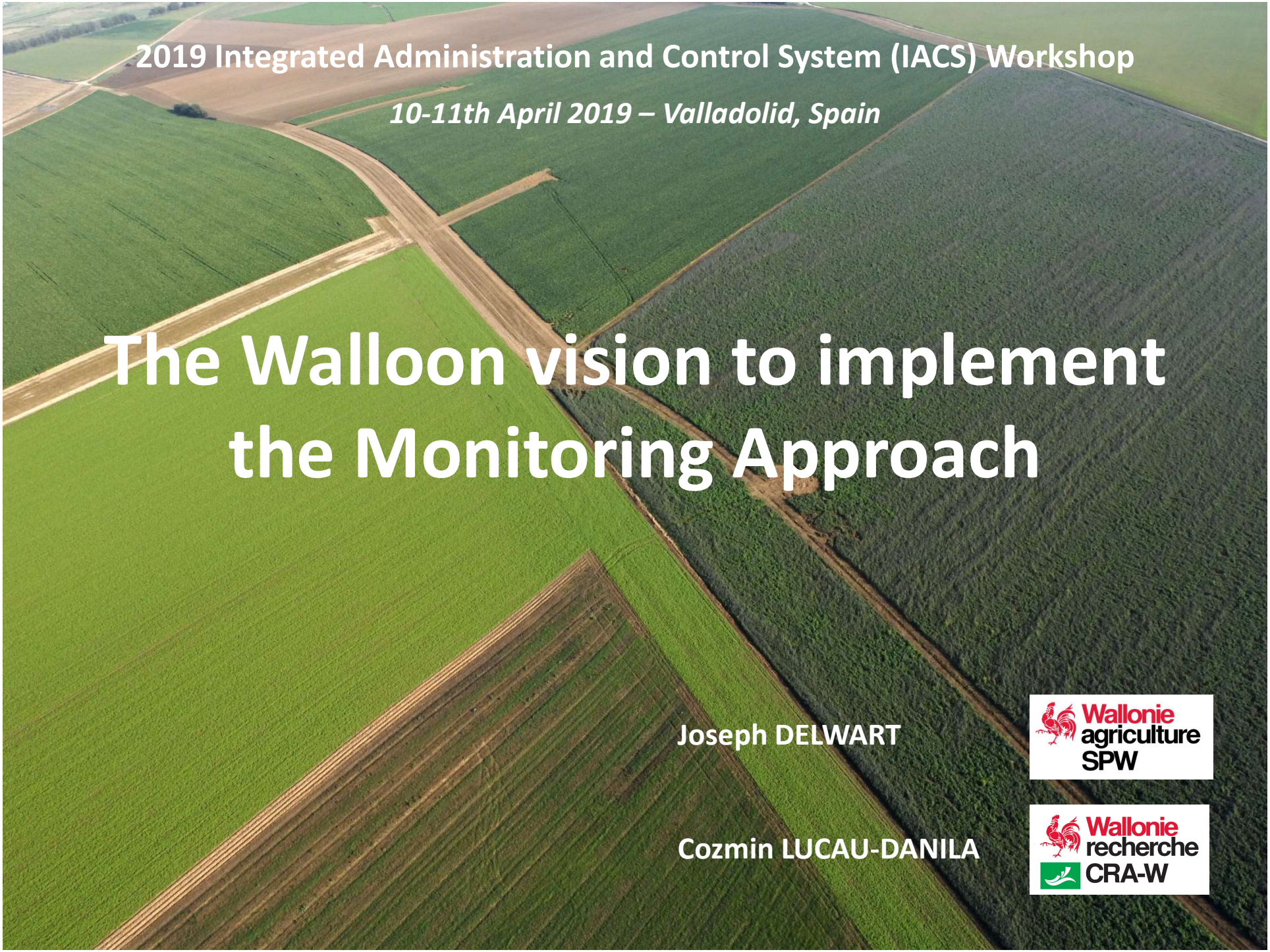


2019 Integrated Administration and Control System (IACS) Workshop

10-11th April 2019 – Valladolid, Spain

The Walloon vision to implement the Monitoring Approach

Joseph DELWART

Cozmin LUCAU-DANILA

Wallonie agriculture SPW

Wallonie recherche CRA-W

OVERVIEW

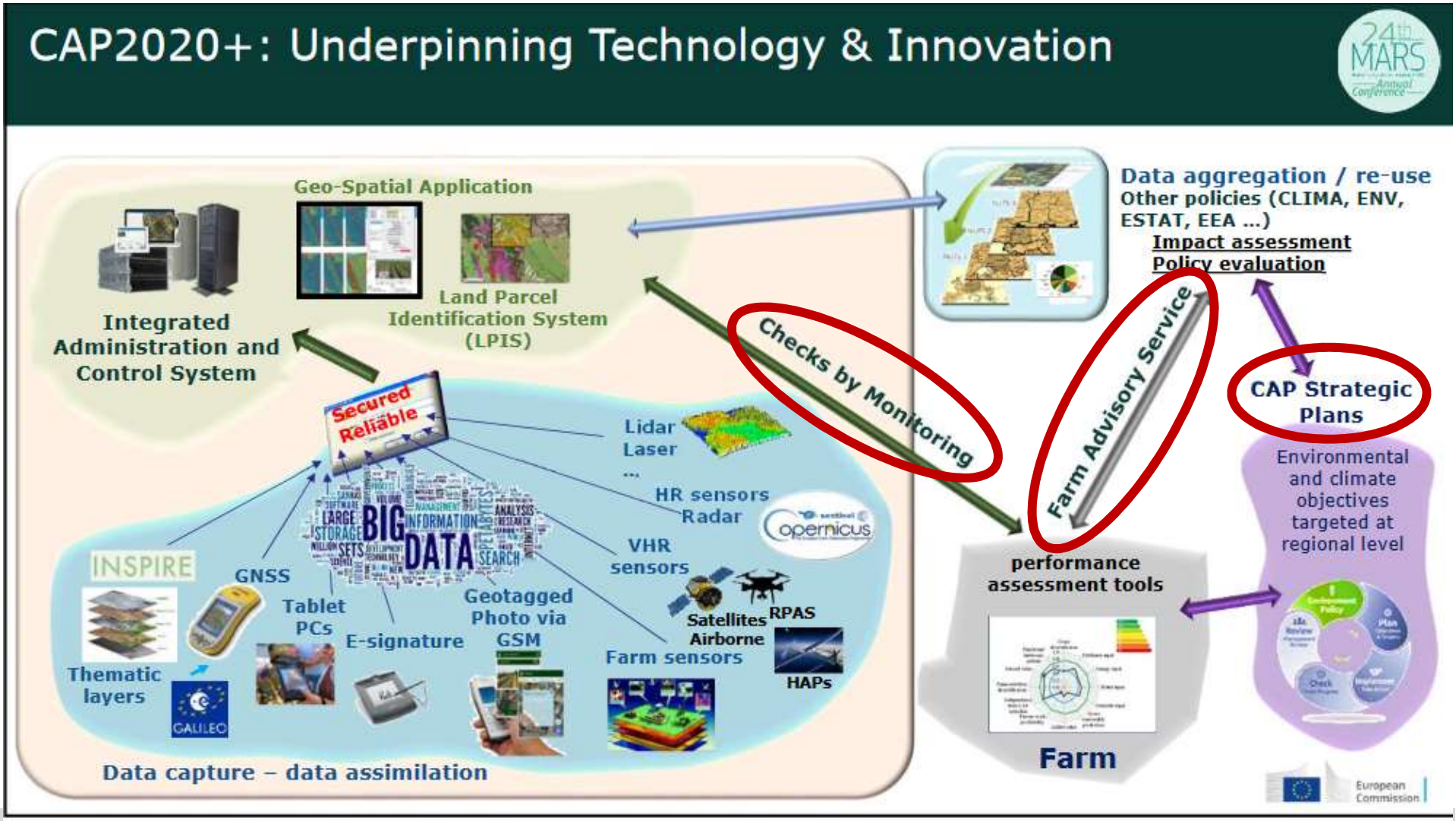
1. Context
2. Walloon Paying Agency (OPW)
3. The overall methodology for implementation of monitoring approach in Walloon Region
4. Conclusions and perspectives

OVERVIEW

1. **Context**
2. Walloon Paying Agency (OPW)
3. The overall methodology for implementation of monitoring approach in Walloon Region
4. Conclusions and perspectives

1. CONTEXT

Implementing Monitoring Approach



1. CONTEXT

Implementing Monitoring Approach

(from policy to practice)

Inputs for *Strategic Plan* to be prepared

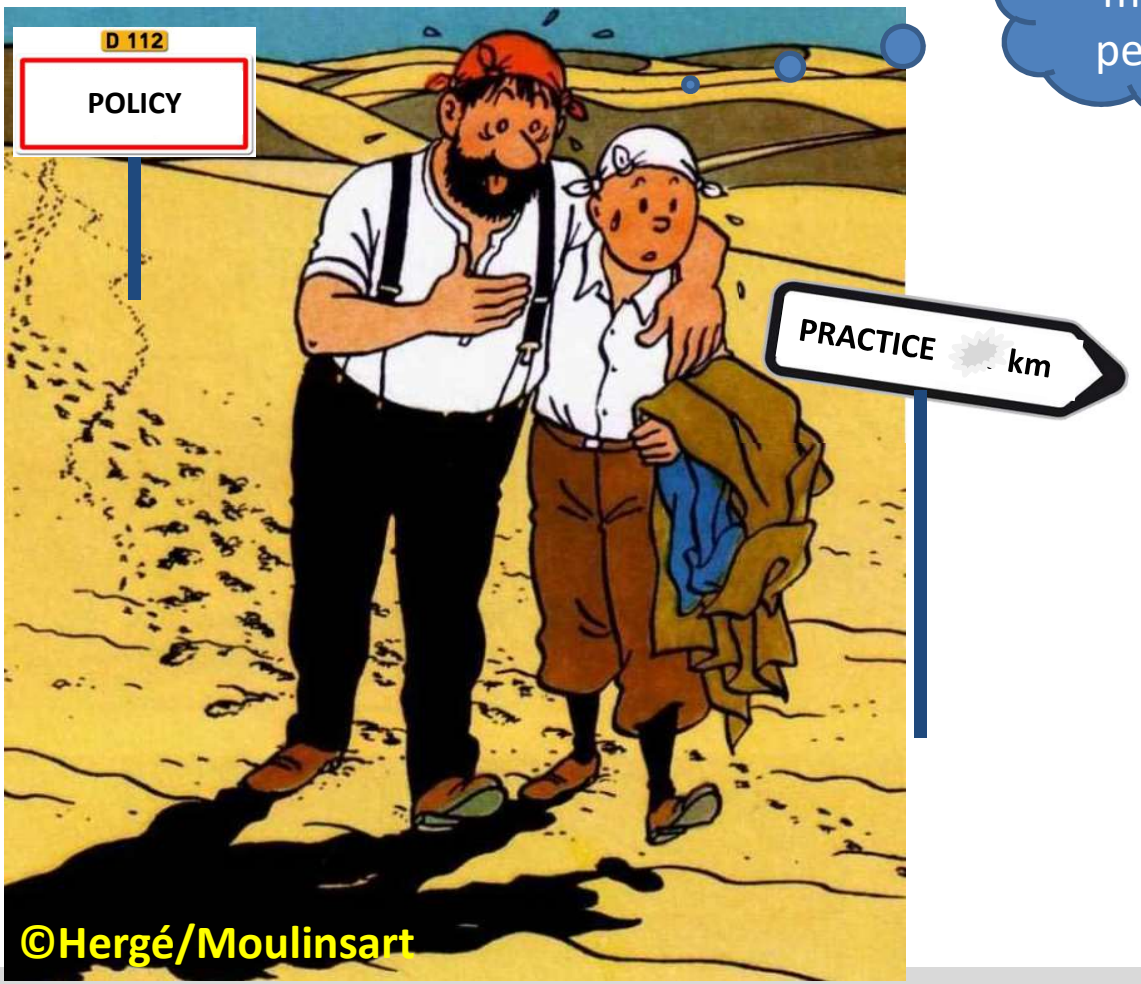
Specific technical and organizational aspects

1. CONTEXT

Implementing Monitoring Approach

(from policy to practice)

Practice makes perfect



OVERVIEW

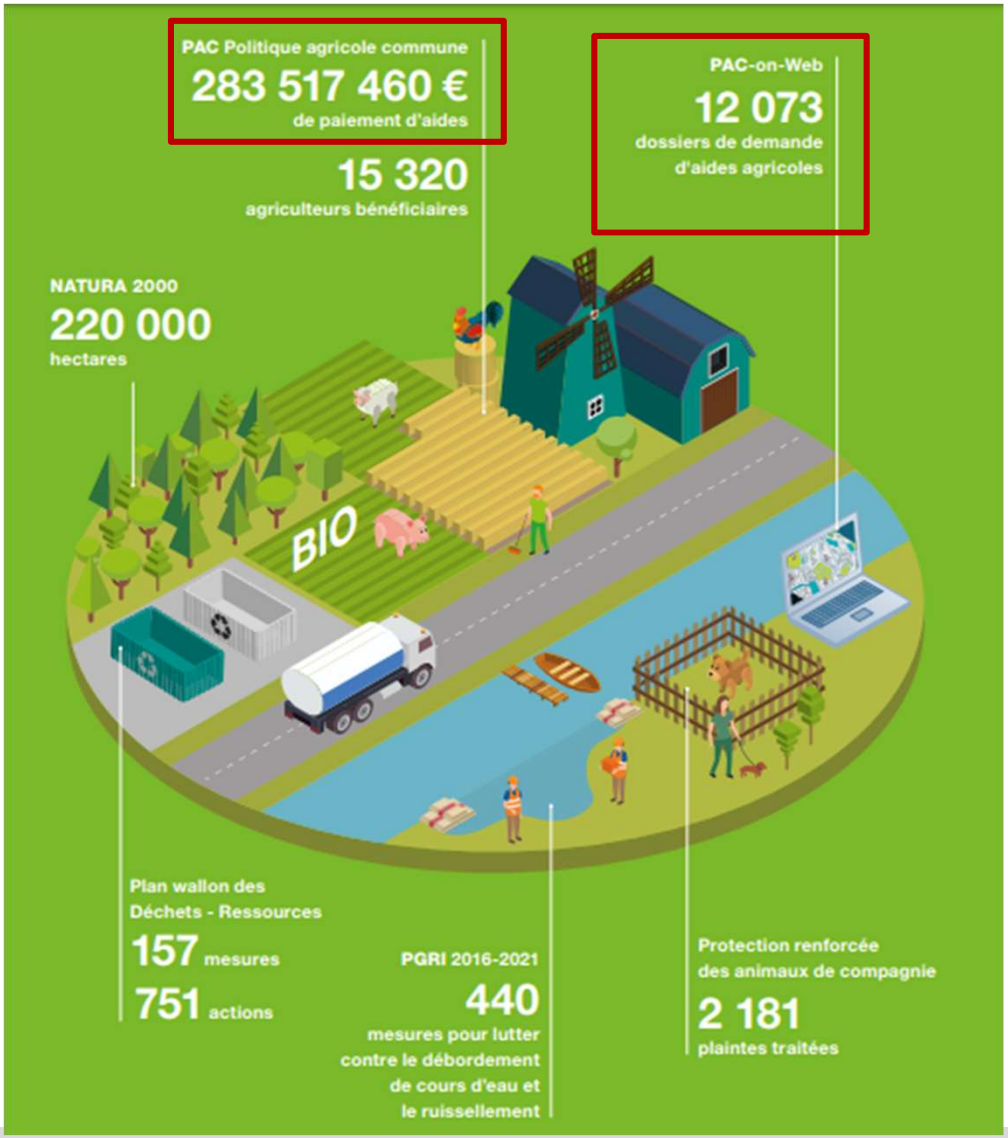
1. Context

2. **Walloon Paying Agency (OPW)**

3. The overall methodology for implementation of monitoring approach in Walloon Region

4. Conclusions and perspectives

2. Walloon Paying Agency (OPW)



2018

Number of declared parcels : 280 624

Total declared areas : 763 430 ha

Permanent grasslands: 325 000 ha (42.5 %)

OVERVIEW

1. Context

2. Walloon Paying Agency (OPW)

3. **The overall methodology for implementation of monitoring approach in Walloon Region**

4. Conclusions and perspectives

3. The overall methodology for implementation of monitoring approach in Walloon Region

DUBROVNIK

2018 2019

The wor

conferences

JRC, AGRI, P

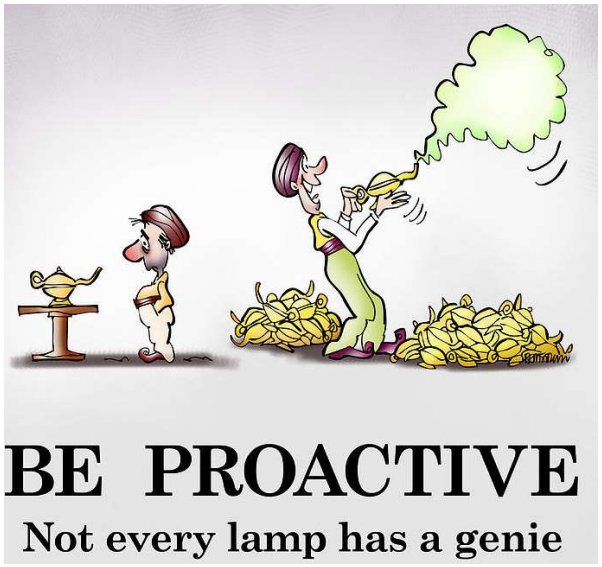
helpf

Wallonie agriculture SPW

stration and Control System (IACS)
Workshop

10-11 April 2019 - Valladolid

3. The overall methodology for implementation of monitoring approach in Walloon Region



JRC, AGRI

SERVICE PROVIDERS

PAs

DUBROVNIK

meetings

exchanges

PUMA

Pour
Un
Monitoring
Agile

2018

2019

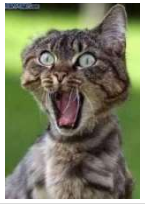
Pilot test ?

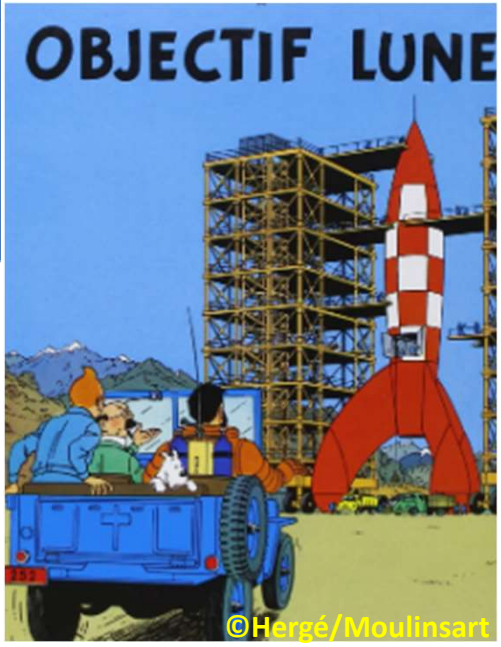
Directly on operational monitoring ?

1-st pillar only ?

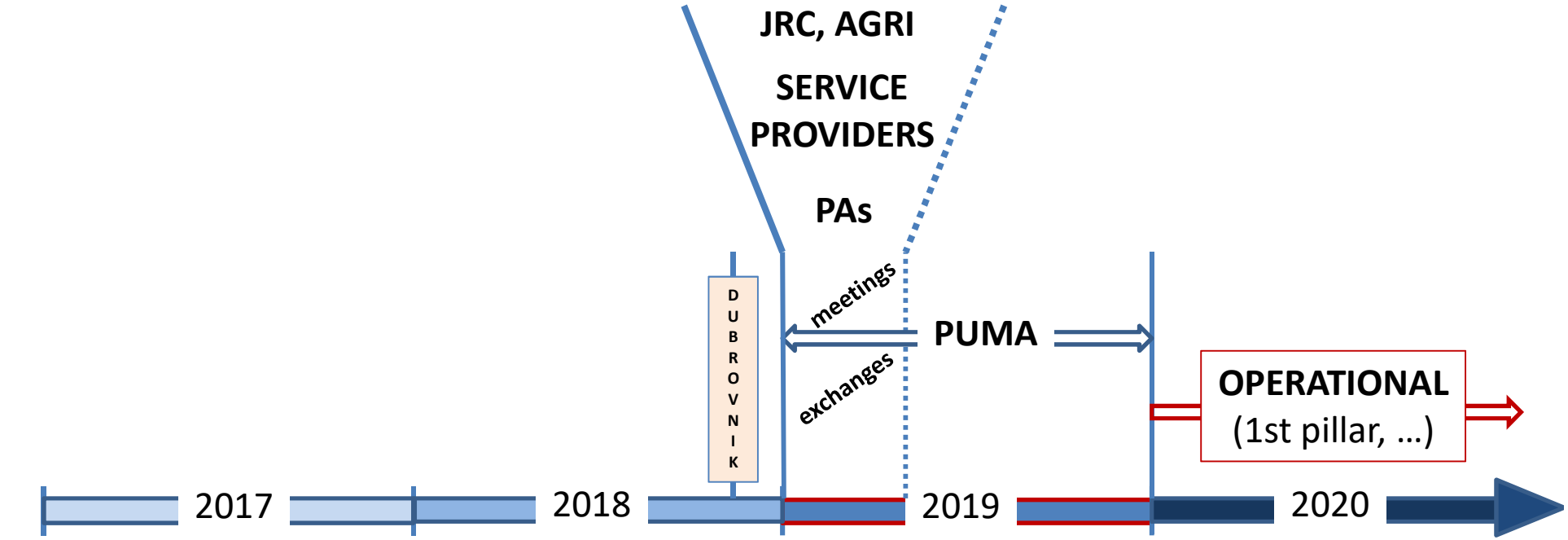
Waiting for more ….experiences, guidelines, … ?

2-nd pillar ?





3. The overall methodology for implementation of monitoring approach in Walloon Region



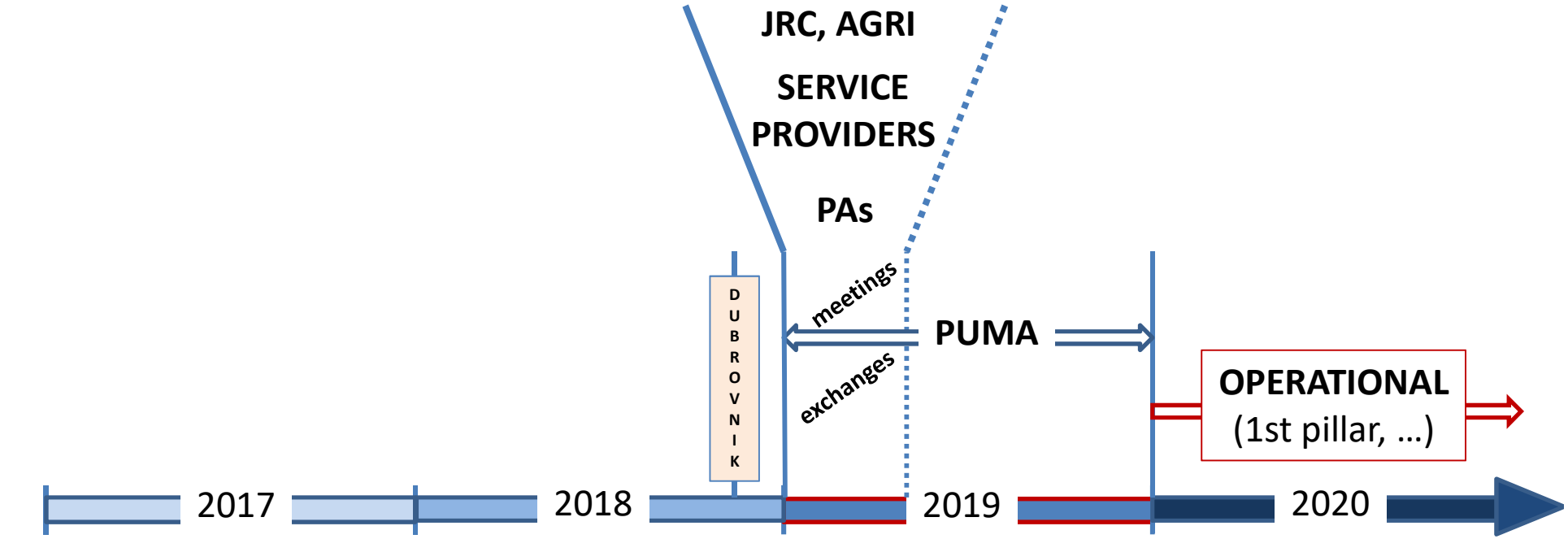
1. Applied research

Satellite time series images (S1, 2)

CRA-W : S A G R I W A S E N T project

- Change detection (→ FOI)
- Crop identification (→ crop rotation)
- Following of agricultural works (→ «monitoring» …. partial)

3. The overall methodology for implementation of monitoring approach in Walloon Region



1. Applied research

Satellite time series images (S1, 2)

CRA-W : S A G R I W A S E N T project

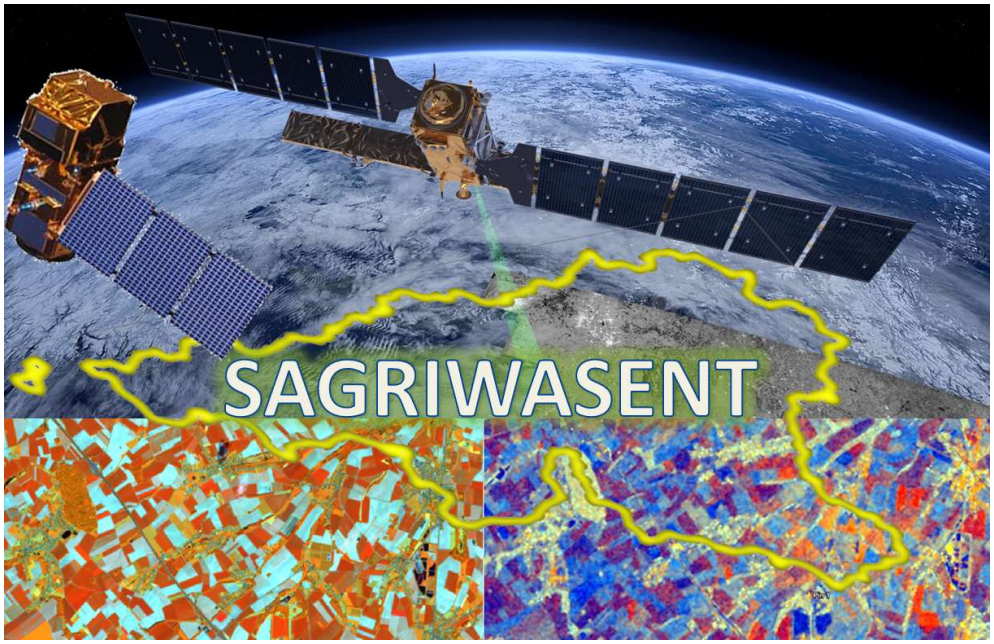
- Change detection (→ FOI)
- Crop identification (→ crop rotation)
- Following of agricultural works (→ «monitoring» …. partial)

2. Consulting
(internal organisation, external partners, …)

Gartner

3. The overall methodology for implementation of monitoring approach in Walloon Region

APPLIED RESEARCH – CRA-W



2017 - 2020

Change detection (→ FOI … «LPIS update»)

Crop identification (→ crop rotation)

Following of agricultural works (→ «monitoring» …. partial)

3. The overall methodology for implementation of monitoring approach in Walloon Region

APPLIED RESEARCH – CRA-W

1. Change detection (→ FOI … «LPIS update»)

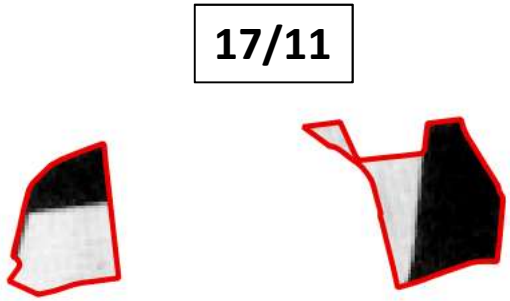
Object based analysis (parcel / FOI)

(-Temporal evolution
-Classification
-…..)

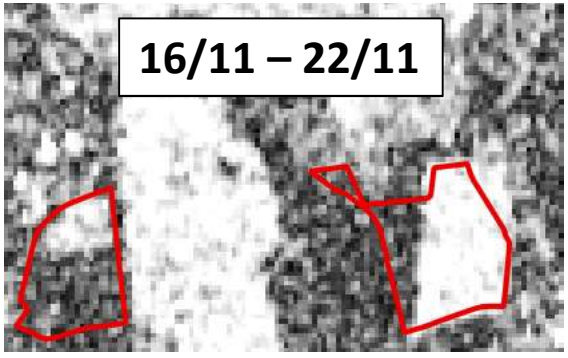
Homogeneity of objects !

Winter/spring crops !
Catch crops !
…

S2 (NDVI)



S1 (coherence)



3. The overall methodology for implementation of monitoring approach in Walloon Region

APPLIED RESEARCH – CRA-W

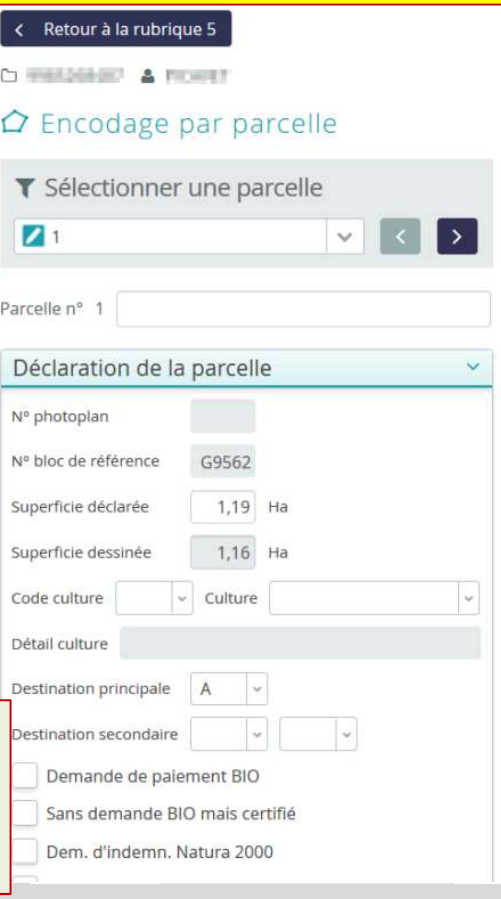
During the 2019 GSAA, the walloon farmers have a first « contact » with the monitoring approach

As research results

Segmentation done !!

New objects

LPIS «update» (to be updated on ortho)



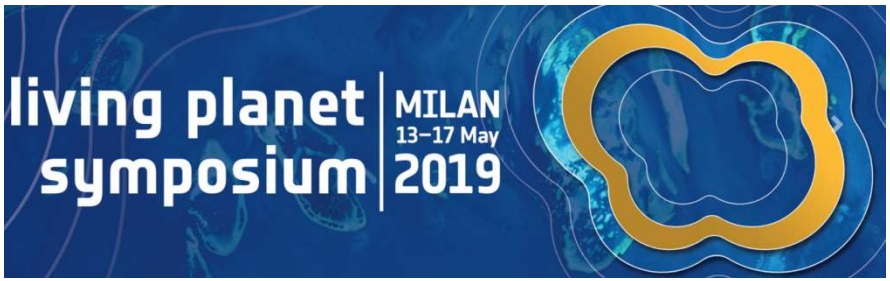
3. The overall methodology for implementation of monitoring approach in Walloon Region

APPLIED RESEARCH – CRA-W

1. **Change detection (→ FOI … «LPIS update»)**
2. **Crop identification (→ crop rotation)**

RANDOM FOREST
Object based
Crop type / crop group
Index of confidence
S1 (+ S2)
Parcel (FOI) size impact !
OA > 0.94 for 2018 season

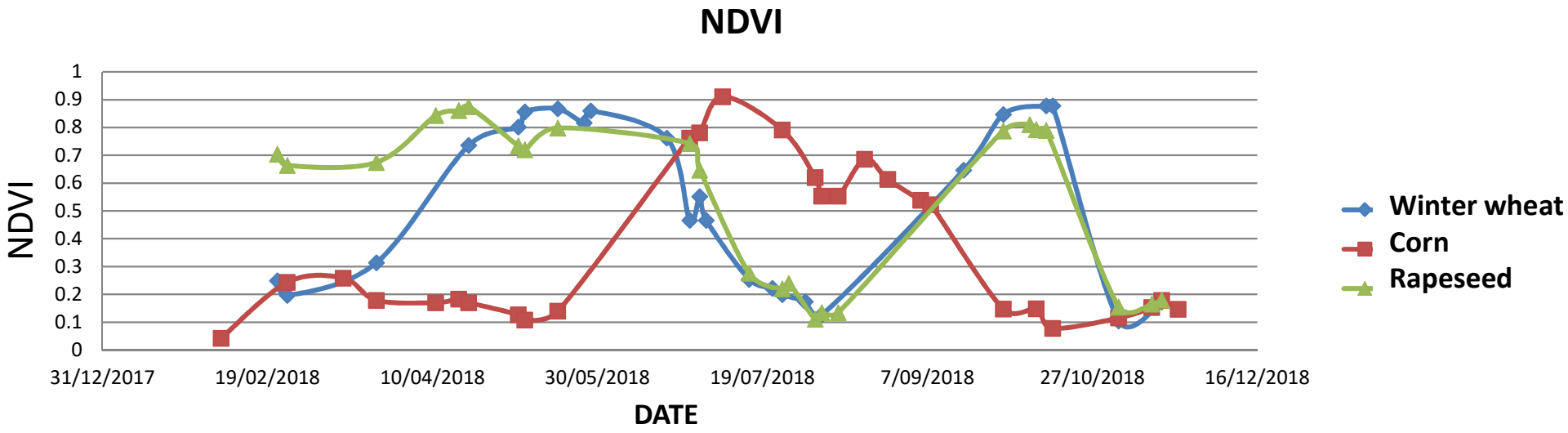
1. → **Poster**
2. → **Presentation**



3. The overall methodology for implementation of monitoring approach in Walloon Region

APPLIED RESEARCH – CRA-W

1. Change detection (→ FOI … «LPIS update»)
2. Crop identification (→ crop rotation)
3. Following of agricultural works (→ «monitoring» …. partial)

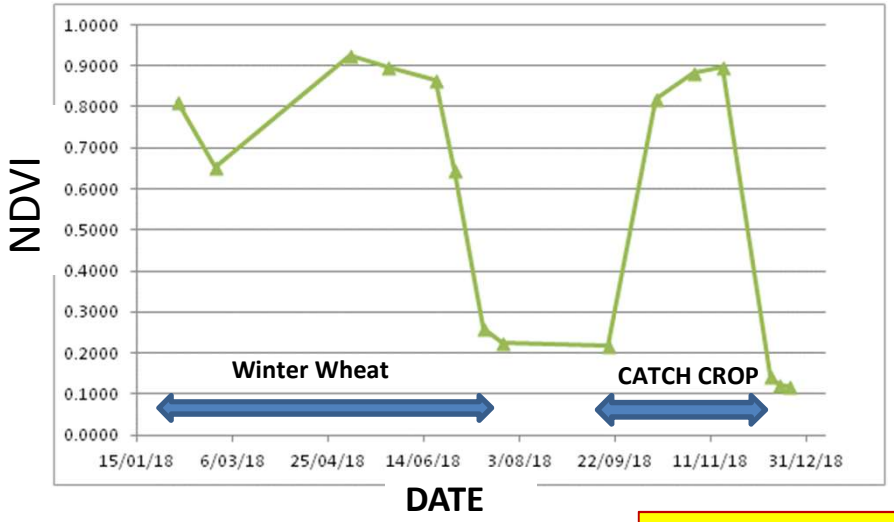


3. The overall methodology for implementation of monitoring approach in Walloon Region

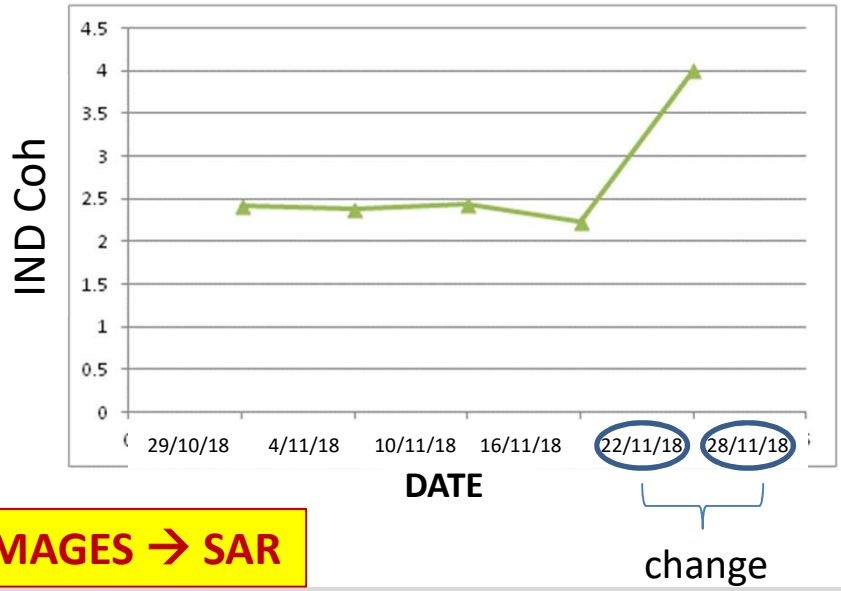
APPLIED RESEARCH – CRA-W

1. Change detection (→ FOI … «LPIS update»)
2. Crop identification (→ crop rotation)
3. Following of agricultural works (→ «monitoring» …. partial)

Temporal evolution NDVI S2



S1 coherence product

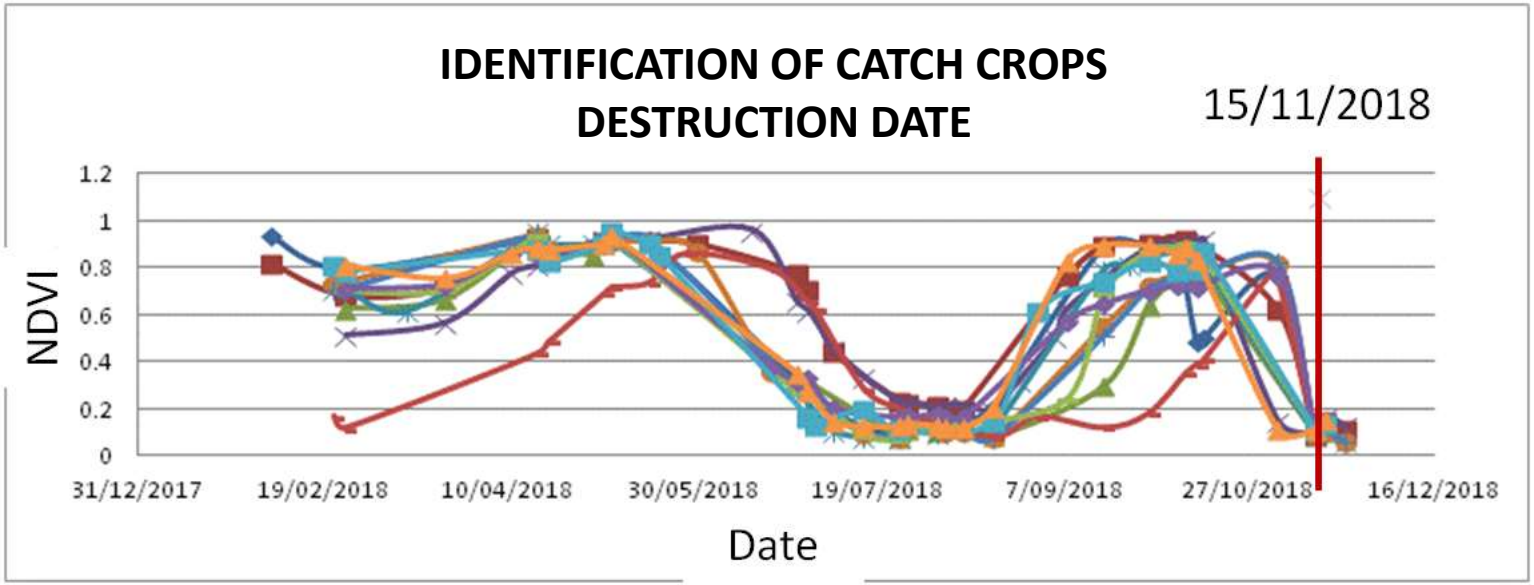


NO OPTICAL IMAGES → SAR

3. The overall methodology for implementation of monitoring approach in Walloon Region

APPLIED RESEARCH – CRA-W

1. Change detection (→ FOI … «LPIS update»)
2. Crop identification (→ crop rotation)
3. Following of agricultural works (→ «monitoring» partial)



3. The overall methodology for implementation of monitoring approach in Walloon Region

APPLIED RESEARCH – CRA-W

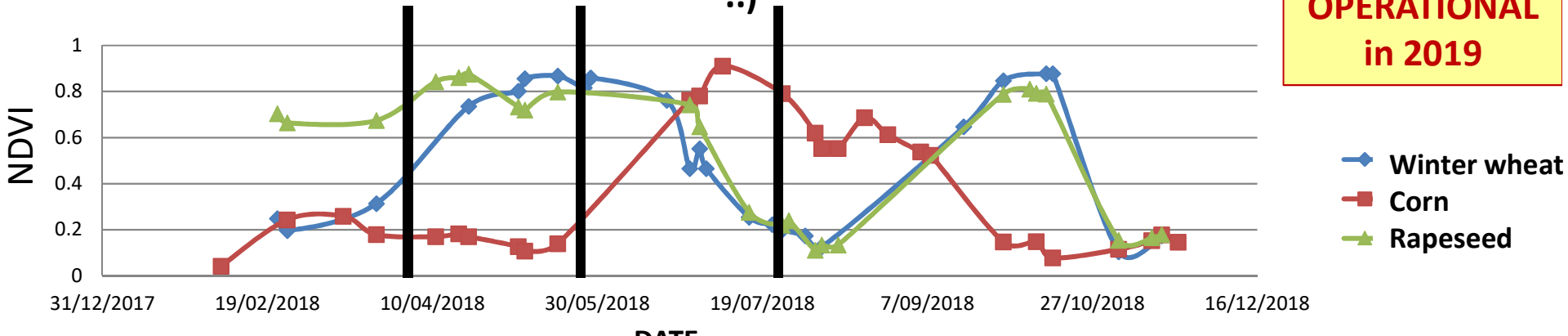
TESTED in 2018

1. Change detection (→ FOI … «LPIS update»)
2. Crop identification (→ crop rotation)
3. Following of agricultural works (→ «monitoring» partial)

WR

OPERATIONAL in 2019

TEMPORAL EVOLUTION OF NDVI (COHERENCE, BACKSCATTERING COEFF, ..)



Testing parcels homogeneity !!!!!

Classif 1 | Classif 2 | Classif 3

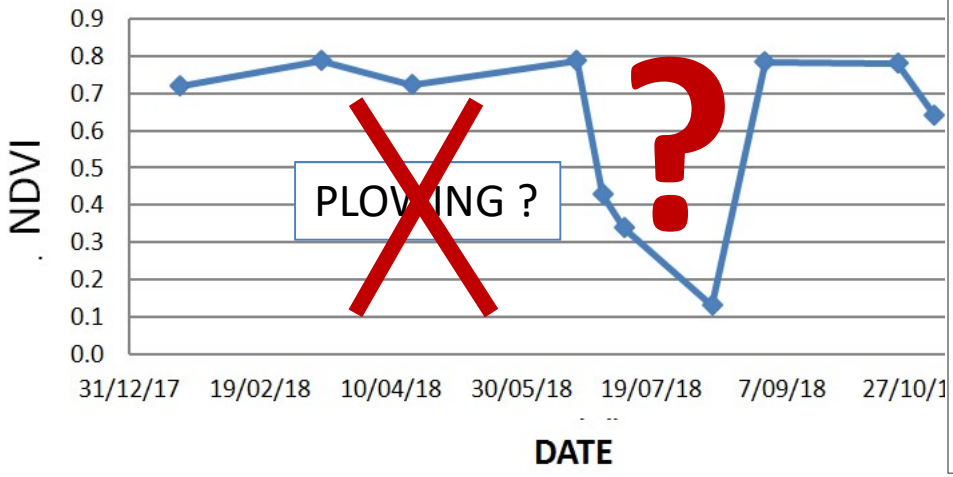
3. The overall methodology for implementation of monitoring approach in Walloon Region

APPLIED RESEARCH – CRA-W

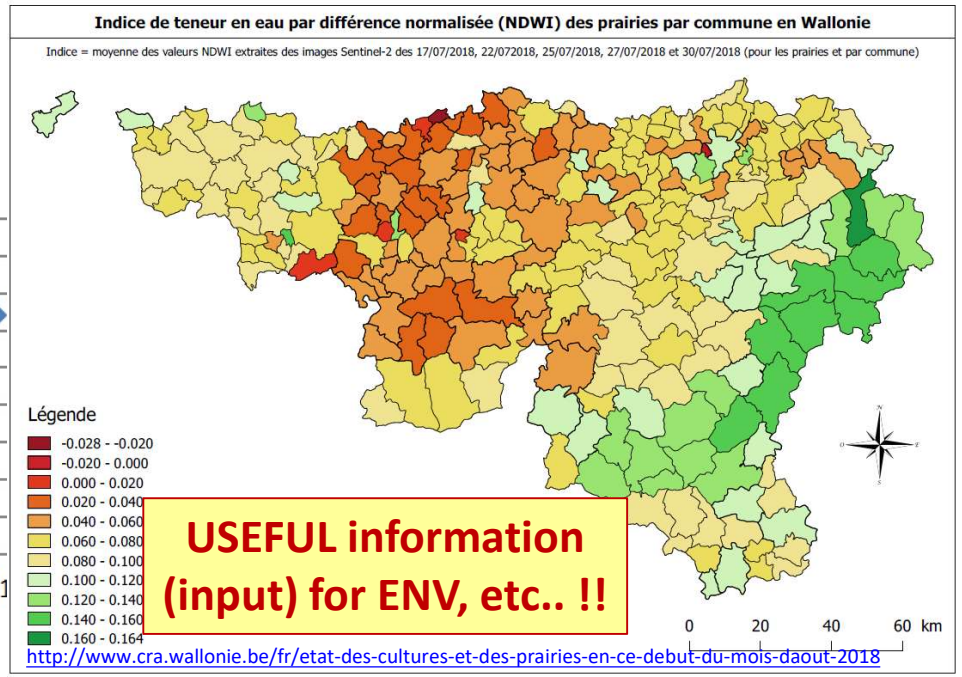
Knowledge of regional → local specific conditions (agricultural practices, wheater, etc…) …. very important !!!

EX. : checking the permanent grasslands conditions in 2018 …..

Temporal evolution NDVI S2 (permanent grassland)



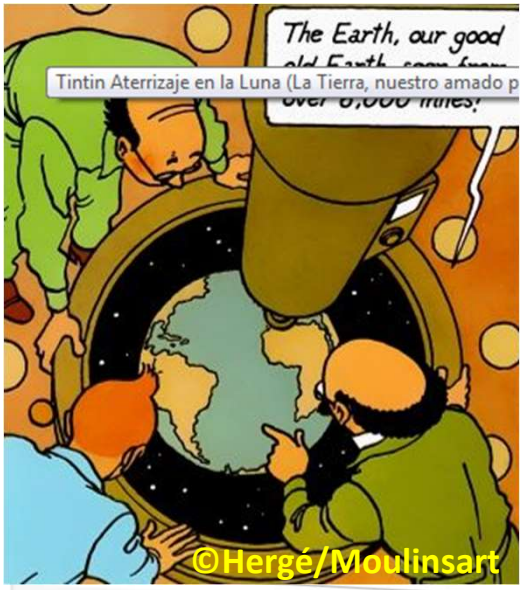
Drought conditions (permanent pastures, Wallonia – July 2018)



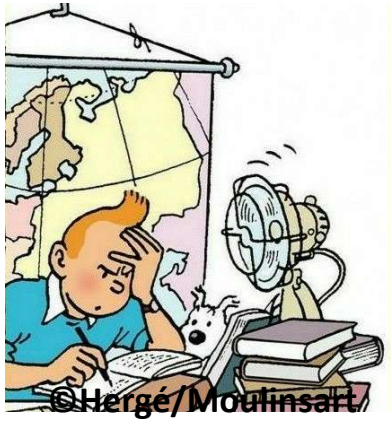
USEFUL information (input) for ENV, etc.. !!

http://www.cra.wallonie.be/fr/etat-des-cultures-et-des-prairies-en-ce-debut-du-mois-daout-2018

3. The overall methodology for implementation of monitoring approach in Walloon Region

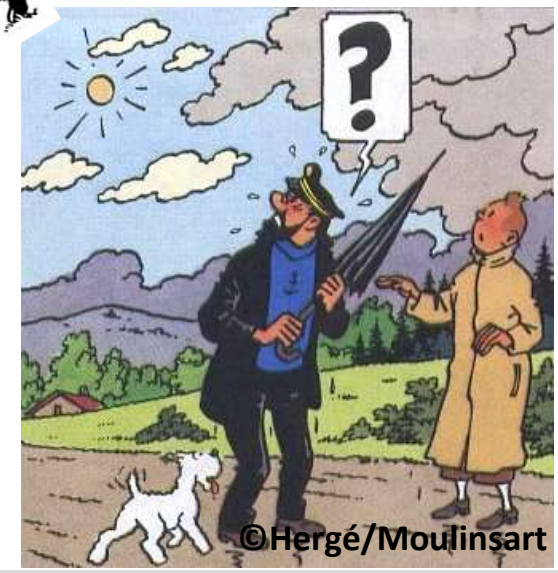


"HISTORICAL TECHNICAL SOLUTIONS"

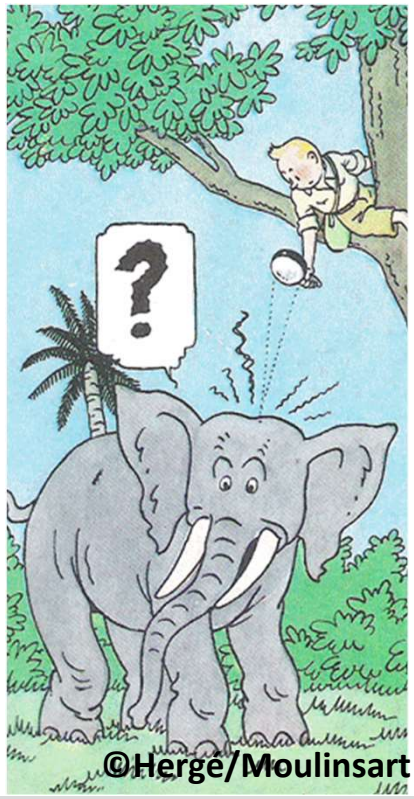


NO «PROBLEM»

TOO CLOUDY ….



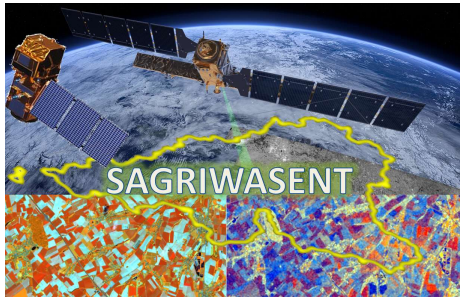
TOO SMALL …



3. The overall methodology for implementation of monitoring approach in Walloon Region

CONSULTING - GARTNER

A
CONCEPTUAL PILOT



Works done in the framework of SAGRIWASENT research project

Fully covering Wallonia

To be continued/adapted

B
AUTOMATION PILOT

Automation of all (pre)processing chain

Traffic lights + different indices

Integration with actual IT system

Only over a test area in 2019

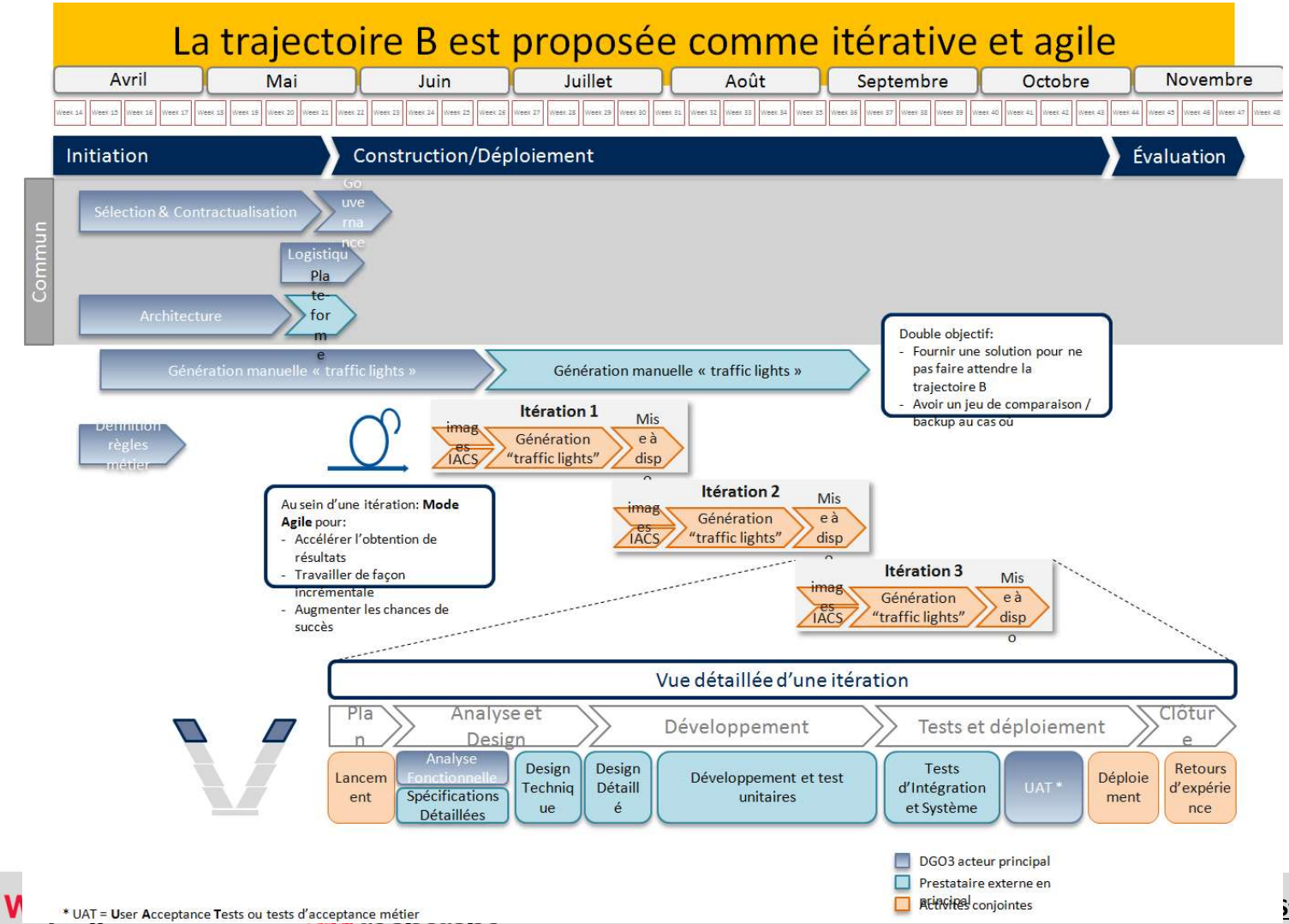
C
INTERACTION PILOT

Interaction with a sample of farmers from test area

Testing the geotagged photos

3. The overall methodology for implementation of monitoring approach in Walloon Region

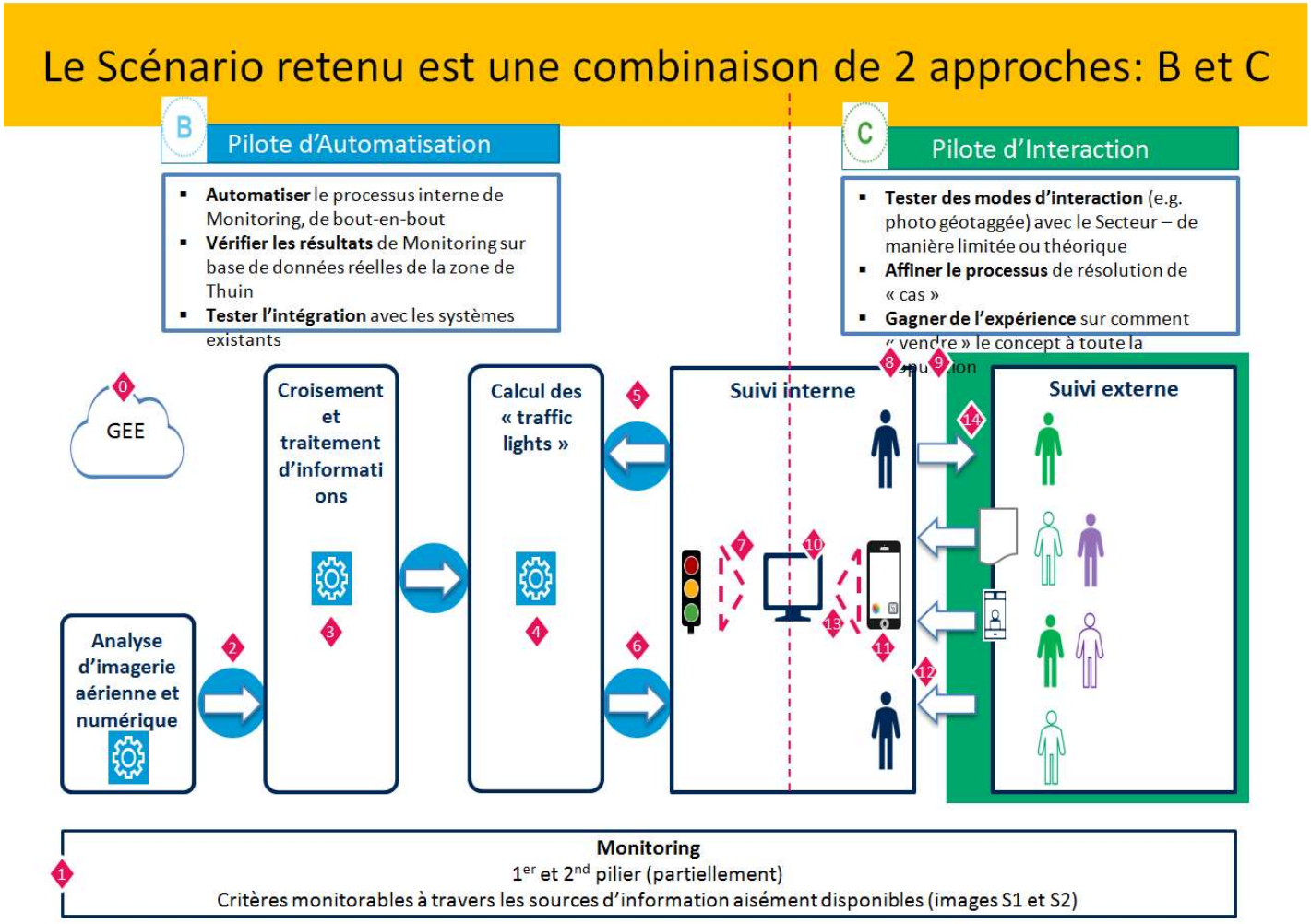
CONSULTING - GARTNER



* UAT = **U**ser **A**cceptance **T**ests ou tests d'acceptance métier

3. The overall methodology for implementation of monitoring approach in Walloon Region

CONSULTING - GARTNER



3. The overall methodology for implementation of monitoring approach in Walloon Region

2019 - PUMA

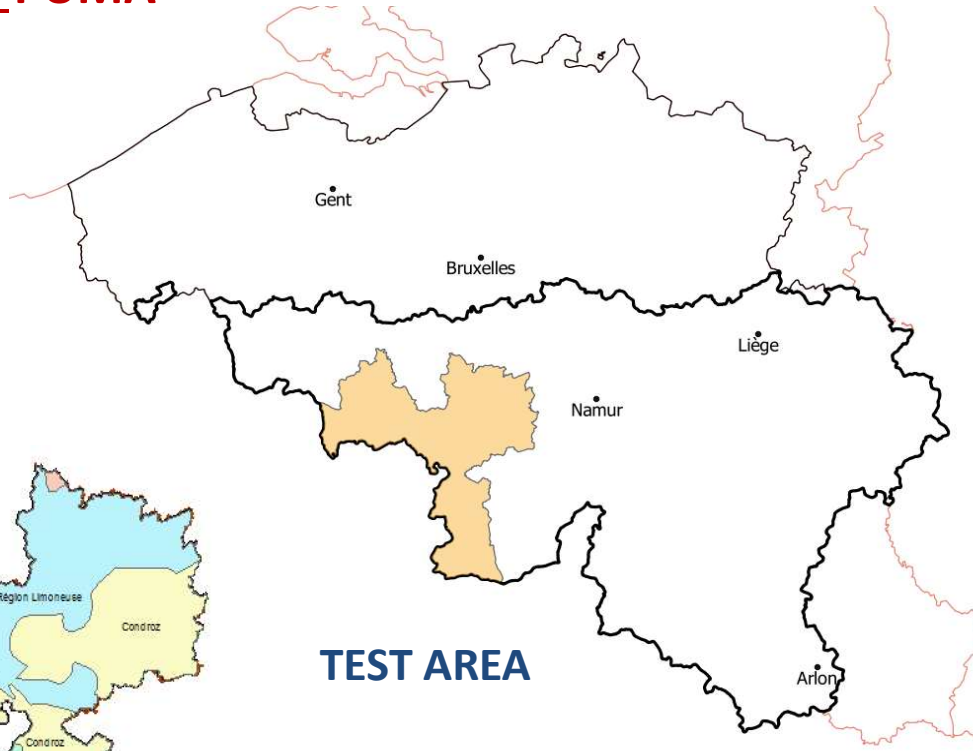
Pour Un Monitoring Agile

3. The overall methodology for implementation of monitoring approach in Walloon Region

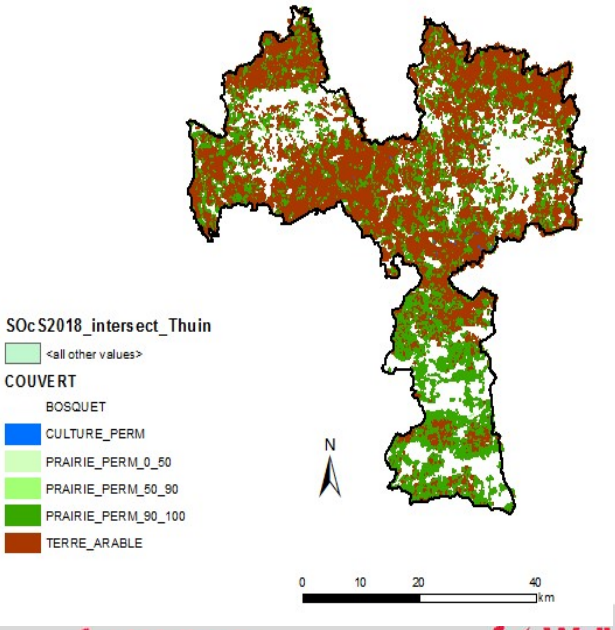
2019 - PUMA

PUMA = preliminary test covering

- **One representative part (from agricultural point of view) of Wallonia**



TEST AREA



7 (out of 10) different agricultural regions (soil, ..)

Arable lands and permanent grasslands are the majority of areas (only few permanent crops)

3. The overall methodology for implementation of monitoring approach in Walloon Region

2019 - PUMA

PUMA = preliminary test covering

- **One representative part (from agricultural point of view) of Wallonia**

	DE Thuin	Wallonie	Thuin/ Wal. (%)
Number of farmers*	1 334	14 561	9,2
Number of declared parcels	24 734	280 624	8,8
Agricultural area			
Arable land (ha)	46 882	435 276	10,8
Permanent grasslands** (ha)	23 102	325 022	7,1
Permanent crops (ha)	142	3 132	4,5
Total agricultural area (ha)	**70 126**	**763 430**	9,2

* Farmers who have all declared parcel inside the test areas

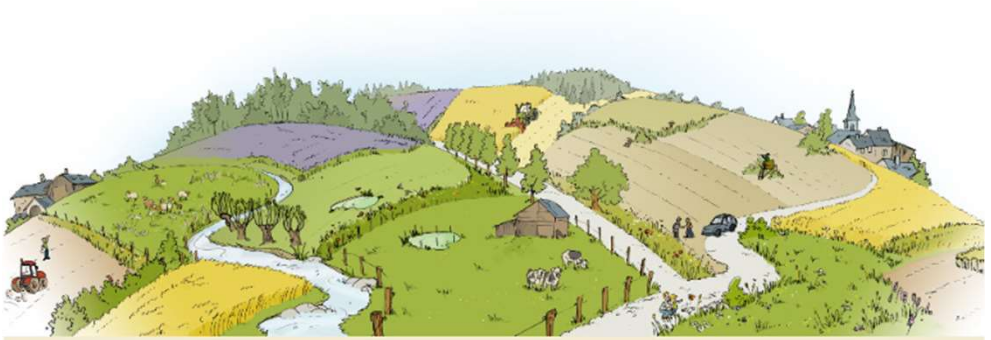
** - permanent grasslands area after pro-rata calculation

3. The overall methodology for implementation of monitoring approach in Walloon Region

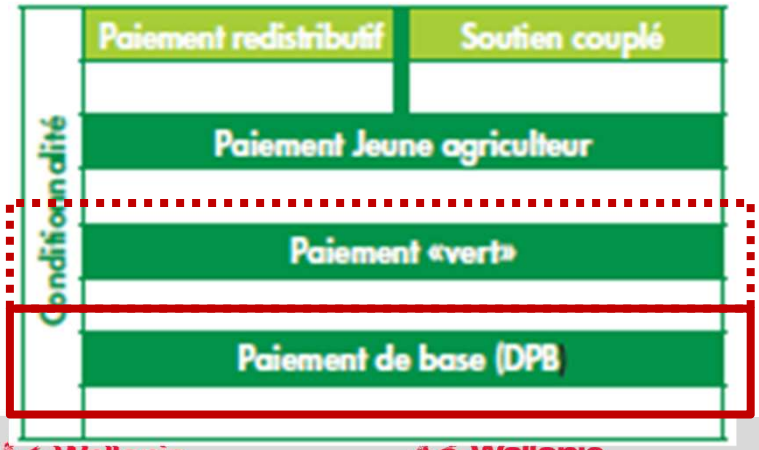
2019 - PUMA

PUMA = preliminary test covering

- **One representative part (from agricultural point of view) of Wallonia**



- **First pillar (BPS)**



3. The overall methodology for implementation of monitoring approach in Walloon Region

2019 - PUMA

PUMA = preliminary test covering

- **One representative part (from agricultural point of view) of Wallonia**
- **First pillar (BPS)**
- **Partially second pillar (organic farming, permanent grasslands – MB2, ….?)**

Le nouveau programme agro-environnemental [2014 - 2020] propose en tout **11 méthodes.** Il existe **5 « méthodes de base »** - MB - (accessibles à tous les agriculteurs) et **6 « méthodes ciblées »** - MC - (uniquement accessibles sur avis d'expert). Cet **avis d'expert** est délivré par un conseiller de Natagriwal qui adapte les méthodes à la situation de l'exploitation et aux enjeux environnementaux identifiés. Le Programme wallon de Développement Rural regroupe ces méthodes en **5 axes**:

Axe "éléments du maillage écologique"	
Axe "prairies"	
Axe "cultures"	
Axe "approche globale à l'échelle de l'exploitation"	
Axe "animaux"	

OVERVIEW

1. Context

2. Walloon Paying Agency (OPW)

3. The overall methodology for implementation of monitoring approach in Walloon Region

4. **Conclusions and perspectives**

4. Conclusions and perspectives

- The RS brings a great potential for (new) CAP, but the success of Area Monitoring Approach also depends on other specific factors (for each PA)

- The complementarity of applied research results and quantification of monitoring approach impact on OPW organisation workflow seems to give interesting results

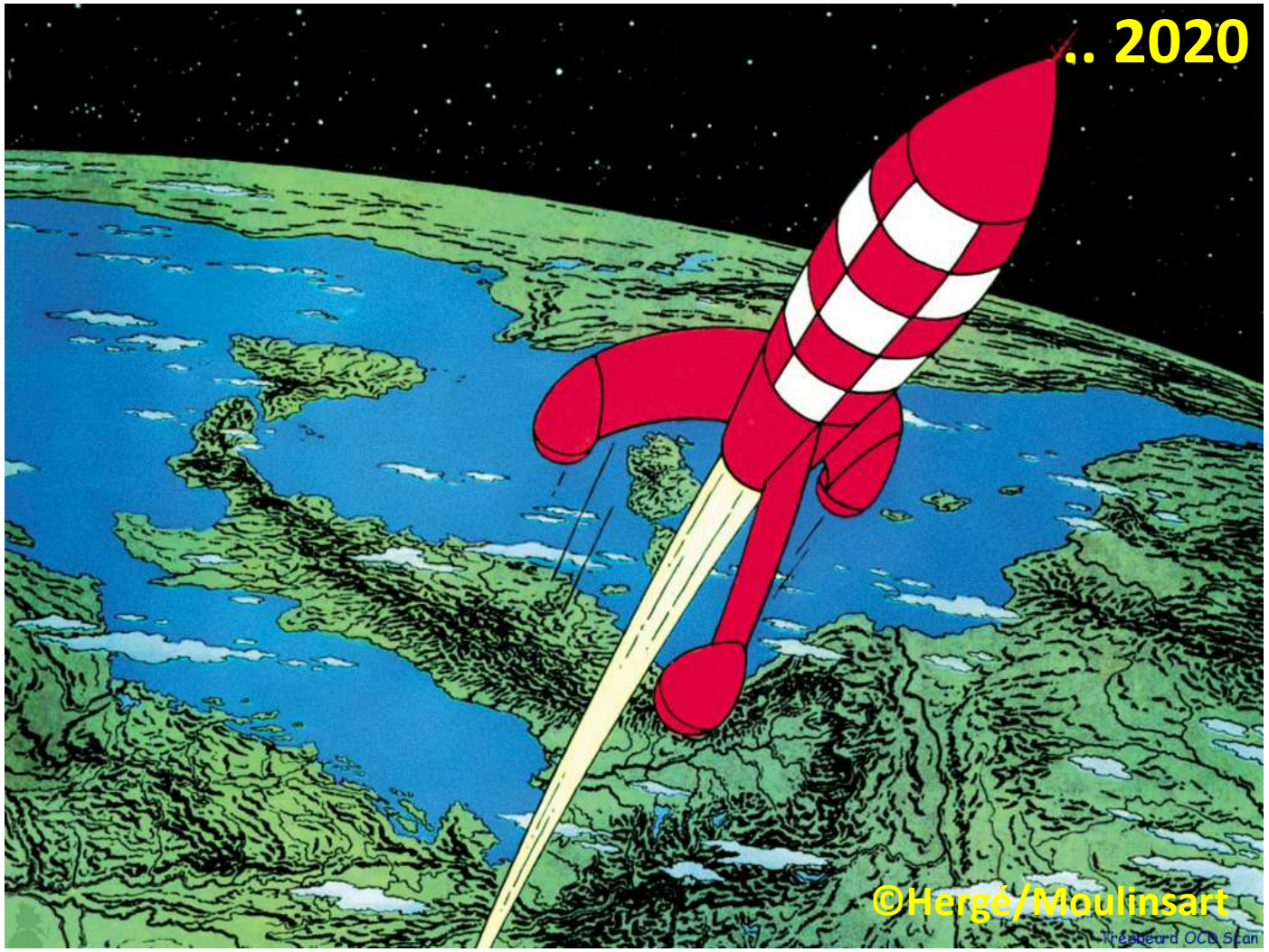
- The results of 2019 pilot test will give us a good experience / feed back on monitoring approach implementation strategy

- We are conscient the monitoring of 2-nd pillar schemes will be more difficult (see impossible !!) to be carry out with «classical» monitoring approach but we will try to find alternative solutions and to quantify …what is possible to be done

- We appreciates the EC bodies support and interaction with other PAs/projects to share the experience

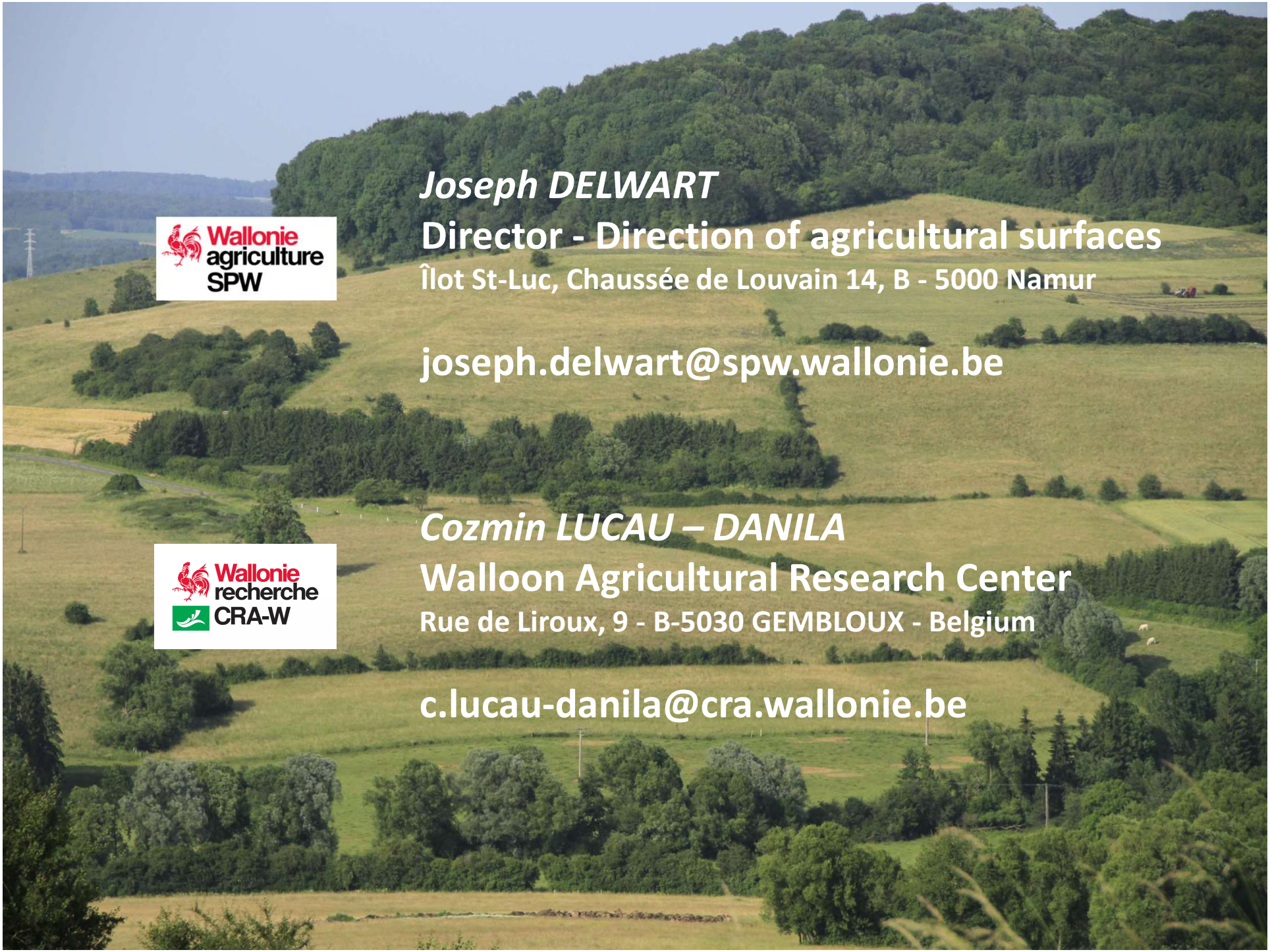
4. Conclusions and perspectives

"To succeed in a project is to master the art of the subtle symbiosis between people, technics and economic-strategic issues."



Wallonie agriculture SPW

Wallonie recherche CRA-W



Joseph DELWART

Director - Direction of agricultural surfaces

Îlot St-Luc, Chaussée de Louvain 14, B - 5000 Namur

joseph.delwart@spw.wallonie.be

Cozmin LUCAU – DANILA

Walloon Agricultural Research Center

Rue de Liroux, 9 - B-5030 GEMBLOUX - Belgium

c.lucau-danila@cra.wallonie.be