Doubt = 2,29 ha

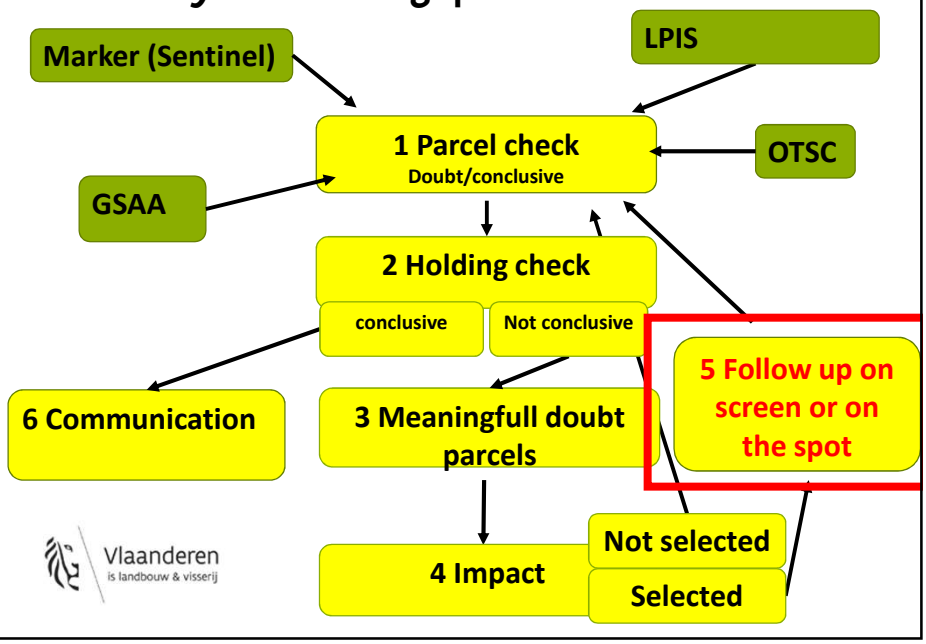
- Average PE = 203,4 €
- Young farmer top up = 88,72 €/ha
- Greening = PE * 0,5076

- Impact = Min[0,43;2,29] * (1,5076 * (203,4 + 88,72)) = €189

- Follow up = 5%

Vlaanderen
is landbouw & visserij

Checks by monitoring: process



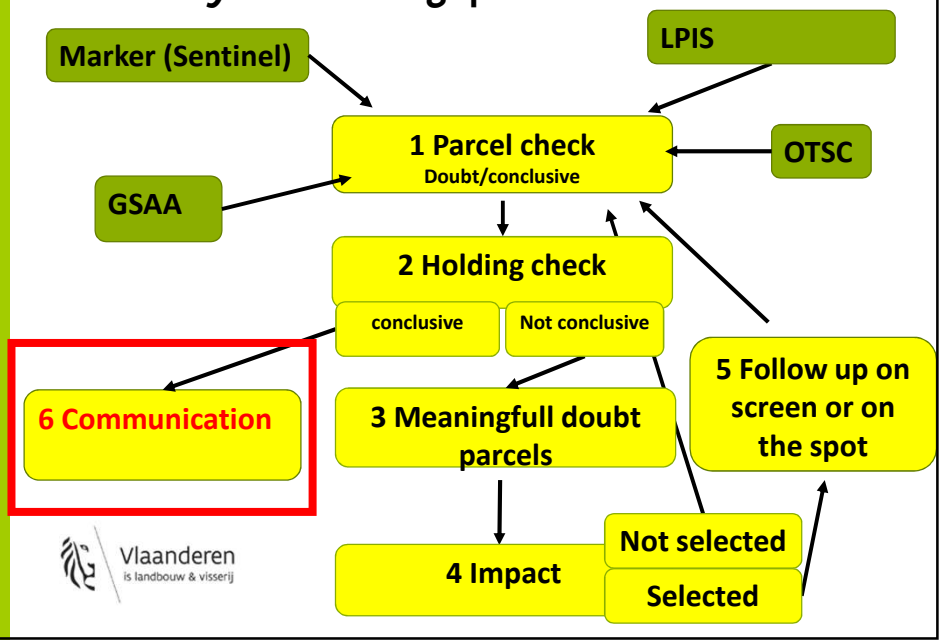
Vlaanderen
is landbouw & visserij

Follow up

- **2 "runs"**
  - → Early crops (end of June/begin July)
  - → All crops (August)
- **Follow up on screen:**
  - → Meaningful doubt parcels from 5% (random) or 100% impact
  - → Newest aerial photos
  - → Focus on eligible/arable land
- **Follow up on the spot**
  - → Still doubtful after follow up on screen
  - → Meaningful doubt for crop (for holding checks on exemptions)
  - → All parcels where marker <> declaration
- **Remark: no request for information at this stage (in 2019)**

Vlaanderen
is landbouw & visserij

Checks by monitoring: process



Vlaanderen
is landbouw & visserij

Monitoring process – communication

- **Interaction with Focus group (farmers)**
- **Wish to know all differences GSAA vs monitoring**
- **2019: one communication (October)**
- **Farmer is allowed to change GSAA – PA makes changes for the farmer**
  → If no classical OTSC occurred earlier
- **E-mail or letter – reaction if farmer doesn't agree**
  → Consequence (or not): in the letter
  → Details in GSAA online

Vlaanderen
is landbouw & visserij

Results - Checks & follow up

Monitoring result		Number of parcels
Total parcels monitored (marker)		397.292
Parcels with GSAA = marker		383.335 (96,5%)
parcels with GSAA <> marker		2.135 (0,54%)
Yellow flagged parcels – not needed for conclusive checks (eg. farmer may have more land than entitlements)		4.780 (1,2%)
Yellow flagged parcels – needed for conclusive checks	< 50 € impact at beneficiary level -> No parcels need follow-up	998 (0,25%)
	50 € to 250 € impact at beneficiary level -> 5% parcels need follow up	1.748 no follow up (0,44%) 90 follow up (0,022%)
	> 250 € at beneficiary level -> All parcels need follow up	3.881 (0,85%)

Vlaanderen
is landbouw & visserij

Results

- **1,52% of the parcels in follow – up**
  → 0,5% conclusive on screen
  → 1,02% conclusive after OTSC
- **More detailed evaluation is on-going**

Vlaanderen
is landbouw & visserij

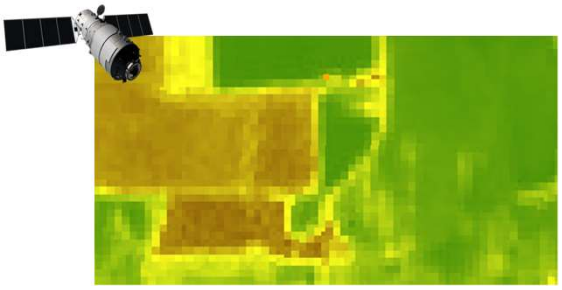
Results - Communication

Results eligibility	Number of parcels
Non-eligible after monitoring ("red parcels") – declaration changed or parcel removed from LPIS	179
Eligible after monitoring (non eligible in GSAA) – declaration changed	15
Green parcels with different crop – declaration not changed	1386
Total number of parcels through marker	397.292

Results exemptions	Number of farmers
No exemption for EFA after monitoring	6
No exemption for crop diversification after monitoring	5
Exemption for EFA after monitoring	15
Exemption for crop diversification after monitoring	19
Total number of farmers under monitoring	21450

Outline

- **Context**
- **Checks by monitoring**
  - → Process + example
  - → Results
- **Good quality LPIS?**
- **What have we learned?**



Vlaanderen
is landbouw & visserij

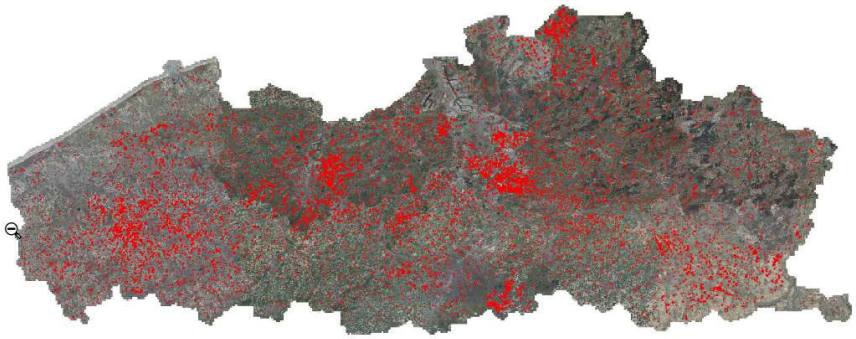
Good quality LPIS

- **Not everything visible on Sentinel!**
  - → 10m pixel size
- **Solution: automatic interpretation of aerial photos**
  - → 0,25m pixel size
- **Details -> presentation IACS workshop Valladolid**

Vlaanderen
is landbouw & visserij

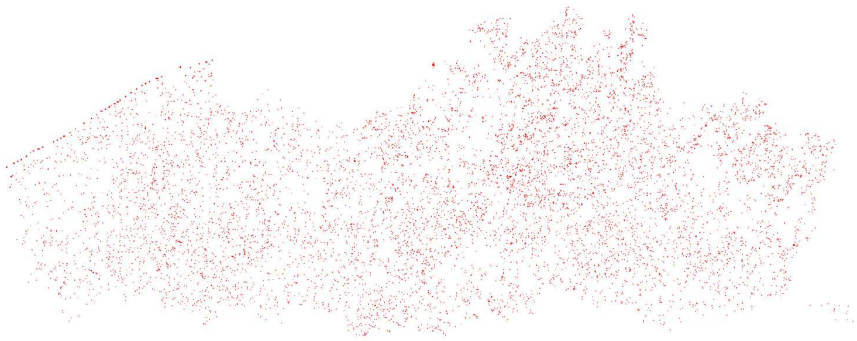
LPIS update – greenhouses

- **18.098 found**
- **Crosscheck LPIS**
  → 99,92% greenhouses in LPIS detected
  → 2300 additional LPIS parcels: greenhouse



LPIS update – horse tracks

- **13.002 found**
- **Crosscheck LPIS parcels**
  → 1336 parcels with (part of) horse track in it



LPIS update – horse tracks

- **Example**

LPIS update – fruit

- **+- 20.000 velden**
- **Crosscheck LPIS not finished**

Vlaanderen
is landbouw & visserij

LPIS update – fruit

- **Example**

LPIS update – sealed surfaces

- **Crosscheck LPIS: 18.070 parcels to check (+- 3%)**
  → ~ 80% gets update
- **ETS 2019: +- 10 parcels where impurities were evaded**

Vlaanderen
is landbouw & visserij

LPIS update – sealed surfaces

- **Examples - correct**

Vlaanderen
is landbouw & visserij

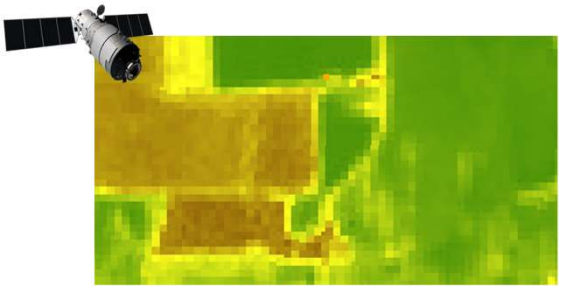
LPIS update – sealed surfaces

- **Examples – not correct**

Vlaanderen
is landbouw & visserij

Outline

- **Context**
- **Checks by monitoring**
  - → Process + example
  - → Results
- **Good quality LPIS?**
- **What have we learned?**



Vlaanderen
is landbouw & visserij

Evaluation – lessons learned

- **Interaction with non-monitoring schemes**
  - → LPIS-area - Classical OTSC - AEM on same parcel: no change possible
    - × Difficult to explain to farmer!
    - × Only changes made by PA where possible and necessary
- **Monitoring + LPIS update!**
  - → Not everything visible from satellite -> AI to the rescue!
- **Learning as we go**
  - → Tree nurseries: many on screen in run 1, added to marker in run 2
  - → Permanent crops: will be added to marker in 2020
- **Elements for success**
  - → Reuse existing 'IT architecture'
    - × Checks: new algorithms but existing methods
    - × Follow up on screen: QA selections based on checks
    - × Follow up on the spot: existing system for transferring to OTS application
  - → Excellent cooperation with our own IT department

Vlaanderen
is landbouw & visserij

Questions(?)

Kristof.Vanoost@lv.vlaanderen.be
Pieter.Roggemans@lv.vlaanderen.be

DEPARTEMENT
LANDBOUW
& VISSERIJ