EULACIAS Newsletter

Issue 1

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Content

EULACIAS-
European Latin-American Project for Co-Innovation of Agro-ecosystems

EULACIAS is a specific targeted research and innovation project under FP6 INCO-DEV-3. It started in February of 2007 and will end in January 2010. Contract no. 032387

Welcome to the 1st EULACIAS Newsletter!

Agriculture is rapidly intensifying in Latin America. Regional drivers include global and local trends such as market liberalization and increasing urbanization. Intensification of local production systems results often in short-term production increases at the cost of a deterioration of the natural and financial resource base. This continuous spiral of unsustainability can not be broken by incremental modifications of existing practices, but requires re-designing of the overall farming system. Science can play a critical role during this process provided that rural stakeholders are directly engaged during a collective learning process.

EULACIAS focuses on three case study areas in Latin America where farmers and researchers are involved in regional and on-farm innovation processes. Our team will be adopting a systems approach and by monitoring and evaluating development impacts in close collaboration with local stakeholder we aim to facilitate more efficient use of research knowledge. This entire process we refer to as “co-innovation”.

This project links three European partners (Wageningen University, The Netherlands; Florence University, Italy; University of South Bohemia, Czech Republic) with three Latin American case studies (University of the Republic, Uruguay; National Institute of Agricultural Technology, Argentina; University of Chapingo, Mexico) and CIAT (Colombia) teams. As a whole, our team draws on considerable knowledge from previous experiences in agronomy, economics and social sciences.

In this first newsletter we outline the project structure, the case studies in Argentina, Mexico and Uruguay along with the overall Workpackage structure.

We welcome your comments! Walter Rossing, Project Coordinator

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Case study description

Argentina: Fruit systems in South Patagonia

Sweet cherry is one the most important agricultural crops in South Patagonia. High export prices have allowed a continuous expansion of this crop and currently a large fraction of this crop is exported to NW Europe. However, lack of information on crop ecophysiological characteristics along with poor management practices result in appreciable yield fluctuations. Due to the currently favourable marketing conditions, cherry production is still one of the most profitable crops. However, continuous mono-cropping combined with very narrow export markets, the inherent lack of consistently high yield levels and efficient resource utilization may hamper long-term viability of local agriculture. The ultimate goal of this program is to improve the sustainability of the fruit production sector of South Patagonia. Specific objectives are to: (1) Evaluate sustainability (economical, environmental and social) of the current and alternative (theoretical/model) systems in different cherry production regions of South Patagonia; (2) Analyse risk (marketing, production, social) in the fruit sector of South Patagonia; (3) Explore possibilities for improving sustainability (productivity, stability, reliability, resilience and adaptability) of existing and alternative production systems for different scenarios as related to future development policies; and (4) Use co-innovation as a tool to engage local stakeholders in a fact-finding process to elucidate what factors control the adaptation of production techniques and how inappropriate technology transfer may affect the industry.

Eduardo Cittadini, Case Study Leader

Mexico: Dairy improvements in NW Michoacán

High production costs along with low milk prices limit the economic viability of local dairy operations farmers in North West Michoacán. This has resulted in: 1) reduced farm income; 2) young people abandoning family farms which undermines local social structures; 3) reduced viability of family-based cheese production. Negative environmental impacts of current production practices include soil erosion, water pollution, depletion of groundwater resources, soil degradation and a loss of biodiversity. To enhance the economic viability of local dairy operations our team will focus on improving milk quality and developing appropriate post-harvest technological packages. By using a co-innovation approach we aim to facilitate development of more efficient production techniques, new products and to create a more favorable marketing environment. This will be accomplished by strengthening farmers' organizations and their involvement in regional marketing structures. By developing cost-effective production techniques we aim to improve feeding and overall production efficiencies, which in turn will reduce production cost. The corresponding PhD program will mainly focus on using co-innovation approaches for enhancing production efficiencies, reducing seasonal fluctuations in product quality/quantity, and minimizing external input use. Moreover, we will also develop modeling tools to evaluate impact of alternative feeding technologies. The second PhD program will focus on the design of environmentally sound and cost-effective production systems and improved assessment of environmental impacts of traditional vs. alternative dairy production systems. We will develop a generic evaluation framework based on criteria and indicators that are consistent across case-study regions.

Ricardo Amendola , Case Study Leader

Uruguay: Vegetable crops in South Uruguay

Vegetable production is the main economical activity of 3600 farms in the South of Uruguay, almost half of the farms in this region. Around 88% of the farms with vegetable production as main source of income are family farms. From 1990 to 1998 vegetable production increased by 24%, crop yields increased by 29% and cropped area decreased by 9%. Simultaneously, prices of vegetable products from 1992 to 2001 decreased by 34% and 15% more from 2001 to 2004. Between 1990 and 2000 the number of vegetable farms decreased by 20%, and those who stayed in business had to produce more, cheaper and better quality to maintain their family income. The strategy followed by most farmers was to intensify and specialise their production systems. The average vegetable cropped area per farm increased, while the average total area per farm stayed approximately the same. The average number of crops per farm also decreased. The observed increase in crop yields was explained by increasing use of irrigation, external inputs (fertilizers, biocides and energy), and higher quality seeds. The intensification strategy put more pressure on already deteriorated soils and on limiting farm resources. Increasing the crop area and narrowing the crop types without an adequate planning troubled farm operational functioning causing inefficient use of production resources, higher dependence on external inputs and higher impact on the environment. The sustainability of most of the family farms in South Uruguay is threatens by incomes not enough to cover maintenance of the family and production infrastructure, and/or continued deterioration of the natural resource base. The objective of this research is to design, implement and evaluate sustainable vegetable farming systems in South Uruguay through a co-innovation process based in a group of pilot farms. Specifically we aim to: 1) Adapt a methodological framework for sustainability evaluation of farming systems in South Uruguay, 2) Develop and test a participatory farming systems design approach based on bio-economic quantitative models, 3) Adapt and evaluate in real farms context innovative techniques of soil and pests management to maintain or improve soil quality and reduce the impact of biocides on environment and human health, 4) Analyse existing farm management systems and develop management tools applicable by farmers and their technical advisers. 5) Generate a data base with the empirical data from each pilot farm to calculate technical coefficients and to calibrate and validate quantitative simulation models at farm and crop level.

Santiago Dogliotti , Case Study Leader

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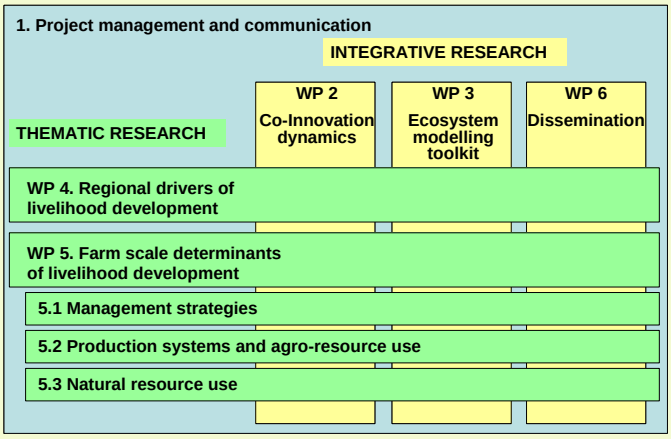
Workpackage Structure

Program activities within EULACIAS are organized into Workpackages (WP). These WP address key themes and/or transfer knowledge among WP to generate integrated analyses on co-innovation. This matrix structure is shown in the figure below. Where rows and columns cross, information is transferred between thematic and integrating WP. Each WP features a methodological framework, which has been designed to ensure optimal transfer of information among interacting WP. In each case study this structure is implemented by local teams of senior and junior researchers complemented by appropriate project partners and local stakeholders. Evaluation of developments across cases is being emphasized thus creating a unique synergy stemming from collective learning experiences.



WP2: Co-Innovation dynamics

In general terms each case study will achieve change and impact through scaling out and scaling up of the technologies and knowledge it will generate. Project staff (the project implementers) start working with *participating* 'next users' (e.g. extension workers), and some end users as well (e.g. farmers). 'Next users' are the people and organizations who will directly use what the project produces, while the 'end users' are the people the next users work with. The project participants go through a series of experiential learning cycles in which they try something new, make sense of what happens individually and by discussing it with others, learn, and as a result undergo changes in their knowledge, attitudes, skills and aspirations (*KASA*). If project participants see benefits in what they are doing they will start adopting, adapting and changing their normal way of doing things (*their Practice*). They will also start recommending it to their peers (beginning of scaling out) and lobbying for more of it, or for a more supportive environment for the changes (the beginnings of scaling-up). This process (participation – KASA – adoption and practice change – scaling out and scaling up) is co-innovation.

How co-innovation processes play out – the co-innovation dynamics – will be different for each case study. EULACIAS, through WP2, wishes to both harness co-innovation and carry out research on co-innovation dynamics. Hence, WP 2 has two pillars: facilitating co-innovation and research on co-innovation dynamics .

WP2 facilitates co-innovation by: a) Technical backstopping provided by the CIAT team when we have the expertise, b) Finding answers to queries and linking to people who have the answers, c) Brokering needed capacity building in participatory approaches, and d) Providing feedback on opportunities for and constraints to co-innovation. WP2 carries out research on co-innovation dynamics by facilitating and backstopping the development of case study impact pathways and monitoring and evaluating progress along them.

Boru Douthwaite, Leader WP2

WP 3: Ecosystem modeling

Our team provides a framework to facilitate effective integration of information from WP4 (regional drivers) and WP5 (farm scale determinants). Via improved visualization of system components we aim to enhance interpretation of information and enable other WP to explore and evaluate alternative land use options more effectively. Separate systems will be employed for monitoring data, developing scenarios and model parameters, respectively. Farming systems modeling will involve a set of existing simulation models. In addition to generic modeling components (e.g. water and N balances) we will also develop case study specific applications (e.g. fodder balances). These tools will be critical to evaluate *what-if simulations* for different livelihood strategies and *benchmarking*, i.e. comparison of existing vs. alternative farms. They will also be used to reveal technical inefficiencies and to provide a scientific basis for selecting superior systems with respect to certain objectives (e.g. reduced soil erosion, increased family income). One of the unique features of this project is the implementation of a generic and transparent modeling environment. This approach will greatly facilitate the integration of different system components and will also streamline the "plugging in" of additional components. This flexibility facilitates the combination of modules in different ways and to address questions that emerge as part of the co-innovation processes. Co-innovation techniques will also be used to evaluate model development processes on a continuous basis.

Walter Rossing, Leader WP3

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WP 4: Regional Drivers

Our team is responsible for identifying major drivers that influence livelihood development and for constructing future scenarios used to provide recommendations for policy makers and private stakeholders at a regional level. The Sustainable Livelihood Framework developed by DIFD and IDS in the UK is applied as a reference checklist with a special emphasis on the assets that the framework identifies. The framework will be integrated with a New Institutional Economics perspective in order to improve its analytical power. In each case study area, "institutional environment" and "institutional arrangements" will be used to identify regional drivers. Construction of scenarios will involve the participation of different stakeholders through the use of the Delphi method. Once drivers of change are identified, their effects on the main farming and supply systems will be defined with 2-3 rounds of questionnaires, involving the selected participants. Prof. Luigi Omodei Zorini (Dept. of Agric. and Land Econ., Univ.of Florence) will coordinate WP4 activities with the collaboration of Caterina Contini and Matteo Borzoni. Aldredo Albín (Nat. Agric. Res. Inst., Uruguay) will be in charge of WP4 research in Uruguay. Martha Perales (from the Univ. Autonoma de Chapingo) will coordinate the WP4 team in Mexico, whilst Belen Pugh (Inst. Nac. de Tecn. Agro.) will lead the Argentinean team.

Luigi Omedei Zorini, Leader WP4

WP 5: Farm scale determinants

The WP5 is the thematic work package providing information on the current state of farm livelihoods in the case study regions and describing and analyzing the changes in the state that occurs in the course of co-innovation by monitoring, surveys and farmer interviews. It will interact with WP3 and WP4 to generate alternative livelihood options. WP5 is divided in three sub-packages: (1) management strategies, (2) production systems and agro-resource use, and (3) natural resource use. Each of these sub-packages requires contribution of knowledge from different disciplines, but they are closely intertwined since they are subsystems within the farm production systems. The objectives of WP5 are:

a) In each case study area, to provide farm and field scale data on livelihood resources, prices and costs, livelihood strategies (WP5.1), on biophysical production conditions (cropping and livestock systems, their prevalence and management systems) (WP5.2) and on ecological infrastructure and soil quality (plant nutrients and soil organic matter dynamics, erosion and balances of soil borne pest populations) (WP5.3).

b) In each case study area, to provide data and tested modules for calculating the impact of alternative crop management and livestock feeding strategies on farm socio-economics (WP 5.1), production and agro-resource use (WP5.2), and ecological infrastructure and soil quality (WP5.3).

c) To provide a farm typology for each of the case study areas suitable for evaluation of consequences of alternative livelihood strategies for income generation and resource use by farm types (WP5.1).

d) To support discussion on the impact of crop management and livestock feeding strategies on farm socio-economics (WP5.1), on production and use of agro- (WP5.2) and on natural (WP5.3) resources, with actors in the case study areas.

Cesare Paccini, Leader WP 5.1
Eduardo Cittadini, Leader WP 5.2
Santiago Dogliotti, Leader WP 5.3

WP 6: Dissemination

WP6 is responsible for internal and external proliferation of project achievements and insights. This task will be partly achieved through an electronic newsletter, and a website, Excursions, field visits and group meetings are encouraged to multiply the dissemination process. The systemic approach to co-innovation which combines participatory approaches and ecosystem models will be shared through a interdisciplinary course offered at universities from the three case-studies countries. Policy papers will be publicized to describe implications for local governance. The scientific community will be informed of project results through articles in international peer-reviewed journals and a multi-authored book.

Maximino Huerta, Leader WP6

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