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Category:LPIS legacy

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This legacy category holds topics that were discussed and clarified over the past years and might still bear relevance for the current version of ETS.

Although we did our best to review the content, we cannot guarantee that the legacy topics are still fully applicable. If you find or suspect any contradiction, please bring it to our attention.

Publication details:

- The topics are grouped in sub-articles in a structure that roughly follows the methodological steps of the quality assessment. A breadcrumb trail allows you to navigate back to this root article.
- Legacy articles are categorised as [LPISQA_Legacy] and not as [LPISQA] as is the version specific guidance.
- You can make a pdf document of all LPIS QA legacy topics (http://marswiki.jrc.ec.europa.eu/wikicap/index.php/Category:LPIS_legacy?action=pdfbook) "on the fly". The sequence of the pdf is alphabetical per sub-article.

--Wim (talk) 14:36, 29 May 2013 (CEST)

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1 LPISQA Legacy

version 5.3

This legacy article is the root element for topics that were discussed and clarified over the past years and might still bear relevance for the current version of ETS.

Although we did our best to review the content, we cannot guarantee that the legacy topics are still fully applicable. If you find or suspect any contradiction, please bring it to our attention.

Publication details:

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- Legacy articles are categorised as [LPISQA_Legacy] and not as [LPISQA] as is the version specific guidance.
- You can make a pdf document of all LPIS QA legacy topics "on the fly". The sequence of the pdf is alphabetical per sub-article.

ISSUES

- Issues on the rationale of the LPIS QA
- Issues on the Model Test Suite (MTS or ATS)
- Issues on the Executive Test Suite (ETS)
- Reporting issues
- Organisational issues

WORKSHOP FINDINGS

- The 2010 LPIS Workshop - Copenhagen
- The 2011 LPIS Workshop - Amsterdam
- The 2012 LPIS Workshop - Malta
- The 2013 LPIS Workshop - Baveno

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2 2010 Workshop Copenhagen

This document contains the positions of the Commission services on the issues identified by the working groups during the 2010 LPIS conference, held at Copenhagen, September 20th-22nd . It holds 2 parts

1. the individual Q&A, in sequence of the quality element concerned.
2. an inventory of issues and suggestions identified by the working groups with an index to the relevant Q&A topic.

These positions apply for the 2010 LPIS QA implementations and are, where appropriate, integrated in the version 4.3 of the annexes and coresponding guidelines.

The Commission services may revise their positions upon the findings, experiences and results of the 2010 LPIS QA implementation.

Ispra, Brussels, 15/10/2010

2.1 Q&A

2.1.1 1. The ATS is complicated and some concepts are unclear

- On the complication side, there is not much that can be done:
  - ◊ the ATS is no more than questionnaire that relates to the various elements of a model and the model itself represents requirements from the Regulation and best practices. In respect to the LPIS QA, which is focused on pilar 1 aids, one could consider module A_132 (cross-compliance attributes) accessory.
  - ◊ The eligibility profile (part of the implementation conformance statement) is no more than an enumeration of elements identified module A_12
- Regarding the lack of clarity of some aspects, the JRC takes note of these comments. However, please observe that
  - ◊ the current version of the ATS, its concepts and relations, still relates to the LPIS core model representing pre-health check specifications.
  - ◊ For several reasons, JRC chose to freeze the model and thus the ATS until the results of the first application become available. Preliminary results indicate that this 2010 exercise has uncovered a number of practices that should be addressed in the model (e.g. sub-parcel/super-parcel, the equivalence of all declared land,...).

An upgraded model of the LCM is needed before a new version ATS can be published. This new version will address the issues raised.

2.1.2 2. What should be the reference date for the input LPIS data, used in the ETS inspection ? the date of the generation of the pre-printed forms for application or the date for the cross-check?

The Commission services acknowledges that for AP and FB RP-types, a lot of changes of the reference parcel are expected and processed in the period between the pre-printed form and the time of declaration by the farmer.

For 2010, the Commission services consider that the date on which the pre-printed form was produced represents the common reference data for the assessment of reference parcel information. This date ensures the availability of a documented status of information and of a uniform methodology covering all designs and member states. A number of the issues expected to occur with AP and FB RP-types are specifically addressed in the inspection guidelines.

2.1.3 3. Why submit the total RP population for sample-preselection?

This full population delivery is needed to verify the completeness of the LPIS population and representativeness of the sample. Both elements shall be verified at the screening stage. Because a very small sample is inspected, LPIS QA results would be biased if some categories of reference parcels were excluded from the sampling process; a yearly extract of the full population allows automatic detection of such exclusions.

As the full population involves a large and cumbersome dataset, the Commission services are open for alternative methods that allow verification of completeness and randomness.

2.1.4 4. Why map the land cover and not simply map eligibility?

The scope of the LPIS QA is to provide MS with knowledge over their full system. The Commission services request the collection of this detailed information during the inspection, in order to enable analysis of the nature, source and reasons for the problems (anomalies) found. The inspection of the reference parcel at appropriate land cover level can provide more evidences in support of certain findings, during the screening. Also, as land cover is independent from aid scheme, this information will become of primary importance for any activities in near-future, related to cross-compliance and second pillar of CAP.

Furthermore:

- ◊ The appropriate land cover classes are explicitly defined in 2009R1120 art 2 or by the Member State by way of its GAEC legislation.
- ◊ Unlike eligibility, land cover is stable over time and independent from member state. This allows a robust and uniform inspection method common to all member states.

To cope with an alleged extra cost of delineating land cover classes, rather than producing a single eligibility mask during inspection, the Commission services:

1. encourage using automated detection and delineation methods that give the necessary guarantees to correct interpretation
2. clarify that, unless coupled payments or pro-rata classes are applicable, the delineation key should NOT address the agricultural parcel level details, but SOLELY reflect "aggregated" land cover classes defined in R 1120/2009 art 2 and R 73/2009 art 124. These are ?arable?, ?grass?, ?natural grass?, ?permanent tree crop?, ?permanent scrub crop?, ?greenhouse?, ?irrigated rice?, ?short coppice plantation? and ?kitchen garden?.

The Commission services stress that the delineation of appropriate land cover classes is required only for the LPIS QA inspection. It does not require the LPIS reference parcels to differentiate this way neither graphically nor alphanumerically.

2.1.5 5. How to deal with temporary (ineligible) land cover features?

The classifiers used for the land cover types relevant in this domain are not affected by temporary phenomena. So, if the inspector can determine a feature temporary, considering the local context, he should ignore that feature and simply apply the ?underlying? land cover class.

It is a judgement call where the interpreter should apply his knowledge of the local practices: Some examples: ? The covering of grassland or arable land with a thin layer of sludge from the neighbouring canal will not change the long term nature of the land cover. ? A visible spray track on arable land will most likely be ploughed under by the next year. However a path between to gates in fence is likely to persist. Although such temporal variations influence the land cover appearance, they do not influence its nature or description, and so the classifition works independently of the date of observation.

2.1.6 6. Different datasets (ortho-images) are used for the LPIS update and the ETS, Are the mapping results comparable?

The WikiCAP guidelines indicate a series of practical guidelines to consider regarding the use of CwRS imagery in the context of the LPIS implementation and of the landscape concerned. If in doubt, the MS can consider to acquire dedicated imagery with the same specifications as its LPIS ortho-imagery for a selection of the LPIS QA zones, while ensuring randomness and currency.

For 2010, Commission services will evaluate the MS's explanations that non-conforming results are caused by the sub-optimal nature of the dataset used.

2.1.7 7. Why re-digitize a parcel that appears unchanged on the imagery?

Formally, re-digitizing of the reference parcel boundaries is not requested, what is required is the delineation -via the various land cover features present on site-, of the agriculture land, which can be eligible inside the LUI. This mapping procedure provides not only a total area measurement value but also more detailed information on the nature and abundance of the eligible land contained within the reference parcel.

Fundamentally, the digitizing process is the default procedure to collect an independent observation and measurement on a parcel. Random variations of the observed values are an element for the probability statistics that are the basis for the acceptance decisions. Mixing ?copy/pasted? and observed data in the sample can create a heterogeneous sample that does not allow a robust conclusion of the results as long as there is no rule to ensure that ?copy/pasted? area/boundary is really ?true?. As a result, the current method does allow visual inspection, but only in cases where no challenge to the recorded maximum eligible area or correctness of the boundary can be made.?

2.1.8 8. Can additional information from rapid field visits (RFV) be used in support to the visual interpretation?

RFV can support visual interpretation. But please note that the main purpose of a RFV is not to provide supplementary information in respect to a proper delineation of an unclear LUI boundary. RFVs are primarily intended to clarify unclear cases of land cover/land use interpretation.

For boundary delineation with field instruments (GPS etc), there is not yet a validated survey procedure available, but even if there were, this would not be considered a RFV but rather a ?terrain inspection?.

2.1.9 9. Why distinguish between over- and underestimation of the maximum eligible hectare? Only he first one implies a financial risk to the fund.

The Commission services are not only interested in the financial risks to the fund, but also in the ability of the system to give the proper farmer support for the declaration process and to give an indication of the potential risk. As the differences are reported in gross terms appropriate conclusions can be drawn.

2.1.10 10. Tolerances need to be introduced (especially for area based non-conformance)

The Commission services has a clear interest in the reporting of the original ?raw? observations but the Commission services also acknowledges that non-conformances based on exceeding an area difference threshold, can be influenced by parcel size, source image characteristics and landscape as well as interactions between them.

Considering that the Commission services desires a simple and uniform inspection method and that Member states have some control over their source imagery, a dependency of the conformity level threshold on parcel size has been introduced. The resulting variable threshold is based on the 3% accuracy expectation and the theoretical mean polygon measurement uncertainties (?tolerances?) with 50cm GSD imagery and becomes (further reading):

Reference area	conformity threshold
> 5000 m2	3 %
2000 ? 5000 m2	5 %
< 2000 m2	7 %

In the LPIS QA methodologically, Member States shall report the ?distribution of reference parcels where the maximum eligible area takes ineligible areas into account or where it does not take agricultural area into account? with the raw observed data, but assess the proportion of non-conforming parcels using the above variable threshold.

The introduction of these size dependent thresholds creates "safety margins" of up to 140m2 or 250m2 for the smaller parcel categories. As a result, e.g. parcels with a newly constructed building inside the LUI could easily escape detection as non-conforming if only this area-based conformance test were applied. To prevent this escape, the guidance introduces a separate conformance test on the already observed occurrence of particular ineligible features inside the LUI.

2.1.11 11. Why not to report only the true defects and skip reporting ?potential? cases?

To remove ?potential? defects directly out of the equation is not a good practice, as this would ignore a ?real? issue that was actually picked up during the common inspection process. The Commission services however acknowledge that a potential defect can be excused from being considered a true defect, in case all of the following conditions are met:

1. the type of potential defects can be described through well specified criteria
2. its existence is inherent to the particular reference parcel type
3. the defect doesn't jeopardize the farmer declaration and administrative crosscheck procedures.

The possibility to apply one ?waiver? does not entitle the MS to automatically ?whitewash? such parcels or to ignore to report on a parcel that carries other defects or indications of non-conformance.

Methodologically, the original number of potential critical defects will be reported at one ?intermediate- stage, whereas only the number of remaining true defects -where no pre-defined ?waiver? is applicable- will be used for the acceptance decision. Or, if no other potential defect is present on the inspected parcel, the applicable waiver(s) shall be reported but the parcel remains "conforming".

The Commission services proposes a variety of "waivers" and their conditions; the Member State shall indicate within their ATS-ICS which of these ?waivers? are applicable.

Guidelines will be adapted accordingly.

2.1.12 12. Why is a parcel non-conforming if (a part of) its boundary is not visible, even if the area encloses eligible land?

This is a particular type of ?potential critical defect?.

In general, the ?non-conforming? status is attributed to an inspected parcel if either it has a critical defect or if the eligible area found exceeds the conformity level. These conditions act independently.

Parcels with unclear boundaries do have a serious defect: the boundary of the LUI cannot be identified and hence the area cannot be measured via the common inspection method. For this reason they are non-conforming.

On the other hand,

1. visual inspection to excuse this ?potential defect? is currently allowed if the local field conditions cannot challenge the statement that the LUI ?encloses eligible land?. Practically, in absence of any measure of absolute positional accuracy in the ETS, the presence of any ineligible feature **within 5 meter of the perimeter of the LUI** constitutes a challenge to that statement.
2. for AP, FB and CP RP-types, specific waivers are introduced, specifying the external and local conditions to be verified for a vindication of this potential critical defect.

Parcels with a potential critical defect "Inability to identify LUI boundary" that are excused by either of the two mechanisms above (unchallenged visual inspection or application of an appropriate waver) are still considered conforming.

2.1.13 13. When is there a need to do a LPIS ?refresh??

In the discussion document it is also written ?systematic refresh using appropriately recent data source (in preference ortho-imagery) should be investigated?.

The Commission services will prepare some documents on the refresh issue in the course of the next year. The findings of the 2010 LPIS quality assessment can be considered in the guidance to be delivered.

2.1.14 14. What is the meaning of and reason for this rate of irregularities from OTSC? If it is a pure IACS query over the whole population, it is already reported to the Commission services

The rate of irregularities from OTSC can be the result of a poorly functioning LPIS. As the LPIS should reflect agricultural reality with regard to the eligibility of the land, ideally, the OTSC should not detect a substantial amount of ?additional errors". If OTSC does detect significantly higher error rates from year to year, it can indicate the failure of the member state to address LPIS issues. This causal relation is not present in the existing reporting.

2.1.15 15. There is no added value for AP and FB to perform the ETS

Experience shows that reference parcels, based on AP and FB are not always as ?pure? as the member state assumes. The ETS, when correctly performed, will allow the identification of issues by systematically comparing the real world with information recorded in the LPIS.

It is agreed that with regard to the interpretation of the results on certain ratios a distinction between the different systems could be needed. This will be evaluated at the end of the first year's exercise

2.1.16 16. What will the Commission services do with the LPIS QA results?

It is important to point out that the exercise is above all a self-assessment exercise. It is a tool for the Member States to evaluate the situation of its LPIS and to determine the actions to be taken to remedy any problematic situation.

This is why the report, apart from the ratios as such, should focus on an analysis of the ratios and on an action plan indicating what measures will be taken to remedy the deficiency established as well as the time line by which this will be done.

As with any quality assurance approach, it allows the member states to be proactive.

The scoreboard results as such will not trigger the application of financial corrections. Although the scoreboard results are important, the Commission services are more interested in the actions that will be proposed to remedy the problems found.

2.2 Working group findings: experiences and suggestions

ATS and LPIS model elements experiences

- ?farmer area? not clear: Does it imply the declared, claimed area? **> TOPIC 1 + WikiCAP FAQ**
- Subdivision of reference parcels (i.e. parcels and farmers blocks): Do legal boundaries indentify sufficiently the subdivision of reference parcels? **> TOPIC 11**
- Rationale: ATS and ETS should be regarded as depending instruments?**> TOPIC 1**
- Eligibility profile
    - ◊ Can we create new (MS related) LCC codes? **> WikiCAP FAQ + Annex III**
    - ◊ Can the same temporary features be mapped to different LCC? **> TOPIC 5**
- ATS reporting
    - ◊ What should the ATS include (feature catalogue schema) **> WikiCAP guidelines**
    - ◊ Is there any deadline to send it to EC? **> (EC) 2009R1122: 28/2/2011**

ATS and LPIS model elements suggestions

- ATS to the EC before starting the ETS? In order to validate the MS ATS performed it might be of advantage to send preliminary ATS-reports to the Commission services. Does the JRC agree to give feed-back In case No 2= ?yes? what is the deadline for sending the ATS to EC? **> to be discussed on bilateral basis**
- FC/AS issues
    1. Make the application schema more understandable by adding practical examples . MS need an instruction. **> TOPIC 1**
    2. More examples on feature catalogue
    3. More details on the LPIS core model **> TOPIC 1**
    4. The term ?validity status? is not clear: that needs clarification **> TOPIC 1**
    5. What is the expected format to send the UML schema? **INSPIRE/JRC uses EAP**
- ATS: We need one or more clear use cases

GML and data exchange experiences

- GML is suitable format for exchanging spatial data
- BUT
    - ◊ requires knowledge,
    - ◊ big files with not much information in it **> TOPIC 3**

GML and data exchange suggestions

- schemas as simply as possible, **> TOPIC 1**
- MS still waiting for rest of XML/GML schemas?**> In progress, introducing some innovations from the > TOPIC s above**

- consider the possibility to receive/publish the orthoimagery via WMS
- consider the possibility to receive/publish the ETS results via web services

CAPI Inspection experiences

- PLUS:
  - ◊ More efficient and less expensive than OTSC
  - ◊ Quality control more easy
- BUT
  - ◊ Repeatability
  - ◊ interpreting is agent dependent **> TOPIC 7**
    1. Requires different competences than OTSC
    2. Large experience with CAPI operator : More representative sample
  - ◊ interpretation is image dependent , **> TOPIC 6**
    1. Lack of quality reference
    2. Positional accuracy of the images
  - ◊ labour intensive. As all parcels have to be re-digitized. **> TOPIC 7**
  - ◊ Not taking into account the changes from the farmers in the LPIS **> TOPIC 2**

CAPI Inspection suggestions If there are no clear deviations from the RP registered in LPIS it is not necessary to re-digitize the whole RP again. This will always lead to some deviation of the RP registered in LPIS, but is only due to slightly different operator actions. What is the reason of the systematic redraw? **> TOPIC 7**

Population and sampling experiences

- Definition of ?total population? is not clear:
- Why to send total population to JRC for pre-sampling? **> TOPIC 3**
- What about RP that hold only LF? **If these can under no circumstances be attributed to a single traditional reference parcel, they should be inspected separately. Note that such LF-only RP must therefore immediately border two distinct traditional reference parcels???**

Population and sampling suggestions

- Change definition of total population: All reference parcels declared by farmers (if followed up in IACS-processes) or with non-zero eligible area
- Problem: Time gap between relevant date for the sample (equal to date of pre-printed forms) and the date for taking of the photo
  - ◊ Solution 1 (preferred): if focus is placed on eligibility of parcels, the changes to reference parcels would not affect the test (or only very little)
  - ◊ Solution 2: Instead of doing the ETS on the version of the reference parcels as pre-printed on the forms take the version as declared by the farmer Problem: this way it becomes possible to cleanup the parcels before sending the sample to JRC Then in GML-file date of last update should be recorded

> TOPIC 2

CwRS imagery use and alternatives experiences

- Elevation Angle problem (IKONOS) **> TOPIC 6**
  - ◊ Shadows are a problem, time of acquisition in Southern Europe
  - ◊ Hilly Terrain - Southern Europe
  - ◊ Small parcels (easily goes over threshold - areal uncertainty)
- Problem to determine temporarily non-agricultural activities on 1 image set **> TOPIC 5**

CwRS imagery use and alternatives suggestions

- ETS test on imagery of same quality as the LPIS at least similar was also suggested
- Input data the same for all MS ? **> TOPIC 6**
- Threshold 97 -103 % too strict **> TOPIC 10**
- CwRS flexible season **> TOPIC 6**
- Option for orthophotos paid by JRC budget? **No, this is legally not possible. The VHR image acquisition uses a DGAgri budget sub-delegated to JRC and is governed by Council Regulation 165/1994**
- New data or zones for ETS test? **> TOPIC 6**

Eligibility profile and Land cover experiences

- unclear what ancillary data can be used: application data, cadastre data, OTSC (rapid field visits), other (ortho)images
- define
  - ◊ temporarily not used areas, example: wasteland close to canal **> TOPIC 5**
  - ◊ when images tilt over different inspectors will come to different polygons **> TOPIC 6**
- cases with long boundaries of phys. block where 23 cm on 50 cm images decide between conformance **> TOPIC 6**

Eligibility profile and Land cover suggestions

- ETS is/should be an eligibility matter and not a LCC list; why digitalize up to 10 different elements in 1 physical block? **> TOPIC 4**
- If MS must not split into non-eligible vs. eligible, JRC should explicitly allow creation of MS-specific LCC e.g. put arable land together with grassland plus MS-specific critical defects **> TOPIC 4**

QE1 experiences

- Temporary features: Are they possible (eligible)? Can they be mapped by MS own decisions? In Case temporary features have to be mapped and sent: Can MS create an own LCC for it? **> TOPIC 5**
- What has to be reported to the Commission services? Everything or just results? **> WikiCAP guidance**
- Can we define property boundaries or other ?hints? to determine boundaries between parcels? **> TOPIC 8 + > TOPIC 1.12**

QE2 experiences

- good indicator for LPIS technical quality
- BUT
    - ◊ strong dependency on imagery quality and experience of operator, **> TOPIC 6**
    - ◊ very critical on small parcels, **> TOPIC 10**
- not considering temporary ineligible features (!)**> TOPIC 5**

QE2 suggestions

- consider treating temporary ineligible features as eligible features according to historical imagery **> TOPIC 5**

QE3 experiences

- Conformance level between 97 % and 103 % (quality aspect 2) is inappropriate for very small RPs and for long narrow RPs. Differences between resolutions of VHR **> TOPIC 10**
- Slow process **> TOPIC 4**

QE3 suggestions

- If those generic processes are to be exhaustive, they must refer to realistic and concrete situations **> TOPIC 11**
- More flexibility with adaptation to different cases **> TOPIC 11**
- Ineligible features with area > 0,3 ha is considered as an major error. **> TOPIC 9**
- Threshold could function of the size and of the shape. Use buffer tolerance ? **> TOPIC 10**
- Other categorisation used if the area is overestimated or less estimated **> TOPIC 9**
- The 3% conformance level should be replaced by a ?tolerance? based on the perimeter (as used in the on the spot controls). **> TOPIC 10**
- To delineate only the eligible features and not to draw the LCCS. **> TOPIC 4**

QE4 experiences

- potential critical defects: all the potential critical defects need to be investigated if they are really critical defect, but the quality element is still based on potential critical defects instead of real ones??? **> TOPIC 11**
- Definition of the potential critical defects isn?t always clear. E.g. Potential discontinuity -> example page 56 in guidelines
- The critical defect about ?unclear boundaries between eligible agricultural land? is considered not relevant; overlaps with adjoining parcels would reveal it **> TOPIC 12**

QE4 suggestions

- Drop ?unclear boundaries? **> TOPIC 12**
- General remark: the entire ATS and ETS should be simplified a lot **> TOPIC 1**

QE5 experiences

- Careful farmer declares less than maximum eligible
- Does not give information on quality of LPIS (Agri Parcel/Farmer Block) **> TOPIC 15**
- Declared area independent from LPIS **> TOPIC 9**
- Clarification of declared area vs determined (observed) area / *SPS ? entitlements /

SAPS ? number of hectares **> TOPIC 1**

QE5 suggestions The ratio of declared area to the maximum eligible area should take into account the type of RP used by the Member state. RP : Physical blocks - large problem

QE6 experiences

- normal changes in parcels summed up to non-conformance (applications ?); plus: different reference systems have different reasons for changing polygons i.e. why has the parcel changed? what is a ?land change?? **> permanent physical changes of the land that impact on the IACS in general and eligibility of the land in particular**
- what does ?refresh? mean/imply? plus: if the changes in parcel is part of update process (administrative process) is this to be counted as land change? how to deal with reaching the 25 % i.e. when do refresh? **> TOPIC 13**
- If all QEs reach thresholds but QE 6 does not, why do a total refresh? **> TOPIC 13**

QE7 experiences

- conformance level: ?the OTSC rate of irregularities shall not exceed 2 % AND shall not be higher than the rate observed in the preceding application year? Problem: what does it mean? always not higher than preceding year, even when already below 2 %? fluctuations are normal **> TOPIC 14**
- what does OTSC mean? which OTSC? [take entitlements into account] question of calculating this? **> those who involve AREA NOT FOUND**

technical aspect of how to compare inspectors polygons with the sample? Again: is the sample relevant or is it to be done nationwide?

QE7 suggestions

- Somebody explicitly explain guideline for QE 7

3 2011 Workshop Amsterdam

This document contains the positions of the Commission services on the issues identified by the working groups during the 2011 LPIS workshop, held at Amsterdam, April 6th-8th . It holds 2 parts

1. the individual Q&A, in sequence of the presentation by the Commission services staff during the workshop closing session.
2. an inventory of issues and suggestions identified by the working groups with an index to the relevant Q&A topic.

These positions apply for the 2010 LPIS QA implementations and serve the discussion on the review of the 2011 LPIS QA exercise.

No substantial changes to version 4.3 annexes or corresponding guidelines have been implemented.

The Commission services may revise their positions upon further findings, experiences, results and screening of the 2010 LPIS QA implementation.

Ispra, Brussels, 15/5/2011

4 Q&A

4.1 PRACTICAL PROBLEMS

4.1.1 Topic 1.1 Imagery

Delegations commented on the difference in quality used for LPIS creation and LPIS QAF. These "quality" issues included: the "scale" of the imagery; the resolution, and the timing.

The Commission services are looking into the following options:

◊ Purchasing imagery only of a very high quality
◊ MS could buy better imagery if they see fit

In the above it is paramount that no deterioration of the LPIS quality is allowed.

Furthermore, in contrast to aerial orthoimagery, JRC found that the quality of the CwRS VHR orthoimagery is very much dependent on the ortho-production process and its use of ancillary data (GCPs, DEM) over which the producer has often not direct control. The image content can be seriously downgraded, if an inappropriate ortho-production process or irrelevant ancillary data are used. Often too little attention is given to radiometric quality, colour balance and the preservation of the image detail, as the focus lays only on geometric quality.

Unfortunately, there are to date no clear and standardized metrics in respect to the quality check of the radiometry, but to fill this void, JRC already revised its Guidelines for Best Practice and Quality Checking of Ortho Imagery and theOrthoimage technical specifications for the purpose of LPIS. In addition, some possible metrics to assess the relative geometric accuracy, as residual plots and visual inspection of the spatial fit between the vector and raster data, were introduced in the same documentation. These guidelines and specifications will be further revised in the light of the findings from the ?screening? of the 2010 ETS results, so that specific, more stringent, requirements can be proposed for the orthoimagery used in the LPIS QA. Some recommendations in that respect were already given on the Wiki article Use of Orthoimagery.

Additional article will be created in the "Support" section of the LPIS QA Documentation regarding the quality of orthoimagery, where some clarifications will be given on the following issues:

- Influence of the input image parameters on the CAPI for ETS
  - ♦ viewing angle
  - ♦ time of acquisition
  - ♦ type of image product
  - ♦ radiometry (bit depth)
  - ♦ ground sampling distance
- Manual photointerpretation of land cover
  - ♦ Operator subjectivity
  - ♦ Impact of phenological development on interpretation
  - ♦ Use of ancillary data (multi-temporal data)
  - ♦ Visual scale for digitalization
  - ♦ Others

For 2010, and of course for 2011, we strongly advise the Member State to evaluate whether its orthoimagery meets the above orthoimagery specification. Sub-optimal image processing by the contractor should be addressed immediately.

4.1.2 Topic 1.2 Tolerance (on small parcels)

Delegations expressed the need for tolerances for small parcel, large parcels, long parcels etc.

A technical tolerance is an expression of measurement variability. This variability has been taken into account in the tiered threshold (3% - 5% - 7%) and -to some extend- in the probability that underlies the LQ statistics.

The Commission services do not consider introduction of new / other tolerance being good practice.

Indeed, the tolerance prevents analysis of the field situation by vindicating (?hiding?) parcels whose shape and size prevent accurate and precise measurement. Although a given LPIS might well be the most appropriate design for the prevailing conditions, it is nevertheless essential to become aware of these conditions and the implications of the choices made in the LPIS. The Commission Service is looking into the following options and awaits supporting evindence of screening of the ETS packages.

For QE2 this means introducing an additional scoreboard entry that doesn't take into account parcels smaller than a threshold size to be determined.

4.1.3 Topic 1.3 Timeframe for reporting

Delegations expressed the view that by the time the report for year N is finished the evaluation for year N+1 started and not all actions taken after year N give positive results for year N+1.

The Commission services understand the situation. However analyses showed that changing the timing of the work as such is not very easy given the deadlines to start and do the work. There are no real alternatives.

As regards the fact that efforts have not passed, this issue is inherent to the yearly exercise. In the evaluation of the LPIS QAF the longer time aspect of remedial action is "accounted for" by the Commission services.

4.1.4 Topic 1.4 ETS documentation received mixed feedback as regards its "quality"

Some delegations say the ETS documentation is too detailed; others that it is incomplete an or needs to be clarified

The Commission services will consider the issues that need "deletion" ? therefore the delegations help could be welcome i.e. they indicate what can go out and what should come in.

◊ A tutorial to the setup and structure of the documentation can be found here
◊ JRC will revise and prepare a plan for a new version v5.0 of the ETS documentation. The revision will focus on the leads indicated in this article.

4.1.5 Topic 1.5 Requests for a change to waivers or issue new waivers

Waivers can be introduced but only if good justification is provided by the MS. It should be guarded that by creating waivers the evaluation becomes pointless, as any waivered issue is no longer subject to further analysis.

Therefore each waiver introduction must include specific general and local conditions for its application.

If a member state wishes to propose new waivers to be considered for the 2011 campaign, please fill in the template and mail it. Before submitting a waiver, please ensure

1. the proposed waiver involves either contamination or potential critical defects
2. that the particular issue is not yet addressed by modification to the measures involved.
3. that is is duly motivated and illustrated

Submitting a proposal doesn't automatically involve acceptance. Only waivers listed in the Annex 1 are valid.

To ensure a better service for the delegations i.e. to keep a balance in the guidelines provided (> topic 1.4) a forum whereby (a number of) delegations could pre-evaluate the need for a waiver can be considered.

4.1.6 Topic 1.6 Why is it required to redigitise? Can we not copy/paste?

See the Copenhagen workshop Q&A

4.1.7 Topic 1.7 Why consider parcels that are not-declared for aid?

It is a legal requirement that all agricultural area on the holding shall be declared and hence, also the parcels not claimed for aid must be in the LPIS. More precisly Article 19(1) of Regulation (EC) No 73/2009 establishes that farmers shall declare all the agricultural parcels of the holding. This implies that farmers must declare not only the parcels in respect of which they claim aid but also any other unclaimed parcels of the holding. The main purposes of this obligation to declare all parcels are to enable effective cross checks as well as the control of the cross compliance requirements.

In accordance with Article 55 of Regulation (EC) No 1122/2009, farmers might be subject to reductions in the case where they have omitted to declare one or more parcels. However, this Article does not provide a legal basis for imposing sanctions in the case where the farmer has declared all his parcels but with an underestimated area, i.e. a number of hectares which is below the size determined by the authorities.

4.2 CONCEPTUAL ISSUES

4.2.1 Topic 2.1 Quality Element 5 is relevant, but needs revision

As described in the rationale, one purpose of the LPIS is to support the farmer declaration process. In an ideal world, the farmer declaration should be no more than a confirmation of the reference area available, but the 2010 experience has shown that reality is not always ideal: In many cases the area declared doesn't equal the reference area available, e.g. because not all farmers on a reference parcel apply for aid.

The impact/support of the LPIS on the farmer declaration can be critical for two functional issues:

- If the reference area is too small, the farmer cannot apply for aid on all available land.
- If the total declared area on a parcel is unrelated to the reference area, it provides opportunities for improper declaration of land.

The first issue can be expected to solve itself as parcels with an underestimated reference area should trigger the farmer to request an reference area update. By contrast, an explicit indicator could be considered to verify whether incompletely declared parcels of year N, suspiciously become more declared on year N+1.

4.2.2 Topic 2.2 Quality Element 6 is relevant, but needs revision esp. regarding the link to update needs

Update is the most important challenge for any GIS, including the LPIS. Several different processes all contribute to keeping the information up to date (see LPIS update and a forced "acute refresh" (throwing away a database to replace it by a newly produced) is by far the worst option.

The purpose of QE6 is to monitor the update processes so that an acute refresh can be avoided.

The categorization of non-conforming and defective parcels a failed update cause in QE3 provides an indication of the overall failure of update processes, but gives no information on the actual update performance of any individual process. The relative abundance of transactions triggered by each of the actors (farmer/inspector/LPIS custodian/national mapping agency) does and if these transactions are managed effectively, they should be completely processed prior to the next claim period.

These considerations can be formulated into 3 leads for the updating process.

1. The rate of reference parcels that farmers indicated subject to change should not be different more that 25 % from real annual change rate observed during the OTSC (previous or current year).
2. The rate of missed updates observed by the OTSC inspectors should not deviate more than 10% from the change rate observed by reference parcel sample inspection under QE3.
3. 98 % of the reference parcels changes detected since the start of the previous claim period should be fully processed at the start of the claim period. This rate is derived from IACS register query of the previous year. *This could maybe be explained a bit tomorrow?*

The first two leads imply that OTSC inspectors are able to determine the "annual change rate" and "rate of missed updates" as part of their LPIS update role

As with the other measures, QE6 should not deterministically trigger a reaction but lead to analysis and a sound remediating plan. **> topic 3.1**

4.2.3 Topic 2.3 Quality Element 7 is relevant, but needs revision esp. regarding the link with OTSC

Member states have indicated that LPIS is only one of the many possible cause that lead to irregular applications and that is difficult to extract the correct irregularities from the IACS query. Finally some member states indicated that the LPIS QA sampling should be respected in this measure.

Both LPIS QA and OTSC inspections resort to sampling procedures and a key challenge is to achieve a representative sample of reference parcels common to both inspection procedures. Obtaining sufficient common reference parcels mainly depends on the OTSC strategy:

1. Member States applying the CwRS program probably need no action as, on European average, about one third of the agricultural area of the CwRS-site is subject to CwRS inspection. So the random OTSC zones should provide a sufficiently large common CwRS-LPIS QA sample.

1. Member States relying on Field Inspections only shall need to specifically select a number of claims of their OTSC as to cover a sufficiently large common sample. As the LPIS QA sample is by definition random, the OTSC checks on this would also be part the random OTSC sample.

As QE7 aims to demonstrate that LPIS is NOT a key contributor to irregular claims, two leads can be proposed and applied on the common sample:

1. Not more that 2% of the common reference parcels are claimed for an agricultural parcel which belongs to a crop group that was determined to be over declared.
2. The rate of irregular claims on farmers declaring on non-conforming or defective reference parcels, should not be significantly different from the overall OTSC rate of claims with irregularities (of the common sample)

4.2.4 Topic 2.4 The 5-meter buffer needs more clarification

The 5 meter concept was introduced to compensate the removal (from trial ETS v1.0) of measure 10101 for absolute positional accuracy after the feasibility trial. See feasibility report *? 18.2.5. The check for positional accuracy (quality measure 10101 ?not required for 2010R146-) of the border has been found to be complex and time consuming, without a very clear purpose and use...?.*

The 5 meter buffer around the RP boundary accommodates for a coordinate shift in any direction (i.e. deviation in absolute coordinates) for identifying the LUI.. Areas measured by the CAPI delineation are not affected by such shift, they are however very effected by the relative coordinate accuracy of the imagery used for inspection (i.e. consistence of scale throughout the image). ETS contains no measure to quantify the relative coordinate accuracy. **> topic 1.1**

4.2.5 Topic 2.6 The need to got back to last year ? create a waiver (QE2)

There must be a starting point ?the reference data- and at the beginning of the declaration, the situation indeed refers to the previous year and the RP data may well be corrected (art 12.4) by the farmer during the process. The Commission services acknowledges this situation and its adverse effects on the scores:

- A waiver is however not the appropriate instrument to deal with this farmer?s update as a waiver relates to a particular measure. The update is effecting most, if not all measures and should therefore be accounted for in the methodology.
- The Commission services therefore proposes an additional step in the methodology, in particular in the data preparation, to update the reference area from the pre-printed form with a new area provided by the farmer before he made his application (not the result of OTSC inspections), provided the Member State demonstrates that the rate of farmer updates in the LPIS QA zones is comparable with the national average.

4.3 COMMUNICATION ISSUES

4.3.1 Topic 3.1 LPIS QA BASIS

To help the rationale on the Commission services position, it important to understand the following rationale

1. The ETS is developed as common inspection procedure that outputs comparable raw observations from all MS
2. These raw observations , compiled in the ETS scoreboard, are a common basis for analysis by the MS
3. The thresholds applied on this ETS scoreboard act only as a trigger for further analysis. (below the threshold no explanation is required)
4. This further analysis could and should isolate and clarify ?raw issues? that are not a problem for the conditions in the Member State. This can possibly lead to the compilation of an alternative ETS scoreboard.
5. A remedial action plan should be based on the results after analysis, not of the raw ETS-scoreboard.

The objective of the EC is enabling the MS to produce a good assessment report and remedial plan. For this it is essential that the guidelines are followed, in particular as regards the interpretation of the objects and the application of waivers.

The Commission services considers thresholds, waivers and tolerances as methodological instruments that vindicate issues well before they enter the raw ETS-scoreboard. As these instruments prevent ?reporting noise? they are very useful, but too much ?filtering? will prevent the analysis of any true signal that lays hidden in the raw observations.

4.3.2 Topic 3.2 ?If thresholds are not met this is not necessarily a problem, but (through the scoreboard) externally communicated as one?

Delegations expressed the view that it would be better to do away with all thresholds as they create problems of "non-compliance". Thresholds are important and should be kept, as they give the opportunity to the EU MS Administrations to decide whether an action needs to be taken. To evaluate a system and to see if actions are required benchmarks are needed. **> topic 3.1**

4.3.3 Topic 3.3 ?It is not because thresholds are not met that there is a risk for the Fund?

The purpose of the LPIS QAF is not immediately to determine risk for the Fund. The purpose of the LPIS is firstly to provide correct information to the farmers as regards what can be claimed i.e. the enable Administration of the claim (iAcs). In this way it is a system designed firstly to avoid problems. Only afterwards is the control (iaCs) The LPIS QAF is to see if measures are required to ensure that the LPIS fulfils this role.

4.4 ELIGIBILITY ISSUES

4.4.1 Topic 4.1 Landscape Features

To be eligible, a landscape feature should always be inside or directly bordering some "traditional" agricultural land:

- those that are traditionally part of good practice (Article 34(2)) have a maximum width and can be, at the discretion of the member state, considered eligible
- those that are protected by a national GAEC for retention (Article 34(3)) , are defined by the member state, are not subject to size restriction and are by default eligible

  Therefore the latter features have to be taken into account in the reference area of all LPIS reference parcels and their retention must be monitored.

It is not feasible to define generally applicable technical guidelines on how to account for these landscape features in the LPIS, as both approaches on landscape features depend on respectively the regional traditions or on the national GAEC measures rather than on pan-European concepts. Each MS will have to develop a solution where it can demonstrate that the farmer is informed of the presence and eligible area of a landscape feature and, when appropriate, the inspector is able to control its retention.

The existing technical guidance on landscape features relates to the work of the inspector, and how his findings (position and area) are brought into the LPIS for the inspected reference parcels.

OVERVIEW ON THE RELEVANT RULES

When measuring the areas eligible for payment, ineligible parts of the area concerned shall be deducted. However, Member States may consider certain landscape features (for example hedges, ditches, walls) where those are traditionally part of good agricultural cropping or utilisation practices, as part of the eligible area, i.e. they do not have to be deducted. This is under the condition that they do not exceed a total width to be determined by the Member State *(Regulation (EC) No 1122/2009, Article 34(2))*. That width must correspond to a traditional width in the region in question and shall not exceed 2 metres.

Furthermore, Member States may recognise landscape features as being part of the GAEC obligations under cross compliance. In such a case the features in question do not have to be deducted from the eligible area in a parcel, i.e. the feature becomes eligible for payment *(Regulation (EC) No 1122/2009, Article 34(3))*.

Besides, the current EU rules foresee certain flexibility. An agricultural parcel that contains trees shall be considered as eligible area provided that it does not hinder the carrying out of agricultural activities *(Regulation (EC) No 1122/2009, Article 34(4))*. The "Guidelines for area measurement"

(European Commission, Joint Research Centre, Guidelines on Article 34 of Regulation 1122/2009, Point 1.2 - http://mars.jrc.it/mars/Bulletins-Publications) point out that an agricultural parcel containing trees with a density of more than 50 trees per hectare should, as a general rule, be considered as ineligible. The Guidelines also foresee that in order to assess the eligible area within an agricultural parcel of (permanent) pasture, Member States can use a reduction coefficient in the form of a pro rata system or a percentage reduction.

Moreover, according to the Guidelines *(European Commission, Joint Research Centre, Guidelines on Article 34 of Regulation 1122/2009, Point 2.6.2 - http://mars.jrc.it/mars/Bulletins-Publications)* ineligible landscape features smaller than 100 m2 have to be deducted from the eligible area only if the total of these landscape features present a significant area of the parcel in question (that is, when the total of all these small ineligible landscape features within the parcel exceeds the tolerance of the parcel calculated as the buffer width of the measurement tool - maximum 1,5 metres - multiplied by the external perimeter of the agricultural parcel *(Regulation (EC) No 1122/2009, Article 34(1))*. Above the technical tolerance all ineligible landscape features in the parcel have to be deducted from the eligible area.

In addition, EU legislation contains certain provisions which ease the treatment of minor over-declarations discovered during the checks. In case the difference of the area declared by the farmer and the area determined by the controls is maximum 0.1 hectare per application the aid to be paid to the farmer is not reduced, but the farmer is paid for the area declared for the payment *(Regulation (EC) No 1122/2009, Article 57(3) 2.indent)*.

4.4.2 Topic 4.2 Eligibility on marginal areas

In the exercise of assessing the quality of the LPIS, it is appropriate to use the approach towards eligibility of marginal areas which is used by the authorities when establishing and updating the LPIS. The approach should be set within the legal framework for eligibility of areas which is given in Reg. 73/2009, Reg. 1120/2009 and Reg. 1122/2009.

The subject of eligibility was exhaustively discussed in the Managament Committee for Direct payments in 2009/2010. In that context document DS/2009/29 was presented in the meeting of the Management committee for Direct Payments on 26 November 2009. Annex II of this document lists the legal provisions relating to eligibility. Furthermore, some clarifications relating to the issue of eligibility, and in particular marginal areas, can be found in DS/2010/04 rev 1 which was discussed in the meeting of the Management committee for Direct Payment on 31 March 2010. Any changes of the legislation is not foreseen for now.

4.4.3 Topic 4.3 GAEC eligibility is SPS related

GAEC becomes an eligibility condition for areas under SPS in the case where no other agriculture activity besides the GAEC maintainance is taking place on the parcel. Forests is not eligible for payments under the first pillar except in case where it is covered by Article 34(2) of Regulation (EC) No 73/2009(afforestation). See previous point for further reference to the eligibility rules for the SPS and the SAPS.

4.5 ADDITIONAL REACTIONS

The following topics were not mentioned during the first reaction at the closing session, but offer a response to additional issues identified during the presentations and working group findings

4.5.1 Topic 5.1 reduction coefficient for the pro rata land cover classes

Several member states have indicated that, for marginal lands a reduction coefficient is used that was determined on a parcel by parcel basis. They experienced difficulty recording the results as LPIS QA eligibility profile imposes one coefficient or fixed rate for each type of land

The reasoning for this pro-rata approach with a fixed coefficient is documented in a Bergamo presentation

If the resulting area differences observed during the LPIS QA for the individual pro-rata parcels cause non-conformities that, in the view of the member state, not necessarily indicate a true problem for the LPIS as a whole, a separate analysis of this set of pro-rata parcels land is in order to demonstrate that no bias is present for the total area of agricultural land stored in the system.

4.5.2 Topic 5.2 Rationale behind the thresholds (or better the quality expectations)

EXPECTATIONS

- QE1 (total area):

  2%: threshold for serious error in the Court of Auditors DAS methodology - *update*: the document has been updated and defines this as "materiality threshold"

- QE2 (rate of area based non conforming parcels):

  3%: this threshold difference is twice specified in the Comm Reg 2009R1122: Both cases relate to a comparison between an area observed and an area declared.

  - ◊ in Article 58: Reductions and exclusions in cases of over-declaration: *the area declared for the purposes of any area-related aid schemes, ..., exceeds the area determined ...if that difference is more than either3 %...*
  - ◊ in Article 55: Non-declaration of all areas: *the difference between the overall area declared in the single application ... and the area declared plus the overall area of the parcels not declared, ..., is more than 3 % of the area declared.*

  In a good LPIS Area declared should be derived from the LPIS reference area.
  5 % and 7% thresholds include a degree of technical tolerance for smaller parcels as add on to 3%
  1ha: maximum tolerance of OTSC methodology

- QE3 (causes of non-conformities and defects) and QE5 (area declaration rate):

  5%: Arbitrary: serves an indicator/alert function.

- QE4 (rate of defects)

  LQ2: a LPIS should have no true critical defects at all. The limiting quality (in percent nonconforming parcels) is set to 2 as in the threshold for serious error in the Court of Auditors DAS methodology - *update*: the document has been updated and defines this as "materiality threshold"

- QE6 (accumulated change rate):

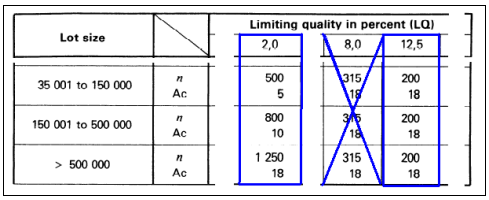
  25%: Arbitrary: serves an indicator function.

- QE7 (rate of irregular applications):

  - ◊ 2%: threshold for serious error in the Court of Auditors DAS methodology - *update*: the document has been updated and defines this as "materiality threshold"
  - ◊ not significantly higher then previous year: based on good quality management principles

LQ INDEXES

- Regarding the verbal expression of the expectation" into Limiting Quality indices (used to determine the acceptance number for attribute sampling):



Lot size		Limiting quality in percent (LQ)		
		2,0	8,0	12,5
35 001 to 150 000	n	500	315	200
	Ac	5	18	18
150 001 to 500 000	n	800	315	200
	Ac	10	18	18
> 500 000	n	1 250	315	200
	Ac	18	18	18

◊ QE4 - for 1% / LQ2 : please look at slides 13-14 of this presentation
◊ QE2 - QE3 - QE5 for 5% / LQ8 : The Commission services suggests to move from LQ8 to LQ12.5. Although this LQ substitution mimics a bit the choice recommended in 3.5.1 of ISO2859-2 on AQL/LQ ratio, we must nevertheless stress that the 5% expectation was not expressed as an AQL value from start.

The resulting acceptance numbers are indicated on the right.

- QE1 and QE7 both measure a variable value but do not count non-conformiting items. This allows direct application of the expectation error rates. There is no expression of LQ applicable.

4.5.3 Topic 5.3 subparcels / superparcels / hybrids

Several member states have indicated it is not easy to assign a single reference parcel prototype to their implementation.

It can be demonstrated (see slide 24+ of this presentation) that subparcels and superparcels (= aggregated parcels) can easily deviate from the optimal representation of the land for the purpose of the CAP processes. This optimal situation is not always achievable for all process, but it is worth checking if the particular design doesn?t affect the LPIS QA results:

◊ subparceling creates smaller parcels affecting QE2 results
◊ superparcels make declarations more ?fuzzy?, affecting QE5 results
◊ superparcels and mismatching third party boundaries cause potential critical defects affecting QE4 results

On a more general note, these ?object referencing? cardinality (multiplicity) considerations are also relevant on how to implement landscape features in the reference parcels if the are located ?on the immediate border of the agricultural parcel?, in particular for landscape features common to two neighbouring agricultural parcels:

◊ a separate identification of feature as a reference parcel will lead to declaration by on the same land two farmers , inducing a risk of a double declaration of that area.
◊ inclusion of half the feature to each of the bordering parcels will lead to invisible and thus arbitrary adjudication of the land.

4.5.4 Topic 5.4 validation of the methodology

Prof. Arnold Bregt called for

1. a third party/peer evaluation of the evaluation procedures
2. a systematic meta-evaluation of the assessment approach

The Commission services propose to do this evaluation first inside the LPIS community as it is there where the true validators can be found. Independent experts who are not familiar with the CAP domain will face difficulty to assess the LPIS QA without prior knowledge on CAPI implementation. The JRC is obviously not independent on these matters but is willing to facilitate and support these evaluation activities.

4.5.5 Topic 5.5 ATS developments

The LPIS Core Model (LCM) is a logical model translating the CAP legislation into the geoscientific terms. On the contrary, all MS LPIS databases are physical implementations of the CAP legislation. The ATS focus is on testing if a physical implementation is conforming to the LCM logical model, so that the ETS can be correctly performed (correct scope, correct values).

Ongoing modifications for the 2011 LPIS QA will focus on the interaction between ATS and ETS:

◊ Revision of the ATS modules and provision of a new template to accomodate that some of the original ATS modules were transferred to separate specialized documents (A_12 > Eligibility Profile) whereas others were inactivated as they do not address issues within the 1st pillar scope (A_132 = cross-compliance).
  - A_11 reference parcel definition: clarification of procedure and requirements.
  - A_12 eligible land cover types and landscape features: better fit eligibilty profile
  - A_13 reference parcel attributes: accomodate ETS concepts
    ◊ A_131 mandatory attributes: clarified and tuned definitions
    ◊ A_132 cross-compliance attributes: temporarily suspended
    ◊ A_133 other attributes: clarification
◊ Introduction of features to address:
  - sub-parcel/super-parcel,
  - attributes specific to all declared land,
  - reference parcel polygons resulting from (on-the-fly) geospatial operations,
  - attribute values derived from multiple attributes or calculated on-the-fly
◊ Revision of the ATS terminology to better align it with the ETS inspection methodology.
◊ Restructuring of the ATS reporting package items to better separate the ATS-conformance testing (> ATS-Log) and the ETS-support documents that are produced during the testing but with annual relevance (> waivers, eligibility profile, ICS).
◊ No major changes are foreseen to the LCM in short term.

4.5.6 Topic 5.6 ETS developments

From the above discussions, the Commission is considering the following changes to be implemented in ETS v5.0. Please note this summary is provisional, the final changes depend on insights gained during from screening the 2010 observations and the actual implementation of the measures:

- general methodology changes

◊ enabling the update of the reference area by farmer (only) during the application period
◊ as member states should by now have implemented measures to deal with the issues of subpopulation, the distinction total population versus subpopulation is removed (> topic 5.7)
◊ revise documentation
◊ more clarifications on orthoimage specifications and quality expectations
◊ XML/GML schema set needs harmonisation due to ETS developments, enabling interoperable and smooth data exchange

- QE1 : no changes to the measure
- QE2

◊ seperate reporting of parcels larger than a threshold size

◊ LQ8 set to LQ12.5

- QE3: LQ8 set to LQ12.5
- QE4

  ◊ remove "discontinuity"
  ◊ revise set of waivers based on experience

- QE5: new indicator / measure focused on monitoring declaration changes.
- QE6: new indicator / measure focused on monitoring real world change rate / remove "plan refresh" action
- QE7: new indicator / measure focused on effect of LPIS on irregular applications

4.5.7 Topic 5.7 Scope versus denominator

Many member states are confused with the difference between the parcel numbers entering the inspection or scope on one hand, and the resulting number of successfully inspected parcels for that measure, on the other hand.

Please note that:

◊ the ETS 2010 considers only two collections of parcels (scopes) at the start of the activities: total population and sub population (see our FAQ). The particular scope is seperately indicated for each measure of Annex I
◊ during the inspection procedure, it can happen that not all parcels in the particular scope can be successfully inspected, e.g. because of a critical defect, or because of the absence of information in IACS for the inspection year. Therefore it is absolutely normal that the resulting denominator under point 3 of the acceptance decisions ends up smaller than the original scope.

In the 2010 ETS:

- The scope drives the inspection, depending on lot size, 500/800/1250 parcels of the sub-population scope need to be inspected (this number excludes the skipped parcels, but includes the critical defects), see also our FAQ
- The resulting denominators depend on what parcels can

  ◊ QE1: subpopulation minus RP parcels that can not be measured (note: not all CD are unmeasurable !!!)
  ◊ QE2: idem
  ◊ QE3: total population
  ◊ QE4: total population
  ◊ QE5: sub-population minus RP that are not declared during year N minus RP that can not be measured
  ◊ QE6: (2010) all applications
  ◊ QE7: (2010) all applications

For example: the case of our FAQ could result in the following final numbers (denominators are underlined):

subpopulation	1250	
measured (QE1 and QE2)	1197	i.e. 1115 by digitising, 82 by area recovery
declared	1226	
declared AND measured (QE5)	1183	
total population (QE3 and QE4)	1466	
all applications (QE6 and QE7)	68781	
skipped	113	i.e. technically impossible to inspect
ignored	2421	i.e. sequential number > 1579

5 Working group findings: key issues and suggestions

The plenary presentations made by the working group chairs can be found on the website.

5.1 QE1 (total eligible area): comments

- Marginal areas (how to map?) **> topic 4.2**
- Delineation issues **> topic 4.2**
- GAEC effect on eligibility **> topic 4.3**
- Prioritization of ETS: Delineation of non-eligible areas: **> See the Copenhagen Q&A**

5.1.1 QE1 (total eligible area): proposed solutions:

- 1st: Marginal land: wetland, boundary between pastures with or without trees, natural grassland/grassland **> topic 4.2**
  - ◊ to be pro-rata until 2013,>2014 eligible if farmer is carrying out agriculture activity; **> Under the current Regulations that land in not fully eligible**
  - ◊ Flexible thresholds in future "> topics 3.2 3.3"
  - ◊ waivers **> topic 1.5**
- 2nd: Delineation: small parcels, cadastral parcels as RP, image quality
  - ◊ Copy/paste should be OK **> topic 1.6**
  - ◊ Waiver for cadastre parcel **> there are several waivers for the cadastral parcel**
- 3rd: GAEC: when do commitments become eligibility conditions **> topic 4.3**

5.1.2 Eligibility profile: comments

- Is forest eligibility profile necessary (II pillar)? **> it is not required unless for eligible reafforestation**
- Determination/codification of land cover ? use of the JRC system or the MS classification system? Use of the common minimum mappable legend is confusing.

>

- **The LCCS is a classification system to describe the land cover classes defined by the member states,**
- **the JRC Minimum mapping legend is a legend; a combination of classes for the inspection mapping at approx. scale 1/5000)**

- LFs: why needed in the eligibility profile if not mapped in the given LPIS?

> because the Eligibility profile inventories all eligible land covers, the mapping legend only these which are mapped.

What is the difference between the natural grassland and grassland?

> natural grassland is self-seeded and not a result of cultivation (i.e. not sown)

- XML cannot cope with more than one pro-rata value (ranges or variable values) **> topic 5.1**

5.1.3 QE2 (rate of area non-conformities): issues

- 1st: Differences from digitizing reference parcels
  - ◊ Image quality **> topic 1.1**
    - Radiometric
    - Resolution
    - positional accuracy
    - acquisition moment)
  - ◊ Operator subjectivity
    - Especially marginal areas **> topic 4.2**
    - Not all boundaries are visible
    - Standard error is not included in the inspection **> topic 1.2**
- 2nd: Thresholds
  - ◊ arbitrary chosen **> topic 5.2**
  - ◊ Conformance level is not OK for small RPs **> topic 1.2**
  - ◊ Shape of RPs should play role as well **> topic 1.2**
  - ◊ 1ha too tight for very large parcels **> topic 1.2**
- 3rd: #Timing **> topic 1.3**
  - ◊ Updates not taken into account (beginning of year vs payments)
  - ◊ No time for action plan
- Satellite image quality is not always sufficient (bracken >< rush) > **topic 1.1**
- The procedure to apply buffer of 5 meters for RP with an unclear boundary is completely unclear. **> topic 2.4**
- Complexity
  - Why map separate Land cover features? **> See Copenhagen Q&A**
  - Why map small LF? **> small LF are only to be mapped if your national specification do so too**

5.1.4 QE2 (rate of area non-conformities): proposed solutions:

- 1st: Differences
  - ◊ Copy/paste the RP and then verify **> topic 1.6**
  - ◊ Image resolution should be same as the ortho resolution (used for the creation of the RP) > **topic 1.1**
- 2nd: Tresholds **> topic 1.2**
  - ◊ Tolerance should be the same as for the OTSC ? perimeter based (max 2 ha) based on objective laboratory study **> on tolerance: topic 1.2; on study, topic 5.4**

- 3rd: Timing:

    ◊ Waivers for QE 2, if RP changed by the farmer or OTSC **> topic 1.3**
    ◊ Change/ apply flexibility for the date when the sample is taken. (MS chooses date) **> topic 2.5**
    ◊ earlier reporting to enable action plan? **> topic 1.3**

- Quality

    ◊ Increase the image resolution to 50 cm **> topic 1.1**

- 5m

  *Do not put immediately ?0? for unclear LUIs. **> topic 2.4**

- Complexity:

    ◊ Map eligibility rather than land cover **> See Copenhagen Q&A**
    ◊ Complex: Reduce the features that needed to be mapped **> See FAQ**

5.1.5 inspection methods: comments

- Why not to do GPS-based ETS together with the OTSC

  > there is no fundamental objection if the random sampling can be guaranteed. See also FAQ

- ETS documentation is not clear ? the concept of sub-population is not clear. **> topic 1.4**
- Underdeclared parcels often digitised too small -> affect QE2 and QE5 **> WD: this makes little sense, did you mean too large ?**
- Difficult to inspect the TB **> topic 5.3**

5.1.6 QE3 (causes): comments

- Part of the non-conformities are caused by the time difference between data exchange and QA ETS **> topic 12**
- Limited reporting on type of causes. (too few causes? More need to be added ?)

  >JRC: the 6 (incl. historic GAC) generic causes can surely be detailed or subcategorised to support the analysis, but we haven?t identified another generic cause yet. We welcome proposals based on the 2010 experiences

- What ?incomplete processing? incompatible LPIS-design is?

  >
  incomplete processing: occurs when someone has not done all what needed to be done
  incompatible LPIS-design: indicates the system (LPIS and its operating procedures) is unable to identify any other generic cause for that observation

- QE3 doesn?t take into account the national legislation

  > please explain: the CAP is a common policy, ensuring equal treatment for all EU farmers

- Use of older imagery should be allowed

  > it is allowed in ETS v4.3, be it in an ancillary capacity

5.1.7 QE3 (causes): proposed solutions

- 1st: latest imagery is not always the best Imagery sometimes is not clear on latest imagery (which is on older). Solutions:

    ◊ Skip the RP
    ◊ Add new non-conformity code, related to the limitation of the VHR
    ◊ Add Waiver

  > topic 1.1
  2nd: Part of the non conformities are caused by the time difference between exchange of data and QA-inspections (either raster of vector)
    ◊ Add a new non conformity code, imagery contains changes not yet reported on the imagery used for refresh
  > topic 1.3

- 3rd: QE3 does not consider national legislative requirements (splitting due to administrative boundaries)

    ◊ Add a new non-conformity code, LUI contains administrative national boundaries **> topic 5.3**
    ◊ Create a new waiver. **> such waivers already exist**

5.1.8 ATS: comments

- ATS-log inconsistent, some errors found in the XSD
- Are the cross-compliance elements part of the ETS?
- What about if a MS has different types of RPs? How to apply then the ATS?
- LCM model implies that LPIS data is ?physically? stored in attribute tables. It doesn?t take into account that some of the values can be generated on-the-fly.
- LCM should be logical e.g. no ?attribute stored? (RPs can be also a result of separate spatial layers)

5.1.9 ATS: proposed solutions

- 1st: Terminology: ATS mentions several elements `attribute stored?, while it is possible to get it through a spatial function.

  Keep ATS model `logical?, implementation can be database field or function, maybe leave space for comments **> Agreed: topic 5.5**

- 2nd: How do we identify the rp in presence of separate spatial layers with different attributes? How do we fill the ATS-log since a simple yes/no might not be enough?

    ◊ Leave space for comments and definitions

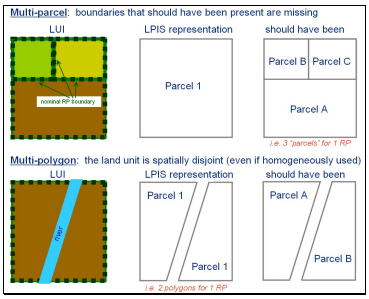
  > not really needed in the ATS templates, the Feature Catalogue or Application Schema hold such information

- 3rd: ATS-log scheme seems to contain inconsistencies

  Fix XSD. **> corrections were made in the aftermath of the Amsterdam workshop**

5.1.10 QE4 (critical defects): comments

- 1st: More and Better examples needed **> topic 1.4**
- 2nd: Unclear LUI ??(boundary)?? should be better clarified as concept **> topic 1.4**
- 3rd: More waivers for PhB and CP **> topic 1.5**
- Multi-parcels are not necessarily a CD
- Explain difference multi-parcel vs multipolygon



> two different cases of multiple cardinality, (see topic 5.3)

◊ **multi-parcel**: a situation where the reference parcel aggregates/joines what should be separate RP parcels according to the intrinsic definition/specification used in the LPIS. It could result from any cause besides upgrade
◊ **multi-polygon**: a situation where a single identified "unit" of land (i.e. one parcel-ID) relates to two or more distinct/disjunct plots in the field. It could result from erroneous processing or incompatible LPIS design

- Local conditions should be taken into account when evaluating a RP **> conditions are already a structural element of the waivers**

5.1.11 QE4 (critical defects): proposed solutions

- More examples and definitions through WikiCAP **> topic 1.4**
- Use of SDIC forum **> would be much appreciated, topic 5.4**
- More examples needed **> topic 1.4**
- Virtual/physical workshops for each type of RPs **> topic 5.4**
- Peer-group to evaluate the LPIS QA results **> topic 5.4**
- Drop all CDs except ?no eligible area found? **topic 1.5, but revision of the CD selection will be made during the screening**

5.1.12 Reporting: comments

JRC note: there has been some confusion on the scope of the topic reporting , It was intended to process the experiences of the assessment report and remedial plans, but seems to have focused on the data exchange of the inspection results. As a result, there is considerable overlap with the findings of the next working group. > topic 3.1

- Not clear for some elements ? explanation needed for every point
- If there will be a technical issue with the XML, is there any backup? ??> technical issues with standards are unlikely, if the standard are respected
- Why was XML chosen? JRC should make tools available to check if files are ok.

>

- **because of INSPIRE compatibility. Note that also GML is an XML grammar written in XML schema . Relevant GI standards are ISO 19118 (Encoding) and ISO19139 (GML)**
- **for validation tools see our tools article**

- Live demo on reporting needed
- XML generates extra work for the MS and extra cost

> The effort is acknowledged, but it is an essential investment for an application which relies on GIS technology

5.1.13 Reporting: proposed solutions

- 1st: clear information on what is exactly needed **> topic 1.4**
- 2nd: We need a backup alternative **> full web based access to the data (WFS) offered by the LPIS custodian would remove the need for the data exchange**
- 3rd: More support in general (presentations/wikiCAP)
- Alternatives for XML and GML should be available (xls, dbf, shp)

> each of the three proposed alternatives has distinct disadvantages that substantially reduce their potential for international data exchange

- Provide tooling / demonstrations **> new tools have been places on our tools article**
- Clear examples needed **> topic 1.4**
- Sharing information between EU Member States is good thing **> agreed**
- Option should be available in the Portal to view the XML after updating **> JRC will consider this option**

5.1.14 QE5 (declaration rate): comments

- 1st: Monitoring ?area declared?

◊ implies land use concept, which is not relevant to LPIS **> topic 3.3**
◊ It checks something that cannot be controlled, as there is no way to check farmers declarations
◊ Under/over declaration ? negative impact through false non-conformities **> topic 3.3**

- 2nd: Uncertainty on the geometries digitized from scratch

◊ allow partly corrected RP **> what is meant by partly corrected RP?**
◊ Correct quantification of RP areas already measured by other QE **> topic 3.3**

- 3rd: Need of further clarifications on the terms: **> topic 1.4**

◊ Declared area

◊ Claimed area
◊ Farmer area
◊ Paid area

5.1.15 QE5 (declaration rate): proposed solutions

- 1st: skip 0% declared RPs from the sample (interpretation of table 15)

  >

  ◊ **see topic 2.1**
  ◊ **please note this is opposing the Dutch proposal to focus on the 0% declared**

- 2nd: remove the threshold and make the QE5 indicative value only **> topic 3.2**
- 3rd: introduce waiver for under-declared RPs **> topic 2.1**

5.1.16 Data exchange: issues

- 1st: Big waste of time to acquire the know-how on XML/GML

  > The effort is acknowledged, but it is an essential investment for an application which relies on GIS technology

- 2nd: No easy solution in sight : **invest in that know-how**
- 3rd: Unstable XSD structures (many update from JRC) **> changes are kept to an absolute minimum**

5.1.17 Data exchange: proposed solutions

- 1st: Please provide tools for GML and XML generation and handling! :

  > new tools have been placed on our tools article

- 2nd: Please warn for any changes in the schema versions (through watch page?)

  > the standalone log article holds all changes to schemas since 20/12/2010

- 3rd: Freeze the documentation and regulation :

  > methodological changes are made upon request of the member states or to address urgent technical issues identified by the member states > topic 1.4

5.1.18 QE6 (land changes): comments

- Does the 25% fit to the real world change rate or is it arbitrary? **> topic 5.2**
- Is the imagery used for change detection, or for verification of detected changes?

  > neither, the LPIS QA should detect unprocessed changes

- Regional difference (e.g. ENG >< SCO)

  > obviously "stable" landscapes require less update effort than those where competiton for land occurs (often from urbanisation pressure)

- Difference between real world change and image model change

  > changes reflecting the data in the model

- What about other channels than farmer/inspector? Systematic changes of Mapping Agency included? **> topic 5.2**
- Can one common approach be applied for all different LPIS models?

  > Yes, all models should be equally capable of dealing with the change occuring

- What attribute changes are relevant

  > those attributes that have a significant effect on the eligibility represented by the reference parcels

- What type of changes, ineligible features boundaries **> both, see above**
- Background 25 not understood **> topic 5.2**
- How does it relate to good update procedures/performance? **> topic 2.2**
- Use ETS for producing change signals rather than measuring change **> topic 2.2**

> for more information on the LPIS update cycle, please look at the LPIS dataflow article

5.1.19 QE6 (land changes): proposed solutions

- 1st: Why the 25% threshold

  ◊ Keeping track on the change rate is good and useful, but it should be a criteria. Alternatively, we could think to apply different thresholds **> topic 3.2**
  ◊ Why not to use the inspection results to establish the change rate threshold? **> topic 2.2**

- 2nd: What are the relevant types and source of change

  ◊ Look at rwc and determine baseline per MS **> topic 2.2**
  ◊ Use inspection results to assess the change detection level **> topic 2.2**

- 3rd: Fixed change rate threshold does not reflect different regions and different type of RPs suggested

  ◊ Introduce different threshold based on rwc rates **> topic 2.2**

5.1.20 Orthoimagery: comments

- Use NIR **> topic 1.1**
- poor imagery affects LPIS QA (bad GCP, poor orthorectification) **> topic 1.1**
- uncertainty due to subjectivity **> topic 1.1**
- Inappropriate elevation angle cause poor orthorectification **> topic 1.1**

- Occlusion of tree and buildings; shadows cause CAPI ambiguity **> topic 1.1**
- Time of the acquisition (snapshot of winter/spring) **> topic 1.1**
- Phenological development is sometimes an important factor **> topic 1.1**
- At scale 1:10 000 ? image of 1 meter resolution is good, but not for 1: 5000! **> topic 1.1**
- Can we downgrade LPIS data to match 50 cm. ortho quality? **> No, deterioration of LPIS quality is not allowed.**
- Test conditions should be equal the LPIS maintenance conditions **> topic 1.1**

5.1.21 Orthoimagery: proposed solutions

- 1st: Pixel size and visual scale for CAPI impact the LPIS QA outcomes
    - ◊ To apply greater tolerance? **> topic 1.2**
    - ◊ Or even generalize to 1: 10000 **> No, this would decrease the sensitivity of the assessment**
    - ◊ standardize the scale to 1: 10 000 **> No, this would decrease the sensitivity of the assessment**
    - ◊ Acquire and produce own imagery with the desired resolution and parameters **> Already allowed**
- 2nd: The ?base? image quality should be always met
    - ◊ Increase image budget or decrease the thresholds
    - ◊ Source own imagery **> Already allowed**
- 3rd: Bad timing of image influence the results as well
    - ◊ Multiple acquisitions in order to create multi-temporal data? **> topic 1.1**
    - ◊ Lower angle images might be less affected by the tree overhang **> topic 1.1**
    - ◊ Source own imagery **> Already allowed**

> for all the unaddressed points above, please look at the extensive topic 1.1

5.1.22 QE7 (rate of irregularities): comments

- 1st: What is area not found?
    - ◊ area not found or area not paid because of an error?
    - ◊ causes for area not found OTSC
        - Non-agriculture land found in declaration
        - Parcel Over declaration
        - under minimum size
        - parcel not found at all
        - eligible land but not used for farming
- 2nd: separation of eligibility conditions on the land
    - ◊ Area not found: where land cover conflict or ineligible because of administrative rules?
    - ◊ Positive difference on application by application basis
- 3rd: over declaration and compensation
    - ◊ Random sample is taken at farmer level so different approach
    - ◊ Area non found at dossier (business level by PA)
    - ◊ Area not found assed at parcel level in ETS
- Justification of QE7
    - ◊ What is the correlation between the area not found during the OTSC and the LPIS quality?
    - ◊ Over declaration should be picked up at the time of the application process.
    - ◊ Difference from MS declaration management and 100% over declaration test will introduce difference irrelevant for LPIS QA

5.1.23 QE7 (rate of irregularities): proposed solutions

- 1st: What is area not found?
    - ◊ decision needed on the exact meeting (same as reported by the PA or not?) **> topic 1.4**
    - ◊ clear definition
- 2nd: separation of eligibility conditions on the land
    - ◊ Count only land connected ?area not found?
        - Non-agri land in declared area
        - Found less than declared (over declaratoin)
        - Parcel not found (withdrawn at the end)
    - ◊ Recalculation of value, this is not the value reported by the PA
- 3rd: over declaration and compensation
    - ◊ consider the compensation occurred not at crop group level but at parcel level
    - ◊ Count only those parcels in the Total population, parcels outside the LPIS QA zone should not be counted
- Justification of QE7
- Different relevance for different RP type
    - ◊ AP most relevant
    - ◊ If area admin control is done during declaration, higher relevance
    - ◊ PB so relevant
- Analyse declaration procedure and result
- 2% is too strict. And define on dossier level linked to a penalty philosophy **> topic 5.2**
- Inconsistent sample issues
    - ◊ selection of RPs is based on previous year (2009) so parcels newly declared in 2010 are not in the sample BUT these parcels are used for QE 6 and QE 7

> for all the unaddressed points above, please look at the extensive topic 2.3

5.1.24 Population and scope: comments

- 1st: Problems with small parcels
  - ◊ Measurements below the tolerance limit for specified image quality **> topic 1.1**
  - ◊ Often issue for AP **> topic 5.3**
- 2nd: Undefined RP in QE5
  - ◊ RP with critical defect or inability to determine LUI are considered in QE5, although the area is undefined
- 3rd: Parcels with no SAPS/SPS payment
  - ◊ Should ?declared parcels? include RPs with no SPS/SAPSpayment but subject to GAEC or other payments? **> topic 1.7 and LPIS QA scope**.
- Independent selections
  - ◊ how to select the sub population?
    - Sampling sites must be representative for the ETS
    - Risk factor used for OTSC must be independent of LPIS
    - Must also be independent of IACS elements

> See LPIS zone selection

5.1.25 Population and scope: proposed solutions

- 1st: Problems with small parcels
  - ◊ Exclude RP below a certain size from ETS **> topic 1.2**
  - ◊ This exclusion size can be based on image quality criteria **> topic 1.1**
- 2nd: Undefined RP in QE5
  - ◊ Exclude RP with unclear boundaries from QE5
    > by setting Aobs and Arec to zero, these parcels are already effectively removed from the QE5 results
- 3rd: Parcels with no SAPS/SPS payment
  - ◊ Exclude parcels with are part of the declaration but no SAPS/SPS payment on
    > topic 1.7 and LPIS QA scope
- Inconsistent sample issues
  - ◊ Use the same set of RPs for ETS-CAPI and for IACS value QE **> topic 2.6**
  - ◊ We need to include the PBs newly declared in 2010.
    > these ?new parcels? are ?in process? and therefore represent a heterogeneous subpopulation and seperate lot; see our FAQ . Testing this "new" lot probably requires a dedicated executive test suite (and more work for the member state)
  - ◊ Both years could be used: previous and the actual year. **> see reply above**
- Independent selections
  - ◊ Further study on the risk factors used to select the sites, how they can be
  - ◊ connected to the LPIS RPs.
  - ◊ Use only those risk analysis sites can be in the sample, when no supervised selection (risk
  - ◊ or manual shifting to a problematic area)
    > Please do this analysis and indicate potential problems, JRC will investigate during the screening whether a simple ANOVA might indicated dependencies on risk factors known prior to zone selection

6 2012 Workshop Malta

6.1 Observations from the European Commission services

6.1.1 Wrap-up of issues by the JRC

LPIS QA seems to work as self-assessment and formally confirms what MS already knew about their system

During the workshop Member States expressed:

- the desire for a clear and stable ETS 2012 methodology;
    1. without changes late in the assessment period,
    2. with more clarifications and illustrations.
- a request to review of the LPIS update data flow,
    1. clarifying the 3 year refresh cycle
    2. including clarifications and accommodating boundary stability (provisionally phrased as boundary delineation margin by NL) based on survey and measurement limitations.
- a call for clear and stable requirements for the post-2014 LPIS,
    1. esp. on greening (grasslands delineation, EFA elements esp. landscape features)
    2. including a strategy on the required changes to the reference parcel design (note: need to update LCM/ATS)
- the perception that the LPIS QA should more accommodate for the specificities linked to the different reference parcel design options, in particular
    1. measurability issues for cadastral parcel designs
    2. multi-parcel defects for physical and topographical block designs

6.1.2 Comments by DGAgri J3

- the MS concerns about results and their interpretation are noted
- scoreboard and assessment will considered together with the scoreboard, still the EC wants also a tool for comparison between MS

6.1.3 Comments by DGAgri D1

- the concerns of the Member States on the implementation of the 2014 reform are noted, the EC is aware of the time and resource limitations and the challenges for implementing all changes.
- the EC will provide more guidance on the expectations for LPIS update and refresh (as promised in the 2010 LPIS workshop)

6.2 Issues mentioned during the session as recorded by JRC

MS	ETS v5.2 methodology	interpreting the LPIS scores and results	post-2014 CAP consequences for LPIS	Other
DK	the 4 eye control seems cumbersome	There are a lot of registrations requiered	Hard to implement - new elements to measure and the 2013 resources are not yet budgeted	LPIS QA is self-assessment tool - J3 should be aware that remedial actions need time to be implemented
HU	provide open source tools for reading results, multi-parcel issue is clarified, not number of AP but units of management, not measurable block - specific issues for physical blocks,	4-eye control and strict QC is already implemented in HU, many ETS conforming blocks are not so for the internal quality control.	foresees a big problem with what is permanent pasture (how to control 5-years back, start in 2004? , what images to use; the old orthophoto; what about small parcels?	
EE	no particular statements - ETS is improved. It would be nice to stay stable henceforth	about quality assessment result - we would like to have faster feeback from EC on the performance, before the beginning of the following assessement	a/ Art 31a - problems for orthophoto planning to ensure 3--years cycle update. b/ EFA-implementation: unique landscapes require not general rules but flexible ones; 40% of EE is forest; these lands and wetlands can be also considered as EFA	
FI	glad with changes in ETS, some issues on digitizing small area. Need for a fixed version.	results - good tool for self-assessment; good to benchmark and see what other countries are doing	worries about time very short time for implementation before end 2013.	why not JRC to make one LPIS golden standard
LT	5 - meter buffer and area to zero - problems; many RPs affected, if unclear all areas to zero - do we need to make still field inspection	we don't know if we report correctly critical defect	more EC clarification needed; many thing left to MS to decide; we need notes from EC. permanent pasture is important to know what does it mean? clarification more quickly. how to explain new rules to farmers?	
NL	some clarification on measurability and inspection; more examples; more general level illustrations; less complexity	stepping stone for improving LPIS quality; not to focus on scoreboard, but on remedial action plans, if not PA will perform it bias toward political way, but DG agri understood this	what type of RP is best for CAP 2014? If EC and JRC cannot give guidance, everybody is on their own? If MS decide, will J3 disallow later?	a/ NL proposes a boundary delineation margin for purpose of stability of LPIS and to account for the uncertainty of the interpretation; b/ clarification of min mapping scale
SE	no major changes unless for more simplification	good and useful tool to perform self-assessment; Results should not be against MS; J3 should look in the remedial action plan	please EC, give us clear rules!	a/ we want LPIS stability: supporting the NL proposal for boundary delineation margins if no ineligible feature inside the margin - then should be OK. b/ what about simplification?
IE	multi-parcels is an issue in IE - topographic block (many field divided by hedgerows). Revise the guidance on digitizing area <0.1 ha:	reporting XML files is complex	if all LF has to be digitized -will take too long to complete!	a/ provide templates for ArcMap b/

	in separate layers.+ not reported.			
UK	problems with 5-meter buffer - problems. presence of non-eligible features inside the buffer for TB should be OK.	while there are weaknesses in mapping - farmers are aware of these and lodge correct applications	big concern for the incoming complexity; lots of LFs; we can only see canopy to make better judgment;	a/ supports NL proposal for boundary margin, b/ supports DK suggestion to categorize the Q&A in wikiCAP
SI	a/ welcomes to change the QE 7 and integrate OTSC and LPIS QA random sample. linear object should be extracted? - is it part of the 0.1 ha rule? area boundary margin is good	multi-polygon is concern still - we don't know whether it is right or not ? clarification of multi-polygon	Grassland should be in scope of LF counting for EFA as do LF that border to agri land without direct contact (state land restriction), Else the 7% requirement will only cause more fallow land	supports the NL proposal for boundary margin
LU	lots have been done, only problem with field measurements - too much work	When will we have the 2011 screening reports? nice to have	Simplification is missing. For the 2014 deadline, there is no always budget and staff to implement and make the IT changes	
IT	pro-rata - lack of clarity how to implement causes erroneous processing		Will cross-compliance be related to non-agriculture features / water bodies?	30/6/2012 deadline is not achievable; problems for PAs (they are in the middle of the OTSC). ETS should be performed later in campaign
DE	ETS should be stable, clear as there are lot of problems in changing. farmer update - changes from other sources in tempore non suspecto - more clarification. With a simpified assessment report template	QE6 - EC should clarify; make paper?	a/ simplification is required; b/ streamline definitions. c/ clear guidance on EFA is needed	
BE-FL	critical defects were problems in 2011; after reading 2012 - problem solved; still some reviewing of critical defects and examples needed (like multi-polygon). boundary margin	J3 explained how the result will be interpreted	there is no simplification; LF will be quite a burden; not necessary to digitize them.	a/ art 31a needs clarifications how it relates to ETS resultes; 3 b/ year update is not a good way; ETS is a better way
BE-WA	EP- add the reason for the user-defined legend codes + it would be better to impose xml format + why entries that not exist? VHR ortho- can we be used only partly for the sample. Tutorial in wikiCAP on XML parsing	what is the proof of a stable physical boundary for incomplete bock? How to split the block to prevent multi-parcel?		
CZ	Need for training and manual for photointerpretation; quick identification of RP at risks (automated)	non-compliance criteria too strict: delineation from scratch implies virtual changes and causes deviation from human factor and image quality. A study found that 35% of non-compliant are due to such error	LF - tension between the original intention of LF for biodiversity and the eligibility. problems - if limited to certain sizes, cannot always be restricted to the size or set it up in advance	
ES	ETS should accomodate the CP. QE7 is not representative as current. Why field observations for skipped parcels? please clarify	boundarly delineation is problematic for CP - ETS result may not be representative for the quality of the Spanish LPIS	worries about the impact of green payments, EFA and LF on LPIS. It should be adapted - huge economic impact.	Deadline (pre-selection 30/6/2012) is very close
MT	MS not using GNSS lack the means to vindicate critical defect.. GNSS measurement is not common. How to delineate unclear boundaries; boundary adjustment; aggregation of small parcels on an image?	QE 7 is not very representative. Very few number of matched samples.	why to put a threshold on LF: is it serving the environment purpose? habitats?	a/ Will we have the screening reports before new campaign? if screening feedback arrive later in the year and there are problems - what to do? b/ provide support for GML and XML
RO	mutli-parcel - the current 10 subunit criterion is not suitable for RO; there are many such parcels in RO		worries about the workload to digitize permanent pasture and LFs	
LV	a/ 2010 was hard with GMLs - now no problems. b/ how to treat mutli-parcels is not always clear		there should be no need for EFA for farmers having only permanent grassland - answer of D1 to IE	supports EE and LT about clarity and complexity. do we need to update every RP with the new data; or risk analysis?

6.3 Formal positions by the MS sent to the JRC by email

6.3.1 Malta

We hope these observations are taken in a constructive spirit and we will contribute to fine tune an already proven and efficient tool for LPIS assessment.

LPIS QA methodology

Member States who are lacking GNSS infrastructure/equipment, presently have no tool to vindicate parcel boundary critical defect ?invalid rp boundary or unmeasureable by capi?. Can JRC suggest any alternative to such method? Are the concerned MS obliged to setup such infrastructure to comply for QE3 of ETS? Does article 6(d)of 1122/2009 makes the use of such technologies obligatory? Answer from JRC or the Commission is welcome in order to build a business case in the event such infrastructure, equipment procurement and training services are needed for such a setup.

LPIS QA results

My comment on QE7 questioning that the sampling method may be based on a very restricted sample according to the current methodology, is in accordance with your mention that it is currently being considered, that the first two hundred parcels for ETS inspection would be selected from the on the spot check parcels. Would the two hundred parcels be inspected using GNSS equipment?

LPIS 2014

We do not fully support the idea that a threshold is made on the protection of landscape features. During two presentations at the workshop, it was demonstrated that both Malta and Germany have adopted such thresholds which result in confusion to the farmer. If a landscape feature is over the threshold by a few metres, this LF will no longer need protection according to this threshold and hence becomes non eligible for payment and is not protected (the farmer can remove it without sanctions applied). The Commission is requested to give some guidance on such methodologies especially in the context that in 2014, payment entitlements will have to be allocated on landscape features as these will

form part of the eligible area and an important contribution to the greening element of the new CAP.

6.3.2 United Kingdom (for England, Wales, Scotland and Northern Ireland)

The Comments made from Northern Ireland, representing the whole of the UK were:

LPIS QA Methodology

◊ We had many RP with an unclear LUI and an ineligible feature within the 5m buffer. These could therefore not be measured.
◊ However, the ineligible feature was not within the unclear portion of the boundary and are therefore considered to represent a low risk to the fund.
◊ Therefore we feel that for topographical or physical block systems in particular, the LUI should only be classed as unclear if the ineligible feature is within 5m of the unclear portion of the RP.

LPIS QA ? Results and Interpretation

- Northern Ireland is in the middle of a LPIS refresh and therefore did not perform as well as we would have liked in some of the LPIS QA Quality Elements.

◊ However if we compared the observed eligible area found during the QA to the area that was used by the farmer to activate a claim, we would have performed well.
◊ This means that our comprehensive media/training campaign has ensured that framers recognise the weaknesses within the maps and only claim for the correct eligible area.
◊ We feel that some recognition should be given to this in the QA.

LPIS 2014

◊ We have great concerns about having to map landscape features and feel that the effort will be disproportionate to any benefit received.
◊ Mapping landscape features for us will be complex. We have great lengths of hedges in particular. These hedges can be shared between farmers and are not always symmetrical meaning that it is difficult to know which farmer owns which part of the hedge.
◊ Also we can only see the top of the hedge canopy on the ortho image which is often many times wider that the base of the hedge.

Additional Statements

1. We support the call from the Netherlands for an agreed on-screen tolerance, based on pixel size, when mapping boundaries from an ortho. Northern Ireland is in the middle of a LPIS refresh and has spent considerable time agreeing tolerances with our contractor. A standard figure would have streamlined this process and helped to ensure that we were compliant.
2. We support the request by Denmark to group Member States Q&A on Wikicap according to subject matter as this will make it much easier to find relevant information.

6.3.3 Czech Republic

LPIS QA methodology

The requirement for independent delineation of LUI during LPIS QA leads to many cases when the parcel is classified as NON-COMPLIANT despite the fact that there is no change in the countryside and the RP boundary has been correctly photo interpreted. This is mainly caused by differences in data sources used and a human factor (this issue was also mentioned in the presentation by Jaap Kroon). We made an analysis on non-compliant RP?s and about 40% of them are falling to this category due to these reasons.

LPIS QA results and interpretation

Follow-up analysis to investigate the reasons for non-conformances found during the LPIS QA 2011 was implemented in the Czech Republic in the beginning of this year. In approx. 40% of cases no error was found, the non-conformity was caused just by small differences in photo interpretation. Remaining 60% represent real errors or problems. A set of specific measures to enhance the LPIS quality has been prepared (e.g. develop detailed photo interpretation manual and arrange for specific training of staff, identify and check RP in risk of non-conformity).

LPIS 2014

It seems from the presentations relating to the implementation of Landscape features (Malta, Germany) that there is certain tension between the environmental aspect (need to protect landscape biodiversity, protect soil from erosion, etc.) and the ?eligibility? aspect (need to set up rules for the registration of landscape features in LPIS ? size or percentage limitations). This issue should be addressed at the EU level in the near future.

6.3.4 The Netherlands

LPIS QA methodology

We still need more clarification on the measurability of the LUI. What are the (exact) criteria for measurability? More examples are needed, maybe specified for the different types of RP's.
More in general: Do not make the ETS more complex and detailed as it is now. I am afraid that MS will not be able to follow all intentions and instructions.

LPIS QA results and interpretation

If we want the LPIS QA to be the stepping stone to asses the Quality of the LPIS with the aim to improve the quality of the LPIS we should not focus only on the numbers in the Ets scoreboard. The assessment and the remedial actions taken are the important aspects of the LPIS QA. If the focus from the EC lies only on the numbers in the ETS scoreboard this will stimulate the PA's to perform the ETS in a political way with the aim to bend the outcomes into the thresholds set. The presentation by Daniel Amoros Pascual of DGAgri J3 gave some reassurance that this is understood bij DGAgri.

LPIS 2014

I intended to ask here the question of which type of RP is best suited to meet the requirements for LPIS coming form the new CAP (especially the Greening) from a technical point of view. But after the presentation of Wim Devos on the possible impact of the new CAP on LPIS I am slightly worried that we will have to do without clear guidance from DGAgri and JRC. As it seems now the MS's are on their own to decide in which way they will implement the new CAP in LPIS. All MS's will come with their own interpretation on what is the best solution. The time for implementation is also very short, if not too short. The EC/JRC will come with added requirements for the LPIS with regards to the new CAP in the coming years. This will lead to findings in EC audits and in non conforming LPIS QA's for many MS's. This is not in the interests of the EC, the Paying Agencies and the farmers.

Optional statements

<u>Boundary Delineation Margin:</u>

For the purpose of the stability in the LPIS, that is in the interest of both farmer and PA, there is a need for a Boundary Delineation Margin (BDM). This BDM is applicable in those situations in the LPIS where there is a given uncertainty on the exact location of the boundary based on CAPI. It does not apply for evident ineligible elements at the boundary of the RP or inside the RP. The BDM should cover for the uncertainty that is influenced by:

- ◊ The quality of the orthoimages
- ◊ The delineation by the operator
- ◊ The interpretation by the operator

Write the BDM in the EU regulation, for example instead of the minimum mapping scale of 1:5.000.

6.3.5 Hungary

LPIS QA Methodology

Please correct our statement into:
"Multi-parcel issue is clarified = not number of AP but units of reference parcels, not measurable block - specific issues for physical blocks"

LPIS QA results and interpretation

That ETS conforming blocks are not-conforming for the internal quality control is because there is still a difference between the ETS conformity and non-conformity from the procedure of the internal QC which stems from special landscape and LPIS management. Further studies and analysis should be done in such cases

LPIS 2014

We would like to add another idea:
Certain experiences of the LPIS QA studies and activities should give a strong support for the technical decisions of implementing the CAP reform.

7 2013 Workshop Baveno

The 2013 LPIS workshop was organised October 14th and 15th in Baveno, Italy. The presentations can be downloaded from the workshop webpage

The Workshop was followed by a training day, dedicated for LPIS QA inspectors.

7.1 General Observations

The LPIS workshop conclusions can be summarized

- The presentations have been published online for further review by the participants.
- The LPIS community appreciates these technical meetings and is active, either in public or during the "off session" time. Some regret was expressed for the limitations of scope linked to this particular LPIS-event.
- Any proposal for changes on the LPIS QA methodology is generally met with ambiguity: there is a clear and general demand for simplification, clarity and stability, but this demand is offset by a desire to address problematic findings.
- DGAgri reiterated the importance of the LPIS and LPIS QA for the post-reform CAP. It invited the participants to integrate the insights of the workshop in all level of negotiations.

7.2 Proposals for ETS changes

Below are the responses to the methodological proposals made the JRC during the workshop.

Please note that these proposals do not constitute the official guidance, merely discussion material for the scope of the workshop

- On the announcement to revise the ETS guidance (including its transfer to UML), some MS expressed that they were satisfied with the current WikiCAP documentation.
- On QE1, there was no objection that the current measure (expression of bias) should be completed with an expression of the precision. The proposal of JRC, an extra calculation of existing results to assess the area overestimates, was presented but not discussed in depth. However, DG AGRI made two observations

    1. It never was and never will be the purpose of LPIS QA to quantify financial risk. This is stated in all published documents.
    2. Whereas the JRC proposal addresses the area overestimates of LPIS reference parcels, DG AGRI would also appreciate information of the area underestimates of the reference parcels.

- An additional skipping code for the processing particular scoping issues detected during the analysis was welcomed by several MS. No objections were expressed to this proposal.
- Changing the measurement guidelines to loosen the "feasibility for measurement"-test and so ensuring higher numbers of measured parcels, found little support. Some MS expressed it could complicate the methodology whereas the MS who demanded such change expressed that the JRC proposal did not reflect its original suggestion. The Commission Service therefore concluded that it would not implement the proposal in 2014 without prior results and analysis of a feasibility trail. Such voluntary trial would be possible during the 2013 assessment if candidates present themselves.
- On the linkage between OTSC and LPIS QA sampling, MS ask for a further elaboration of practical issues, such as on the timeline of the processes and for detailed description of this procedure for MS not using CwRS. This proposal therefore needs further discussion in the running up for 2014.
- The proposal on the peer reviewing of the ETS on mutual basis (i.e. one Member state reviews the methodology and the results of another) was met with concerns of the limited resources and the tight timeline for MS to perform such task. Others raised the question of liability: who is responsible for the residual errors? In general, MS expressed that they would prefer if JRC/EC continued systematic screening and providing feedback.
- A "long term" proposal on dedicated LPIS QA zoning was presented but not discussed in depth. In part, this proposal relies on the others (ensuring delineation of inspected parcels and appropriate linkage with the OTSC sample).

7.3 LPIS QA inspector training

The dedicated training day was found very useful but suggestions were made to:

- focus on the majority of (mostly basic) methodological issues as identified by the JRC.Hypothetical, unlikely cases are irrelevant if the basic issues are not solved and ?addressed?.
- address cases in realistic conditions, possibly proposed by the Member States' inspectors.
- keep the audience strictly technical to enable focused, technical discussions.

The training presentations can be downloaded from the download article

7.4 Methodological support group

As systematic methodological screening of all Member States is currently not foreseen, JRC will establish a methodological support group with help line for the MS who intend to implement article 31a during 2014. Conditions and modus operandi will be communicated.

8 ETS

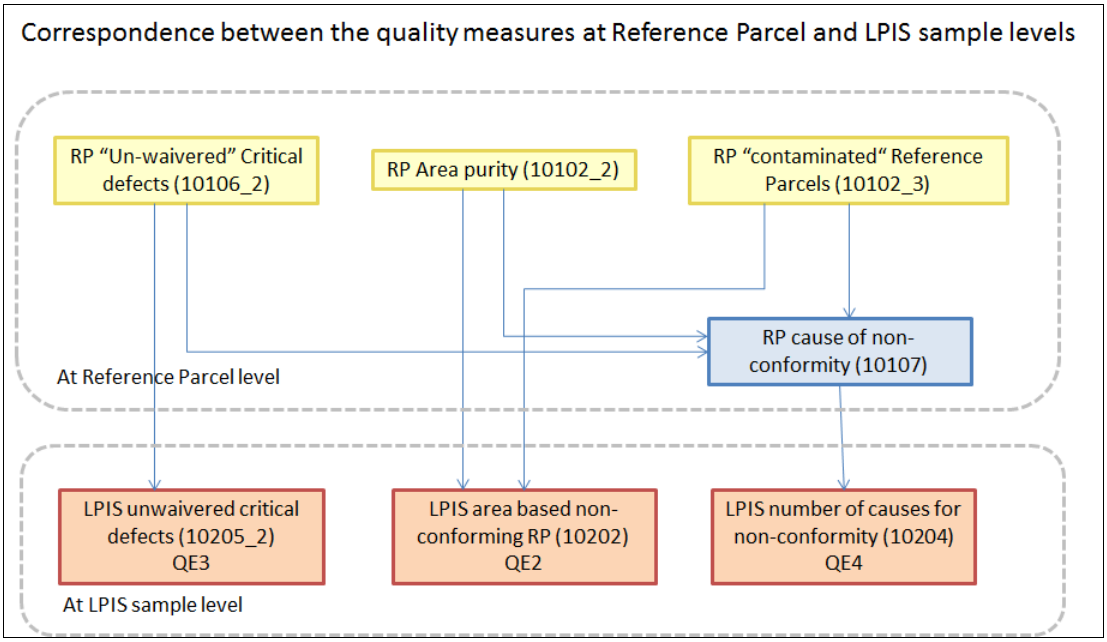
1. Definitions and concepts
2. LPIS QA control zones and reference orthoimagery selection
3. Reference parcel sampling
4. General and CAPI inspection
5. Field inspection and optional field visits
6. Combined inspections
7. Analysis of Data
8. Acceptance decisions

9 Analysis

9.1 Connection between the measures and the quality element indicators (aka: Which non-conforming parcels are counted where?)

In order to account a non-conforming parcel in the right indicator the connection between the quality measures used for the assessment and the quality element indicators has to be known. The arrows in the figure below provide the links between the RP quality measures with conformity levels and the LPIS quality measures. The latter directly relate to specific LPIS quality elements.

- RPs with un-waivered critical defects (10106_2), are considered non-conformant. They are reported in measure 10205_2 (Table 14.2 of Annex I).
- Ps with ?area-based? non-conformity - quality measures 10102_2 and 10102_3 - are reported in Measure 10202 (Table 11 of Annex I).
- he DQ_Scope of Table 9 (10107) comprises all reference parcels that are considered non-conformant and for which the cause of non-conformity should be reported. This includes the ?area-based? and ?unwaivered critical defect? types of non-conformity.
- The number of causes for non-conformity is reported in measure 10204 (Table 13 of Annex I).



For QE5, reference parcels having more than 10% difference between the observed eligible area (rounded to 0.01 ha) and the area declared, are considered non-conformant. However, when they are conformant with the rest of the quality elements at parcel level, they are not subject to quality measure 10107. In this case the cause of the difference is obvious and out of the direct control of the administration (i.e. farmer?s behavior).

9.2 Units of measurements and precision to be used

Area of the agriculture land cover polygons should be rounded to **square meters without decimals** (e.g. 25761 m^2). Area reported in the XML and GML files should be rounded to square meter (e.g. 25761 m^2).

The **value for the Arec** given in the LPIS Polygon zero state should be expressed in **hectares with exactly 4 digits after the decimal**. This will ensure than observations during the screening will be truly compatible with the ETS observations (e.g. 2.6159 ha).

The values for ?**observedToRecordedAreaPercentage**? are expressed in **percentage with 2 decimals after the decimal point** (e.g. 98.48%).

9.3 Cumulative land changes ? denominator of measure 10207

Although the scope of the measure relates to all parcels declared over the previous years, to calculate the rate of change for the year under assessment only the information relating to that particular year shall be used. This means that:

1. The rate of change declared by farmer in year N = number of parcels with change notification by farmer in year N divided by the total number of parcels declared in year N
2. The rate of change identified by inspectors in year N = number of parcels with change discovered by inspectors in year N (classical OTSC + CwRS) divided by the total number of parcels inspected in year N (classical OTSC + CwRS)

9.4 Linking QE6 to update needs

Update is the most important challenge for any GIS, including the LPIS. Several different processes may contribute to keeping the information up to date (see LPIS update) from partial updates till an "acute refresh", i.e. replacing the database by a newly produced one. From cost efficient point of view the latter is by far the worst option.

The purpose of QE6 is to monitor the update processes so that an acute refresh can be avoided. Like other other measures, QE6 should not deterministically trigger a reaction but lead to analysis and a sound remediating plan.

QE3 provides a categorization of non-conforming and defective parcels according to the reason of failure, which also comprises the reason of insufficient updates. However this category does not give information on the individual processes triggered by different actors (farmer/ inspector/ LPIS custodian/ national mapping agency). The knowledge of the relative abundance of these transactions, if managed effectively, gives input to the actual update needs.

9.5 How to implement measure 10208

Please apply the following clarifications: Area not found: the difference between area declared and area determined based only on eligibility conditions on the land. This means that for SPS the availability of entitlements is not considered. i.e. the second part of 2009R1122 art 2(23) and art. 57(2) are not applicable.

Although 2009R1122 art 84 (1)(d) calls for a bulk reporting on July 15th, the ?area not found? for this measure should have been determined before late autumn of the preceding year. See 2.4 of the art 34 guidelines.

Restricting the difference to over-declarations according to eligibility criteria described in 2009R1122 art 58: add up the values of the positive differences on an aid application by aid application basis.

9.6 The current measure is not representative enough

At current stage a revision of this quality element is probably not needed but an **alignment between the OTSC random sample and the LPIS QA sample** should be prepared from 2013 onwards. The purpose of this action would be to achieve a common random sample OTSC/LPISQA large enough to draw valid conclusions on the effect of LPIS on irregular aid applications.

Since the OTSC sample is produced by the Paying Agency and the LPIS QA sample pre-selection by the JRC, alignment of both procedures will be necessary. JRC proposed such alignment on the Paphos conference and update the art 34 and art 6 guidance where necessary. However, this proposal is not effective for the 2013 assessment.

9.7 Causes for ?area not found? in OTSC

A part of declared are may not be found in course of OTSC. The possible causes include:

- The declared land is not in agricultural use
- Parcel over-declaration
- Parcel under the minimum size
- Parcel not found at all
- Eligible land but not used for farming

9.8 How to proceed with a non-conforming parcel?

The purpose of the ETS is to collect unbiased data on the LPIS as a whole. It is not intended to be the main (and surely not an exclusive) information source for updating individual parcels. However, the ETS provides a trigger (?anomaly?) that drives the update process. Therefore the ETS inspection results of an individual parcel should thus be considered as a potential anomaly. So the Member State should:

1. Consider updating all inspected parcels where an anomaly was identified.
2. Collect the required update information for the non-conforming parcels in compliance with the existing procedures. The ETS inspection observations may not necessarily be fit for this purpose.

9.9 Adding a precision component to QE1

To help correctly assess the value of the quantification of the maximum eligible area (QE1) the bias is complemented by a precision component. As a result, the existing bias measure will be addressed as QE1a, while the introduced precision component as QE1b.

Introduction of the QE1b affects:

- Analysis of observed data - calculation of QE1 - lower and upper interval boundaries
- LPIS quality assessment report - QE1b added
- LPIS scoreboard schema - LIB and UIB added

10 Combination

10.1 Combination GPS measurements and CAPI

Based on the requests from the Member States instructions for such methodology have been elaborated by the JRC.

10.2 Merging GPS-based ETS with the OTSC

It is possible, provided that random sampling is guaranteed.

10.3 How to vindicate the critical defect ?invalid RP boundary? or ?not measurable by CAPI when a MS does not have appropriate GNSS infrastructure?

When a MS doesn't have a CORS/POS network installed, it might consider investigating augmentation services such as Ominstar or Starfix who claim to achieve horizontal accuracies of < +/- 15 cm. JRC has not done any tests with either.

10.4 Are the concerned MS obliged to setup GNSS infrastructure to comply for QE3 of ETS? Does article 6(d)of 1122/2009 makes the use of such technologies obligatory?

No, MS are not obliged to use GNSS, but if they can?t vindicate such critical defects, their LPIS QA results will become worse.

11 Decisions

11.1 Limiting Quality (LQ) indeces applicable to the different quality elements

Limiting Quality indices are used to determine the acceptance number for attribute sampling:

- QE4 - for 1% / LQ2 : please look at slides 13-14 of this presentation
- QE2 - QE3 - QE5 for 5% / LQ8 (theoretically). Hower the Commission services suggest to move from LQ8 to LQ12.5. Although this LQ substitution mimics a bit the choice recommended in 3.5.1 of ISO2859-2 on AQL/LQ ratio.

The resulting acceptance numbers are indicated in this table.

Lot size		LQ=2,0%	LQ=8,0%	LQ=12,5%
35 001 to 150 000	n Ac	500 5	315 18	200 18
150 001 to 500 000	n Ac	800 10	315 18	200 18
> 500 000	n Ac	1250 18	315 18	200 18

QE1 and QE7 both measure are variable values, but do not count as non-conforming items. This allows direct application of the expectation error rates. There is no expression of applicable LQ.

11.2 Denominators for the acceptance decisions

During the inspection procedure, it can happen that not all parcels in the particular scope can be successfully inspected, e.g. because of a critical defect, or because of the absence of information in IACS for the inspection year. Therefore it is absolutely normal that the resulting of acceptance decisions becomes smaller than the original scope.

In general the inspection is targeted at the total population of the sample. However, not all the parcels can be inspected. Those parcels that can be inspected constitute the subpopulation. In other words the subpopulation excludes the skipped parcels, but includes the critical defects. For a particular year N the denominators used in the various quality elements are the following:

- QE1: subpopulation minus RP parcels that cannot be measured (note: some critical defects are measurable!)
- QE2: idem
- QE3: total population
- QE4: total population
- QE5: sub-population minus RP that are not declared during year N minus RP that cannot be measured
- QE6: (2010) all applications
- QE7: (2010) all application

EXAMPLE 1: In case of total population of 1466 parcels can yield the following denominators (underlined):

- Subpopulation: 1250
- skipped: 113 (i.e. technically impossible to inspect)
- measured (QE1 and QE2): 1197 (out of which 1115 by digitising, 82 by area recovery)
- declared: 1226
- declared AND measured (QE5): 1183
- total population (QE3 and QE4):1466
- all applications (QE6 and QE7):68781

NOTE: Area declared is defined in the scope of Article 56 of 112/2009. It involves declaration for aid schemes and for other uses.

EXAMPLE 2:

Subset	Parameter	Example
pre-selection sample	N	3750
number that is skipped (for technical reasons)	N_{skip}	27
number that is inspected	N_{insp}	1250
number that is measured (digitised ot derived)	N_{meas}	1186
number that has comparable information	N_{comp}	1093
number that are non-conforming for QE2	N_{ncqe2}	16
number that is non-conforming for QE4	N_{ncqe4}	4
number that is non-conforming either for QE2 or QE4	$N_{ncqe2/4}$	18
number that is conforming for QE2 (=Ncomp-Nncqe2)	N_{cqe2}	1077
number of non conforming or defective parcels due to faled update (i.e. cause A)	$N_{ncqe3(A)}$	7

The numbers defined above are relevant for the seven quality measures as indicated by this second table:

QEx	number in DQ_scope	nominator	denominator	comment
QE1	N_{meas}	n/a	n/a	
QE2	N_{comp}	Nncqe2	Ncomp	
QE3	$N_{ncqe2/4}$	N_{ncqe3}	N_{insp}	
QE4	N_{insp}	N_{ncqe4}	N_{insp}	

QEx	number in DQ_scope	nominator	denominator	comment
QE5	N_{cge2}	n/a	n/a	
QE6	N_{insp}	n/a	n/a	uses $N_{ncge3(A)}$
QE7	N_{insp}	n/a	n/a	uses $N_{ncge2/4}$ and N_{insp}

NOTE: in both tables the number $\mathbf{N_{insp}}$ equals to the determined sample size and represents both the DQ_scope and the denominator for QE4.

11.3 Once missing to meet a threshold is not necessarily a problem, why are they introduced?

The thresholds are important and should be kept, as they give the opportunity to the MS to decide whether an action needs to be taken. The threshold represent the benchmarks needed to evaluate a system.

11.4 Conformity of non-measurable RP without critical defect but containing an ineligible element

A non-measurable RP that contains an ineligible element, but does not contain any critical defect is retained to be conformant. This is justified the definition of the ?non-conformant?? category, which is applicable only on RP that are measurable. The ineligible element causes non-conformity through contamination for measured parcels only.

11.5 Why the 2% threshold is applied? (QE 1)

This threshold is defined as "materiality threshold", i.e. a benchmark for serious error in the Court of Auditors DAS methodology ? and the related update.

11.6 Why the 3% threshold is applied? (QE 2)

This threshold difference is specified (twice) in 2009R1122 for a comparison between an area observed and an area declared.

- In Article 58: Reductions and exclusions in cases of over-declaration: the area declared for the purposes of any area-related aid schemes, ..., exceeds the area determined ...if that difference is more than either3 %...
- In Article 55: Non-declaration of all areas: the difference between the overall area declared in the single application ... and the area declared plus the overall area of the parcels not declared, ..., is more than 3 % of the area declared.

NOTE 1: In a good LPIS ?Area declared? should be derived from the LPIS reference area.

NOTE 2: The technical tolerance for smaller parcels (as add on to 3%) is 5 % and 7%.

NOTE 3: The maximum tolerance of OTSC methodology is 1ha.

11.7 Tolerances for area based conformity (QE 2)

The Commission services acknowledge that non-conformity based on exceeding an area difference threshold is influenced by the parcel size, the characteristics of source image, the landscape (accuracy of orthorectification) and the interactions between them. The general expectation for area based conformity is based on 3% accuracy on the mean polygon measurement uncertainties with 50 cm GSD imagery. Considering that Member states have some control over their source imagery, a dependency of the conformity threshold and the parcel size has been introduced.

Reference area	Conformity threshold
> 5000 m_2	3 %
2000 ? 5000 m_2	5 %
< 2000 m_2	7 %

In the LPIS QA methodologically Member States have to report the ?distribution of reference parcels where the maximum eligible area takes ineligible areas into account or where it does not take agricultural area into account? with the raw observed data. This categorisation should be assessed using the variable threshold included above. In addition, for QE2 an additional scoreboard entry has been introduced indicating the number of non-conforming parcels smaller than a threshold size.

NOTE 1: Introducing these size dependent thresholds creates "safety margins" of up to 140m_2 or bigger and 250m_2 for the smaller parcel. It may also result that parcels with a newly constructed building inside the LUI would easily escape the detection when only this area-based conformance test is applied. To prevent this the guidance introduces a separate conformance test on the ineligible features inside the LUI.

NOTE 2: This tolerance may obscure analysing the field situation by vindicating (?hiding?) parcels whose shape and size prevent accurate and precise measurements. Although a given LPIS might well be the most appropriate design for the prevailing conditions, it is essential to become aware of issue and its implications of the choices made in the LPIS.

The Commission services do not consider introduction of new / other tolerance being good practice.

11.8 Why the 5% threshold is applied? (QE 3)

It is an arbitrary value. It serves an indicator/alert function.

11.9 How to deal with causes of non-conformity? (QE 3)

Hereby we list some examples how non-conformity can be treated depending on its nature: Latest imagery is not fit for inspection:

- Skip the RP
- Add new non-conformity code, related to the limitation of the VHR
- Add Waiver

Time difference between exchange of data (either raster of vector) and QA-inspections

- Add a new non conformity code: imagery contains changes not yet reported on the imagery used for refresh

National legislative requirements (splitting due to administrative boundaries)

- Add a new non-conformity code, LUI contains administrative national boundaries.
- Apply the appropriate waiver from the list

11.10 Why Limiting Quality (LQ) is set to 2? (QE 4)

LPIS should have no true critical defects at all. The limiting quality (in percent nonconforming parcels) is set to 2 as it is the "materiality threshold" defined for serious error in the Court of Auditors DAS methodology and its update.

11.11 Why the threshold is set to 25%? (QE 6)

It is arbitrary: serves an indicator/alert function; i.e. keeping track of the changes in the land.

11.12 Applicable threshold for QE7?

The applicable threshold is 2%, which is is the "materiality threshold" defined for serious error in the Court of Auditors DAS methodology and its update.

Additional criterion on good quality management principles: the threshold should not significantly higher than the previous year.

12 Definitions

1. LPIS QA scope
2. Land cover
3. The LPIS methodology
4. Eligibility issues

13 Eligibility

13.1 Pan-European rules for Eligibility? (QE 2)

It is not feasible to define generally applicable technical guidelines on how to account for these landscape features in the LPIS, as both approaches on landscape features **depend on the regional traditions or on the national GAEC measures** rather than on pan-European concepts. Each MS will have to develop a solution where it can demonstrate that the farmer is informed of the presence and eligible area of a landscape feature and, when appropriate, the inspector is able to control its retention. The existing technical guidance on landscape features relates to the work of the inspector, and how his findings (position and area) are brought into the LPIS for the inspected reference parcels.

13.2 Why the total eligible area is calculated based on both active and non-active reference parcels?

Legal background: Commission Regulations (EC) 2009R1122 does not differentiate between "active" and "non-active" reference parcels. Art. 28 does not a priori exclude any type of declared parcels (reference or agricultural). Art, 55 on "non-declaration of all areas" requires area values for all declared areas, including those for "other uses" specified in article 13.8. Furthermore Art. 33 states "On-the-spot checks shall cover all the agricultural parcels for which aid is requested".

In functional terms: The inspection process determines the area of agriculture land through the mapping of land cover. This is "potentially" eligible land (represents eligible ha) by applying an eligibility profile. The amount declared for aid per parcel is in fact one type of land use. It is not mapped (nor is there a need to do so) but recorded in IACS. Another relevant form of recorded land use is land declared for "other uses", but not for aid.

The two concepts, land cover and land use, are different and are assessed by two different measures. Both concepts should also be supported by different procedures in IACS:

- incorrect representation of agriculture land: --> LPIS update
- change in land use: --> verification procedure.

13.3 Eligibility on marginal areas (QE 2)

In the exercise of assessing the quality of the LPIS, it is appropriate to use the approach towards eligibility of marginal areas which is used by the authorities when establishing and updating the LPIS. The approach should be set within the legal framework for eligibility of areas which is given in Reg. 73/2009, Reg. 1120/2009 and Reg. 1122/2009.

The subject of eligibility was exhaustively discussed in the Management Committee for Direct payments in 2009/2010. In that context document DS/2009/29 was presented in the meeting of the Management committee for Direct Payments on 26 November 2009. Annex II of this document lists the legal provisions relating to eligibility. Furthermore, some clarifications relating to the issue of eligibility, and in particular marginal areas, can be found in DS/2010/04 rev 1 which was discussed in the meeting of the Management committee for Direct Payment on 31 March 2010. Further changes of the legislation are not foreseen for now.

13.4 Theoretical background of the pro-rata system

The concept of "Pro-Rata" refers to a method of handling particular land covers (bio-physical phenomena) that represent an intrinsic mix of different life forms (different vegetation types from physiognomic-structural viewpoint) that co-exist on a particular area of the Earth surface and that are completely inter-dependent. A typical example of such intrinsic mix could be natural grassland and shrub, where one of the life forms is herbaceous vegetation. If accessible for grazing, this component has an agriculture potential that makes it agriculture land. However, the intrinsic mix makes a straightforward quantification of the agriculture (eligible) land through delineation of the herbaceous vegetation alone impossible. But, if one can demonstrate that the proportion of grass area within the mix is relatively stable, the variation in the ratio between different patches can be presumed insignificant for the particular mix.

Therefore, if one could estimate and establish in advance, through scientifically-sound methods, an average ratio for the intrinsic mix with sufficient degree of confidence, this can quantify the agriculture land available for the area covered by that intrinsic mix, by delineating the whole area as single polygon and multiply the polygon area by the (grass) ratio expressed as percentage (or alternatively, the reduction coefficient for all non-agricultural area inside the mix).

For this approach to function, each particular intrinsic mix will have its own defining characteristics and specific ratio. It should be listed as separate land cover class in the eligibility profile with a proper LCC definition and UDLC. The specific ratio should be given in the "Eligibility Hectare Factor" field.

IMPORTANT NOTE: This concept of pro-rata is applied at the level of the particular land cover type. It is implemented at the level of the reference parcel MEA directly from mapping (GPS/CAPI area delineation of the land cover). Reduction of the MEA applied on parcel level by other methods such as "scorecards", documented subtraction of area are not considered pro-rata.

13.5 Reduction coefficient for the pro rata land cover classes

The LPIS QA eligibility profile imposes one coefficient or fixed rate for each type of land. However, in practice, the reduction coefficient can be applied on a parcel by parcel basis. In such cases the two methodologies may yield differences and the pro-rata approach may result in non-conformity.

If a MS considers that such non-conformity does not relate to the LPIS as a whole, but stems from the different methodology, a separate analysis should be carried out to demonstrate that no bias is present for the total area of agricultural land stored in the system. The reasoning why a pro-rata approach with a fixed coefficient is used is documented in a Bergamo presentation.

13.6 GAEC eligibility (QE 2)

GAEC becomes an eligibility condition for areas under SPS in the case when no other agriculture activity besides the GAEC maintenance is taking place on the parcel. Forests are not eligible for payments under the first pillar except when they are covered by Article 34(2) of Regulation (EC) No 73/2009(afforestation).

13.7 How to deal with conditional eligibility?

These conditions must be documented in the eligibility profile and/or in other unstructured evidence. When any of the conditions is not fulfilled by a feature previously classified as an instance of the type, the feature fails the test and can no longer be regarded as belonging to this type. In the case that feature fully covers a reference parcel, the complete LUI becomes ineligible and a critical defect with 'Total absence of eligible feature' value must be encoded in course of ETS.

14 Land cover

14.1 How to process agricultural areas with trees?

Single trees should be mapped in the ETS, only when they correspond to landscape elements that are subject to retention according to Article 34(3) of CommReg1122/2009 (GAEC aspects).

The presence of **trees** on the LUI **other than those defined as landscape elements**, should be processed only if their abundance prevents the agricultural activities to be carried out in a similar way as on the LUI without trees in the same area (according to Art. 33 (4) of Reg 1122/2009). Such presence can be reported alphanumerically in the relevant land cover class definition, using the LCCS semantics. No individual graphical representation of the trees is needed. Two options are possible, depending on the tree types:

1. **Cultivated trees** (orchard, plantation): mixed class of agriculture land with cultivated trees should be designed to reflect the intercropping character of the agriculture land
2. **Natural trees** (non-agricultural): mixed class of agriculture land with natural trees should be designed to reflect the specific ?restricted? potential of the agriculture land (expressed quantitatively through the pro-rata concept)

The EU Member States may decide ?but are not obliged- to report in the ETS the presence of trees on agriculture land in cases when their abundance does not affect the normal agriculture activities on that land. The latter condition is by default expressed by the **50 tree/ha** rule or its corresponding derogation. The voluntary reporting approach can be useful, when the specific character of the agriculture landscape has to be emphasized. In such case a user-defined mix class ?agriculture land with scattered natural trees? could be designed, with eligibility hectare factor equal to 100% (pure eligible land)

NOTE: Defining individual trees on agricultural land as isolated trees under article 34(3) requires that they fulfill the scope of 'a minimum level of maintenance' or/and of 'avoiding the deterioration of habitats' (e.g. they are elements of the natural connectivity between biotopes and habitats that enhances biodiversity, they represent typical elements of a traditional landscape and of its visual quality etc.). In that context, trees present within the "50 trees per hectare", if evenly distributed on the parcel, can be hardly considered as individual landscape elements under the national GAEC standard. Therefore they need no individual mapping.

14.2 Do we need to identify and include all possible LCCS land cover classes for the eligibility profile?

NO, unless you have been using a too general approach towards eligible land. The landcover classes involved for eligibility are strictly those that have already been identified in your IACS. These classes are listed in

1. the legend/mapping key used to delineate eligible land during your LPIS creation
2. the field instructions used by the OTSC inspector for determining the agricultural parcel
3. the instructions used by the CwRS operator (CTS and national top-up)

14.3 Mapping national land cover classes in FAO LCCS classes

The FAO LCCS offers a simple and structured way to name (and describe) the land cover types you have already identified inside your national system. Generally, one national class corresponds to a single LCCS class.

It may happen that one national land class turns out to consist of two (or more) LCCS classes. For example, ?grassland? can refer to agricultural land (sown) or (semi-)natural vegetation. If this is the case, you shoul differentiate the national parent class; i.e. define national subclasses for each LCCS component for the purpose of the ETS inspection.

It is unlikely that two different national land classes would relate to a single LCCS class. For your mapping convenience, there is an explicit 'simplified' legend included in ETS version 4.3.

14.4 What is the reason behind the User-Defined Legend Codes in Eligibility Profile?

User-defined codes are applied when the 10 default ETS mapping codes are not suitable for a particular land cover class (e.g. heterogeneous lands or mixed cropping). The short names (two letter abbreviations) of the LCC classes are used in the ETS_measurements.gml - the vector file that stores the mapped land cover features. Using shorter names in the alphanumeric part of the GML reduce significantly the file size and facilitate the data handling.

NOTE: Only those classes need to be included in the EP that are relevant to your territory.

14.5 How to report land that can be used for agriculture, but primary function is not agricultural?

Such land comprises house yards, petting zoo, grassland next to landing strips, road side verges etc.

The land cover type ?Artificial sealed surface? by general definition comprises also any **associated areas**. This category therefor includes e.g. parklands, road sides, urban vegetated areas, house yards, etc.

Even areas with grassland that primarily have a different function from agriculture or urbanisation (e.g. yard, petting zoo, grassland next to landing strips, etc.) are reported in table 6 of ANNEX I as ?Artificial sealed surface?.

14.6 Meaning of "field margin" as given in Annex III

The classes listed in the eligibility provide aimed to be are purely land cover based, and although the definition of the landscape features might imply the introduction of land-use connotations, the provisional list in Table 2 offers a set of landscape features expressed through simple homogeneous land cover types. For that reason in Annex III, there are different entries for hedges, stone walls or ditches, grass strips - all of them, individual components of the functionally defined "field margin", as expressed in the references paper.

14.7 The definition of ?permanent pasture (self-seeded)? implies 1,5-3,0 m high vegetation that does not fit the reality in our country

In the context of LCCS v.2 "Medium to Tall" grassland is the grass with height ranging from 0.3 to 3 meters. The lower limit of 0.3 meters was chosen to reflect natural grassland with dense and highly productive herbaceous vegetation typically having a height of few decimetres. In the design of LCC Code "20439-12763-T2?, the Basic Classifier B4 with a modifier B15 are used in the Boolean Formula (not shown in the EP) to express this range. Indeed, the use of the verbal expression "Medium to Tall" grassland is probably not exact in the European context, but we need to take into account the fact that LCCS is designed to accommodate the worldwide variety of land cover types, and the semantics used in LCCS are in line with its global context. In any case the definition of this natural grassland class is meant to be rather general. As explained in Annex III, EU MS are free to suggest and adopt more specific LC classes, if they found that those given are not detailed enough. The LCC code for Medium To Low natural grassland (0.03 - 1.5 m) should be 20439-T2(1)[Z201] (Permanent pasture (self-seed) with grass height between 0.03 - 1.5 m).

14.8 Which is the correct code for Permanent pasture (sown)?

Both 11512-S0701 and 10822-S0701 are equally correct. The stand-alone class for sown grassland defines a **single perennial rainfed graminoid herbaceous crop** continuously covering the area. The mixed class self-seed/sown grassland was specifically designed for those cases when the interpreter is not certain about the type of grassland he is assessing. In such case, the classifiers "single" and "continuous" are omitted from the second class component, to reflect "mixed" nature of the class from CAPI point of view.

15 Method

15.1 Consequences of sub-parcels, super-parcels and hybrid implementation

It can be demonstrated (see slide 24+ of this presentation) that sub-parcels and super-parcels (i.e. aggregated parcels) can easily deviate from the optimal representation of the land for the purpose of the CAP. However the optimal situation is not always feasible. Therefore it is worth checking whether a particular design doesn?t affect the LPIS QA results. More specifically

- Sub-parcels may create smaller parcels, which may affect QE2 results
- Super-parcels may make the declarations ?fuzzy? may affect QE5 results
- Super-parcels and hybrids (mismatching third party boundaries) cause potential critical defects and may affect QE3 results

NOTE: For implementing landscape features common to two neighbouring agricultural parcels it is worth considering ?object referencing? cardinality (multiplicity), as:

- a separate identification of the feature as a reference parcel may lead to declaration on the same land by two farmers (risk of a double declaration of that area).
- Including the half of the feature to each of the bordering parcels will lead to invisible and thus arbitrary adjudication of the land.

15.2 Delineation and coding non-agriculture land cover in ETS inspection

Non-agriculture land cover has to be delineated only when it needs to be excluded from the inner area; i.e. when the patch of combined non-agriculture land exceeds 0.1 ha. This delineation represents "holes" in the polygon. Including smaller holes is allowed, but is not mandatory. The list and description of non-agriculture land cover classes relevant to the ETS are given in measure 10105 of Annex I where no LCCS codes are designated for these classes. On the other hand the abundance of non-agriculture land cover features should be reported according to the land cover type included in this list.

15.3 Why to delineate in ETS from scratch?

The purpose of the ETS is to verify whether the LIPS is fit for CAP purposes via a series of external and independent observations, NOT by "visual verifications". "Fit for purpose" is not equal to "meet the national LPIS specification". The mapping from scratch is an integral part of this independent external inspection and, furthermore, allows collecting more factual data that is probably stored in the LPIS. The possible "errors" induced by the poor quality and the orthoimage or incorrect interpretation are managed through the prior orthoimage checks and the ?four-eye? control of the ETS inspection.

15.4 Is there a technical tolerance for the ETS inspection of the parcels?

There is NO technical tolerance applied during the ETS observations as there is no need to apply such technical tolerance, because:

1. The process is not establishing whether it is measuring the same land object or not. It IS SUPPOSED to measure the same land object, albeit at a different time.
2. The value for the major quantitative measure (?total eligible area?) is calculated from hundreds of parcels. Any unbiased measurement is expected to balance out the small differences in measurements inherent to any measurement methodology..
3. The other quantitative measure that requires accurate area measurement (?categorization of reference parcels allowing payment undue on ineligible land or excluding agricultural land?) has a conformance?level (3%), well exceeding the CAPI measurement accuracies identified during the feasibility test.
4. The acceptance numbers provided by ISO2859-2 imply some kind of practical tolerance. It allows many more individual parcels to fail the inspection than a simple proportion of the specified LQ would suggest.

15.5 The role of thresholds, waivers, and tolerances

The Commission services consider thresholds, waivers, and tolerances as methodological instruments that vindicate issues **well before** they enter the raw ETS-scoreboard. As these instruments prevent ?reporting noise?, they are very useful. However they also produce too much ?filtering?, which prevents the analysis of any true signal that comes with the raw observations.

15.6 How to inspect Landscape Features (LF)

LF can be taken as **part of the eligible area** in an agricultural parcel when is on the immediate border of the agricultural parcel.

LF can be modeled as land cover **sub-parcels of a larger RP** (e.g. a tree in middle of the crop). In LPIS QA LF that resides inside one and only one RP should be considered as full part of that RP. Therefore a single RP has to be presented for sampling, which corresponds to the merged LUI and MEA of the RP.

Any **isolated LF**, not bordering arable land, grassland or permanent crop, is ineligible and should be out of scope as their MEA should be zero.

Only a **LF on the immediate border of two or more RP** can be considered as a separate item for inspection (=LUI).

NOTE: the small LF, if considered as an ordinary RP, can dramatically increase the number of spatial parcels in the lot and become a significant proportion of items in the LPIS QA sample, which may distort representativeness.

15.7 Do we need to map the land cover when the LUI boundary was derived from the RP perimeter?

Yes and follow these steps:

1. using the reference parcel perimeter as a substitute of the LUI external boundary has to be considered as a single mapping step, conditioned by the fact that no ineliglibe land cover feature is present inside the 5 meter buffer around the unidentifiable RP perimeter.
2. after this step, the further detailing of agricultural land cover classes and exclusion of non-agricultural elements should be continued as if a normal "measurable" parcel was involved.

For detailed instructions, please look at this article.

15.8 Why to distinguish between over- and underestimation of the reference area?

Even though only the former implies a financial risk, the Commission services are also interested in the fitness of the LPIS to give the farmers a proper support for the declaration process and to give an indication of potential risk of the particular system. As the differences are reported in gross terms appropriate conclusions can be drawn.

15.9 Establishing area values for eligible landscape features represented in measure 10104_2 (QE 2)

The ETS inspection is based on inventory of the land cover through **mapping**, i.e.as seen on the orthoimage coverage. Any mapping is an abstraction of real world phenomena. Depending on the concrete users? need the abstraction of the same real world phenomenon may result in different geometries such as point, line, or polygon. Most frequently land cover features are abstracted as polygons. However for rows of trees or single trees a line or point representation might be more appropriate. But this does not create any obstacle in determining the area of such LF.

The LFs subject to retention are defined in the national GAEC rules, together with their size, shape, width and texture. Therefore, the area to be allocated to landscape features represented as lines or points can be calculated ?on-the-fly?, using the regulatory width or the radius attributed to the landscape features. Point 5.1.2 of ETS Annex III (see Downloads) gives some recommendations regarding the geometry types that can be used for the representation of the landscape features, as listed in Annex III of Council Regulation 2009R73.

16 Scope

16.1 What is considered a homogeneous LPIS?

The question whether a population of reference parcels under inspection is homogenous and thus constitute a single "sampling lot" depends only on the processes of RP creation and RP upkeep. The physical nature of the reference parcels or the administrative subdivision of the Paying Agency/Regional centres who apply those processes can, but do not necessarily cause heterogeneity.

MS applying different subsets of parcels should define the rules and methodologies for their creation ex ante. In order to check whether the suspected sources of heterogeneity and the impact of identified RP categories (within IACS) are indeed insignificant, MS should perform ex post basic statistical analysis of the testing results.

Following ISO 2859/2-1985 (procedure A, LQ=2%), the sample size for any individual lot cannot exceed 1250 parcels. NOTE: For any given LPIS, inspecting two or more sub-lots will always require more resources than testing the whole set of parcels together.

16.2 Do we need to inspect parcels that are declared only for "other uses"?

Parcels declared for ?other uses? are integral parts of the LPIS. They need to be identified to support the unambiguous location of agriculture land. If their eligibility is set to zero, a special procedure has to be set for validating their potential eligibility in the field before any payment can be made when such parcels are declared for payment. This procedure has to be demonstrated by the MS.

Because of the zero eligibility value and in absence of claims these parcels may miss the regular upkeep processes. As result, they might be outdated and appear as a sub-population of LPIS reference parcels, where the "reference area value" is outdated or missing. Only parcels that were declared exclusively for ?other uses? in the previous application and have a zero reference area value are exempt from inspection.

16.3 Why consider parcels that are not-declared for aid?

It is a legal requirement that all agricultural area on the holding shall be declared and hence, also the parcels not claimed for aid must be in the LPIS. More precisely Article 19(1) of Regulation (EC) No 73/2009 establishes that farmers shall declare all the agricultural parcels of the holding. This implies that farmers must declare not only the parcels in respect of which they claim aid but also any other unclaimed parcels of the holding. The main purposes of this obligation to declare all parcels are to enable effective cross checks as well as the control of the cross compliance requirements.

In accordance with Article 55 of Regulation (EC) No 1122/2009, farmers might be subject to reductions in the case where they have omitted to declare one or more parcels. However, this Article does not provide a legal basis for imposing sanctions in the case where the farmer has declared all his parcels but with an underestimated area, i.e. a number of hectares which is below the size determined by the authorities.

16.4 How to deal with temporary (ineligible) land cover features?

The classifiers used for the land cover types relevant in this domain are not affected by temporary phenomena. When a feature, considering the local context, is determined as ?temporary?, the inspector should ignore it and simply apply the ?underlying? land cover class. Of course, in this judgment the interpreter should apply the knowledge of the local practices:

EXAMPLE 1: the covering of grassland or arable land with a thin layer of sludge from the neighboring canal will not change the long term nature of the land cover.

EXAMPLE 2: A visible spray track on arable land is most likely be ploughed next year. However a path between to gates in fence is likely to persist. Although such temporal variations influence the land cover appearance, they do not influence its nature or description, and so the classification works independently of the date of observation.

17 Field activities

17.1 Can the ETS inspection be performed by field inspection?

Yes, as for the area measurements. Area measurements by OTSC and should yield comparable results. Hoever the subject, sampling, and methodologies are different:

- OTSC inspectors ?determine? areas of agricultural parcels by an area measurement methodology
- LPIS QA inspectors verify LPIS reference parcel attribute values by large scale land cover mapping

NOTE 1: It is assumed that field survey are several times more costly than the CAPI inspection.

NOTE 2: Adopting the field inspection methodology has an effect on the sampling procedure. In particular, "skipping" a parcel on technical grounds (cloud cover, partially outside image zone...) is no longer relevant.

17.2 Common LPIS QA - OTSC samples and their use

Both LPIS QA and OTSC inspections resort to sampling procedures where the key challenge is to achieve a representative sample of reference parcels common to both inspection procedures. Obtaining sufficient common reference parcels mainly depends on the OTSC strategy:

1. Member States applying the CwRS program probably need no action as, on European average, about one third of the agricultural area of the CwRS-site is subject to CwRS inspection. Statistically the random OTSC zones should provide a sufficiently large common CwRS-LPIS QA sample.
2. Member States relying on Field Inspections only need to specifically select a number of claims of their OTSC as to cover a sufficiently large common sample. As the LPIS QA sample is by definition random, the OTSC checks on this would also be part the random OTSC sample.

QE7 is also used to demonstrate that LPIS is not a key contributor to irregular claims.

17.3 Conformity of parcels whose boundaries are (partly) not visible (QE 4)

In context of QE4 (Critical defects) one can ask why a parcel whose boundaries (perimeter or border) are (partly) invisible is non-conforming when its area encloses eligible land?

In general, the ?non-conforming? status is attributed to an inspected parcel if either it has a critical defect or if the eligible area found exceeds the conformity level. These conditions act independently. Parcels with unclear boundaries do have a serious defect: the boundary of the LUI cannot be identified and hence the area cannot be measured via the common inspection method. For this reason they are non-conforming.

On the other hand, in specific cases such parcels may be conforming:

1. Unchallenged visual inspection: the local field conditions justify the statement that LUI ?encloses eligible land?. ?Please note that in absence of any measure of absolute positional accuracy in the ETS, the presence of any ineligible feature within 5 meter of the perimeter of the LUI constitutes a challenge to this statement.
2. For AP, FB and CP RP-types specific waivers may applied that clarify the external and local conditions to be verified in order to vindicate this potential critical defect.

NOTE: "Near multi-parcels" i.e. reference parcels that contain less than 10 singular parcels are not labelled as critical defect. However without such amalgamation parcels are performing better (i.e. simpler location and administration) and present much less risk for the system.

17.4 Can additional information from rapid field visits (RFV) be used in support to the visual interpretation?

RFV can support visual interpretation. However, the main purpose of a RFV is not targeted at collecting supplementary information in respect to a proper delineation of an unclear LUI border. RFVs are primarily intended to clarify unclear cases of land cover/land use interpretation. In order to integrate border delineation with field instruments (GPS etc) with CAPI results a new procedure has been published.

17.5 Too much work involved in field measurements

Field Observations and Boundary inspections are fairly straightforward and discretionary. Field inspections are indeed labour intensive but compulsory only where it is absolutely necessary.

18 Inspections

18.1 Why re-digitize a parcel that appears unchanged on the imagery?

Formally, re-digitizing of the reference parcel boundaries is not requested. What is required is the delineation -via the various land cover features present on site-, of the agriculture land, which can be eligible inside the LUI. This mapping procedure provides not only a total area measurement value but also more detailed information on the nature and abundance of the eligible land contained within the reference parcel.

Fundamentally, the digitizing process is the default procedure to collect an independent observation and measurement on a parcel. Random variations of the observed values are an element for the probability statistics that are the basis for the acceptance decisions. Mixing ?copy/pasted? and observed data in the sample can create a **heterogeneous sample** that does not allow a robust conclusion of the results as long as there is no rule to ensure that ?copy/pasted? area/boundary is really ?true?. As a result, the current method does allow visual inspection, but only in cases where the recorded maximum eligible area or correctness of the boundary cannot be challenged.

18.2 Why map the land cover and not simply map eligibility? (QE 1)

The scope of the LPIS QA is to provide an overview of the full system. The Commission services request the collection of this detailed information during the inspection, in order to enable analysis of the nature, source, and reasons of anomalies, when found. The RP inspection at appropriate land cover level provides more evidences during screening since:

- Land cover is independent from aid scheme. This information is becoming of prime importance in the near future in context of cross-compliance and second pillar of CAP.
- The land cover classes are explicitly defined in Art 2 of 22009R1120 or by the Member State by way of its own GAEC legislation.
- Unlike eligibility, land cover is stable over time and independent from member state. This allows a robust and uniform inspection method common to all member states.

To cope with an alleged extra cost of delineating land cover classes (as compared to producing a single eligibility mask during inspection), the Commission services:

- encourage using automated detection and delineation methods that give the necessary guarantees to correct interpretation
- clarify that, unless coupled payments or pro-rata classes are applicable, the delineation key should NOT address the agricultural parcel level details, but SOLELY reflect "aggregated" land cover classes defined in R 1120/2009 art 2 and R 73/2009 art 124. These are ?arable?, ?grass?, ?natural grass?, ?permanent tree crop?, ?permanent scrub crop?, ?greenhouse?, ?irrigated rice?, ?short coppice plantation? and ?kitchen garden?.
- stress that the delineation of appropriate land cover classes is required only for the LPIS QA inspection. It does not require the LPIS reference parcels to differentiate this way neither graphically nor alphanumerically.

18.3 Can we use a clear crop boundary of the same land cover as a boundary to identify the LUI?

Yes. Point VI.1 of Annex II clearly states "To check if the LUI can be inspected, perform a visual verification to ascertain all reference parcel boundaries match distinctive land features or follow well identifiable limits of land cover and/or **land use**".

18.4 How to decide whether a LUI is measurable?

There is no "golden rule". ETS operator should use "common sense" based on the ground information available, local conditions, his knowledge and expertise, as well as relevant ancillary data.

In most of the cases, the position and shape reference parcel boundary with respect to the land cover/land use features available on the ground will easily reveal whether the parcel boundary is inappropriately positioned or the boundary can be assumed to be correctly located although it's not visible. An ?un-measurable LUI boundary or perimeter? arises only when a doubtful segment of the LUI is located over agriculture land and the CAPI method cannot be used. In case when invisible segments are located only over non-agriculture land, it is obvious that the reference parcel boundaries are not correctly located and the agricultural land cover delineation should follow the border of the closest agriculture feature part of the LUI. Such parcels are obviously still fit for mapping as all their agricultural land is delineable.

NOTE: in ETS, the notion of error is linked to a particular cause of an observed non-conformity. The concept "minor error" is not defined.

18.5 Ineligible feature in proximity of the perimeter of a LUI

The perimeter of a LUI, or a part of it, can be obscured by the present land use, which prevents mapping. In order to addresses the ambiguity in the absolute positional accuracy stemming from both the orthoimage used for the LPIS QA and the LPIS the **5-meter buffer rule** is applied over the entire perimeter.

NOTE 1: When a straight line section of a LUI perimeter is obscured, but the beginning and the end of the straight line are identifiable that portion should be mapped.

NOTE 2: The ambiguity in the positional accuracies is most frequently expressed in the misalignment of the orthoimagery and the LPIS vector data.

NOTE 3: This rule is particularly important for topographical or physical block systems.

18.6 RPs based on cadastre: why a LUI not identifiable on the image is considered as not suitable for measurement?

ETS doesn't use the terms "not suitable for measurements", but the term "non-measurable" which is strictly applied and valid within the CAPI context. A RP LUI that doesn't follow well identifiable limits of land cover and/or land use on the orthoimage, and thus is flagged as non-measurable with CAPI, can however be **fully measurable in the ground**. This is perfectly valid also for cadastral parcels boundaries.

NOTE: the category "non-measurable" does not mean the parcel has a problem, only that during inspection, no independent measurement could be made by CAPI.

18.7 RP based on cadastre: insufficient delineable borders?

The high percentage of reference parcels ?not suitable for measurement? may lead have to a smaller sample and may increase the probability of LPIS to meet quality expectations.

However, introducing field inspection and optional field activities, as well as the last modification of the ETS should effectively address this situation, ensuring valid sample sizes by ISO2859-2 for all QE.

18.8 Reporting the occurrence of the non-agriculture land cover features (measure 10105)

The procedure for reporting non-agriculture land cover features is as follows:

- Step 1: report all single non-agriculture land cover features, with area bigger than or equal to 0.1 ha. Each feature is reported separately.
- Step 2: report all non-agriculture land cover features of a GIVEN TYPE, with area smaller than 0.1 ha, which if summed up, exceeds 3% of the reference area. One occurrence par type should be reported.
- Step 3: report all single non-agriculture land cover features of type ?Artificial sealed surface? and ?Water bodies?, larger than or equal to 0.01 ha.

EXAMPLE 1: A LUI, which belongs to a given RF contains the non-agricultural land cover types listed in the first column. The items to be reported are listed in the 3 column. Please note that the action to be taken depend on the properties listed in column 2.

Land cover instances	Size	Reported items
3 patches of forest	>0,1 ha each	3 patches of forest
1 water body	>0,1 ha	1 water body
10 artificial surfaces	<0,01 ha each, but >than the 3% of the RP area in total	1 occurrence of artificial surface
3 artificial surfaces	>0,01 but < 0,1 ha	3 occurrences of artificial surface (since in total artificial surfaces cover more than 3% of the RP)
2 bare surfaces	< 0,1 ha each, but in total less than the 3% of the RP area	They are omitted
	Total reported items	3 forests 4 artificial lands 1 water body

NOTE: Within your GIS environment you may decide (or be forced) to keep the non-agriculture features as graphical objects in order to perform the relevant spatial analysis easier. These delineation are an intermediate step, which does not need to be reported; i.e. they are not part of the GML of the ETS package.

18.9 Do we need to make field inspection for all RPs with unclear LUI?

Not at all. You need to perform field inspections only for the sequentially determined reference parcels where CAPI failed, until you reach a sufficient sample to complete the QE2. Please follow the instructions given in Field Inspection and optional field activities 2012.

18.10 What is the difference incomplete and erroneous processing

The difference lies in cause of the problem. In case of incomplete processing (category 3) the data are supposed to be included in the LPIS, but they have not been.

EXAMPLE 1: Lands with permanent crop from (olives) that were not part of the support scheme in a specific period (SPS/SAPS in 2003), were not introduced in the LPIS after the regulation had changed.

EXAMPLE 2: Some parts of the territory were not mapped because nobody has claimed. In case of erroneous processing (category 4) errors occur due to human decisions or inaccurate work.

EXAMPLE 3: The operator has made a mistake digitizing a road centreline instead of a land cover boundary.

18.11 If a parcel contains several critical defects how many times it should be counted?

Although LQ was defined as "number of non-conforming items", so the parcel is counted only once, there is a clear need to look into that parcel in depth.

As a result, in case of more than one critical defect is occurring for a given reference parcels, all critical defects should be reported, starting from the top and going down to the bottom of the pre-defined list. See the field "DQ_EvalMethodDesc" of TABLE 7: RP Critical defects (10106) of Annex II. We stress again, multiple reporting does not alter the score!

19 Sampling

19.1 Theoretical basis for the ?sample size? of a given LPIS lot

The ?sample size? is a direct result of applying procedure A of ISO 2859/2-1985. It depends on the size of the lot and the value of ?Limiting Quality?, which is set at 2%. This ISO standard ensures a sufficient and cost-effective sample plan to make a statistically reasonable verdict on the total population. Some details are given in Figure 1.

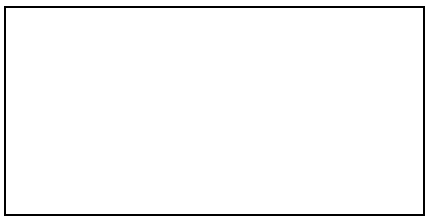


Figure 1. Single sampling plan indexed by Limiting Quality, Procedure A. Source: ISO 2859/2-1985, where (n) - sample size, (Ac) - acceptance number specified in the plan.

19.2 The role of ?sample pre-selection? in the ETS inspection process

This list called ?sample pre-selection? is provided by DG JRC of the European Commission. It contains an ordered and thus sequential list of reference parcel IDs, which is approximately 3 times larger than the prescribed final ?sample size?. The sample pre-selection guarantees a random selection avoiding the possibility to ignore the ?inconvenient? parcel.

When performing the ETS, the inspector starts with the reference parcel on top of the ordered list and inspects it according to the ETS procedure. When this parcel is finished, the inspector continues with the reference parcel on the 2nd place, then the 3rd place, and so on. When a reference parcel that cannot be inspected (e.g. due to e.g. cloud coverage) comes across it is skipped and the reason for doing so is recorded. The inspection cycle continues until the prescribed number of reference parcels that has effectively been inspected (i.e. required sample size) is reached.

EXAMPLE: A paying agency operates one homogenous LPIS of 750.000 reference parcels. The sample size defined according to ISO 2859/2-1985, procedure A, indexed on LQ=2% is equal to 1250 reference parcels. DG JRC randomly generates a sample pre-selection, an ordered list of 3750 reference parcels. This list is sent to the country, which starts the ETS inspection. During the ETS inspection 300 parcels were skipped due to cloud cover or poor image quality. An operator should stop inspection after 1250+300=1550 parcels. Out of these 1550 reference parcels 1250 parcels have been fully inspected and 300 labeled as skipped that the outcome for testing is reported for all.

19.3 Could we use only part of the VHR orthoimagery for the sampling?

No, such strategy is not appropriate. The clipping of the point zero state GML should be done with the full extent of the LPIS control zones. The guidance foresees the discarding of imagery that does not comply with our recommendations after that pre-selection phase, on condition that this does not affect the randomness of the remainder of the sample. Partly for this reason, the sample pre-selection is made three times the prescribed sample.

19.4 Can we add further zones to the LPIs QA sample pre-selection?

Yes. In any case, according to the guidance, all non-LPIS risk CwRS zones should have been entries of the ApplicableCIDzones. It is easy to discard a poor quality acquisition from the LPISQA zones (only remove it from OthoimagerySet), but adding zones requires **redoing the sampling**.

19.5 Why the total RP population for sample-pre-selection has to be submitted?

The primary reason for submitting the full population is to verify

- the completeness of the LPIS population
- the representativeness of the sample
- whether no "risky" parcel categories identified during year N disappeared from the set presented in year N+1

These elements are verified at the screening stage. Since a very small sample is inspected, LPIS QA results would be biased if some categories of reference parcels were excluded from the sampling process. With the small sample sizes used for LPISQA it would be impossible to detect the disappearance even of 2% of problematic parcels from a standalone zone. Therefore the full population is needed for prevention and automatic detection of exclusions. This method will be used till other reliable methods and tools are proposed.

The secondary reason is flexibility. The whole population allows the MS to swap pre-selection zones anytime, when it experiences problems with the image acquisition.

Finally, even though the whole population may create a larger file size, it is always simpler to create than any (clipped) subset (which would represent an additional step for the MS). As JRC is doing this clipping it facilitates the work of the MS and ensures an equal treatment between them.

20 Zones

20.1 How many images do we have to use?

The LPIS QA framework aimes at providing a quantitative, unbiased and precise state of the LPIS. In order to provide a cost-efficient sampling scheme for an 'educated' decision about the quality ISO 2859 standard has been used. Both elements require strict random sampling.

The default LPIS QA is based on imagery, therefore the sampling process is linked to it. In fact the samples follow the "clustered design", where only the first inspected parcel of the site is selected randomly and where all subsequent parcels are geographically related (i.e. there is a maximum distance from the first parcel). We assume that this geographical relation can be neglected as the same process and the same data sources apply to the whole LPIS territory. However, MS should test this assumption ex post. In order to minimise the potential risk where the assumption is false we recommend to **use all suitable imagery available**. Suitable means: recent, VHR, JRC-specifications compliant, and does not have LPIS-related risk)

20.2 Is there a difference in quality of orthoimagery used for LPIS creation and LPIS QA

The difference in quality can expressed in terms of product type (scale, resolution, viewing angle) timing, geometric, and radiometric quality.

Geometric quality: In contrast to aerial orthoimagery, JRC found that the quality of the CwRS VHR orthoimagery is very much dependent on the ortho-rectification process; i.e. the existence and the quality of ancillary data (GCPs, DEM). However, the producer does not always have direct control over these latter. In visual inspection, an increased relative geometric accuracy is required, which allows a better alignment between the vector and raster data. Consequently, more stringent requirements are proposed for the orthoimagery used in the LPIS QA. Some recommendations in that respect were already given on the Wiki article Use of Orthoimagery.

Radiometric quality: Focusing on geometric quality often too little attention is given to radiometry, which leads to poor colour balance and the loose of details in the image. Unfortunately, there are to date no clear and standardized metrics in respect to the quality check of the radiometry. To fill this void, JRC already revised its Guidelines for Best Practice and Quality Checking of Ortho Imagery and the Orthoimage technical specifications for the purpose of LPIS. Further work is being done on this topic and the results will be published as soon as they are available. For immediate guidance, we have compiled a dedicated article with thoughts and experiences on these sub-elements.

Timing: LPIS QA images are less dependent on the timing inside crop season. A longer acquisition window is possible than for CwRS. In any case, it is paramount that no deterioration of the LPIS quality assessment is allowed. The Commission services therefore accept the following options for LPIS QA, in case the CwRS imagery can be doubted:

- Purchasing imagery only of a very high quality (uplift of CwRS zones)
- MS can purchase better imagery if they see fit

20.3 Can we use VHR data with lower elevation angle than recommended?

The range for the elevation angle of VHR acquisition given in "Control zone and imagery selection " It is a recommendation, rather than a strict specification. On flat terrain with large, unfenced/unobstructed fields, indeed the elevation angle might cause no adverse effects and be fully suitable for LPIS QA. So, you can use such imagery if the usability of the product is justified.

NOTE: The prime objective of the initial acceptance of the orthoimage prior to the ETS (Annex II, Section 1) is to check the output of the ortho-production process, and not the quality of the raw/input image data.

20.4 Different datasets (orthoimages) used for the LPIS update and the ETS, Are the mapping results comparable?

The input for testing (ETS) should be independent from the data used for creation/updated of LPIS. They need to be appropriate in terms of positional accuracy (i.e. they need to be correctly orthorectified and need to be in the same reference system, comply with the recommendations). In case a MS doubts that the imagery obtained in CwRS fits the purpose it can acquire dedicated imagery according to its LPIS specifications for its LPIS QA zones, ensuring randomness and currency of the latter.

20.5 Oblique VHR imagery acquired over hilly-mountain areas

For the hilly regions, there is no option to exclude 'ex ante' non-nadir imagery because of the topography alone (which is indeed also affecting the RP creation). In this light JRC considers to be appropriate

- use an objective topography parameter to decide on the minimum elevation angle for each and every zone
- analyse the hilly and flat areas separately 'ex post' in your assessment report.

20.6 Should we alter the CwRS programming parameters to comply with the LPIS QA imagery recommendations?

In general: NO

The sample pre-selection generates a list of parcels with a population more than three times the prescribed sample size. If some of the recommendations e.g. capture angle, are not fulfilled by a particular image acquisition, you can choose "ex post" to skip the inspection of the parcels that fall in the unsatisfactory image. This is similar when the zone has no image coverage. According to the ETS rules when you decide to skip a zone you have to motivate this decision referring the failure to meet the recommendations.

NOTE 1: The historical success rate for CwRS image capture is more than 90%. Consequently ignoring some zones is not expected to jeopardize the availability of imagery for inspection

NOTE 2: These LPIS recommendations do not have an impact on controlling farmers' applications. Zones "skipped" for LPIS QA are still valid for CwRS.

NOTE 3: Contact JRC only when you fear that your current CwRS image programming will provide you less than threeim images that meet the recommendations.

From 2012 on, the CwRS ordering programme allows for a MS to identify 3 CwRS zones where an uplift to LPIS specifications is applied. This planning increases the likelihood that images within recommended specifications will be captured. Furthermore, any image in the ?non-uplifted? zone has its probability of complying

20.7 What are the general rules for discarding/accepting control zones (or part of them) for LPIS QA

It is not possible to discard zones without a clearly demonstrated LPIS risk (before sample pre-selection) or failed acquisition (after sample pre-selection). The LPIS under all zones is made by one set of rules so inclusion of as many zones as possible is needed for better representativeness.

The criteria for discarding zones must objective, relevant, and systematic and it should not result in a bias or manipulation of the LPIS QA results. Excluding areas simply because they are more challenging is **not** valid as this would result in testing the given LPIS in optimal conditions only.

NOTE: We use the concept of ?skipping? during the parcel inspection loop and ?discarding? during LPISQA zone selection.

20.8 Time gap between the date for the sample and the date of the image

Until 2012, the relevant date of the sample used to be the date of pre-printed forms, which obviously does not equal with the date when the imagery used for the forms was captured. From 2013 on, it is the date at closure of the aid applications (i.e. the crosscheck).

21 MTS

21.1 There is no added value for AP and FB to perform the ETS

Experience shows that reference parcels based on AP or FB are not always as ?pure? as the member states assume. The ETS, when correctly performed, will allow a systematic comparison of the real world with information recorded in the LPIS. In this way it may draw attention at different generic issues related to the LPIS design and implementation.

21.2 The ATS is complicated and some concepts are unclear

The ATS is a tool to check whether the LPIS model of a Member state is conformant to the LPIS Core Model (LCM). On its turn, the LCM is technical a representation of the requirements from of the legal acts (Council Regulation 73/2009 and Commission Regulation 1122/2009) as well as the best practices identified by the Member States. It can be interpreted as a checklist for verifying whether the various elements of the conceptual model in a Member State fit LCM.

Since LCM is a conceptual model, it contains all the necessary definition (i.e. feature and data types, their attributes and associations). At the moment, the LCM is focused on 1st pillar aids; therefore the eligibility profile (part of the implementation conformance statement) is limited to the concepts representing the pre-health check requirements. Module A_12 of the ATS is targeted on this part.

With the CAP reform a revised LCM will be generated, which will integrate module A_132 (cross-compliance attributes) in the eligibility profile. At the same time best efforts will be paid to clarity, refining definitions and making unambiguous what is mandatory for conformity.

22 Organisation

1. Timeframes
2. Guidance and manuals
3. Practical Considerations

23 Guidance

23.1 More real world examples are needed

Such examples are already allocated a specific [WikiCAP article] where one can upload specific cases and examples, which can be jointly comment by all users. Real world examples do complement and enrich the ?theoretical? instructions, but cannot provide a full visual interpretation in a way like the schematic illustrations do. Indeed, examples can be either too specific of just not specific enough. The illustrations provided in WikiCAP are generic schematic graphical representations of the instructions and can be then interpreted and applied by the MS in their particular context.

23.2 A tutorial for XML parsing is needed in the Wikicap

Due to lack of resources JRC is not in the position to provide such tutorial. Concrete questions can be answered on a case by case basis.

23.3 A manual for photo interpretation is needed

JRC cannot provide a general, pan-European manual for photo interpretation since it lacks the site-specific knowledge required for all possible agricultural land cover types. However, basic rules applied on some examples of "typical" agricultural lands are provided.

24 Practical

24.1 LPIS quality assessment in course of ongoing LPIS refresh

LPIS quality assessment has to be performed when a refresh procedure is taking place. If the refresh is part of a continuous cyclical update process, no special provisions are needed. However, when the refresh activity is based on improved data specifications ("upgrade") or represents an isolated update project, the mix of "old" and "new" reference parcels cannot be considered a homogeneous population. As a result, separate lots should be inspected.

Assessing two lots inevitably involves more inspection work than assessing the whole. However it offers immediate confirmation about the effectiveness of the ongoing upgrade/update project. This also identifies which issues need to be still addressed before the refresh project terminates.

24.2 A tool for quick identification of RPs at risks

We consider this is an import element in the (non LPIS QA) monitoring and upkeep processes of your LPIS. Some ideas can be found in previous presentations of the Workshop and Conference. Please share other relevant links. The main JRC papers that explored various automated or semi-automated approaches contributing to the identification of LPIS RPs at risk are:

- Detecting artificial areas inside reference parcels. A technique to assist the evaluation of non-eligibility in agriculture
- (Google Chrome only!)Contrast Analysis in Very High-Resolution Imagery for Near and Far Neighbourhoods
- Spectral Difference in the Image Domain for Large Neighbourhoods, a GEOBIA Pre-Processing Step for High Resolution Imagery
- A hybrid method combining SOM-based clustering and object-based analysis for identifying land in good agricultural condition
- Assessment of the Application of Rapideye Imagery for the Inventory and Monitoring of ?Eligible? Land under SAPS in Bulgaria

24.3 How should we deal with confidentiality of the CwRS zones?

Art. 6(2) of Commission Regulation 2009R1122 establishes the LPIS quality assessment framework quality framework (QAF), mandaring the MS to perform the inspection on a sample, which can be performed using CAPI. According to Art. 35(2) the imagery should be of the current year.

As part of inspection CwRS sites are confidential until the last day of the application campaign included. On the other hand the LPIS quality inspection should be performed before OTSC starts, which might sensitive when when OTSC and LPIS QA are performed by two or more different institutions. In such cases the confidentiality can be safeguarded by appropriate arrangements such as:

- Including a confidentiality clause in the contracts / collaborative agreements, or
- delaying the RP inspections until after the closing of the application.
- MS may find other means, if appropriate. However confidentiality should not be used as an argument for a delayed LPIS QA reporting.

24.4 Relevant data sources for supporting ETS

Among the sources relevant for ETS two groups need to be highlighted:

- Any updates of the Reference parcels (that are part of the sample), made by the farmer one day before the inspection can be taken into account for the ETS, provided that the rules of Article 14 from Regulation 1122/2009 are fully respected.
- Any updates of the Reference parcels (that are part of the sample), triggered by the annual LPIS update procedures (orthophoto refresh, OTSC, urban development and planning) and are not initiated deliberately to target the parcels part of the LPIS QA sample, can be taken into account for the ETS.

24.5 Who is responsible for making available suitable imagery for ETS?

Even though JRC provides a supportive role in purchasing logistics, Member States should make provisions for contingency action in case no satellite imagery is captured under the CwRS program, i.e. procure alternative suitable images from the national mapping agency or separate contractors.

24.6 Who is ultimately responsible for the correct implementation of the ATS and ETS?

The Member State is the sole responsible for a correct and timely implementation of the tests. The JRC?s role in this process is

1. Methodological, by providing the common technical documentation, guidance and templates.
2. Logistical, by offering specific imagery to cover specific LPIS quality assessment needs (linked to the CwRS acquisition program).
3. Facilitating, by producing tools that enable the MS to demonstrate to the EC that their testing was performed correctly (e.g. sampling, automated screening of inspection records).

24.7 Aerial orthophotos to be paid by JRC budget?

No, this is legally not possible. The VHR image acquisition uses a DGAgri budget sub-delegated to JRC and is governed by Council Regulation 165/1994.

24.8 What will the Commission services do with the LPIS QA results?

It is important to point out that the exercise is above all a self-assessment process. It is a tool for the Member States to evaluate the situation of its LPIS and to determine the actions to be taken to remedy any problem. As with any quality assurance approach, it allows the member states to be proactive.

This is why the report, apart from the ratios as such, should **focus on an analysis of the ratios** and on an **action plan** indicating what measures will be taken to remedy the deficiency and the time line by which they will be done.

The scoreboard results themselves will not trigger the application of financial corrections. Although the scoreboard results are important, the Commission services are more interested in the actions that will be proposed to remedy the problems found.

24.9 Implication of four-eye control in terms of workload

The Ex-post verification of the ETS inspection ("four-eye control") serves to confirm the correctness and reliability of the observations made during the ETS. It is similar to procedures incorporated by many MS in their LPIS update processes and it is not expected to cause a significant increase of the ETS workload, if set up appropriately.

It is limited to verifying 3 components/outcomes of the ETS

- feasibility for inspection
- feasibility for measurement
- overall quality of the land cover inventory

It includes visual confirmation only (no data collection or spatial analysis is required) to detect obvious ?gross? errors (no need to check minor details). It can be efficiently performed in batches alongside the ETS inspection process on datasets of already inspected RPs.

The four-eye control and the orthoimage quality checks (recently introduced in Annex II) are reported as part of "Non-structured evidence upload". At the moment no XML additions or modifications in the current ETS reporting package are foreseen. Concerning the "meta-quality" measures Chapter 3.1 of Annex II provides the content for each meta-quality record.

On the side of the benefits, like to any quality control activity, it can identify certain doubtful points and bottlenecks in the ETS inspection. These, once clarified in due time, can even lead to an increase of the overall inspection performance.

24.10 Requests to change or introduce a new waiver

Waivers can be introduced only if good justification is provided by the MS, which must include specific general and local conditions for its application. It should be taken into account that by creating waivers the evaluation becomes pointless, as any waivered issue is no longer subject to further analysis.

If a member state wishes to propose a new waiver the template should be filled and submited. Before doing so please ensure:

- the proposed waiver involves either contamination or potential critical defects
- the particular issue has not yet been addressed by a modification to the related measures
- the request is duly motivated and illustrated.

Submitting a proposal doesn't automatically involve acceptance. Only waivers listed in the Annex 1 are valid.

25 Timeframes

25.1 Time clash between two consecutive reporting periods

Delegations pointed out a time clash between two consecutive reporting periods: evaluation for year N+1 starts before the report for year N is finished. This may prevent taking all actions identified in year N for improving in year N+1.

The Commission services have noted the situation. However, tight timing of aid claims, control, and payments do not allow other alternatives. However the longer time frame for remedial actions takes into account this issue.

25.2 Meaning of "in tempore non suspecto"

The phrase literally means "time without suspicion." In legal sense the term refers to information obtained at a moment of time when the person giving the information has nothing to lose by telling the truth. For example, in case of LPISQA the information from updates that had been planned and processed before the LPIS QA control zones were known can be regarded as such. Any time that excludes possible interference or manipulation of the LPIS results is by-default "non suspecto". By contrast, prioritizing an on-going LPIS update to focus on the LPIS QA zones (or selecting zones to match a planned update) disrupts the independent time lines and invalidates the update evidence as it would bias (i.e. clean up) the ETS results. Analysis of the populations presented for the sample-pre-selection allows ex-post confirmation of "in tempore non-suspecto".

25.3 Inspection of parcels updated during the aid application process

This question addresses the difference between the eligible hectare value presented to the farmer on the pre-printed form (until 2012) or crosscheck (from 2013) and the area established after the OTSC, which constitutes the basis for payment.

It is safe to assume that for any parcel not inspected by OTSC or by the LPIS QA, and not subject to a systematic update, eligible hectare value and established area are mechanically linked through the administrative crosscheck. This crosscheck applies to all parcels, whereas the OTSC inspection covers only around 5-8 % of the agricultural parcels. For these reasons, the eligible hectare value is considered to be more representative for the LPIS as a whole.

The issue of reporting the effect of the operational update process is however relevant because

1. All RP anomalies identified during OTSC and LPIS QA are expected to have been processed by the start of the following aid application periode (i.e. one full year later).
2. The difference in the rate of changed parcels identified and confirmed during the OTSC and LPIS QA and the total rate of transactions in the overall LPIS provides an accurate indicator of how effectively the LIPS is kept up to date and correct by the various processes. This difference is often referred to as the "NET" rate, or the rate of "undetected" parcel changes.
3. Web services offer an automated instrument to follow-up the parcels inspected in LPIS QA, which enables the member states to demonstrate that thay have addressed the anomalies found in the process.

NOTE for statistical experts: if the "NET" rate of undetected changes approaches zero, i.e. a Member State claims that it is continuously capturing and implementing all RP updates, the sampling plan according to procedure B from ISO 2859-2 could be applied for the cases when the MS operates a formal quality reporting system to other stakeholders than the European Commission.

25.4 When will the VHR satellite images be provided?

The procedure for LPIS QA image delivery is similar to that of the CwRS campaign. The raw image is provided to a Member State within days, through an application called LIO.NET. The Member State should then orthorectify that image.

NOTE: every Member State should select the zones (ensuring randomness) and then the European Commission will open the acquisition window with the image providers.

25.5 Date of reference data for ETS input

In case of AP and FB RP LPIS types lots of changes are detected and processed in the period between the pre-printed forms are generated and the time when the farmer makes the declaration. It is not obvious therefore, which of these two should be taken for reference when ETS inspection is performed.

Until and including 2012, the Commission services considered that the date on which the pre-printed form was produced represents the reference data for the assessment of reference parcel information. This date ensures the availability of a documented status of information and a uniform methodology valid for all designs and Member States. A number of the issues specific to AP and FB RP-types are addressed in the inspection guidelines.

From 2013 on, the reference date is set to the date of the closure of the aid application procedure. This date links the reference area value to its use for the administrative crosscheck. The later date allows for farmer?s updates to be better accommodated.

25.6 How to take into account the area updates submitted by the farmers? (QE 2)

The pre-established form reflects an area value from the previous year even though it may have been corrected by the farmer in the declaration process as defined in Art.12.4 of 2009R1122. This situation adversely influences LPIS QA scores. Creating a waiver for this situation is not appropriate since a farmer?s update may affect most, if not all measure. On the other hand, by definition, a waiver can relate to one and only one measure. Consequently this situation should be resolved in the methodology.

The Commission services therefore recommend an additional step in the methodology: to update the reference area from the pre-printed form with the new area value provided by the farmer in course of [data preparation] (not by the result of OTSC inspections!).

NOTE: When applying this methodology the Member State should be able to demonstrate that the rate of farmer updates in the LPIS QA zones is comparable with the national average.

26 Rationale

26.1 Overview of legislation relevant for determining the eligible area

Regulation (EC) No 1122/2009, Article 34(2). When measuring the areas eligible for payment, ineligible parts of the area concerned shall be deducted. However, Member States may consider certain landscape features (for example hedges, ditches, walls) where they are traditionally part of good agricultural cropping or utilisation practices. If they fulfil local regulations (i.e. a total width determined by the Member State) their area does not have to be deducted. In all cases this width must correspond to the traditional width in the region and shall not exceed 2 metres.

Regulation (EC) No 1122/2009, Article 34(3). Member States may recognise landscape features as being part of the GAEC obligations under cross compliance. In such a case the features in question do not have to be deducted from the eligible area in a parcel, i.e. the feature becomes eligible for payment.

In particular case of agricultural parcels that contain trees the "Guidelines for area measurement" (*European Commission, Joint Research Centre, Guidelines on Article 34 of Regulation 1122/2009, Point 1.2* - http://mars.jrc.it/mars/Bulletins-Publications) point out that an agricultural parcel where the density of trees is more than 50 per hectare should, as a general rule, be considered as ineligible. The Guidelines also foresee some flexibility to assess the eligible area within an agricultural parcel of (permanent) pasture: Member States can use a reduction coefficient in the form of a pro-rata system or a percentage reduction.

Moreover, according to the Guidelines (*European Commission, Joint Research Centre, Guidelines on Article 34 of Regulation 1122/2009, Point 2.6.2* - http://mars.jrc.it/mars/Bulletins-Publications) ineligible landscape features smaller than 100 m2 have to be deducted from the eligible area only if the total of these landscape features present a significant area of the parcel in question (i.e. when the total of all these small ineligible landscape features exceeds the tolerance of the parcel calculated as the buffer width of the measurement tool - maximum 1,5 metres - multiplied by the external perimeter of the agricultural parcel (*Regulation (EC) No 1122/2009, Article 34(1)*). **Above the technical tolerance all ineligible landscape features in the parcel have to be deducted from the eligible area.**

In addition, EU legislation contains certain provisions which ease the **treatment of minor over-declarations** discovered during the checks. In case the difference of the area declared by the farmer and the area determined by the controls is maximum 0.1 hectare per application the aid to be paid to the farmer is not reduced, but the farmer is paid for the area declared for the payment (*Regulation (EC) No 1122/2009, Article 57(3) 2.indent*).

26.2 The rational of LPIS QAF in a nutshell

1. The ETS is developed as common inspection procedure that outputs comparable raw observations from all MS.
2. Being compiled in the ETS scoreboard these raw observations are a common basis for analysis in each MS.
3. The thresholds applied on this ETS scoreboard act only as a trigger for further analysis. (Below the threshold no explanation is required).
4. This further analysis helps to isolate and clarify ?raw issues? that are not real problems for the specific conditions in the Member State. This can possibly lead to the compilation of an alternative ETS scoreboard.
5. A remedial action plan should be based on the results after analysis, not of the raw ETS-scoreboard.

26.3 The purpose of LPIS QA framework

The purpose of the LPIS QAF is not immediately to determine a risk for the Fund. The main focus is set on **prevention**.

In first order the LPIS should provide correct information to the farmers as regards what can be claimed; i.e. enable processing the claim without any problem. The second objective is to control the claims.

With promoting LPIS QAF the objective of the EC is to enable MS to produce a good **assessment of** their **LPIS functioning** and to prepare a remedial plan. For this it is essential that the guidelines are followed, in particular as regards the interpretation of the objects and the application of waivers.

26.4 What is the rational for reporting the rate of irregularities from OTSC?

The rate of irregularities from OTSC can be the result of a poorly functioning LPIS. As the LPIS should reflect agricultural reality with regard to the eligibility of the land, ideally, the OTSC should not detect a substantial amount of ?additional errors". If OTSC detects a significantly higher error rates from year to year, it can indicate the failure of the member state to address LPIS issues. This aspect is not part of reporting submitted in frame of IACS queries over the full population of the parcels.

26.5 Rational for QE 5

As described in the rationale, one purpose of the LPIS is to support the farmer declaration process. In an ideal world, the farmer declaration should be no more than a confirmation of the reference area available. But as it turned out in 2010 the reality is not always ideal: in many cases the area declared doesn't equal the reference area available. A possible cause for example is connected to the situation where not all farmers on a reference parcel apply for aid.

The impact/support of the LPIS on the farmer declaration can be critical for two functional issues:

- If the reference area is too small, the farmer cannot apply for aid on all available land.
- If the total declared area on a parcel is unrelated to the reference area, it provides opportunities for improper declaration of land.

The first issue can be expected to solve itself as parcels with an underestimated reference area should trigger the farmer to request an update of the reference area. An explicit trigger for detailed verification is when the number of incompletely declared parcels in year N become suspiciously more declared on year N+1.

27 Report

28 Content

28.1 Do we report only inspected and skipped parcels in the Lpis Sample Pre-selection Satus XML?

NO. The file LpisSamplePreselectionStatus.xml should contain all RP provided by the Lpis Sample Pre-selection file in a reporting year:

- the inspected parcels should hold all RP_FSI values as ?false? and belongsToQC_Sample as ?true?;
- the skipped parcels should present valid reason for skipping, skipped occurence="true? and belongsToQC_Sample as ?true?;
- the other RP (neither inspected nor skipped) should hold all RP_FSI values as ?false? and belongsToQC_Sample as ?false?.

As a consequence:

- the number of inspected parcels (not including the skipped ones) should be equal to the sample size for the ETS inspection.
- the number of parcels flagged as: belongsToQC_Sample = ?true? should reflect the sum of the inspected and skipped parcels.

28.2 Subject of "LPIS polygon zero state" in case of updated parcels

The updated polygon should be reported in the LPIS Polygon zero state.gml. The indication that the RP has been updated prior to the ETS should be given through the information stored in the non-structured evidence upload.

28.3 Content of the "referenceAreaEtsIncomparable" field in the LpisPolygonZeroState.gml

This field contains the information for all reference parcels comprising those that are within the 100 meter buffer. Flag the field "referenceAreaEtsIncomparable" as TRUE in each case when you have recorded evidence from your LPIS update process to express that the reference area, as recorded in the LPIS, was established on means other than GPS/CAPI area delineation or mapping.

Skip the reference parcels that are in the discarded zone and use the feasibility code T2 (parcel is partially or fully not covered by image). Additionally, document your justification for the discarding of the zone via the Non-structured evidence upload. Do not report the discarded zone in the OrthoimagerySet.xml

NOTE: Pay attention to the correct terminology: skip parcels but discard zones!

28.4 What is the rationale for the metadata in the reporting package?

It is a compulsory element required by ISO 19157. It can be considered as the metadata for the assessment report and also enables "assessment through usability" for that report (rather than an assessment on scores).

28.5 Introducing the scores of the last year in the assessment report increases programming costs

The introduction of the assessment report template does not affect the scoreboard.xml, so we do not see how this affects the IT programming or raises the costs. We understand it has to be manually looked up from the previous year's document, but it serves the "effect of actions" fields, improving the readability of the combined document.

28.6 In the assessment report template, what is the difference between assessment and evaluation?

The difference was introduced because of two reasons:

- to allow for a better distinction between the output of the inspection observations (output) and conclusion (outcome).
- to include considerations previous assessments into these conclusions.

As a result, we expect: **Assessment**: a summary description of the findings (i.e. the scores, meeting thresholds, and other relevant observations) Effect of actions: the observed changes from last year esp. regarding possible effects of an action from the remedial action plan from the previous year, if any.

Evaluation: (which is in fact a self-evaluation) taking into account both above and possibly other analysis, provide your final conclusion and what needs to be done and why (i.e. define a remedial action, continue in the same way, or take no action.) For further reading see e.g. http://www.differencebetween.net/miscellaneous/difference-between-assessment-and-evaluation (from quick Google search).

28.7 Scoping issues and skipping codes

Skipping code S1 is introduced for wrong scoping matters when some reference parcels should not have been put in the LPIS QA scope in the first place (if declared exclusively for 'other uses'). RP's with reference area less than 0,1 ha that were declared during previous year are in the scope, therefore should be inspected according to the ETS workflow, regardless of the national minimum payment area regulation. LPIS QA procedure doesn't regulate the minimum size of the RP area.

From Annex I, Table 0: (1) The use of code F1 requires provision of additional information (evidence or proof) to confirm the occurrence of the force majeure situation. (2) Part of the codes listed, are the same used for the categorization at parcel level, in the CTS documentation used in the CwRS program.

28.8 Non-agricultural features reporting

It is not mandatory to include non-agricultural features in gml file but xsd schema offers an option to include non-agricultural features.

29 Delivery

29.1 Can we provide non-CwRS imagery in MrSID?

Although MrSID is a well-known format for image compression, it is not accepted for non-CwRS upload as JRC has not yet assessed the usability of the MrSID with respect to data quality and preservation of the initial image detail in the LPIS QA context.

29.2 Delivery of orthoimagery generated with CwRS image data, but solely used for LPIS QA

Deliver as non-CwRS image data.

29.3 What data should be collected for the unstructured evidence upload?

This instruction applies to data or information that is additionally consulted and considered by the ETS inspector relevant for the interpretation of a particular reference parcel. Since it is assumed that most of the RPs can be inspected on the base of the reference data only, it is obvious that such evidence is not required systematically for all inspected parcel, but only to those where ?external? data bring further clarification of the observations. The unstructured evidence is required, but should be strictly minimal (1 page scan or print).

It does not mean that screen dumps for each reference parcel should be collected and inserted into a PDF. Only "extra-ordinary" information and screen dumps are appropriate.