Sen4CAP – A Learning Process

| CzechAgri 2015/16 | Request Jan 2017 | Sen4CAP KO 2017 | EU Parliament 2017 | User Consultation 2017 |

DG-Agri & Grow Letter

| 1st Evidence March 2018 | Checks by Monitoring May 2018 | 1st Demonstration Results from 2018 +2019 +2020 |

Use Cases with Paying Agencies

THE EUROPEAN SPACE AGENCY

Sen4CAP – Expertise, Technology & Collaboration

esa

Copernicus

Paying Agencies

European Commission

Steering Committee

DG-Agri, JRC, DG-DEFIS

esa

EO Experts

UCL Université catholique de Louvain   e-geos ROMANIA AN ASI / TELESPAZIO COMPANY   gisat   SINERGISE

Open Source

sen4cap
common agricultural policy

Cloud Technology (DIAS)

Continuous Monitoring

Validated Performance

National Demonstration

Innovative Practices

CAP Reform

Sen4CAP - Space Technology meets EU Policy

2017 – High Expectations

Commissioner P. Hogan: "…ESA has launched a tender Sen4CAP which will provide us useful knowledge and further possibilities on how we use Sentinel data in the context of the CAP …"

2020 – European Court of Auditors Special Report

SPAIN
Ten paying agencies

ANDALUSIA (3 municipalities)
BPS, VCS Cotton

ARAGON
SFS

CASTILE AND LEON (2 agr. regions)
BPS, Greening, SFS, YFS, VCS

CATALONIA (3 agr. regions)
VCS rice

EXTREMADURA (2 municipalities)
BPS

GALICIA (1 municipality)
BPS

MADRID (4 municipalities)
BPS

MURCIA (3 municipalities)
BPS, VCS Rice

NAVARRA (4 municipalities)
BPS

VALENCIA (2 municipalities)
BPS, SFS, Greening, VCS Nuts

DENMARK
One paying agency

WHOLE COUNTRY
BPS, Areas with natural constraints, Greening (small subpopulation), YFS

Member State officially applying checks by monitoring in 2019

Member State not officially applying checks by monitoring in 2019

Member State participating in the Sen4CAP project

BELGIUM
One paying agency

FLANDERS
BPS, Greening (small subpopulation), YFS

MALTA
One paying agency

WHOLE COUNTRY
VCS Tomatoes

ITALY
Two paying agencies

PUGLIA (Foggia and Bari)
BPS, YFS

LAZIO (Viterbo)
BPS, YFS, VCS Durum Wheat and Leguminous Crops

FRIULI VENEZIA GIULIA (Pordenone)
BPS, YFS

CALABRIA (Cosenza and Crotone)
BPS, YFS, VCS Durum Wheat and Leguminous Crops

Use of checks by monitoring and participation in the Sen4CAP project in 2019

Source: ECA based on information obtained from the Commission and visited Member States

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Sen4CAP: An European Effort to prepare for CAP monitoring

- Open & operational Sentinel time series enable CAP monitoring approach
- Interaction with PA operations for IACS implementation essential
- Sen4CAP tools support automated, E2E monitoring at large scale
- Cloud computing on DIAS allows for national to European up-scaling
- Open source approach for direct and customizable uptake & sharing
- Hand in hand demonstration in 2019/20 together with Paying Agencies
- Ongoing process: use by H2020 NIVA project & EO service providers
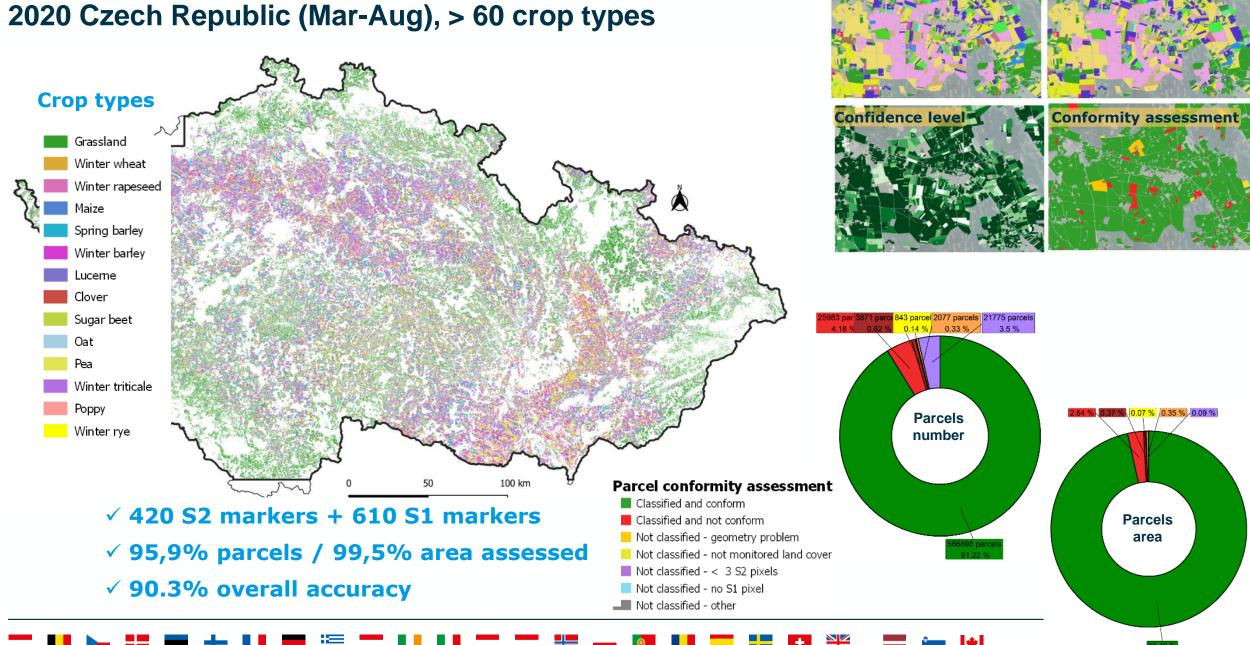- ESA will maintain the Sen4CAP tool on the Agricultural Virtual Lab

7 countries
635.000 km²
>15 Millions parcels
>20 Paying Agencies engaged
Continuous R&D process

sen4cap
common agricultural policy
http://esa-sen4cap.org

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Workshop Agenda – Day 1

OPENING SESSION	
9h00-9h20	o Welcome addresses and meeting objectives
9h20-9h50	o Achievements of the Sen4CAP project
1st SESSION: Success Stories and lessons learnt from Sen4CAP Pilot Countries (short presentation + questions)	
9h50-11h00	Pilot countries experience with Sen4CAP
	o Netherlands Paying Agency
	o Lithuanian Paying Agency
	o Castilla y Leon (Spain) Paying Agency
	o France Paying Agency, linking with NIVA project
	Open discussion
Coffee break	
2nd SESSION: Sen4CAP uptake by external users (short presentation + questions)	
11h30-12h30	External users experience with Sen4CAP
	o Poland
	o Sweden
	o Germany
	Open discussion
3rd SESSION: Outlook and Discussion	
12h30-13h30	o The way to move forward - Opportunities for a Sen4CAP community
	o Feedback from Steering Committee (DG-Agri, JRC, DEFIS) and open discussion
	o Concluding remarks

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National crop type map
2020 Czech Republic (Mar-Aug), > 60 crop types

Crop types

- Grassland
- Winter wheat
- Winter rapeseed
- Maize
- Spring barley
- Winter barley
- Lucerne
- Clover
- Sugar beet
- Oat
- Pea
- Winter triticale
- Poppy
- Winter rye

✓ **420 S2 markers + 610 S1 markers**

✓ **95,9% parcels / 99,5% area assessed**

✓ **90.3% overall accuracy**

Declared crop type

Predicted crop type

Confidence level

Conformity assessment

Parcel conformity assessment

- Classified and conform
- Classified and not conform
- Not classified - geometry problem
- Not classified - not monitored land cover
- Not classified - < 3 S2 pixels
- Not classified - no S1 pixel
- Not classified - other

Parcels number

- 25983 par 4.18 %
- 3871 parcel 0.62 %
- 843 parcel 0.14 %
- 2077 parcels 0.33 %
- 21775 parcels 3.5 %
- 566898 parcels 91.22 %
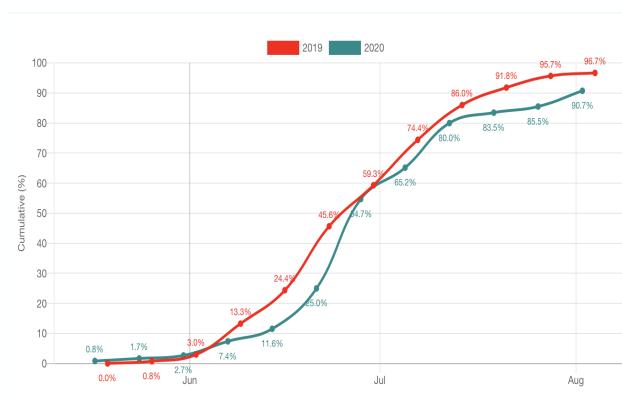
Parcels area

- 2.64 %
- 0.37 %
- 0.07 %
- 0.35 %
- 0.09 %
- 96.49 %

COVID19 Impact on Agricultural Production

- Regional statistics of winter cereal harvesting, Spain 2020 – updated weekly

COVID19 EO Dashboard: https://race.esa.int/?poi=ES41-E10a7

Sen4CAP Extension 2020

- Interest from all 7 engaged Paying Agencies (ESA received emails)

- DG Agri and ESA exchanged letters for agreeing on 2020 extension

Priorities for 2020:

- Demonstration and **validation of reliable use cases**

defined and conducted together with involved Paying Agencies

- **Transfer of the open source Sen4CAP system** capable of running on the DIASes to interes[...] Agencies.

- **Development of additional algorithms** to further prepare the

uptake of Copernicus observations in the upcoming Area Monitoring System.

- Continuous collaboration with DG-AGRI, JRC and DG-GROW as part of the Sen4CAP steering group

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Sen4CAP 2020 extension - Activities

- National demonstrations

  - mainly running **with** (transfer!) Paying Agencies (NLD, ES, ITA, FR)

- Capacity Building & Transfer

  - Hands-on trainings (next at Panta Rhei)

  - User forum – active interface with experts

  - Dedicated support for NIVA for Sen4CAP transfer (received letter)

- Technical development

  - New algorithm development – tillage indicator

  - System update – Improved modularity, Interfaces, cloud transferability

  - Update national regulations

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