Assessing the risk of farmland abandonment in the EU

Background, work progress and objectives

07 June 2011, Budapest

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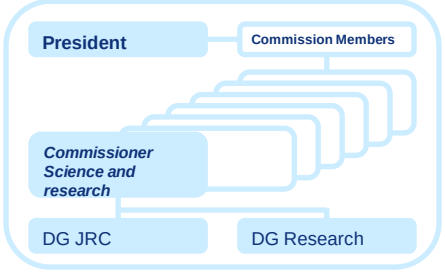
JRC - The European Commission's Research-Based Policy Support

7 Institutes across 5 Member States: ≈ 2,700 staff



The JRC provides customer-driven scientific and technical support to Community policy making.

Background

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IRENA operation 2002-2005

Indicator reporting on the integration of environmental concerns into Agricultural policy

Objective: to develop and compile the set of 35 agri-environmental indicators for EU-15 (Nuts2/3)

Outputs: indicator factsheets (42 indicators and sub-indicators) and their corresponding data sets, report and evaluation.

[COM(2006)508] Monitoring frame, 28 AEI were listed for the EU-27

AEI 14: Risk of Farmland abandonment

Monitoring the integration of environmental concerns into the Common Agricultural Policy

- To provide information on the farmed environment
- To track the impact of agriculture on the environment
- To assess the impact of agricultural and environmental policies on environmental management of farms
- To inform agricultural and environmental policy decisions
- To illustrate agri-environmental relationships to the broader public

Memorandum of Understanding

Signed in April 2008 by DG AGRI, DG ENV, DG ESTAT, JRC and the EEA to develop and maintain a system of AEIs.

JRC contributions (step 1)

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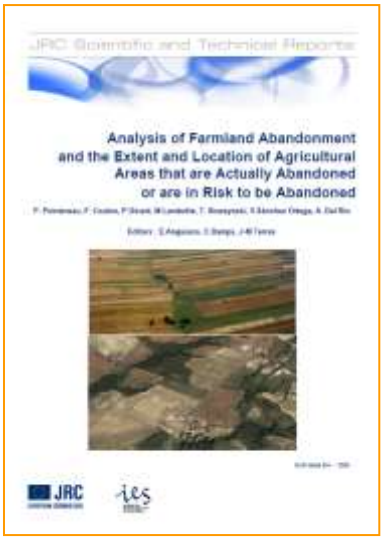
- A 10 months study was launched in 2007 on Farmland abandonment (driving forces, extent and location) and areas threatened by this phenomenon. The final report was published in October 2008.
- Study on 3 EU MS (FR, ES and PL)
- At local scale (Local Administrative Units)
- Good results in terms of methodology and measurement of farmland abandonment
- Failure in defining an indicator for the risk of occurrence exclusively based on past trends



JRC report (1/6)

- **Definition used in the study:**

Abandoned farmland is the Utilised Agriculture Area loss observed between the two last Farm Structure Survey (censuses) that has not been converted into artificial areas.

Artificial afforestation is not considered as a part of farmland abandonment, but due to the lack of relevant data this flow couldn't be separated from abandoned farmland.

This non-utilised agricultural land is no longer farmed for economic, social or other reasons, and is not included in the crop rotation system.

- **Data source: Farm Structure Survey**

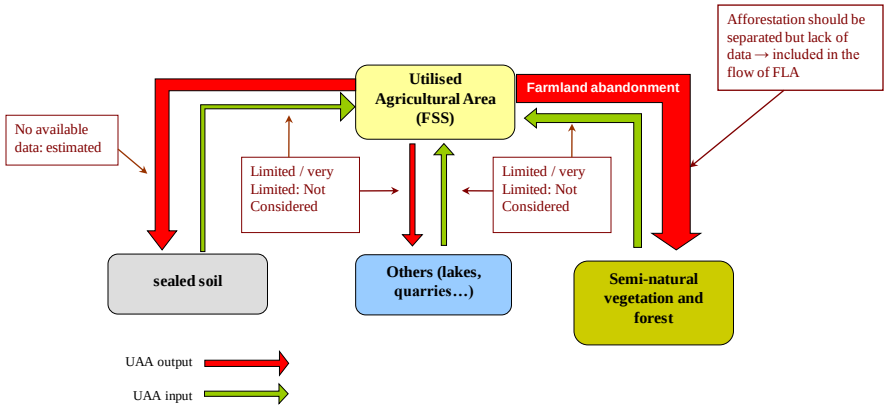
Compared to other European database FSS offers data at LAU scale, consistency of the definition between two censuses, sufficient time scale, can provide other information on the farms.

But: access to the data is difficult, risk of error due to the survey methodology (declaration of land, common pastures are not taken into account, …), updated every 10 years.

JRC report (2/6)

- **General scheme:**

The main flows linked to the UAA



JRC report (3/6)

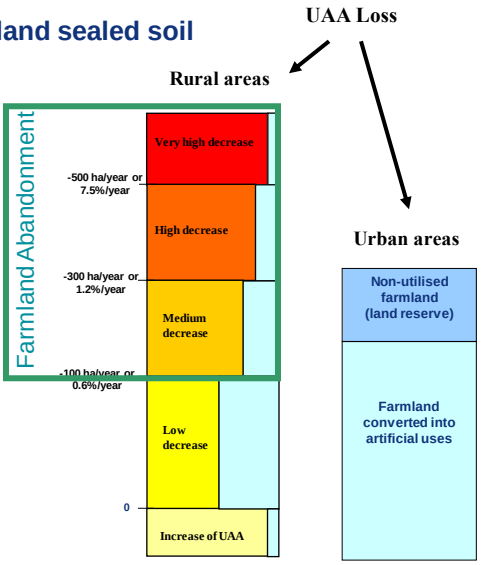
■ Estimation of the Flow Farmland sealed soil

The hypothesis was that the flow from farmland to artificial area is mainly located in urban areas where the population density is high or increases very fast

Urban areas: municipalities with a population density > 150 inh./km2 or an increase of the population > 10% between the two censuses

Rural areas: remaining municipalities

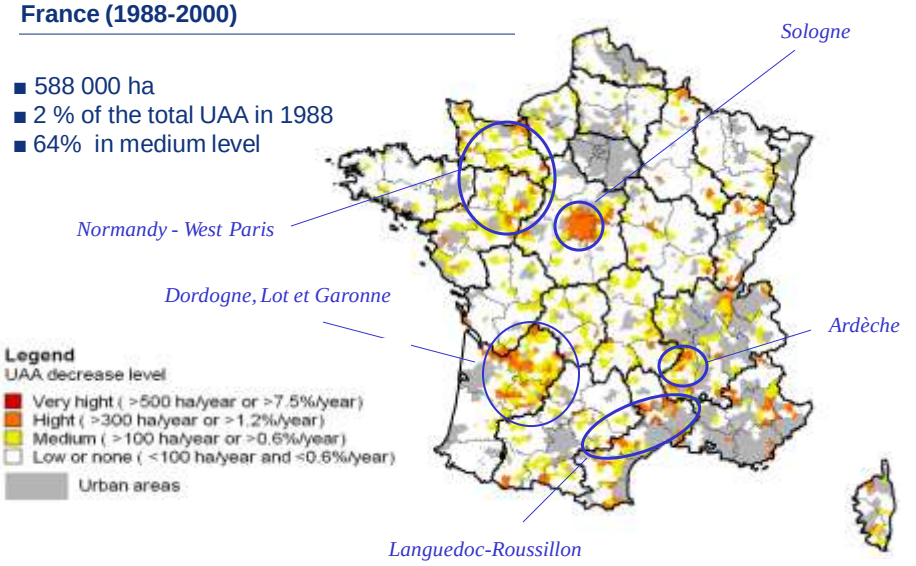
But, part of the flow goes to rural areas as well. Thus…



JRC report (4/6)

France (1988-2000)

- 588 000 ha
- 2 % of the total UAA in 1988
- 64% in medium level



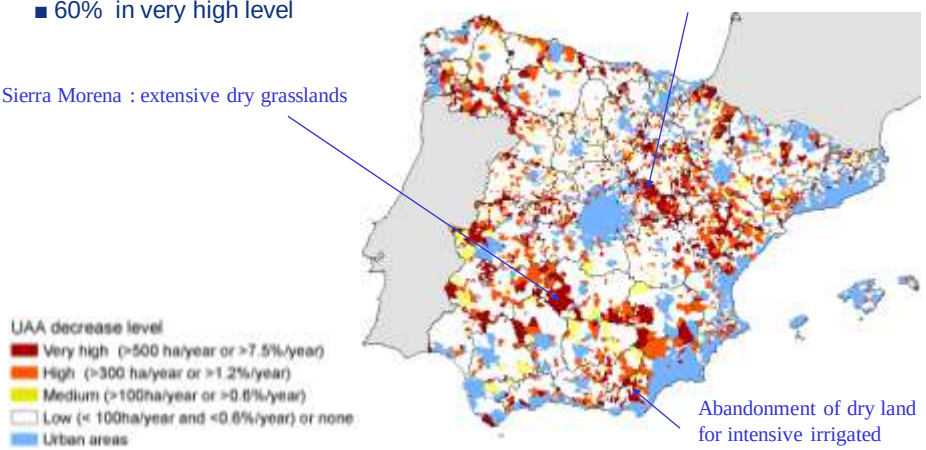
JRC report (5/6)

SPAIN (1989-1999)

- 1 986 000 ha
- 8% of the total UAA 1989
- 60% in very high level

Sistema Ibérico, mountains and common lands

Sierra Morena : extensive dry grasslands



Abandonment of dry land for intensive irrigated agriculture

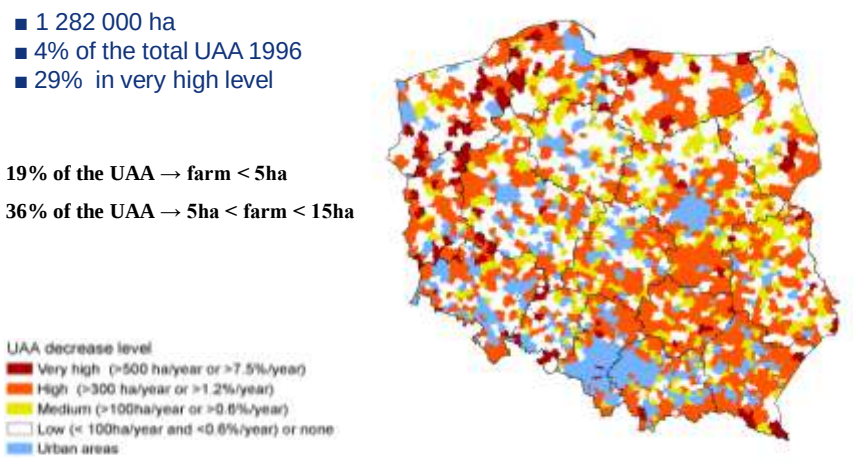
JRC report (6/6)

Poland (1996-2002)

- 1 282 000 ha
- 4% of the total UAA 1996
- 29% in very high level

19% of the UAA → farm < 5ha

36% of the UAA → 5ha < farm < 15ha



JRC contributions (Step 2)

■ In February 2009, DG AGRI and the JRC defined the way forward to further develop the indicator

■ The strategy was to set-up an expert panel as soon as a preparatory work to further development was released by the JRC

■ In end 2009, the JRC issued the requested preparatory work, based on literature review, as step forward before launching the expert's panel exercise.

Main points from the document:

■ **A unique definition of FLA does not exist** in literature and among MS

- The definition depends as well on the sector that study the phenomenon (economics, environmental…)
- FLA can be define qualitatively (land condition) and quantitatively (years without use)
-Does it concern the cease of farming activity or changes in land use?

JRC Preparatory work (1/5)

Main points from the document (cont.):

■ **Situation is complex:**
- FLA is local-specific and disadvantages can vary significantly at sub-region level.
- No clear-cut division among factors which could affect FLA, depend on their interaction.
- FLA tends to be minor in some MS but can occur everywhere.

■ **Option proposed:**
The recurrent determinants can be classified into a limited number of blocks corresponding to the main dimension of the FLA. Related indicators (definition, threshold, weight and interaction) can be set-up to give the best possible proxy of the risk. The system must be flexible enough to cover all EU MS at an adequate scale.

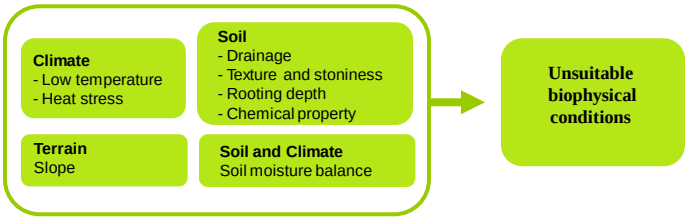
Unsuitable biophysical conditions	Low Farm stability and viability	Adverse regional context

JRC Preparatory work (2/5)

Block 1 : Poor suitability for agricultural activity

Block 1

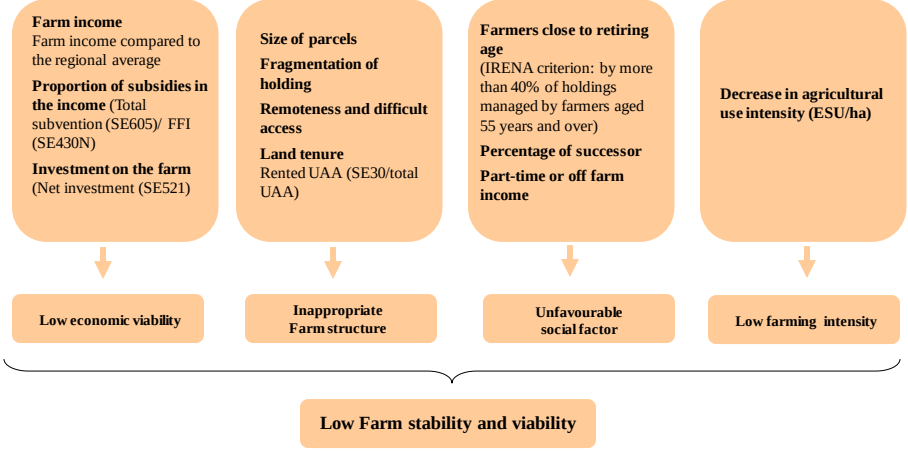
The proposal is to use the set of natural handicap criteria established by the JRC and a panel of soil, climate and land evaluation high-level experts to support the delimitation of less favoured areas. Eight soil and climate criteria were identified, indicating, at a certain threshold value, severe limitations for European agriculture.



JRC Preparatory work (3/5)

Block 2 : Low farm stability and viability

Block 2



JRC Preparatory work (4/5)

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Block 3 :Negative drivers from regional context

Block 3

- **Agricultural income compared to the rest of economy**
- **Agriculture employment (employment structure)**
- **Lack of high added value product (label of quality,…).**
- **Land market**
  Price of the land compared to other Regions
  Rate of selling/buying
- **Provision of Farm advisory and training**

→ **Adverse regional context**

JRC Preparatory work (5/5)

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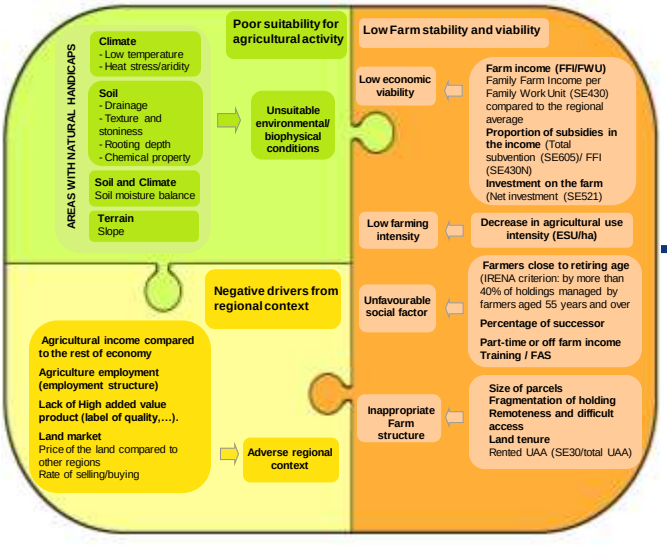
Complete picture



→ **Discussed, Revised and updated by the experts**

Expert panel exercise (on-going)

Presented by Margarida Ambar, DGDAR (expert panel member)

- JRC preparatory work
- 1st meeting (July 2010)
- Experts research
- 2nd meeting (Dec 2010)
- Further research by JRC

■ Objectives:

(i) Conceptualise the definition of farmland abandonment
(ii) Identify the most relevant and recurrent factors behind the risk of farmland abandonment
(iii) Formulate proposals for developing the indicator taking into account data availability

■ Based on the literature review and on the experts meeting attended by the JRC a list identifying 17 potential experts for the panel was set and completed by DG AGRI.

■ 14 experts confirmed their interest in being part of the panel (from Universities, Ministries, Institutes, Associations and European Organisations)

Panel expert exercise (2/10)

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First meeting:

-Intense discussions on the definition and first proposal made

-A list of 11 main drivers were defined in order to build an indicator

- GIS methodology (criterion=layer)

- Factsheets were drafted by the experts for each drivers including: Definition, Effect on the risk of Farmland abandonment and calculation options.

Panel expert exercise (3/10)

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Second meeting:

■ **Agreement on the definition (3 components):**

The **purpose** of the indicator is to help assessing the risk of farmland abandonment (probability of occurrence). The indicator will exclusively address the risk and not the consequences of FLA or the extend to which FLA actually happens (previous trend was identified as one of the drivers).

The **measurement** of farmland abandonment is based on the loss, between two periods of time (5 to 10 years), of Utilized Agricultural Area which has not been developed (sealed) or afforested. This non-utilized agricultural land is not farmed for economic, social or other reasons (no alternative use) and is not included in the crop rotation system.

Concerning the **definition** itself, Farmland abandonment (as agri-environmental indicator) has been defined as a cessation of management which leads to undesirable changes in biodiversity and ecosystem services

Panel expert exercise (4/10)

■ **Refinement of the list of main drivers**

- Based on the discussion on the factsheets, the list of drivers was refined. Focus was made on the rationale of each criteria, the calculation options, the thresholds and the interpretation and the data sources.

List of criteria kept on board:
- Farm income under regional average (FNVA/AWU)
- No investment in the farm (yes/no, in the last 3 years)
- High age of farm holder (> 65 years old)
- (Low farmer qualification (education/training)) (lower priority)
- Remoteness and difficult access
- Low size of the farm / average for the same farm type (UAA)
- (Farm enrolment in specific schemes) (may be excluded)
- Weak land market (rent pay per ha/ regional average and compared to income)
- Previous trend of FLA (methodology from JRC report)

List of criteria excluded:
- Opportunity outside the agriculture (capture by remoteness + pop. density + unemployment)
- High value added products

Panel expert exercise (5/10)

Focus on three criteria:

■ **Farm size (UAA):**

- Rationale:
In general, larger farms can benefit from lower production costs, allow better farming techniques, are more suitable for most of the competitive agricultural practices (use of machinery or a better efficiency in the use of inputs), they are more frequently related to innovation and usually more competitive and viable in economical terms.

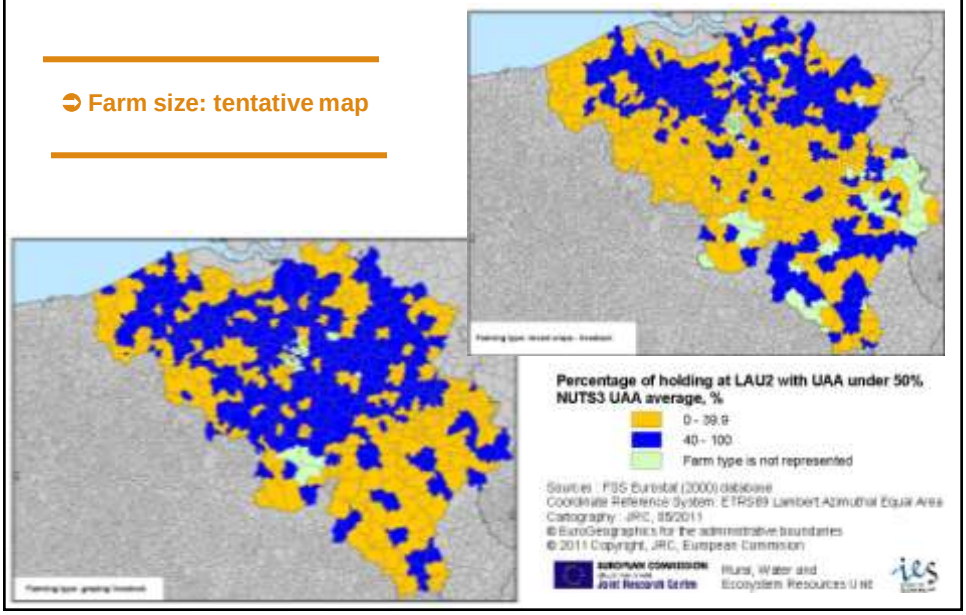
Farm average size (UAA) compared by farm type (8 different farm types)

-Threshold proposed (to be tested): 40% of holdings have a size that is below 50% of the regional average by farm type

-Data source: FSS 2000

Panel expert exercise (6/10)

➲ **Farm size: tentative map**



Panel expert exercise (7/10)

■ **Remoteness:**

- Rationale:
When farms are influenced by remoteness and difficult access, in any aspect (factual and measurable or subjective) farm land abandonment is likely to occur. When distance grows farmers are more likely to give in. Distance is also a matter of perception and a feeling is hard to capture (survey).

Distance to city centres, available roads and distance to other centres for service for citizens.

-Proxy: Travel time to reach an urban centre with at least 50 000 inhabitants, (considering travel speed for each category of roads, slope and congestion in cities)

-Source: JRC report (Jonard F., Lambotte M., Ramos F., Terres J., Bamps C., 2009. Delimitations of Rural Areas in Europe Using Criteria of Population Density, Remoteness and Land Cover . EUR 23757 EN).

Panel expert exercise (8/10)

➲ **Accessibility: tentative map**

Panel expert exercise (9/10)

Focus on three criteria:

■ **High age of farm holder** :

- Rationale:

Some studies highlighted the relationship between farmer's age and landscape changes. In particular, farmland abandonment is more likely to occur when the farmer is old and close to retirement.

Share of farmers >= 65 years old (and variation over past years)

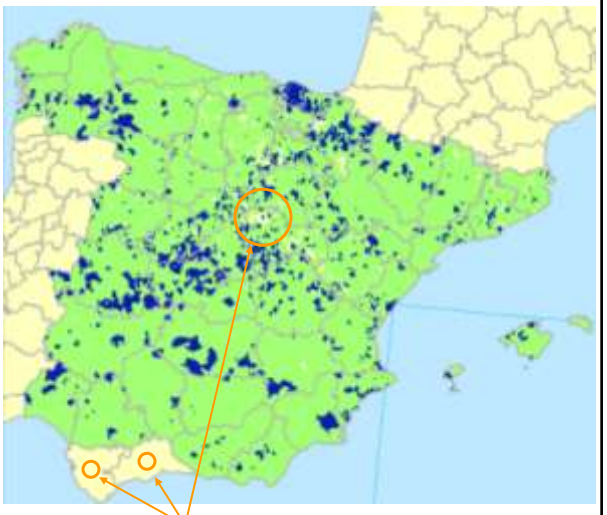
Shall be linked to the farm income (D2) and the level of investment (D3). Both criteria are good proxy in succession probability.

- Threshold: Area with a high share of farmers close to retiring age are defined by more than 40% of holdings managed by farmers aged 65 years and over

- Data source: FSS 2000

Panel expert exercise (10/10)

➲ **Age of Farm holder: tentative map**



Missing data, code problem…?

Challenges

The indicator must be calculated on the basis of available data or on information that can be available in the short term, at the EU level, based on a harmonised methodology.

+ Farmland abandonment is a process occurring at local level for the EU -27 (infra NUTS3).

+ Risk assessment and not only measurement (past FLA).

= Studying the risk of occurrence of a local phenomenon at EU scale, huge challenge and long process!

Literature review, JRC report
Most recurrent drivers
Expert panel exercise
Definition, drivers, methodology and calculation
Factsheet

Data issue (1/3)

How does the picture look like if the spatial resolution is not appropriate?

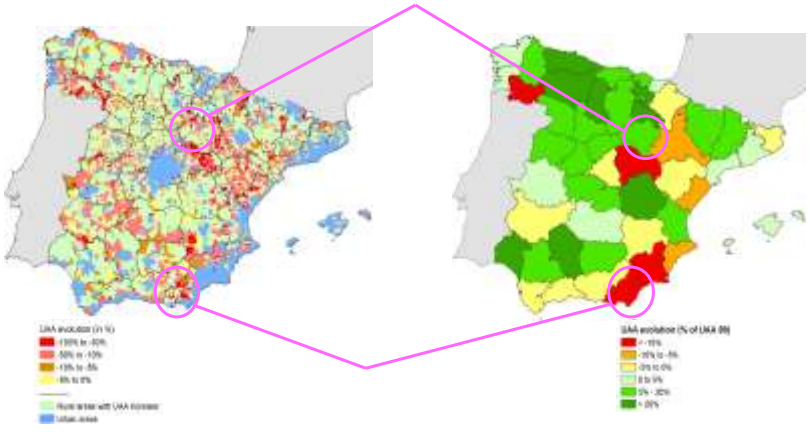
Agricultural data at detailed scale (LAU)
A good picture of reality

National (and regional) level
Cubism/patterns of reality

Policy conception / impact assessment
Abstract painting

Data issue (2/3)

Resolution data input effect: LAU2 vs NUTS3 UAA Evolution



At NUTS 3 level:
- farmland abandonment and soil sealing are mixed-up
- UAA increase and decrease are compensated

Source: Pointereau P., Coulon F., Girard P. , Lambotte M., Stuczynski T., Sánchez Ortega V., Del Rio A. , (2008) : Analysis of Farmland Abandonment and the Extent and Location of Agricultural Areas that are Actually Abandoned or are in Risk to be Abandoned, EUR 23411EN – 2008, Institute for Environment and Sustainability, JRC

Data issue (2/3)

- Work is now at the stage of data mining and first mapping tries

- Negotiations are on going with Eurostat and DG AGRI to secure the access to data at a low geographical level (FADN via a confidentiality agreement and discussion with Eurostat regarding the FSS)

First overview on FSS data availability

Who is doing what?

DG AGRI
Leader
-Overall coordination
-Drafting and updating the factsheet
-Compiling the indicator
-Conceptual and methodological improvement and data availability
-Progress reports

JRC

Scientific and technical support

(report on FLA (2008), preparatory work to further development (2010), coordination of the expert panel,…)

Expert Panel

(since July 2010)

Support on the development of the indicator and its validation

Next meeting Nov-Dec. 2011

Facsheet and Map of the risk by mid 2012

Thank you for your attention