25th
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Annual
Conference
Prague 2019
26-28 November
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After 10 years QA, what is the quality
of the EU LPISs
Nataša Luketić, JRC
25th MARS Annual Conference, Prague, CZ, November 26-28 2019
European
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The Trigger

January 2019: *"MS aren't taking their LPIS quality seriously enough"*

JRC: *"Is that statement true?"*
2 follow-up questions:

"What do the MS do with the outcome of the LPIS QA?"
➔ Varese workshop March on self assessment and remedial action

"Are there actually substantial quality issues remaining?"
➔ This study on state, quality elements and inspection method

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EU LPIS – after 10 years QA, what is the quality?

Purpose of the study:

- get an objective and independent overview of the European LPIS quality,
- compare the results against 44 individual ETS scoreboards
  - not challenging the compliance
  - but challenging the quality improvements
- get an understanding of the remaining methodological inspection issues
- **to brainstorm the quality of the future**

Scope:

- 1st conformance class
- 6 quality measures assessed
- (QE1a, QE1b_LIB, QE1b_UIB, QE2a, QE2c, QE3)

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Staff & Resources

1. Scoping and methodology – 2 person days
2. Delineation work – 3 person months
3. Data analysis – 2 person weeks
4. ETS score calculation – 1 person week

Tools: QGIS, SQL, GoogleEarth TS, StreetView

Staff: Gilbert Voican, Blanka Vajsova, Paolo Isoardi, Dominique Fasbender, Philippe Loudjani & Natasa Luketic

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Input data and methodology

- "reperformance" sample:
  - Random 10% sample of the QA sample from 2018 assessment year
- Data source: Orthorectified LPISQA VHR 2018
- LPIS population: as reported by Member States for campaign 2018
- Pan-EU Eligibility Profile restricted to:
  - Arable land
  - Permanent grassland (including pro-rata 60%, 80%)
  - Permanent crop
  - Art.32 non-agricultural features that are eligible for payment (afforestation, waterlogged vegetation)
  - HV – Herbaceous vegetation (not sure if PG or AL)

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Inspection methodology

- Truncated ETS v.6.4 method
- Observations and analysis with limitations:
  - without field observations,
  - local conditions and practices were not applied,
  - without waivers and AE commitments info.
- Expectations and thresholds adapted for smaller sample (ISO 2859-4)

➔ These constraints mean that we could not challenge compliance of scoreboard

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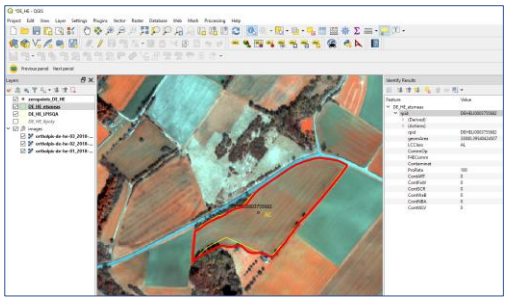
EU LPIS QA – resources

Work metrics during the study

- 3643 inspections → 74 inspections per day
- 2658 RP delineations (measurements) → 63 parcels per day
- Training, discussions, 4Eye control



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Parcel findings

EU LPIS quality assessment

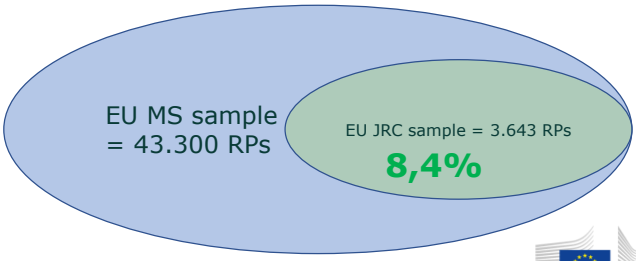
year 2018

Scope: 1st conformance class

6 quality measures assessed (QE1a, QE1b LIB, QE1b UIB, QE2a, QE2c, QE3)

As observed by:

	MS	JRC	
not conforming	12%	40%	☹
conforming	88%	60%	☺



EU LPIS population = 71.006.532 RPs (169.942.955 ha)

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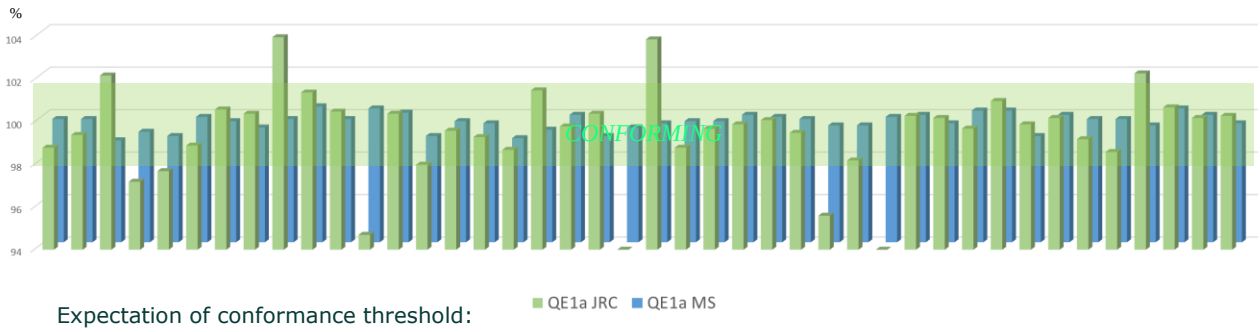
QE1a results and comparison

QE1a = rate of recorded available agricultural area in LPIS for which farmers can apply for aid (BPS/SAPS)

QE1a results 2018

MS reports: 44 out of 44 conforming

JRC assessed 34 out of 44 conforming



Expectation of conformance threshold:
98% ≥ QE1a score ≤ 102%

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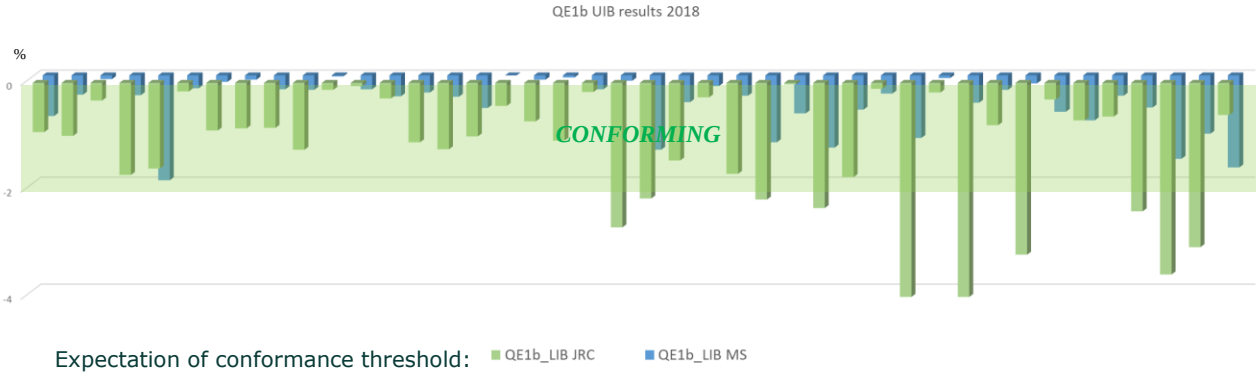
QE1b LIB results and comparison

QE1b LIB = rate of overestimated records of available agricultural area in LPIS

MS reports: 44 out of 44 conforming

JRC assessed 34 out of 44 conforming



Expectation of conformance threshold:
QE1b LIB score > -2%

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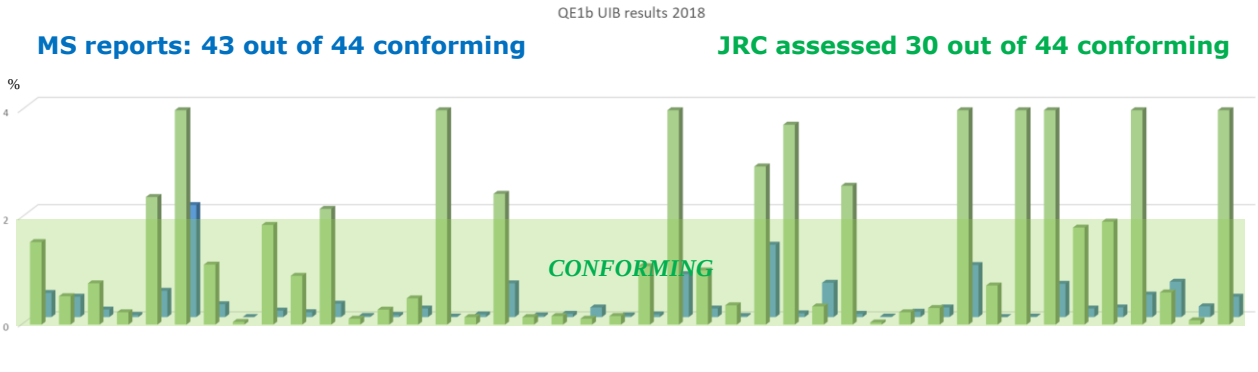
QE1b UIB results and comparison

QE1b UIB = rate of underestimated records of available agricultural area in LPIS

MS reports: 43 out of 44 conforming

JRC assessed 30 out of 44 conforming



Expectation of conformance threshold:
QE1b UIB score < 2%

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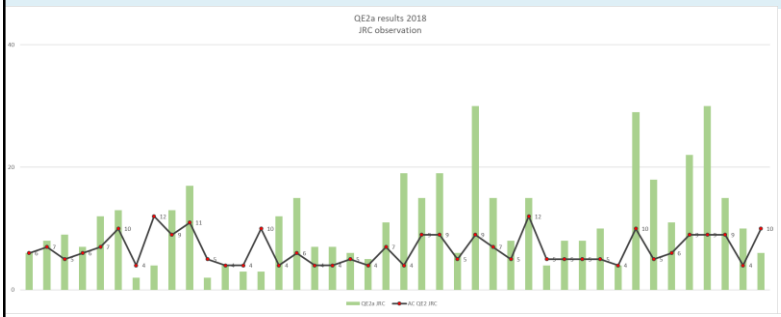
QE2a results and comparison

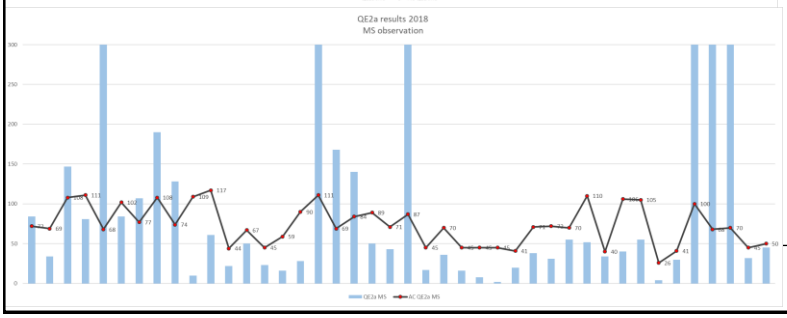
QE2a = number of parcels in LPIS allowing payment for (in)eligible area



JRC assessed:
10 out of 44 conforming

Causes of non-conformance:
- 55% area issues
- 45% contamination issues

Note:
Ineligible layer was not available for all systems



MS reports:
31 out of 44 conforming

Note:
Waivered CNT by MS = 1.291

Conformance thresholds F P

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Why the discrepancy: MS vs. JRC observations (QE2a)?

Example 1: Contamination (not)accounted

--- RP polygon --- MS meas. --- JRC meas.

Example 2: Not measured by MS

--- RP polygon --- JRC meas.

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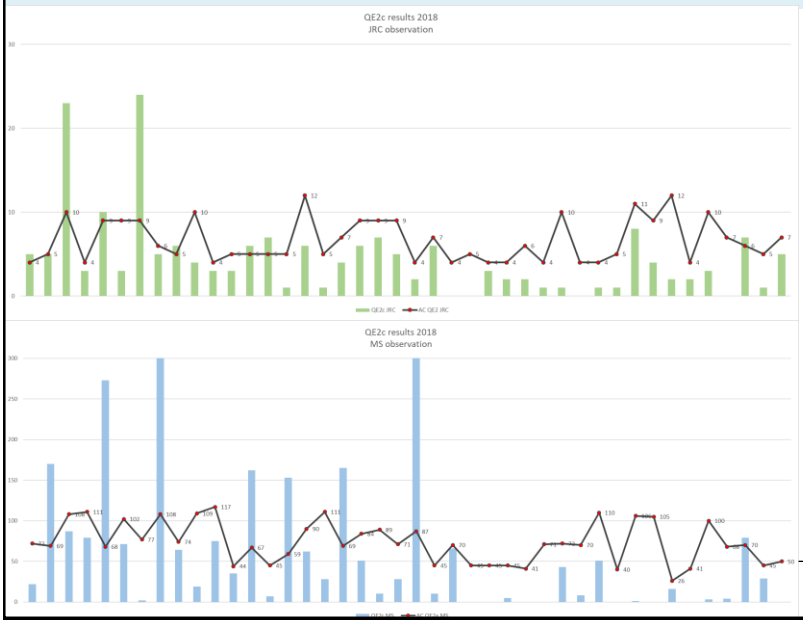
QE2c results and comparison

QE2c = number of parcels in LPIS allowing payment for (in)correct land cover type



JRC assessed:
36 out of 44 conforming

MS reports:
36 out of 44 conforming

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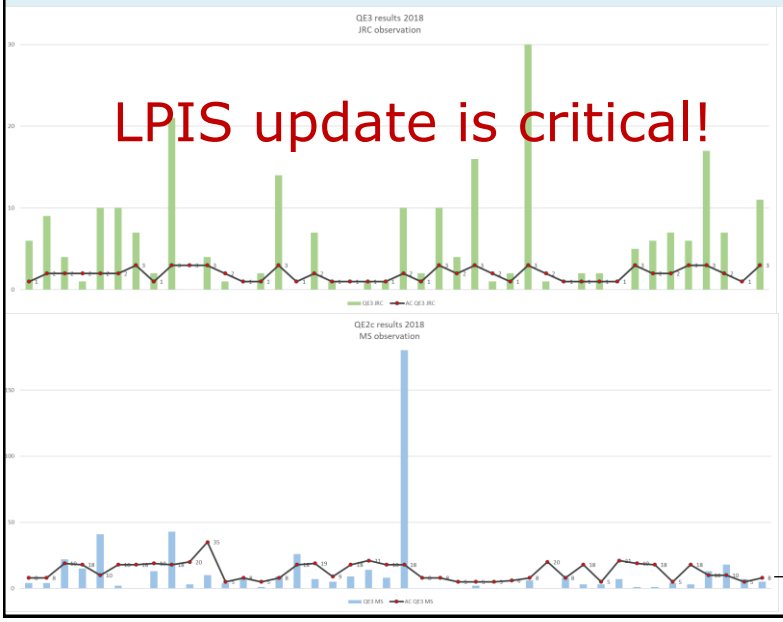
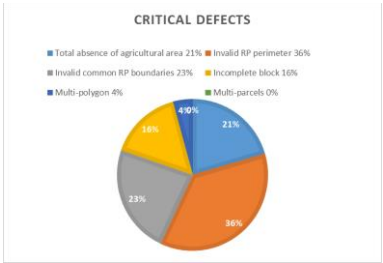
QE3 results and comparison

QE3 = number of critical defects found in LPIS



JRC assessed:
14 out of 44 conforming



MS reports:
35 out of 44 conforming

Note:
MSs are allowed to use evidences to waiver the defects

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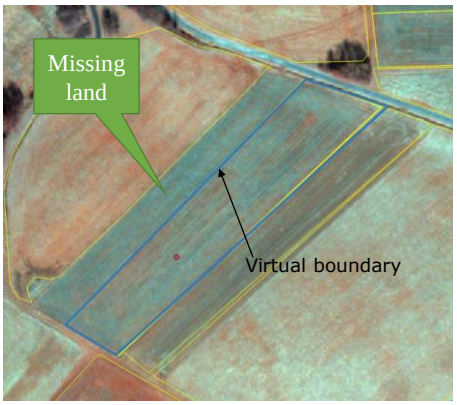
Why this discrepancy: MS vs. JRC observations (QE3)?

Example 3: incomplete block for the JRC vs. measured by the MS



--- RP polygon --- MS meas.

Two historic images 2016 and 2018 confirmed true (block) boundary:

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EU LPIS QA – conformance analysis of the LPIS implementation choices

By reference parcel type **as implemented** in the system …

	QE1a	QE1b LIB	QE1b UIB	QE2a	QE2c	QE3	Total average %
Agricultural parcel	4/5	3/5	2/5	1/5	4/5	1/5	53
Cadastral parcel	3/6	5/6	2/6	2/6	6/6	0/6	53
Farmers' block	8/9	6/9	6/9	0/9	7/9	1/9	57
Physical block	17/19	17/19	16/19	7/19	16/19	11/19	74
Topographic block	3/5	3/5	4/5	1/5	3/5	4/5	60
Total average %	70	72	61	69	80	34	%
TOP quality	PB/FB	PB	PB	PB	CP	PB	

AP: lowest quality score, probably due to hidden underlying land tenure issues

CP: expected lower quality score

FB: same as AP

PB: overall best quality, but still with area issues

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How to explain these results?

LPIS QA from 2010 – 2020

- Started as simple exercise to measure LPIS quality and compliance
- Mainly oriented towards human photo-interpretation skills
- Over the years got accommodated and more complex
- Results (but more the analysis) were supposed to trigger a fundamental revision of the implementation choices
- Only few MSs really used this tool to challenge its LPIS beyond area container

SO:

- The core of the quality is structured well
- But quality elements may be revised because **too current**

FUTURE LPIS QA 2020+ → Try to make your LPIS simple(r)

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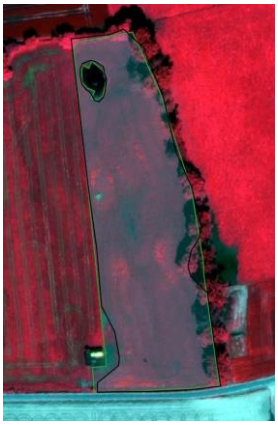
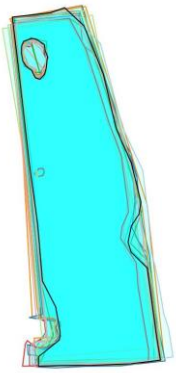
Proposals for the Quality of the future

Less area based measures (QE2…)





Focus more on LPIS design (QE3…)

- Ref. parcel to fit the physical reality → FOI concept
- Create monitorable units of practices
- Orient to objective and automated procedures

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Any questions?

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