



Outcomes measurement workshop (Berlin, DE)

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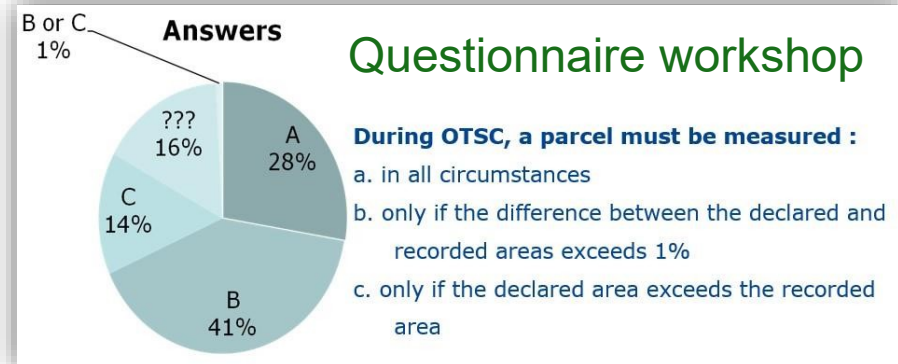
*Serving society
Stimulating innovation
Supporting legislation*



When to measure ?

Where the **LPIS**, together or not with ancillary data such as ortho-photos, **permits the confirmation the whole "correctness"** of the declared agricultural area (boundaries, ineligible areas)

→ **NO measurement** and the declared area must be confirmed



→ In **all other circumstances** a **measurement** of the parcel area is **required**

Material to be used

Tools proven to assure measurement of quality [....]

Validated tool

but also **appropriate tool** and **appropriate use** !!!!!

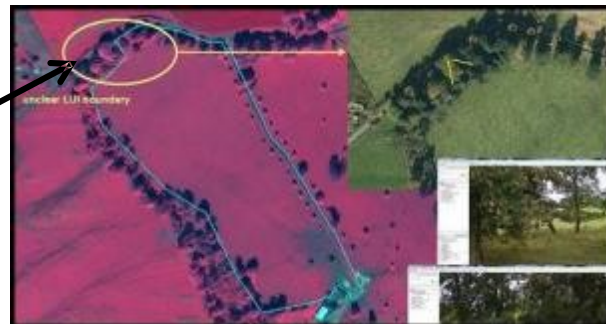
Office



Field

**Ortho image
+ GNSS**

Office + field



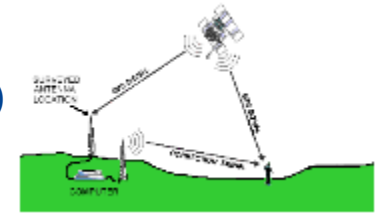
**Ortho image
+ GNSS**

Field

Material to be used

dGPS

→ Accurate measurements (appropriate for LPIS, small parcels vineyards ...)



Laser range-finder

→ A solution for measurements in forest, woody areas

→ Measurement of length



Wheel, toposil, tape (back up tool)

→ For **length measurements** (2% tolerance)





Why validating tools ?

To **prove** that the instrument is compliant with requested accuracy

If not validated, MS have to provide other evidence

Currently, the **class of measurement accuracy** (e.g. "better than 1.0m") determined for this type of tool (GNSS < ortho image) should be used.

Each MS is strongly encouraged to **perform its own validation** test

Specificity of the GNSS receivers (local differential corrections or EGNOS, different version of the hardware/software, etc ..) and of the parcels to be measured (size, shape, type, etc ..)

If not validated, it is recommended to use a **0.5 m** buffer tolerance **default value**

To be on the safe side on tolerance

BUFFER TOLERANCE VALIDATION METHOD

GNSS measurements

At least:

- **6 parcels** with size, shape, type of borders typical for the future application during area control
- Parcels borders will be marked by pegs every 25-30 m
- **2(3) operators**
- **8(9) sets**, each set with **4 repetitions** (2 clockwise, 2 anticlockwise), 4(3) sets/operator
- Different time a day (2-3 days)
- Reference areas of parcels should be measured with accurate tools (RTK or post processing carrier phase GNSS devices, total stations, etc.)

Minimum 32 measurements for each parcel

Orthoimagery

At least:

- **30 parcels** with size, shape, type of borders typical for the future application during area control
- Parcels borders area natural, **largely indicated** as in the figure, **selected as LPIS** if possible
- **6 operators**
- **6 sets**, each set with **4 repetitions**
- Each repetition measured in different time a day
- Reference areas of parcels should be taken from LPIS

Minimum 24 measurements for each parcel

Statistical analysis

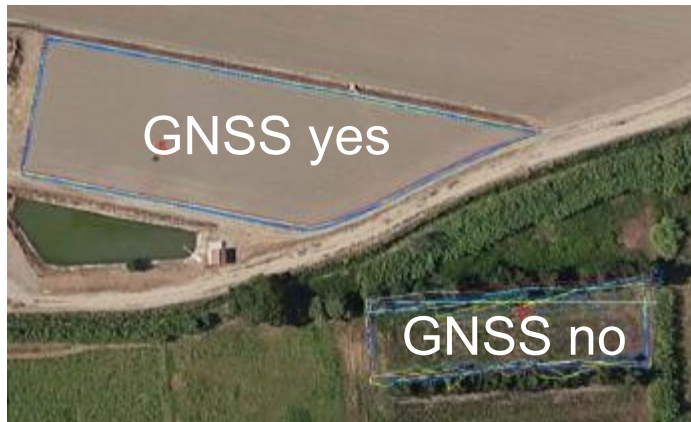
Outliers detection

Calculation in the area value (m²)

- Repeatability standard deviation ISO 5725-2: formula (20)
- Reproducibility standard deviation ISO 5725-2: formula (24)

Reproducibility limit in buffer value (m) = $2.8 \times \text{reproducibility standard deviation} / \text{parcel perimeter}$

Use appropriate tool



**No GNSS if too many obstacles
(trees, mountains)**



Huge parcels, perimeter > 3 km

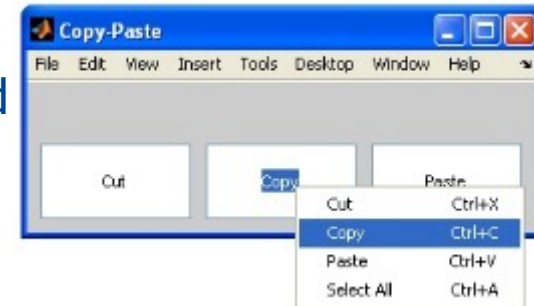
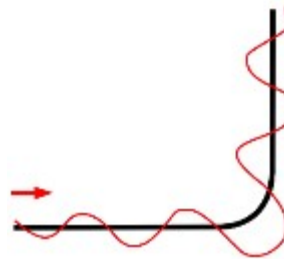


Use tool appropriately

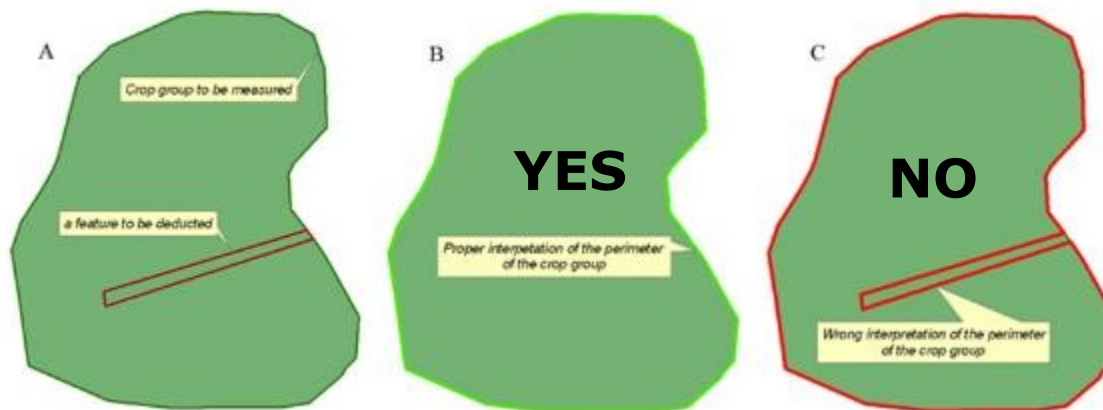
Same conditions, settings as validated

“Stay on the line”

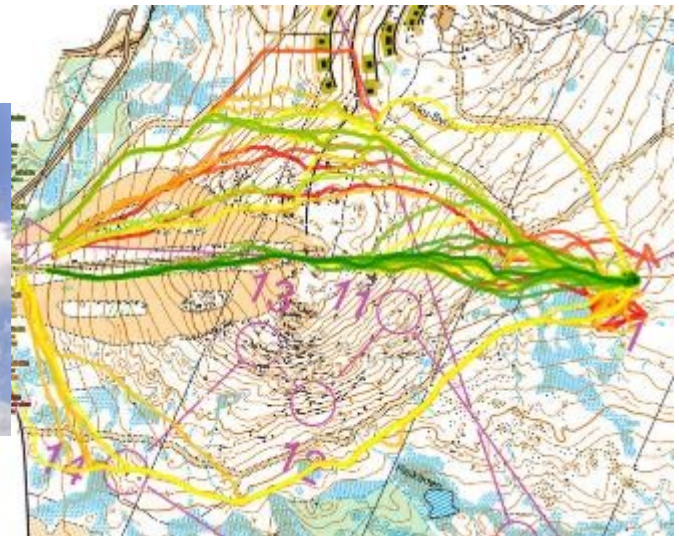
But define your line ...



Not adding perimeter (not adding tolerance...)



Define clearly the limits ...



... as function of your conditions

⇒ GAEC, greening ...



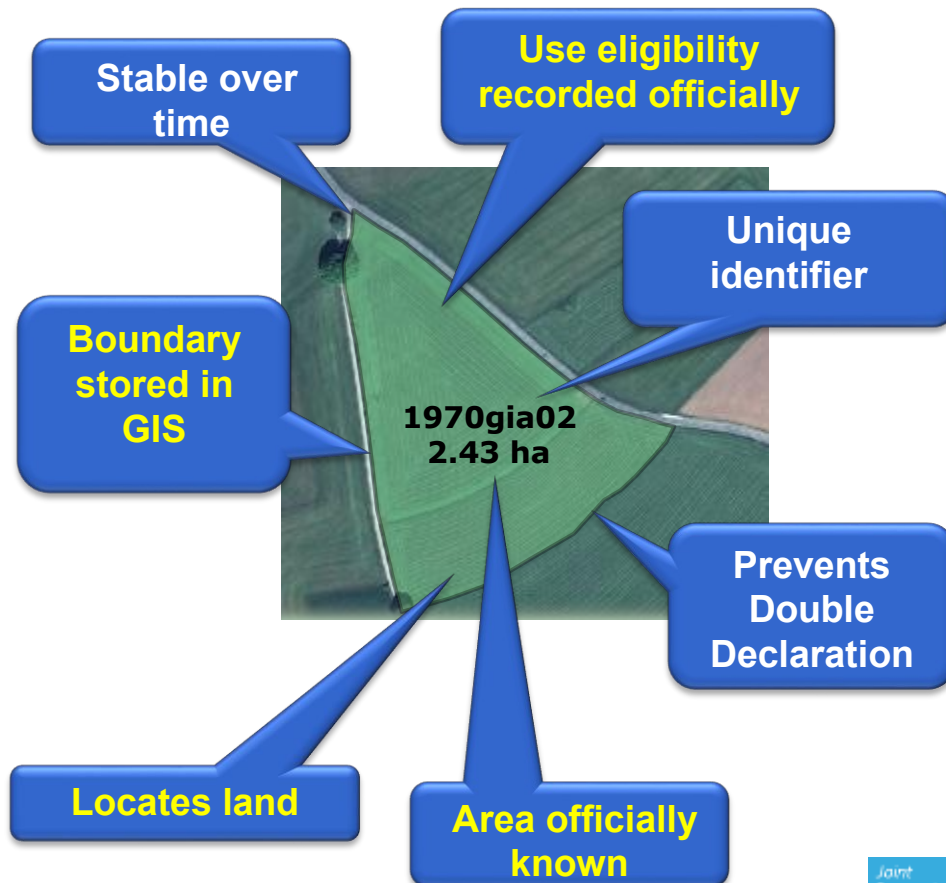
Fundamental role of the LPIS

**In Berlin,
Only 30% aware of LPIS QA !!!**



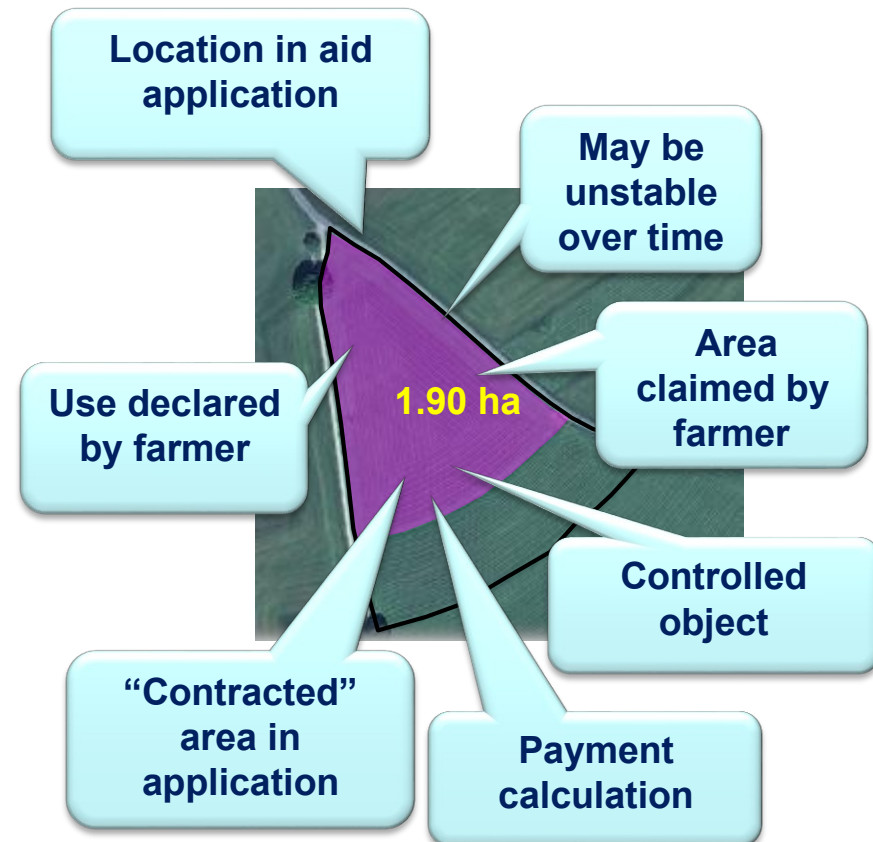
Reference parcel (Administration)

In IACS-GIS
Land Parcel Identification System



claimed parcel (Farmers)

Acts as **reference frame** for
Aid application



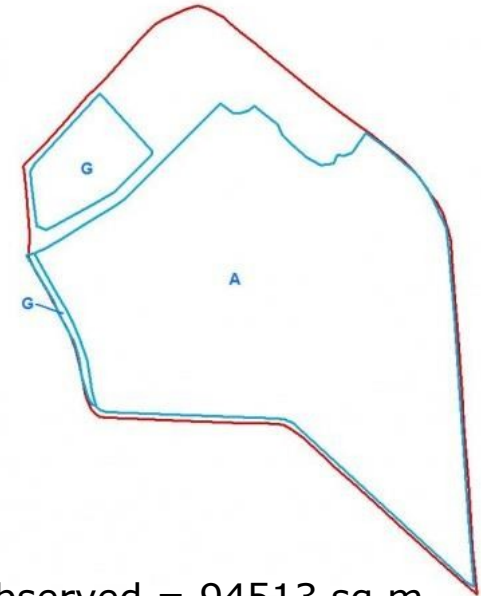
LPIS QA Executable Test Suite ETS



Original reference parcel



A - Agricultural land
G - Grassland



Area Observed = 94513 sq.m
Area Recorded = 120198sq.m.
 $\text{Area Observed} / \text{Area Recorded} = 0.79$
21% of ineligible land found

Reference Parcel is non-conformant,
as it contains more than 3% ineligible
land



Permanent crop, LCCS
code: 10566-1891-S0610
"Permanent crops
(vineyards)"



Single Trees, LCCS code:
20274-T1(1)[Z11] "Single
tree"



Trees in line, LCCS code:
20282-T2(3)[Z4] "Row of
trees"



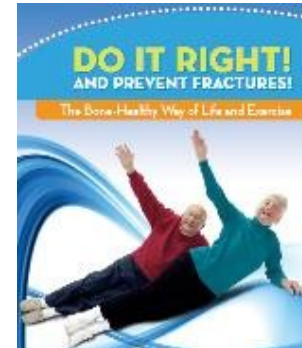
LPIS Features catalogue

Hedges, LCCS code:
10176(3)[Z1] //
1021110285 "Hedgerows"

Use same
rules for
OTS checks

Summary

- Choose and use the appropriate validated tools
- Use the tool appropriately
 - Good tool well used will prevent complaints and measurement repetitions
- Define your limits
- Share your limits
 - In line with LPIS
- A good reference (LPIS) will prevent from measuring



It takes less time
to do things right
than to explain why
you did it wrong.



Move from 1:10.000 to 1:5.000 and length measurements

Please consider the whole IACS !!!



Or ...



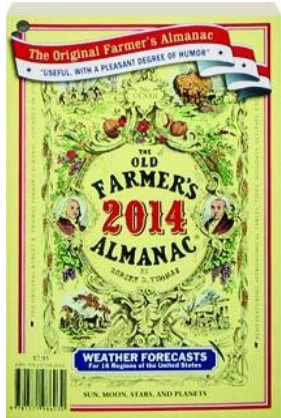
and ...



JRC support 2014

Workshops

- OTS checks campaign 2014 Kick-off meeting (March or April, JRC)
- LPIS, eligibility management and checks workshop (sept. or Oct)
- Management and checks of CAP environmental components workshop (sept. or Oct.)
- 20th MARS annual Conference (18 21 Nov, Dresden, DE)



→ Technical visits

→ Trainings

→ WikiCAP update and Thematic technical documents

→ ...



GTCAP
Guidance and Tools

Thank you