

The European Commission's science and knowledge service

Joint Research Centre



10 years of LPIS QA

Wim DEVOS, GTCAP team

10 yrs LPIS QA workshop, Varese, 10 April



That's another fine mess you've gotten me into.

(Oliver Hardy)

izquotes.com

The origin

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DIRECTION GENERALE
Joint Research Centre

Institute for the Protection
and Security of the Citizen

ipsc

Future of the LPIS ?

- Reference parcel ?
 - Single Payment Scheme will obviously increase the **interest of Production Block** (Farmers block, "ilot", Feldstück)
 - Defining a better net area ? (exclusion of building, non eligible areas)
- Remain a crucial element for cross checks between schemes
- Regularly updated orthophotos
 - Eligibility checks
 - Support to define / check cross compliance issues
- Interest to integrate many other information
 - Physical (slope, DTM, etc)
 - Land use elements (Edges, terraces, etc) and landscape features
- Requirement to integrate all the zones and maps related to the Directives ...

Köln CwRS conference – November 2003 24

MARS

796/2004 article 6 - Identification of agricultural parcels

2. The Member State shall ensure that with regard to at least **75 % of the reference parcels being subject to an aid application, at least 90 % of the respective area** is eligible pursuant to the single payment scheme. The assessment shall be made on an annual basis using appropriate statistical methods.

NB: originally proposed concept

The Member State shall ensure that at least 75% of the reference parcels are declared for at least 90 % of the respective area

source: 2003 Mars Conference Köln

The technical details

**Implementation of IACS-GIS,
Reg. 1782/03 and 796/2004**
Derived and modified from
JRC Discussion Document
JRC IPSC/G03/P/SKA/ska D(2002)(1187)

<http://ies-webarchive-ext.jrc.it/mars/mars/content/download/989/6082/file/2575v3-3.pdf>

JRC Ispra/ MARS Unit
Technical support to DG AGRI

MARS-PAC
Implementation of IACS-GIS, Reg. 1782/03 and 796/04

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- 2004 document
- no hard technical specification of a spatial data set (more of a system/process/requirement inventory)
- no clear link between creation & update and the 75%/90% rule
- very short, very generic
- neither reflecting nor anticipating the issues such as identified on the 2005 (CwRS) QC (next slide)

one year later...

2015 CwRS Quality Control

Conclusions

- Findings mainly related to strategy and rules set by **Administration**, or to **quality of LPIS** rather than to contractor's work
- Present QC will be stopped in 2007 but support to MS will continue through technical visits before or during the campaign (analysis of QC data and summary stats, questionnaire to MS, visit similar to simplified QC)



source: 2006 Mars Conference Toulouse

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Declaration error: farmer "penalised" by LPIS
No graphical document sent to farmer

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PT: possibility to retain area from LPIS parcel not

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Outdated LPIS boundary (DK)

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CY: cadastral parcels at two scales

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LT: change to block boundary

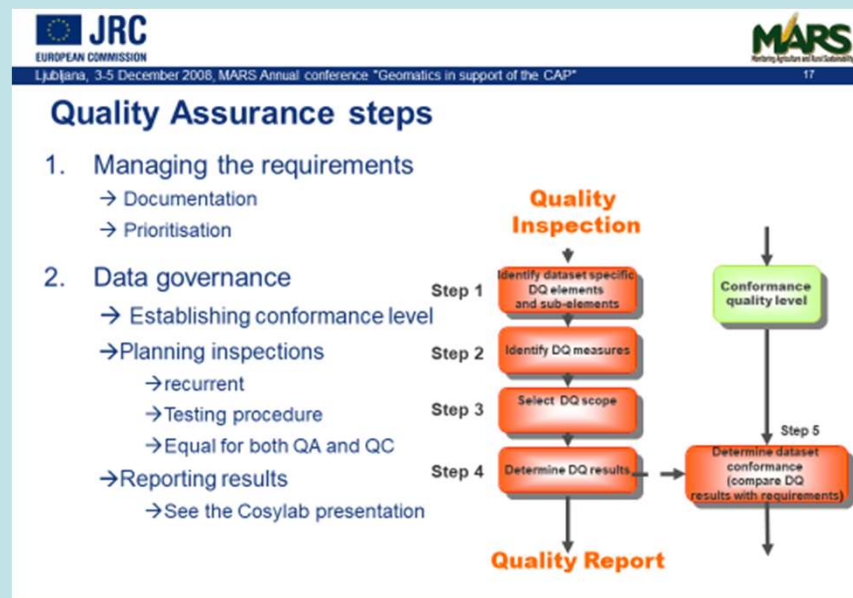
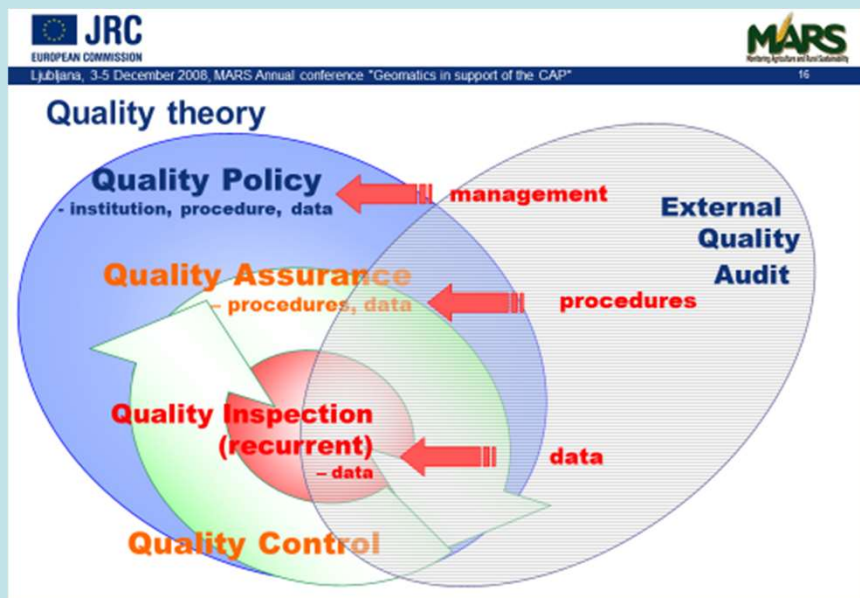
- Block 1 LPIS area exceeded by 13.5 ha but no excess retained area (block 2 underclaimed); change should be communicated to Admin

Geographical Information in Support of the CAP, Toulouse 27-29 November 2006 - 9 / 35

AUP AGRI-FISH MARS

The response

By 2008, industry standard Quality Assurance was proposed



source: 2008 Mars Conference Ljubljana

The “quality assurance” cooperation



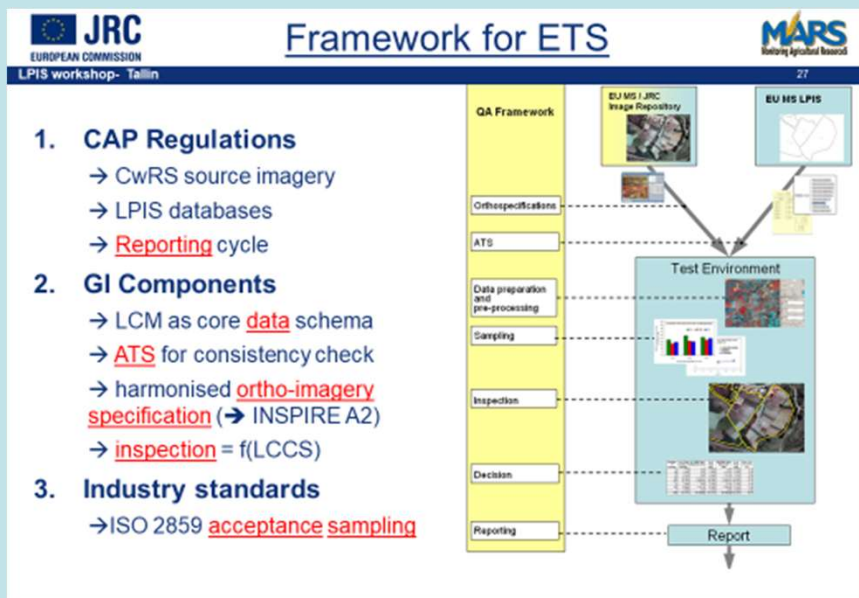
To reduce burden (i.e. > 5% sample) a very small sample was sufficient IF it guarantees representativeness:

- from a known population
- by confirmed dates of the ground data
- with consistent methodology
- through recording of the inspections



source: 2009 LPIS workshop Tallinn

The quality test design

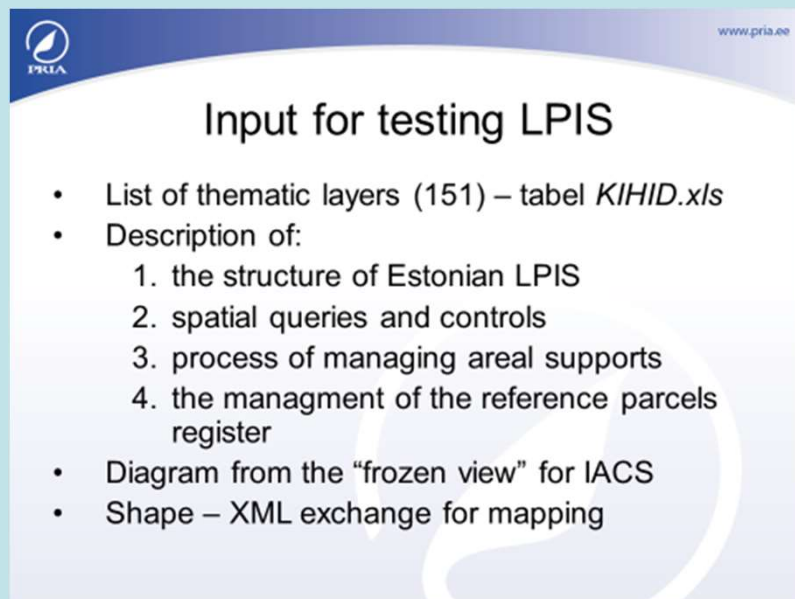


“compare what you see with your recorded RP data”
a.k.a.
map a physical block and compare
To know what to compare to that block, the ATS(MTS) was needed

source: 2009 LPIS workshop Tallinn

The technical testing

4 ATS (now MTS) volunteers

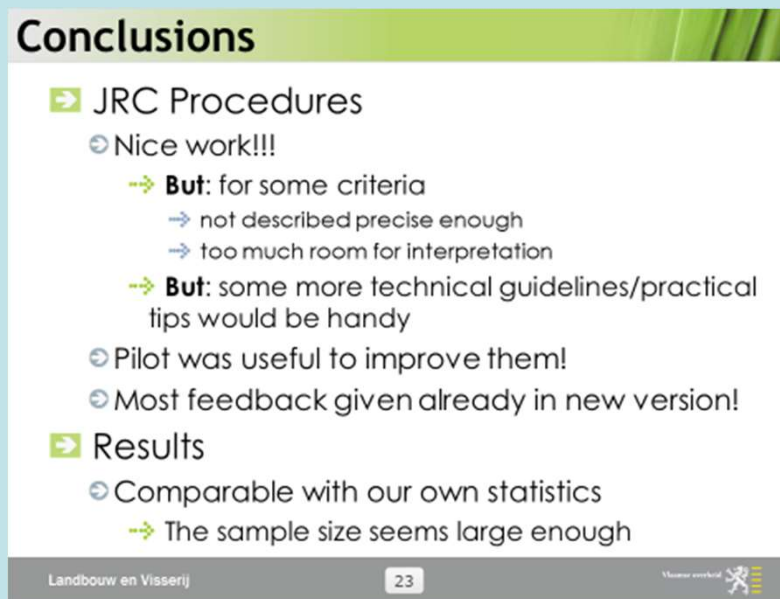


www.pria.ee

Input for testing LPIS

- List of thematic layers (151) – tabel *KIHID.xls*
- Description of:
 1. the structure of Estonian LPIS
 2. spatial queries and controls
 3. process of managing areal supports
 4. the management of the reference parcels register
- Diagram from the “frozen view” for IACS
- Shape – XML exchange for mapping

4 ETS volunteers



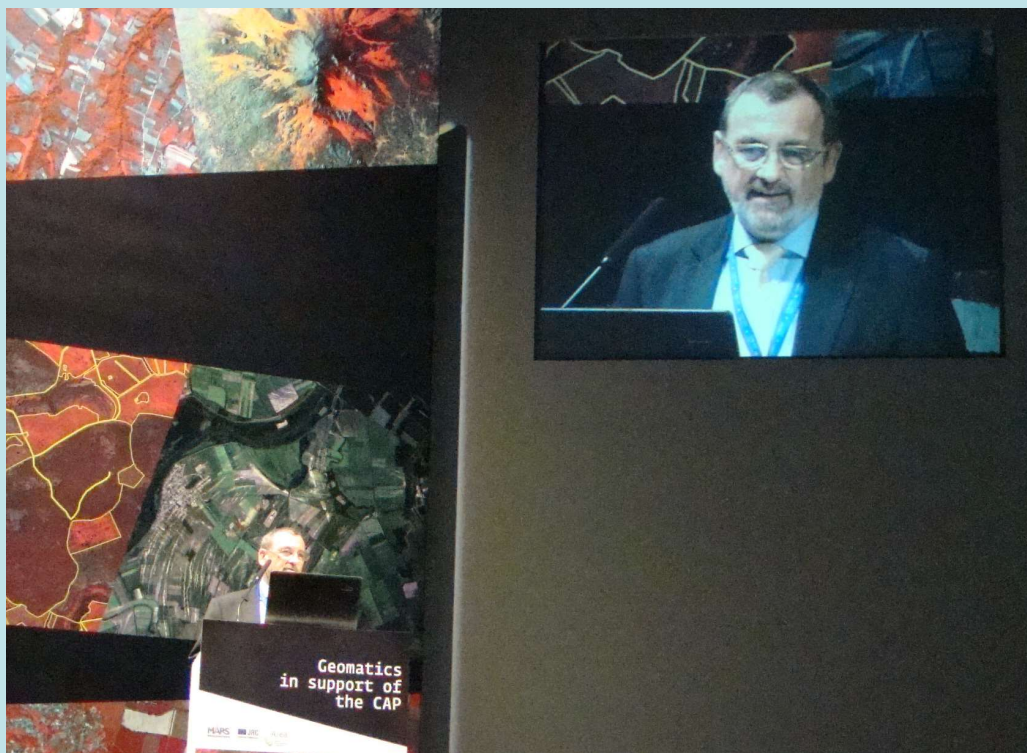
Conclusions

- ➔ JRC Procedures
 - ⊖ Nice work!!!
 - ➔ **But:** for some criteria
 - not described precise enough
 - too much room for interpretation
 - ➔ **But:** some more technical guidelines/practical tips would be handy
 - ⊖ Pilot was useful to improve them!
 - ⊖ Most feedback given already in new version!
- ➔ Results
 - ⊖ Comparable with our own statistics
 - ➔ The sample size seems large enough

Landbouw en Visserij 23

source: 2010 LPIS workshop Copenhagen

The legal initiative



source: 2009 Mars Conference Taormina

1122/2009 of 30 November 2009


Member States shall ensure that with regard to at least 75 % of the reference parcels being subject to an aid application, at least 90 % of the respective area is eligible pursuant to the single payment scheme respectively the single area payment scheme. The assessment shall be made on an annual basis using appropriate statistical methods.

But by 3 March 2010....


Member States shall annually assess the quality of the identification system for agricultural parcels. That assessment shall cover the following quality elements:

- (a) the **correct quantification** of the maximum eligible area;
- (b) the **proportion and distribution** of reference parcels where the maximum eligible area takes ineligible areas into account or where it does not take agricultural area into account;
- (c) the **categorisation** of reference parcels where the maximum eligible area takes ineligible areas into account or where it does not take agricultural area into account;
- (d) the occurrence of reference parcels with **critical defects**;
- (e) the **ratio of declared area** in relation to the maximum eligible area inside the reference parcels;
- (f) the percentage of reference parcels which have been subject to **change, accumulated over the years**;
- (g) the rate of irregularities determined during **on-the-spot checks**.

The 2010 PR front

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Purpose of the Quality framework

 **MARS**
Monitoring Agricultural Resources

LPIS quality assurance framework, DPMM Brussels, January 20

1. Provide a view on the state of the LPIS that is
 - Harmonised
 - Quantitative
 - Unbiased
 - Precise
 - Complete
 - Current
2. This allows for
 - comparison between MS
 - a pan-European overview
3. and serves as base for
 - planning remediate actions by the MS
 - considerations about the effect of weaknesses found

source: 2010 DPMM Brussels

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Example

 **MARS**
Monitoring Agricultural Resources

LPIS-day, Ispra, April 15th, 2010

16



All area could be eligible according to eligibility profile

ICELAND'S Eyjafjallajokull Volcano



2010 LPIS-day Ispra

The experimentation & tuning year 2011

- ❑ 3 Operators in parallel
 - ❑ different level of experience
 - ❑ on-the-job training and bilateral discussions on weekly basis
- ❑ 10-15 Reference parcels inspected per hour on average
 - ❑ 5-7 RPs per hour in the first week
 - ❑ Proper identification of the LUI was 30% of the actual inspection
 - ❑ Systematic cross-check with ancillary data
 - ❑ Re-check and validation of doubtful cases
 - ❑ Rapid Field Visits "performed" through Google StreetView
- ❑ 852 parcels inspected and 1519 land cover features digitized in ArcGIS
- ❑ ETS completed in 2 months (about 220 man-hours)
 - ❑ Data Preprocessing, ground truth collection, CAPI inspection, validation (completeness, topology check), analysis and reporting

HAPPY BIRTH DAY!

IT'S A REFERENCE PARCEL!
AND THERE'S 45.999 MORE
FOR YOU TO INSPECT!



source: 2011 LPIS workshop Amsterdam

3. Preparation is key

→ Submit **your issues** to the WG chair in advance

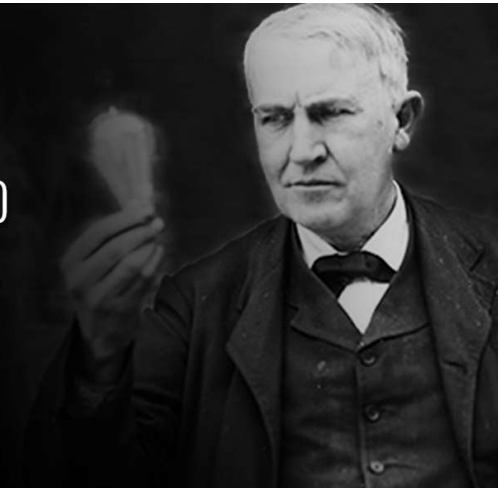
Conclusions and recommendations

- I admire the The LPIS assessment approach.
- I expect major problems with the area evaluation of parcels. (it is discriminating regions with small and irregular parcels and vagueness)
- Who evaluates the evaluation procedures?

I have **not** failed.
I've just **found** 10,000
ways that won't work.

- *Thomas Edison*

Goalcast



DOA

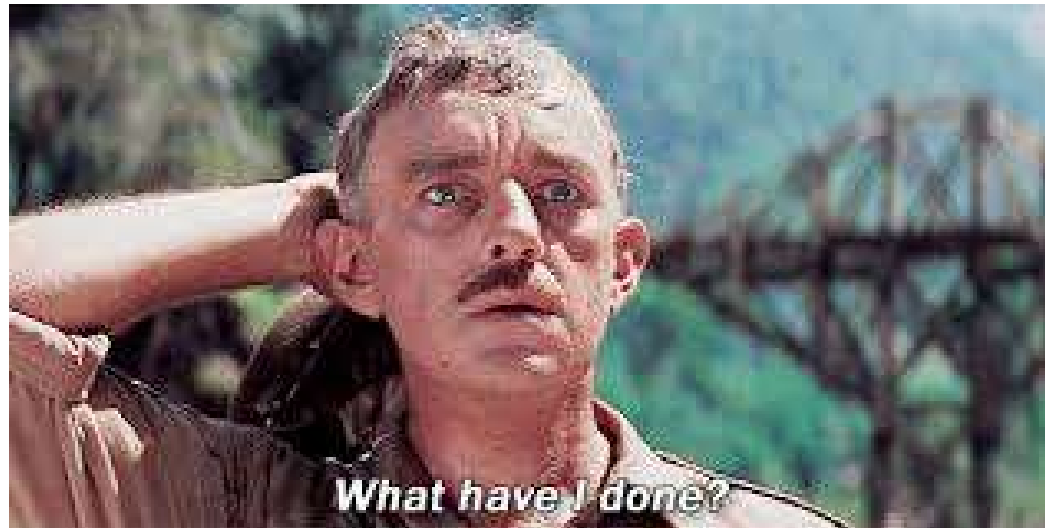
- positional accuracy test 2010
- central inspection through WFS 2011
- verification of declared quality 2012
- online UML-guidance 2015
- substitution of the 3/5/7% threshold 2017

What was picked up en cours de route?

- benefit of the doubt 2011
- waivers for LPIS design options 2011
- crop measurement for parcel aggregation 2013
- QE1b: precision (the tail width) 2013
- conformance classes and non-conformities 2014
- QE2c: classification accuracy 2015
- MTS - lineage (IXIT) and metadata 2016

What got removed?

- QE7: connection to OTSC-results
- connection to the CwRS-campaign (by dedicated imagery)
- the LPIS reference date (first 15/3, later 15/5)
- the GAC reference



Lieutenant Colonel Nicholson

Screening reports

- 2014: Italy, Ireland, Lithuania, Netherlands, Romania, England (J3),
- 2015: Spain, BE-Flanders, Denmark, Finland, Scotland, Cyprus (J3),
- 2016: Slovakia, Greece, Latvia, (D3)
- 2017: Ireland, Croatia, Wallonie, Hungary (D3)
- 2018: Cyprus, Bulgaria, Czechia, Portugal (D3) and Slovenia, Austria, Spain (H3),

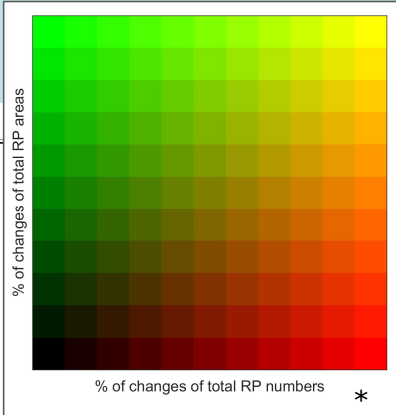
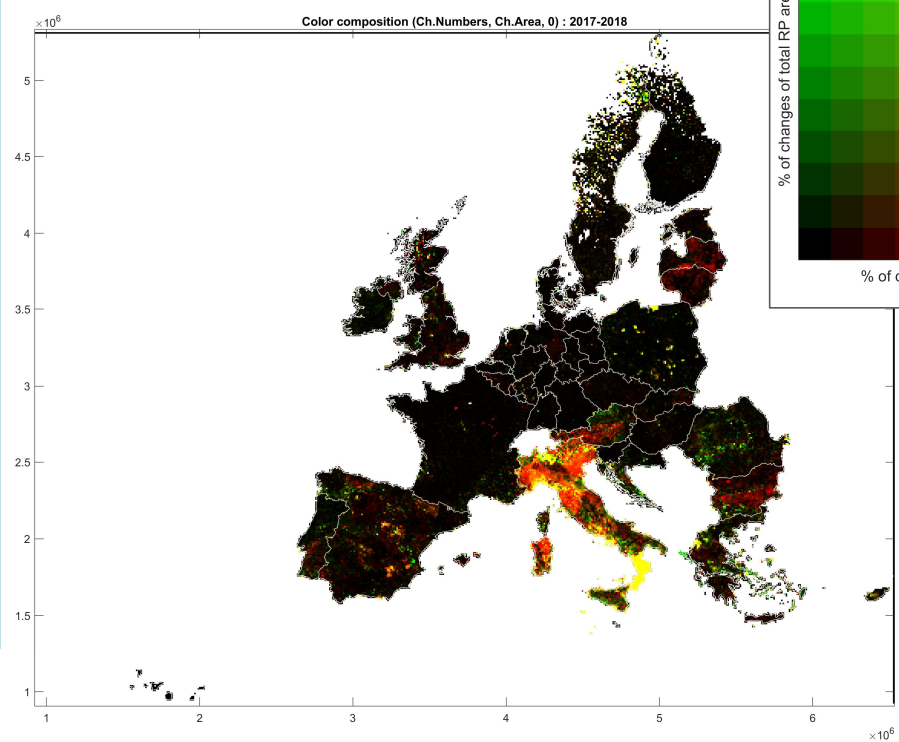
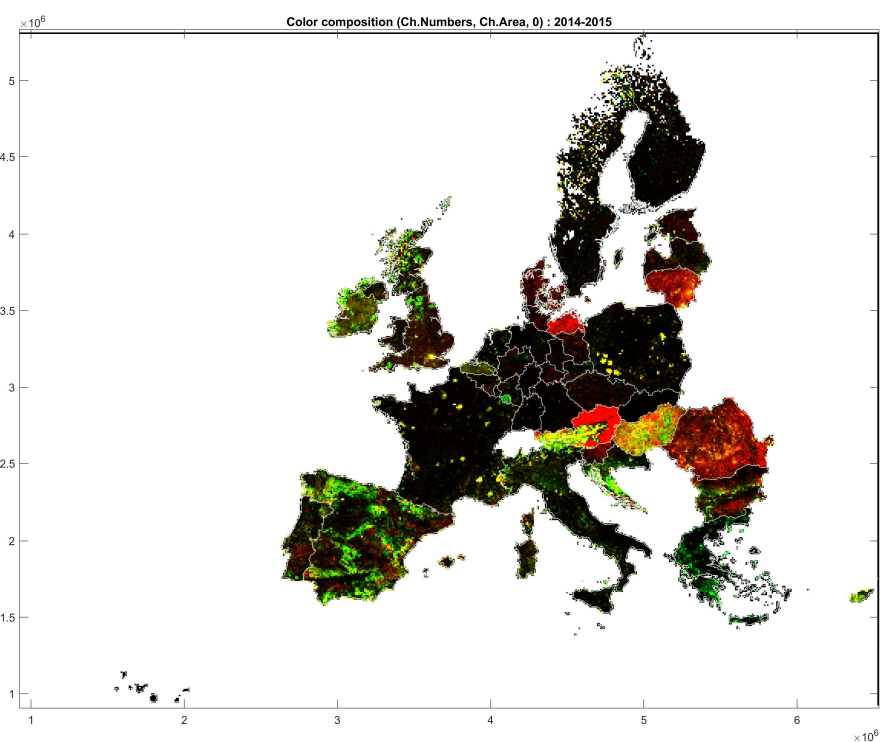
Legal definitions 2004-2010

- The identification system for agricultural parcels referred to in Article 20 of Regulation (EC) No 1782/2003 shall operate at reference parcel level **such as cadastral parcel, or production block** which shall ensure unique identification of each **reference** parcel.
- Member States shall, moreover, ensure that agricultural parcels are reliably identified and shall in particular require the single application to be furnished with particulars or accompanied by documents specified by the competent authority that enable each agricultural parcel to be located and measured. The GIS shall operate on the basis of a national geodetic system.
- The identification system for agricultural parcels referred to in Article 70 of Regulation (EU) No 1306/2013 shall operate at reference parcel level. A reference parcel shall **contain a unit of land representing agricultural area** as defined in Article 4(1)(e) of Regulation (EU) No 1307/2013. Where appropriate, ...
- Member States shall delimit the reference parcel in such a way as to ensure that the reference parcel is **measurable, enables the unique and unambiguous localisation** of each **agricultural** parcel annually declared and as a principle, is **stable in time.**

Observed activity 2014-15 / 2017-18

2014-2015

2017-2018



*: red/green doesn't represent bad/good



Any questions?

Csaba Wirthardt
Andrius Kucas
Agnieszka Tarko
Simon Kay
Valentina Sagris
Natasa Luketic
Pjotr Woida
Dominique Fasbender
Pavel Milenov
Vladimir Knezevic
Paolo Isoardi
Wim Devos Slavko Lemajic
Katalin Toth
Augusta Bande