# PROJECT FINAL REPORT

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## Executive summary

The EU dedicates about 44 billion euro per year to the Common Agricultural Policy (CAP), the main expenditure in the EU budget. Even if this policy remains a very important driver of change in rural areas, these areas are also undergoing major changes for other reasons. The challenge of the CAP-IRE project was to improve the understanding of long-term socio-economic mechanisms of change in rural areas. It provided an overview of inter-linkages between the different components of the CAP and the mechanisms which have an impact on rural economies. The final objective of CAP-IRE was to contribute to the on-going reflexion regarding the future design of the CAP.

A set of concepts and tools were developed to identify farm households' reactions to CAP reforms. Six thematic, and one cross-thematic, viewpoints were used:

1) farm structural adjustment, investment and innovation;

2) chain interactions between agriculture and related economic sectors;

3) environmental sustainability;

4) social sustainability;

5) interactions between rural communities and the rest of the world;

6) farm and rural governance issues; and

7) the interplay between the previous aspects.

CAP-IRE relied on a consistent combination of secondary data on rural areas, original surveys, econometric and programming modelling of policy scenarios and stakeholder/expert involvement. The geographical coverage included 11 case study areas (CSA) in 9 EU countries. Overall, approximately 2400 farm-households were interviewed over the course of the project.

The CAP-IRE results show that European rural regions are very heterogeneous in terms of their social features and sustainability. A growing heterogeneity of farms (in terms of size, organisation, and technology) and farm households (in terms of the number of members, employment, and dependency on farming income) can also be observed across and within each of the regions studied. Furthermore, social and business networks are changing in rural areas and farms and households are progressively disconnecting from each other. Moreover, exits from agriculture appear to be continuing unabated, whilst land abandonment is significant only in disadvantaged areas.

The CAP still provides income support and affects the production choices of individual farm households, and, in doing so, also helps maintain crop diversity. However, the current CAP may also be an obstacle to the diffusion of new options, such as energy crops, which hints at the challenge of finding a fair balance between different policy objectives. If the current CAP is maintained, the general tendency of structural change toward a higher concentration of productive factors in fewer farms is expected to continue, given that about 20% of farms are expected to exit production within the next 10 years. Yet removing the CAP altogether would sharply increase the exit rate, with about 30% more farm households ceasing farming activity.

That said, the effect would be very heterogeneous and would also depend on external factors (such as unemployment rates). CAP abandonment would also lead to a reduction in the use of land and

capital factors, respectively, by 24% and 30% of the active farmers. In addition, the abolishment of the CAP would negatively affect the number of farms adopting innovations in the next ten years, with the exception of farmers supported by agri-environmental schemes or pursuing organic production, (which have shown a different reaction pattern and a greater intention to decrease the use of inputs).

CAP-IRE also found that standard economic indicators (such as the contribution to GDP and employment) do not account fully for the significant role of agriculture in the rural economy. Upstream (e.g. agriculture input producers) and downstream (e.g. food processors) firms are acutely aware of their vulnerability to changes in the CAP. Exits would also result in a reduction in the amount of labour used in agriculture.

## A summary description of project context and objectives

European rural areas are undergoing major changes. The Common Agricultural Policy (CAP) is the main expenditure chapter of the EU with about 44 billion euro per year. The CAP, first established in 1957, undergoes regular reforms, of which the most recent were in 2000 and 2003, followed by the Health Check in 2008.

Discussions are now focused on the upcoming reform which should shape the CAP for the period after 2013. A Communication about the CAP post 2013 (COM 672/2010) has been released in November 2010. Three broad policy options are offered, without being mutually exclusive:

1) further gradual changes to the current policy framework;
2) a major overhauls of the policy in order to ensure that it becomes more sustainable, and the balance between different policy objectives;
3) a CAP with a strong focus on environmental and climate change objectives, while moving away gradually from income support and most market measures.

A number of studies exist on the subject of the CAP and its effects in rural areas. These studies consider the problem at different scales, ranging from the farm level to the world economy. However, most of them focus on specific issues related to the CAP (e.g. changes in crop mixes and profits, environmental effects) or consider only specific policy components (e.g. first pillar payments).

The challenge of the CAP-IRE project is to provide an overview of the inter-linkages between the different components of the CAP and the mechanisms through which they have an effect on rural economies. The project's strategy is to focus on the specific interplay between the CAP, farms and farm-households as the key node through which to understand the connections between policy and the wider rural context.

The objective of CAP-IRE is to develop concepts and tools to support future CAP design, based on an improved understanding of the long-term socio-economic mechanisms of change in rural areas.

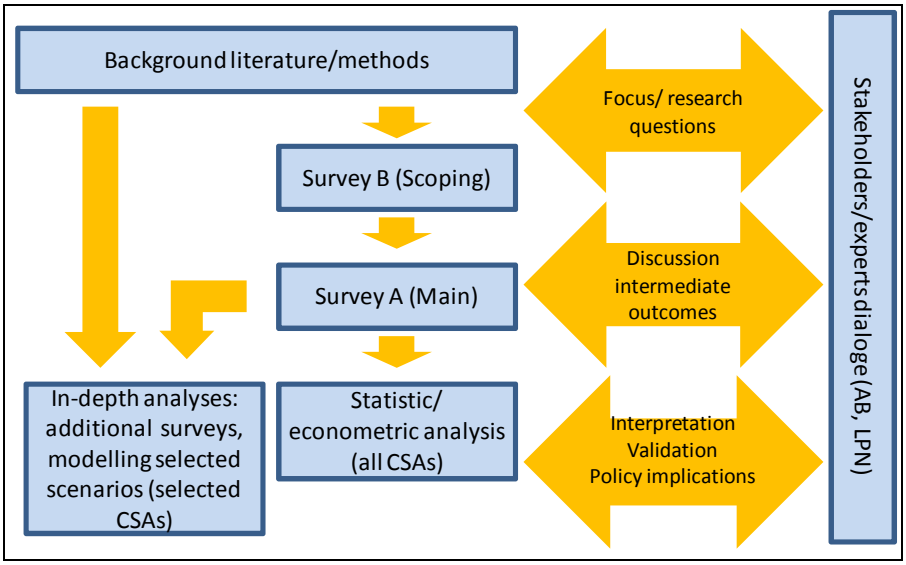
The reaction of farm households to CAP reforms is analysed under the lens of six thematic, and one cross-thematic, viewpoints:

1) farm structural adjustment, investment and innovation;
2) chain interactions between agriculture and related economic sectors;
3) environmental sustainability;

4) social sustainability;
5) interactions between rural communities and the rest of the world;
6) farm and rural governance issues;
7) the interplay between the previous aspects.

The practical implementation of the project followed the workflow illustrated in the figure1.

**Figure 1 – CAP-IRE workflow.**




The project methods include:

1) Statistical and econometric analyses to explain the determinants of the current direction of change and the impact of the CAP concerning:
    a. Farm size and structure;
    b. Innovation;
    c. Chain connections;
    d. Labour use;
    e. Input use;
    f. Networking and governance structures.
2) In-depth analyses focusing on specific case study areas, and scenarios simulation, including:

    2a.Real option models simulating technology adoption: Emilia Romagna (IT), Midi-Pyrénées (France), Podlaskie (Poland), Noord-Holland (Netherlands), South-East Planning Region (Bulgaria);

    2b) Spatial tracking analysis to explore the linkages between farm households and their immediate local economy: North East Scotland (United Kingdom), Podlaskie (Poland), Centre (FR) and Midi Pyrénées (FR);

    2c) SAM-based analysis to capture linkages between farm households and the regional economy: North East Scotland (United Kingdom);

2d) Indicator-based analysis (Driving forces-Pressures-State-Impact-Responses - DPSIR): Andalusia (Spain);

2e) Scenario analysis based on multi-criteria decision making in order to assess the impacts of different policies on social indicators: Macedonia and Thrace (Greece), Andalusia (Spain), South East Planning Region (Bulgaria);

2f) New institutional economics to represent connections between different households and different issues: North East Scotland (United Kingdom), Noord-Holland (Netherlands), South-East Planning Region (Bulgaria), and Centre (France).

The project has been based on a strong dialogue with stakeholders by means of an Advisory Board (AB) (14 members) and a Local Participatory Network (LPN) in each case study area (involving about 100 participants altogether). These stakeholders played a key role in shaping research questions, interpreting the results and deriving policy implications.

## A description of the main S&T results/foregrounds

### *Case studies survey (WP2)*

#### Man activities and output

CAP-IRE has a strong empirical approach. The project strategy was to rely on a consistent combination of secondary data on rural areas, original surveys, econometric and programming modelling of policy scenarios and stakeholder/expert involvement. The geographical coverage includes 11 case study areas (CSA) in 9 EU countries (figure 2).

**Figure 2 – Case studies.**

A preliminary survey ("Survey B"), was carried out on a farm-household sample of 59 units, with an in-depth face-to-face questionnaire aimed at screening relevant issues and testing questions for the main survey. The main survey ("Survey A") contained questions concerning farm/household characteristics, patterns of change in a baseline scenario (present CAP) and reactions to an extreme "NO-CAP scenario". The sample was selected by random methods from the list of beneficiaries of CAP payments in each case study area, with appropriate stratification according to the features of each area. Overall it involved interviews to about 2363 farm-households.

**Main results**

A significant result is the creation of a consistent database about current and future choices in a wide sample (2363 farm households) covering 11 case study areas in 9 countries. This represented a major resources for the remaining work packages, all of which, with the exception of WP8 – Relationship with the "rest of the world", used survey A data for thematic elaborations.

Survey A yielded a final database is available in the restricted part of the project website. A summary of the collected information is provided in table1.

**Table 1 – Numbers of interviews by case study, way of interview and response rate*.**

| CSA | Number of interviews (farm-households) | Way | Response rate |
|---|---|---|---|
| 1. Emilia-Romagna (Italy) | 300 | Telephone | 62% |
| 2. Noord-Holland (Netherlands) | 300 | Postal | 21% |
| 3. Macedonia and Thrace (Greece) | 300 | Telephone / Face to face | 55% |
| 4. Podlaskie (Poland) | 249 | Face to face | 95% |
| 5. North East of Scotland (UK) | 168 | Telephone | 68% |
| 6. Andalusia (Spain) | 201 | Face-to-face | 75% |
| 7. South-East Planning Region (Bulgaria) | 273 | Face-to-face | 92% |
| 8. Centre (France) | 140 | Face-to-face | 35% |
| 9. Midi-Pyrénées (France) | 155 | Face-to-face | 31% |
| 10. Lahn-Dill-District (Germany) | 117 | Postal | 20% |
| 11/1 Ostprignitz-Ruppin / North-East Brandenburg (Germany) | 160 | Postal | 14.6% |
| Total | 2363 | | |

For the case studies 8 and 9, the actual response rate was not available. The data in the "Response rate" column reflect the ratio between the number of completed questionnaires and the number of addresses available to the entities performing the survey.

## *Integrated analysis (WP3)*

**Man activities and output**

The integrated analysis included both activities directly based on the database of survey A, and activities that built on the outcome of the others thematic WPs.

Analysis of data from survey A included:

a) a classification of farms households based on their strategic reaction to policy; the profiles are identified considering the directions of behaviour with respect to two different strategies: quantitative (embedding of the farm into the economic environment through contracting and the use of credit) and qualitative (increase of capital endowment in terms of land owned, buildings and machineries); the main determinants of the different behaviour alternatives are also identified;

b) an analysis of farm exits; within such area of research, between October and December, Meri Raggi was hosted for 2 month at the Louisiana State University, to work on data analysis finalized on WP3 together with Prof. A. Mishra, member of the Advisory Board;

c) a preliminary attempt to use Bayesian Network to represent the mechanisms of policy effects; from causal relationships, the Bayesian networks return, for each variable, the probability distribution influenced by the other variables.

The cross-work packages analysis included:

a) summary description of the project approach;

b) cross WP analysis of emerged determinants of key behavioural variables;

c) cross-WP illustration and analysis of scenario simulation from WP4, WP5, WP6 and WP7;

d) analysis of potential implications of the recent communication EC 672/2010, in the light of the project results.

**Main results**

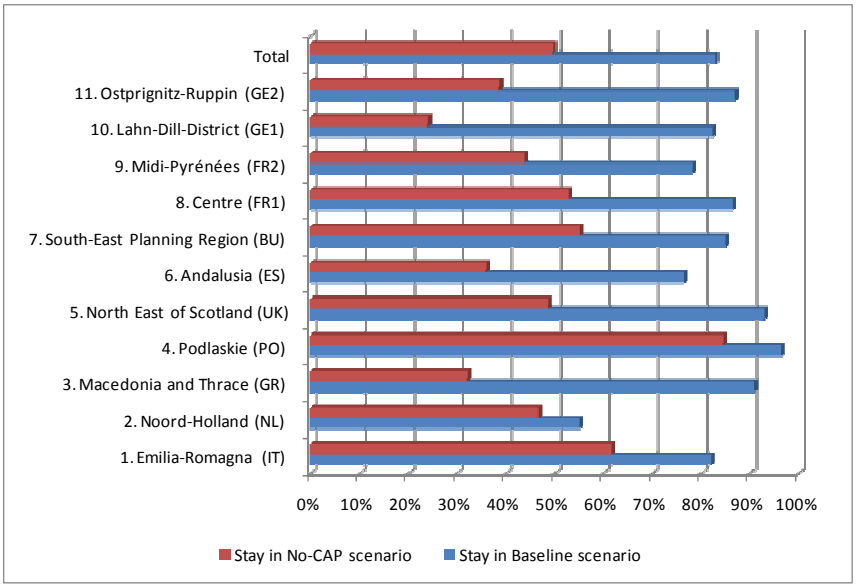
The outcome of this WP is a clearer understanding of mechanism of effect of CAP changes across the different thematic areas and their interactions. It also allowed to test innovative tools, in particular Bayesian Networks, in the study of agricultural policy.

Heterogeneity of farms (in terms of size, organisation, technology) and farm households (in terms of number of members, employment, dependency on farming income) seem to be growing both across and within each region. Exits have a pivotal role in farming changes in rural areas. Exits from agriculture continue at a high pace. Heterogeneity of farms (in terms of size, organisation, technology) and farm households (in terms of number of members, employment, dependency on farming income) seem to be growing both across and within each region.

Exits from agriculture continue at a high pace. On average 20% of farms are expected to exit in the next 10 years even if the CAP follows a baseline scenario. However, land abandonment is significant only in disadvantaged areas.

Removing the CAP would sharply increase the exit rate. About 30% additional farm households would stop farming if the CAP was totally removed. However, the effect is very heterogeneous and also depends on external factors (such as unemployment rates in the area) (figure 3).

**Figure 3 - Farmers stating they would continue farming in the next 10 years (% of respondents) (CAP-IRE sampling areas).**




**Source:** the CAP-IRE survey.

On the contrary, changes in household locations in the coming years concern a minority of cases and are only slightly affected by the CAP.

The rural agricultural systems are widely and increasingly affected by external scenarios (prices, etc.). After 2003, the CAP lost most of its role as an "interface" with the world outside the EU. Altogether, however, it still provides income support and affects production choices of individual farm households.

Alternative visions of the future of farming in the EU and related policy will continue to deeply shape farming activities.

The integrated analysis also yielded the main policy implications generated by the project, that can be summarized as follows:

a) Need and relevance of agricultural policies: the CAP continues to play a major role in affecting agriculture and agricultural production, and the farming population.

b) Re-specifying policy objectives and role: more attention may be given to measures targeted at innovation and support of entrepreneurship, additionally to income support; strengthening the connection between productive agriculture and the environmental/social dimension of agriculture; taking into account the non-agriculture related contributions that farm-household members make to local economies through, for example, off-farm employment and on-farm diversification activities.

c) Accounting for regional or farm differences: further integrating differentiated regional and farm needs with respect to agriculture; considering differences in social indicators among rural areas; taking into account differences in governance structures of farm households; considering the importance of farm household governance; recognising the spatial concentration of agriculture-related businesses.

d) Addressing key variables in policy design: time frame, policy predictability and coordination over different policy objectives remain key issues in policy effectiveness; there is a need to take into account the flows of goods and services and their spatial dimensions; need for further targeting of

environmental, rural development and socially focused measures; the role of farm governance structures should be more explicitly taken into account.

e) Improving policy evaluation: a significant number of farmers state the intention to abandon farming if CAP is abolished, this needs to be taken into account for ex ante policy analyses; CAP effects change radically depending on other forces, such as an increase in productivity or changes in the world markets, which require specific attention to context of scenarios.

f) Further scientific evidence is needed on: the interplay between farms, farm-households and rural areas through their multiple social and economic connections; is land re-allocation a virtuous or vicious process? What are the complex modes of farm governance, including ownership, and the role of entrepreneurship connected to farming? How can we improve the resilience of farm households and rural areas to changes in the social and business environment? The results suggest that there is a case for extending the existing FADN (Farm Accountancy Data Network, the EU-wide network collecting accounting information on farming) survey by adding additional questions on farm household purchasing and sales decisions; there is a need for a better understanding of the interplay between the different components of the CAP with respect to the environment.

## *Structural adjustment and innovation (WP4)*

**Man activities and output**

Structural adjustment and innovation was addressed both as an elaborations of survey A results and in-depth analyses.

About the survey A analyses, attention focused on two main research questions: a) explaining CAP impacts on structural change through multivariate probit model; b) explaining different CAP impacts on innovation diffusion through count model.

About the in-depth analyses a general real option model was built to simulate innovation adoption at the farm-household level and applied to 5 CSAs (Italy, The Netherlands, Poland, France- Midì-Pyrenées, Bulgaria). The real option model allows to simulate the effects of uncertainty on the timing and profitability of technology adoption. Policy variables concerning pillar I and II are included, considering also the role of policy uncertainty in decision making. The work was carried out almost in parallel in the five case studies. Actually the workload in modelling was somehow larger than expected, so that some delay in the finalisation of the WP4 deliverable is to be expected. This was also completed in the final semester of the project.

A specific analysis was also carried out on additional questions related to WP4 and included in the French survey A, in both Midì-Pyrenées and Centre.

These different activities were finalized by the end of the project, presented at the final project conference in Brussels and illustrated in D4.2, already available on the project website.

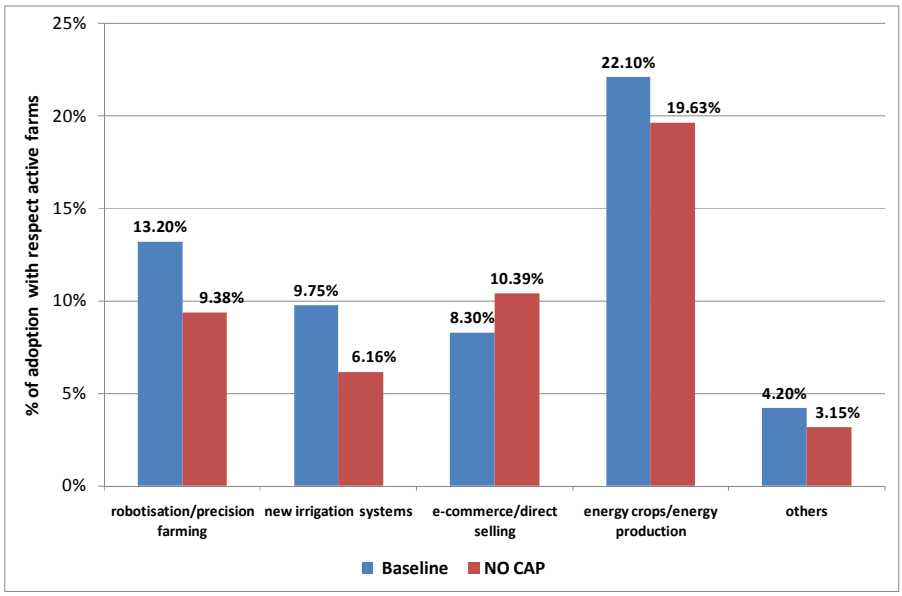
**Main results**

The WP yielded clearly significant results on two grounds: a) explanation of patterns of farm structural change, and the role of the CAP in such processes; b) explanation of processes of innovation adoption and the role of the CAP in such processes.

Under the baseline scenario (present CAP), the general tendency of structural change into a higher concentration of productive factors in fewer farms is expected to continue, due mainly to exits. Results show that with CAP abolishment a reduction in the use of land and capital factors is expected, respectively, by 24% and 30% of the active farmers. Such effect is concentrated mainly in

farms that would grow in the baseline scenario. The removal of the CAP would negatively affect the number of farms adopting innovations in the next ten years. Even when restricting attention to those staying in farming without the CAP, the NO-CAP scenario significantly modifies the pattern of technology adoption (figure 4).

**Figure 4 - Percentage of expected adoption under Baseline (present CAP) and NO-CAP scenario (subsample of those continuing farming in the baseline) (CAP-IRE sampling areas).**




**Source:** the CAP-IRE survey.

Uncertainty on the future of the CAP has the effect of hindering early adoption of innovation, even when such innovation is potentially profitable for the farms. Such effects could be mitigated by increasing "certainty" of access to specific measures which are aimed to reduce risk exposure, e.g. through innovation co-founding.

## *Chain effects (WP5)*

### Man activities and output

Chain effects were addressed both as an elaboration of survey A results and in-depth analyses.

In particular, the elaboration of survey A information was carried out based mainly on statistical descriptive of selected questions related to chain effects.

The in-depth analysis of chain effects was based on two approaches:

a) A Social Accounting Matrix (SAM)-based multiplier analysis of farm household linkages involving an assessment of the impacts of difference CAP scenarios.

b) A statistical analysis of the direct linkages between farm households and their local economies based on findings from a spatial tracking survey.

The construction of the study-area specific SAM for the UK study area of North East Scotland took almost six months. The final SAM includes 86 accounts includes 12 farm types, 2 agricultural outputs and two farm household types.

Basic multiplier analysis was used to identify the importance of the farm sector and upstream/downstream agribusinesses for the regional economy in terms of output value, exports,

income, employment. Using stated behaviour results from Survey A, SAM multiplier analysis was used to assess the impact on the regional economy of a change in the CAP.

The second type of in-depth analysis completed during the reporting period was based on the results from a spatial tracking survey conducted in the UK (North East Scotland) and Polish (Podlaskie) study regions. The analysis also considered responses to extra questions asked in the two French CSAs in relation to farm household first stage economic linkages. Descriptive statistical analysis and multivariate probit analyses were used to show the extent to which farm households are integrated into their local economy and the extent to which links are influenced by farm characteristics, farm household characteristics and local context. The research also focused on supply-side factors influencing linkages including the extent to which upstream and downstream businesses are spatially concentrated within regions.

**Main results**

Survey A indicated that there are major differences between EU areas in terms of the nature and strength of links between farm households with the wider rural economy. The survey findings thus validated further in-depth analysis of chain effects.

The SAM multiplier analysis showed that standard economic indicators (GVA, employment) may under-represent importance of farm households to the wider regional economy. It also confirmed that different farm types have very different degrees of integration and thus give rise to different knock-on effects for the wider economy. In the UK study areas, small livestock farms were most integrated and had the highest potential for generating income and employment effects for the region while cereals farms had higher leakages and less potential for stimulating knock-on effects.

The results from the SAM policy simulations suggest that at regional level, CAP reform in NE Scotland would have relatively small impacts. The environment policy scenario that was analysed, which combines a reduction in the budget with a switch in support from Pillar 1 to Pillar 2, while reducing the number of farm exits compared to other scenarios, may still lead to larger economy-wide impacts if large specialist farms exit. This is because these farms contribute to the bulk of output value and thus sustain more production-related linkages.

The results from the analysis of local linkages (based on data from the spatial tracking survey) revealed strong differences across the CSAs involved in the analysis (table 2).

**Table 2 - Percentage of transactions occurring within the distance to nearest town of minimum population 3,000 residents.**

| Source of inputs: | Podlaskie (PL) | Centre Region (FR1) | Midi-Pyrénées (FR2) | North East Scotland (UK) |
|---|---|---|---|---|
| Fertilizer | 88 | 79 | 76 | 19 |
| Chemicals | 89 | n/a | n/a | 30 |
| Seed | 87 | n/a | n/a | 35 |
| Feed | 91 | n/a | n/a | 30 |
| Machinery | 88 | 56 | 41 | 56 |
| Fuel | 89 | n/a | n/a | 43 |
| Services | 89 | n/a | n/a | 54 |
| Location of main purchaser | 79 | 59 | 34 | 26 |

**Source:** the CAP-IRE survey.

Farm households in the UK and Polish CSAs had particularly strong differences in respect to their purchasing and sales patterns. While households in Podlaskie have many transactions within a short distance from the farm, farm households in North East Scotland were likely to trade with far more

distant suppliers and purchasers. The two French CSAs, while lying between these extremes, also showed CSA-specific tendencies in relation to local integration.

After having controlled for differences in the economic structure of localities, the extent to which farm household transactions are local is more dependent on the strength of cultural attachment of the farmer to the local area (as declared by the interviewees by using a quantitative scale) than to characteristics of the farm or other farmer characteristics.

Upstream firms (e.g. agriculture input producers) and downstream firms (e.g. food processors) industries are acutely aware of their vulnerability to a change in the CAP. The results suggest that the impact of a policy which leads to a decline in demand for inputs from upstream businesses or a decline in output sales to downstream businesses would be spatially very heterogeneous across regions (e.g. very concentrated in North East Scotland and more widespread in Podlaskie).

The results confirm that the concept of "local" in relation to farm household transactions depends on the economic geography of the area under analysis. The probit analysis suggested that farm size does not systematically influence input purchasing and output sales patterns in either area but farmer attachment and supply-side factors are shown to be significant influences on behaviour.

In terms of policy, the spatial tracking results suggest that any reform of the CAP which has production-related impacts will have very different spatial effects. For example, while in Podlaskie, the effects of CAP reform are likely to be spread across rural areas, in North East Scotland the impacts of CAP reform may not be large at the regional level (from the SAM analysis) but will be spatially concentrated in particular towns in the region due to the spatial concentration of agribusinesses that has occurred in the region. This in turn suggests that different spatially targeted policy assistance may be required in some areas.

Altogether, standard economic indicators (such as the contribution to GDP and employment) do not account fully for the significant role and interconnections of agriculture in the rural economy. Connections with input suppliers and product processors/traders are changing in nature (e.g. use of the internet for purchasing production means) and so is also geographic range over which transactions take place (e.g. less local input purchasing due to the spatial concentration of upstream agribusinesses). The analysis suggests that what is considered to be "local" in an agri-business context varies according to commodity type and region. Upstream firms (e.g. agriculture input producers) and downstream firms (e.g. food processors) industries are acutely aware of their vulnerability to a change in the CAP.

## *Spatial dimension and environmental sustainability (WP6)*

**Man activities and output**

Spatial dimension and environmental sustainability was deal with through the elaborations of survey A results and in-depth analyses.

About the survey A analyses, a logistic model was developed to understand and explain the effects of CAP removal on environmental pressures.

About the in-depth analyses a DPSIR framework was built and data were collected in four case study areas (Andalusia, Centre, Macedonia and Thrace, Brandenburg). This preliminary exercise showed several difficulties due to limited data availability, heterogeity of scale of available data and difficulty in connecting data about the state of the environment, with agricultural pressure and with policy chenges. In addition appropriate methodologies to build on data available revealed very

difficult to identify within the resources available in the project, not having the budget to implement appropriate modelling or dedicated collection of technical data aimed at assessing the environmental effects of policy changes. The final decisions about which in-depth analysis to carry out and through which methods was been postponed to the 7th project meeting in Thessaloniki. Finally a complete in-depth analysis was presented for Andalusia. A second partial in-depth analysis was carried out for Brandenburg.

**Main results**

The main significant results are achieved in two areas:

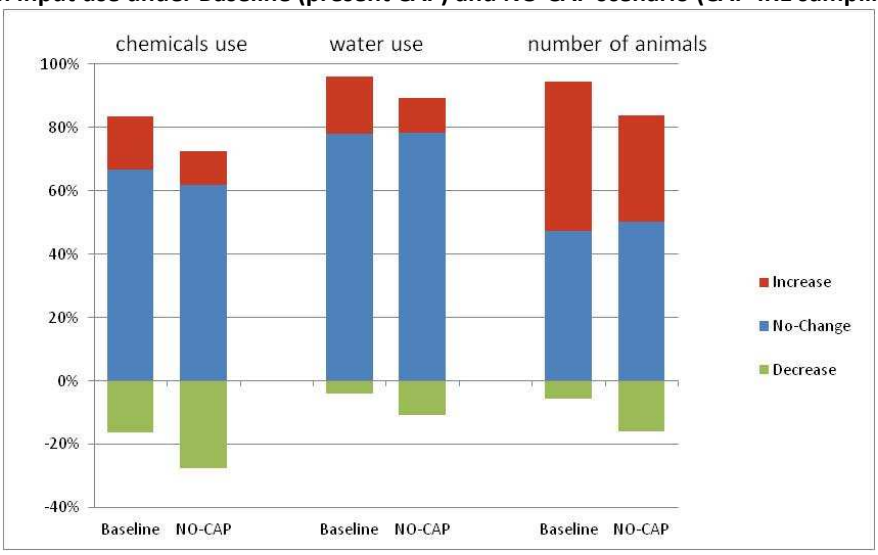
a) the effects of the CAP on environmental sustainability, and its connection with structural change;

b) the difficulties in applying DPSIR concepts to the effects of policies in rural environment.

As area a) is concerned, the present CAP seems to maintain some diversity of crops, but it may also be an obstacle to the diffusion of new options, such as uptake of energy crops, which hints that there is a challenge to find a fair balance between different policy objectives.

Removal of the CAP would induce a relevant reduction in input uses and intensity of livestock production (to which important pressures on the environment are associated, such as nitrogen) (figure 5). However, it would also result in the abandonment of positive actions aimed at public goods that are connected with the payments to farmers (e.g. landscape maintenance).

**Figure 5 – Change in input use under Baseline (present CAP) and NO-CAP scenario (CAP-IRE sampling areas).**




**Source:** the CAP-IRE survey.

Heterogeneous behaviour of farmers between the New Member States (EU12) and the others (EU15) emerges, as EU12 countries tend to increase resource inputs in both scenarios and especially in the baseline (present CAP scenario), whilst EU15 members are less influenced by changes in the CAP support.

The present CAP seems to maintain some diversity of crops, but it may also be an obstacle to the diffusion of new options, such as uptake of energy crops, which hints that there is a challenge to find a fair balance between different policy objectives.

Farmers supported by agri-environmental schemes or pursuing organic production declare a different pattern of reaction under the CAP removal scenario. They state a greater intention to decrease the use of inputs than the average rate.

As effect b) is concerned, the research activity performed under this WP, showed that the DPSIR framework while useful for conceptualising the chain of impacts and responses from agricultural activities, has several limitation due to poor and poorly standardised data availability at the regional scale, as well as difficulties in data interpretation due to the role of several interacting driving forces.

## *Social dimension and sustainability (WP7)*

**Man activities and output**

The issue of social dimension and sustainability was dealt with through elaborations of survey A results and in-depth analyses.

In-depth analysis was initiated by WP7 in selected case study areas. The methodologies were finalised and final results were achieved.

About the survey A analysis, a set of Multivariate techniques have been applied at the eleven case study areas in order to study the social impacts of the CAP in rural areas. The first stage of the analysis was grouping and classification of all case study areas using Multiple Correspondence Analysis with specific social indicators. At a second stage a ranking of all case study areas took place with the application of PROMETHEE II multicriteria analysis method. This methodology was applied for the comparison and ranking of the eleven case study areas based on the selected social indicators.

In regard to the in-depth analysis, the methodology used was scenario analysis based on a multicriteria mathematical programming model in order to measure and compare the impacts of different CAP policies on basic social indicators (employment, labour use etc.). The data required for this model resulted from the survey B questionnaire. We also used additional data in order to support the WP7 in-depth analysis resulted from a survey C questionnaire. The in-depth analysis carried out in 13 farm households in 3 case study areas; Macedonia Thrace (Greece), Guadalquivir Valley - Andalusia (Spain) and Southern-Eastern Region (Bulgaria).

The first results of the two WP7 methodologies presented in Bologna (sixth project meeting) for Multivariate techniques, and in Thessaloniki (seventh project meeting) for in-depth analysis.

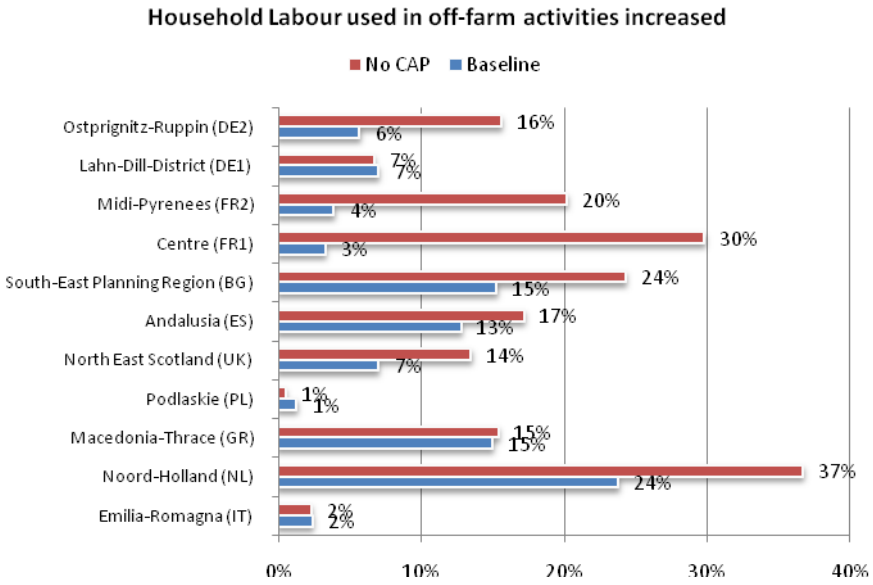
The WP7 final results presented in the Final CAP-IRE Conference in Brussels.

**Main results**

European rural regions are very heterogeneous in terms of social features and sustainability. Farm exits also imply a reduction in labour used in agriculture.

Changes in CAP scenarios result to minor changes in labour use (only 2-5% of farms affected), except when the situation is full exit from farming activities. This holds for all types of labour (household on-farm, household off-farm, hired). Farmers in most case study areas are no longer only active in the production of raw materials for agro-businesses but rather they are more and more involved in other activities such as agro-tourism, environmental protection, etc (figure 6). The same results are expected for organic farmers who will continue farming in both CAP-IRE Scenarios. They would decrease their on-farm activities and specifically household labour used in the farm (table 3).

**Figure 6 – Household labour used in off-farm activities under baseline and NO-CAP scenario (CAP-IRE sampling areas).**




**Source:** the CAP-IRE survey

**Table 3 - Household labour used in the farm (CAP-IRE sampling areas).**

| | Organic farmers continue farming in the BASELINE Scenario | | Organic farmers continue farming in the NO CAP Scenario | |
|---|---|---|---|---|
| | BASELINE | NO CAP | BASELINE | NO CAP |
| Increase | 32.9% | 32.2% | 37.8% | 34.7% |
| No change | 53.6% | 39.0% | 54.1% | 42.9% |
| Decrease | 7.2% | 14.4% | 3.1% | 13.3% |
| Other | 0.5% | 0.8% | 1.0% | 1.0% |
| Do not know | 4.8% | 9.3% | 4.1% | 8.2% |
| Do not answer | 1.0% | 4.2% | 0.0% | 0.0% |

**Source:** the CAP-IRE survey

However, the effects of the CAP changes can be important for specific categories, e.g. reduction of 8% in the labour use of seasonal workers is envisaged in NO-CAP scenario. In addition, the results confirm the relevance of labour connections with specific crops, driven by different policy scenarios. Specifically, any policy scenarios different from the baseline (not just the abolition of the CAP but also an environmental and a subsidiarity scenario) have negative effects on part time workers, females and non-family workers in most of the case study areas.

## *Connections to the "rest of the world (WP8)*

### Man activities and output

This issue was primarily addressed through focusing on the development of scenario building during the initial stages of the project used later to inform all other activities. WP8 (Connections to the "rest of the world") did not elaborate specific WP results. Rather activities were continued during the project by further updating and specifying scenarios in support to scenario simulation by WP4, 5, 6 and 7. In addition, further steps were done to clarify how to deal with the understanding of how to use survey A to assess the effects of CAP changes on the rest of the world.

WP8 reviews of some of the many and complex links between rural economies, predominantly engaged in agriculture and non-rural and non-EU drivers, with the identification of two possible levels of interaction with non-rural areas: within and outside the European Union (both rural and non-rural). Rural and non-rural interaction mainly encompasses land markets, commuting, concepts of hybrid and transition areas, residential location, price effects of major infrastructure developments, tourism and agro-tourism and economic and social opportunities for rural areas. Possible areas of interaction with non-EU include international markets (particularly for agricultural products, energy and labour), de- and re-localisation opportunities, international networks and global value chains, negotiations on agricultural protection and subsidy systems and global food safety and food security issues

**Main results**

The main significant results of WP8 relate to the identification of relevant scenarios from the available literature. They were presented and continuously discussed at the project meetings and at the open events (intermediate workshop and final Conference).

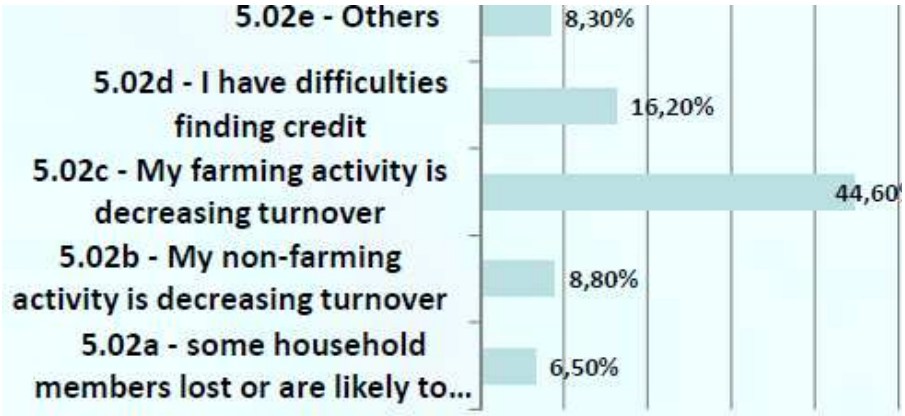
The scenarios proposed and its correspondence with the EU communication about CAP toward 2020 (COM(2010) 672 final) are presented in table 4.

**Table 4 - Correspondences between EU Communication (COM(2010) 672 final) and CAP-IRE scenario.**

| The CAP towards 2020 | CAP-IRE Scenario |
|---|---|
| Enhanced Status Quo | Baseline |
| More balanced, targeted and sustainable support | Subsidiarity |
| Abolished market and income support | Environment |

The main points, common to all observations and case study areas are, that farms and farm household become increasingly heterogeneous within the regions observed, including social features and sustainability. Secondly, large farms tend to grow further and the CAP has been observed to play a relevant role in promoting growth and innovation. Thirdly, the regional economy itself suffers little impact from the different CAP scenarios. Exiting farming, in particular under the CAP abolishment, would have several negative effects, since the positive effects, in particular in socio-economic and environmental terms would be reduced.
Finally figure 7 summarises the negative effects of the economic crisis on farming. Negative income effects are most marked, and the consequences in terms of exiting farming have been described above.

**Figure 7 – Effect of economic crisis (CAP-IRE sampling areas).**




**Source:** the CAP-IRE survey.

## *Governance RTD (WP9)*

**Man activities and output**

Under this chapter, an institutional-economic analysis on the effect of the newly initiated CAP policy on the choice of the most suitable governance structure has been developed. Such integrated research enriches the current approaches used to analyse rural areas and creates synergy effects between the modelling approach of spatial regional economic and the institutional economic approach. Of central importance is the institutional-economic analysis of the effect of the newly initiated CAP policy on the choice of suitable governance structure in rural areas. Two methodologies were developed. A more explorative literary approach for analysis on regional level and a modelling approach for analysing the consequences of governance on household decisions.

Taking the lead to develop an institutional-economic framework considering governance in rural areas was one of the main efforts. It was analyzed what institutional solutions households used to react to changes in the CAP. The results were analysed in a framework which combined resilience thinking and institutional economics. There is a need for new types of governance for farm households because of changing disturbances for agriculture. Institutional-economic analysis of the role of clubs (or other bottom up- based organizations) was based on l literary approach and showed their relevance. They were studied as networks and within production chains. The role of the institutional environment was studied as one of the explaining factors for the way farmers govern the way they sell their products. Also the role of networks for farm household governance was taken into account.

Then this subject was addressed, in analogy with the other thematic components of the project, by the elaborations of survey A results and in-depth analyses.

About the survey A analyses, an econometric approach is used to analyse governance of farm households and the consequences of different scenarios developed within CAPIRE. Building on a framework in which governance and resilience are combined, the analysis focused on aspects of farm household governance. The provisional title of the deliverable will be “Governance, resilience and the CAP”.

About the in-depth analyses, a literary approach combined with surveys and modelling has focused on a number of specific governance structures within the dairy chain as a case study of changing governance as a result of the change in the CAP. For this purpose interviews were carried out in 4 case study areas: North-Holland (Netherlands), North East of Scotland, South-Eastern Region (Bulgaria), and Centre and Midi (France). Also a Msc thesis was supervised on elaborating governance in the European dairy sector. This thesis contributed to the preparation of the two papers of the in dept-analysis.

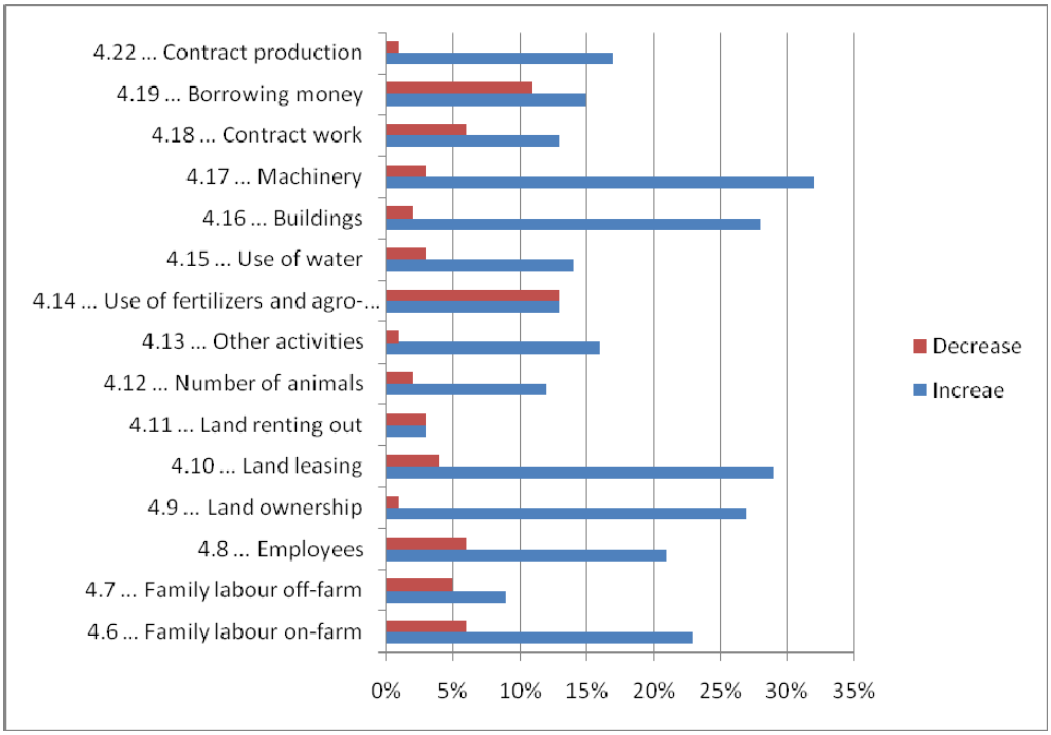
**Main results**

The main results of the WP concern understanding of the patterns of change in social and economic networking, as well as governance systems. Social and business networks are changing in rural areas. Farms and households are progressively disconnecting from each other; it is becoming more common that a single household as a unit does not own or govern a farm. Often there are more than one legal owner(s). New forms of coordination in accessing resources (land) and interplay with traders and processors are becoming more important. Different governance structures concerning the organisational form of the farm household, governing labour and land, as well as other inputs and outputs, and the participation in networks affect the resilience of farms. Concerning the use of land it holds that farmers who lease a larger part of their farm are more likely to quit business.

Networks such as business partners, advisory systems, associations, informal connections are important for farmers in their decision to continue their agricultural household when confronted with different policy options. Business relations also change as a result of the changing CAP and increased risk due to more volatile prices. Improved use of production contracts between farmers and the processing industry and other integration options along the production chain seem to be relevant strategies to deal with uncertainty in the economic context.

Figure 8 gives an overview of the adaptation strategies chosen as a reaction on the present CAP scenario. We listed 14 different adaptation strategies. About 55% of the households adopted between 1 and 5 strategies. About 20% did not choose any of the 14 strategies proposed. The total number of different strategies chosen per farm remains however limited. Adapting machinery, buildings, land ownership and land leasing, employees and family labour on farm are chosen most often.

**Figure 8 – Adaptation strategies under the Baseline Scenario.**




**Source:** the CAP-IRE survey.

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## The potential impact (including the socio-economic impact and the wider societal implications of the project so far) and the main dissemination activities and exploitation of results

### *The potential impact (including the socio-economic impact and the wider societal implications of the project so far)*

The potential impact of the project is achieved through its ability to provide scientific evidence in support of the design of the CAP and of the related debate, as well as to inform the scientific community working in the same or close fields of research. As a consequence there are three main channels through which the project impact is delivered:

1. Through the use of project results by decision makers.
2. Through the awareness of project results by EU, national and local stakeholders.
3. Through the diffusion in the scientific community.

Impact type 1) was targeted thought the project in view of the expected CAP reform, which regulatory proposals were released in November 2011. The project results were used by the evaluation unit of DG AGRI to carry out the evaluation exercise attached to the policy reform.

**Main dissemination activities towards decision-makers (1 and 2)**

- Project website (Task 10.2)

Basic dissemination through the website focused on maintaining the website regularly updated, with all approved deliverables already on line, while the restricted area was used as collaboration work area, with several template and documents related to the project updated on the web-site. In the final part of the period the website was also regularly used to announced the final dissemination events organised both at international level and at local level through Local Participatory final events.

Sections dedicated to public documents, project publications and events were added during this reporting period to allow an maximum effectiveness of dissemination. The project website now appears as the first occurrence searching for “cap-ire” through google.

- Newsletter (Task 10.3)

As agreed with the project officer the number of newsletter was reduced from 6 to 4. Of the four also the final one was agreed to be diffused only when the final deliverables are available, so a little beyond the project life. Also during this period, the third issue of the newsletter was prepared and diffused to a selected mailing list. Main contents were the announcement of the final conference and selected results from the project. All of the documents mentioned are available on the project website.

As for the fourth issue, it is ready at the time of submitting this report, but the diffusion has been delayed to fit with the timing of the debate about the CAP, expected in November 2011.

- Organisation of EU-level events (Task 10.4)

An intermediate workshop was held in Brussels, 14 October 2009, with the title “The role of the CAP for EU agriculture and rural areas: trends, impacts and mechanisms of change”. The workshop was organised in collaboration with DG RD SSH and DG AGRI and hosted by DG agri with the

participation of several representatives of different EC Directorates. The AB was involved in this intermediate workshop.

A final conference was held in Brussels under the title: "THE ROLE OF THE COMMON AGRICULTURAL POLICY FOR EU AGRICULTURE AND RURAL AREAS. Insights from the project CAP-IRE", 25 November 2010, European Economic and Social Committee, Room TRE 7701 - Trèves Building, 74, rue de Trèves, 1040, Brussels. It was organised in collaboration with the European Commission DG RTD, DG Agri and the European Economic and Social Committee, that also provided keynote speakers for the conference.

During the project, in October 2010, some draft deliverables were requested by the SCAR committee in view of the revision of the second report.

The AB was involved in the organisation and as speakers for the final conference.

- Organisation of local events (Task 10.5)

Three rounds of Local Participatory networks meetings were organized (table 5).

**Table 5 - LPN rounds.**

| LPN | 1st round LPN | 2nd round LPN | 3rd round LPN |
|---|---|---|---|
| 1. Emilia-Romagna (IT) | 4 June 2008 | 13 May 2010 | 14 December 2010 |
| 2. Noord-Holland (NL) | | June 2010 | 16 December 2010 |
| 3. Macedonia and Thrace (GR) | 3 June 2008 | 8 July 2010 | 17 December 2010 |
| 4. Podlaskie (PO) | | July 2010 | 3 December 2010 |
| 5. North East of Scotland (UK) | | 21 May 2010 | January 2011 |
| 6. Andalusia (ES) | | July 2010 | January 2011 |
| 7. South-East Planning Region (BU) | | 5 August 2010 | 8 December 2010 |
| 8. Centre (FR1) | | 21 June 2010 | 7 December 2010 |
| 9. Midi-Pyrénées (FR2) | | 28 June 2010 | 6 December 2010 |
| 10. Lahn-Dill-District (DE1) | 15 September 2008 | July 2010 | December 2010 |
| 11. Ostprignitz-Ruppin (DE2) | 15 September 2008 | July 2010 | December 2010 |

The third round of LPN was held in the form of open conferences in the majority of cases, to provide a further dissemination. Details about the content of the LPNs are provided in Deliverable D10.2.

- Main results of the dissemination activities

The dissemination strategy of the project proved exceptionally successful both at the EU and local level, also exploiting the timing of the project, which final year corresponded to the inception of the debate about the post-2013 CAP.

At the EU level, through continuous contacts with DG Agri starting at the very beginning of the project and better shaping when the first result occurred (mid 2009) the project was very successful in feeding its results in the evaluation process bringing to the decision concerning the post 2013 CAP. This continued through the final conference. Just after the end of the project, a project

document was prepared in the framework of the public consultation on the post 2013 CAP reform and project deliverables were made available to the DG AGRI unit in charge of evaluating the post-2013 proposals. The evaluation documents released in November 2011 by the EU Commission about the CAP post 2013 cite the project CAP-IRE results concerning in particular investment behaviour and innovation. Project results were also delivered to the European Economic and Social Committee, and to the SCAR (Standing Committee on Agricultural Research).

In parallel the project contributed to the CAP reform debate at local level, through the continuous contacts shared through the LPN and finally with the local dissemination conferences. These involved more than 100 local stakeholders and estimated 200 participants at the final events, ranging from farmers and representative of the very local organisations, to national administration and regional representatives in the EU parliament.

Several participation to the non academic events allowed the discussion of the results of CAP-IRE in the framework of the current policy debate.

A full account of dissemination activities including publications is available in deliverable D10.2.

**Academic dissemination activities (3)**

Academic dissemination activity was targeted mainly to conferences papers during the project lifetime and to journals and edited books towards the end and after the project lifetime. The main scientific publications are journal papers, some of which collected in a special issue of a major international peer reviewed journal. This strategy was largely driven by the fact that the empirical part of the project was carried out towards the intermediate part of the project and result were available at the end of the project.

During the project lifetime, 22 papers were presented at scientific conferences, most of which at events organised by the main international associations, in particular the seminars of the EAAE – European Association of Agricultural Economics. The interest in the EU scientific context was driven by the EU-centred focus of the project.

By the time of the reporting, 9 peer review papers were published, of which 7 in journals and 2 in books.

Other 17 papers were either ready, submitted, accepted or in press, all of which to international peer reviewed journals. Of these, 6 will be collected in a themed issue of Land Use Policy (IF=2.070), that is expected to be published in 2012, entitled “The role of the Common agricultural policy in rural areas of EU: modelling alternative policy scenarios for post-2013 policy reforms”.

## Project public website and relevant contact details

The address of the CAP-IRE public website: http://www.cap-ire.eu/

Relevant contact details are reported in table 6.

**Table 6 – Relevant contact details of CAP-IRE.**

| n. | Partner | Name | Surname | Email address: |
|---|---|---|---|---|
| 1. | UNIBO | Davide | Viaggi | davide.viaggi@unibo.it |
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| 3. | WU | Louis | Slangen | Louis.Slangen@wur.nl |
| 4. | LEI | Nico | Polman | nico.polman@wur.nl |
| 5. | AUTH | Basil | Manos | manosb@agro.auth.gr |
| 6. | WAU | Edward | Majewski | edward_majewski@sggw.pl |
| 7. | UNIABDN | Deborah | Roberts | deb.roberts@abdn.ac.uk |
| 8. | UCO | Julio | Berbel Vecino | berbel@uco.es |
| 9. | IAE | Dimitre | Nikolov | dnik_sp@yahoo.com |
| 10. | INRA | Laure | Latruffe | Laure.Latruffe@rennes.inra.fr |
| 11. | ZALF | Annette | Piorr | apiorr@zalf.de |

The project logo is showed in figure 9.

**Figure 9 – CAP-IRE project logo.**