Increased quality of the Swedish LPIS

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Outline

- LPIS in Sweden
- Why do we need to improve the quality?
- How do we improve the quality?

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LPIS in Sweden

- In full operation 1998
- Based on National Land Survey geodatabase (1:10 000)
- Physical block
- 1 million block, 3.5 million ha
- Updated by 21 county boards after
  - On the spot checks
  - Validated farmer requests
  - New road alignments, urban areas etc

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Quality improvement - Why?

Remarks by DG AGRI after audit in June-2007

- Inconsistent system
  mix of physical block/farmers block
- Reference parcels with incorrect location of boundaries
- Reference parcels with ineligible land
- Tolerances used when defining
  maximum eligible area

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Quality improvement - how?

- Consistent system
- Review of approved eligible land
- Defining quality requirements
- Full survey of LPIS 2008-2009
- Plan for continuous LPIS update

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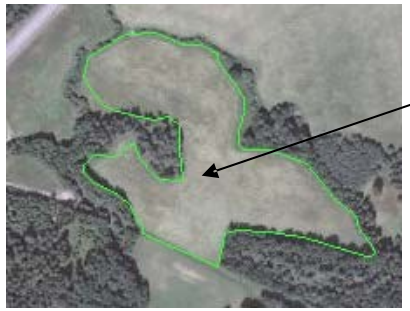
System change to farmers block

- Sweden wants a one-layer LPIS containing only eligible land. This is not possible for physical block according to the commission.
- System change in 2008 from physical block to farmers block.
- After review: block area without tolerance = maximum eligible area.



Geometric area 2,97 ha
Application 2,98 ha not ok

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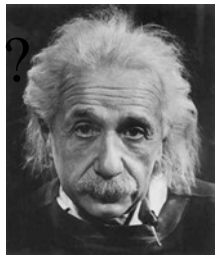
Review of approved eligible land

- Stricter rules for eligible pastureland (50 trees/ha)

Defining quality requirement

- IACS-regulation: “...1:10 000”
- Translated by JRC to RMS 2.5 m
- But 2.5 m RMS not enough in audits
- And 75/90 definitely not enough!



- Swedish interpretation of requirement:
  2.5 m RMS without systematic errors
- Which gives LPIS update quality requirement:
  Errors larger than 2.5 m and 0.01 ha shall be corrected

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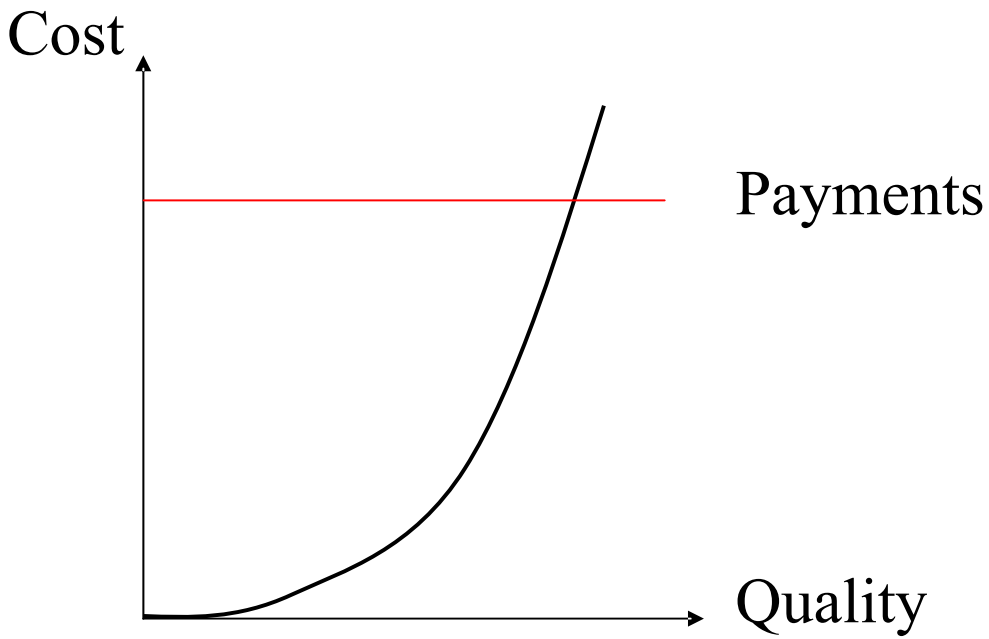
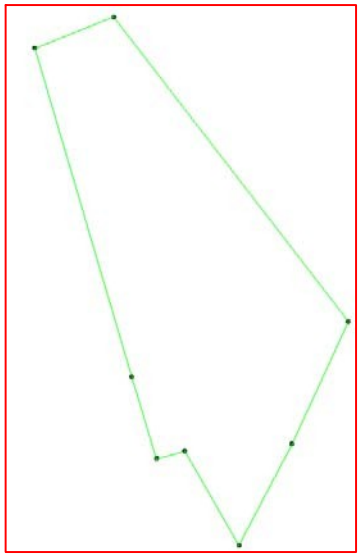
Quality versus cost

- Realistic cost to run the LPIS?
- Too high quality will cost more than the payments made to the farmers...



Which quality is possible to obtain?

- Digitizing test in scale 1:1000 where the object has a known exact location.



- Result 2.99-3.01 ha
  True value 3.00 ha, ie error 0,01 ha

Which quality is possible to obtain?

- The nature is not as exact as we would like..
- Many block boundariers do NOT have an exact location

"Fuzzy" boundaries

- Perfect field measurements will give different results

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Total survey of LPIS

- Every reference parcel will be checked
- Large project during 2008-2009,
  budget approx. 25 M€
- Found errors corrected at office if possible
  (screen-digitized using ortophotos)
  otherwise after field inspection (PDA with GPS)

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Plan for continuous LPIS update

- Systematic check of areas with new orthophotos
- Test of new techniques for change detection
  - Classification of satellite data
  - Laser scanning
  - Tree count

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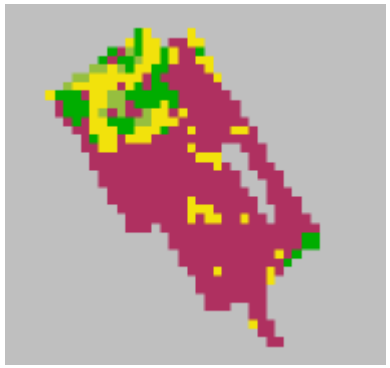
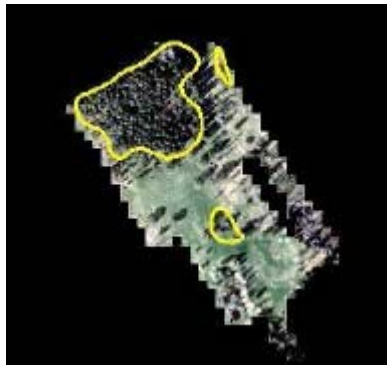
Classification of satellite data

- Identification of forested areas

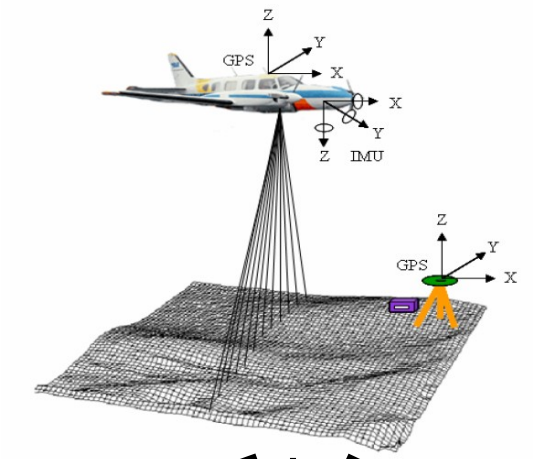


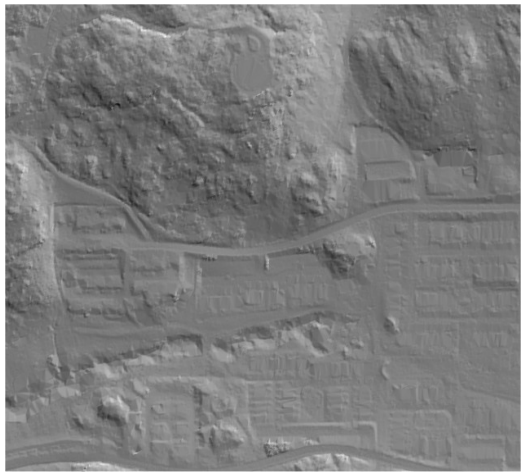
classification



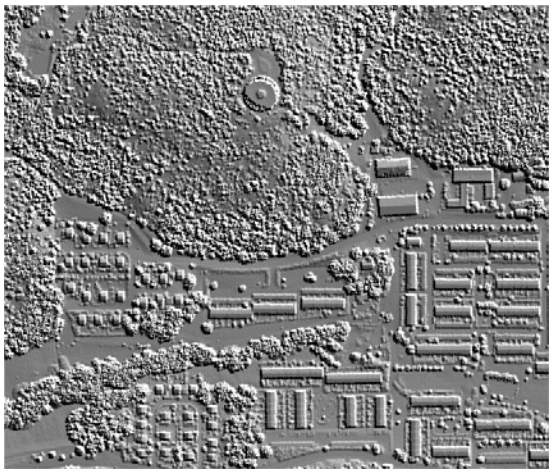
decision support

Laser scanning

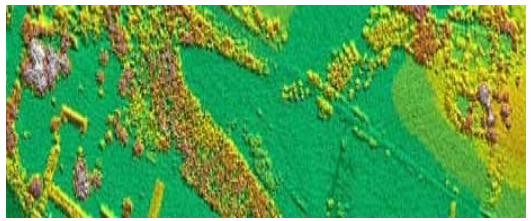




Digital elevation model



Digital surface model



Intensity

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Automatic tree detection

Thanks!

Questions?