ARIMNet2 Young Researchers Seminar

“How to better involve end-users throughout the research process to foster innovation-driven research for a sustainable Mediterranean agriculture at the farm and local scales.”

30 May - 3 June 2016, Institut Agronomique Méditerranéen de Montpellier (IAMM), France

MONITORING SOIL FUNCTIONALITIES IN VINEYARDS. EXTENDING RESOLVE (Restoring optimal soil functionality in degraded areas within organic vineyard) PROJECT FP7 ERA-net project - CORE Organic Plus

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CONTEXT & CHALLENGES

Subtitle 1

- Few sites of **long-term experiments** on **soil fertility** exist in Europe: Rothamsted, England (since 1850) Therwil, Switzerland (since 1978) and Padova, Italy (since 1960). But none of these experiments is based on vineyard cultivations. The **RESOLVE project** is testing the recovering capabilities of degraded soils in vineyards applying **different cultivation strategies**. Fields belong to farmers, which are therefore involved in the experimentation. The project currently lasts 3 years, but the ambition is to extend it in order to transform it into a long-term experiment.

Subtitle 2

- The participation of stakeholders in research activities is promoted by **European Commission**, which encourage closing the “innovation gap”, applying an **Interactive Innovation Model** based on **demand-driven partnerships** - bottom-up – linking farmers, advisors, researchers, businesses, and other actors in **Operational Groups**.
OBJECTIVE & HYPOTHESES

Objective(s) / Research question(s)

- Did the monitored treatments effectively and sustainably improved the soil fertility, and the grapevine yield and quality? It is necessary to extend the soil fertility and grapevine monitoring performed by RESOLVE project.
- Improving the exchange of knowledge by “farmer to farmer” methods (e.g. farm visits, field days, demonstration farms, etc) and other effective tools (e.g. videos, handbooks, audio, internet, online courses, magazines, etc) as suggested by the Conference on Organic production, Research and Innovation: setting priorities for the future" (Milano, 28-29/05/2015) (EC, Brussels, September 2015).

Hypotheses

- The experimented treatments can restore soil fertility
- A good experience will be promptly spread and adopted by others farmers

Conceptual framework

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METHODOLOGY

- Delimitation of fertile and degraded plots inside the vineyards. Soil analysis for starting conditions.
- 9 farms (in 7 countries) x 3 vineyards x 3 treatments (+ control)
- Monitoring soil fertility: SOC, N, pH, Tea Bags Index, Earthworms, Enzymes, Soil respiration, Soil microbial biomass, Soil mesofauna, Nematodes, Rhyzosphere, microorganisms DNA.
- Grapevine monitoring: Phenological stages, Physiological status, Crop yield, Grape composition, grapevine water status.
- Calibration of predictive models (CENTURY (Parton et al., 1988), RothC (Jenkinson, 1990), DAISY (Jensen et al., 1997), CANDY (Franko et al., 1997) and DNDC (Li et al., 1997), etc. for SOC and N turnover estimation.

INVolVEMENT OF STAKEHOLDERS

- Field application of experimental treatments (AEM)
- Participating in field observations and soil sampling
- Open interviews and questionnaires on perception
- Farmers workshops (agronomist and farmer’s experiences; farmers to farmers knowledge exchange)
EXPECTED RESULTS / IMPACT
(INNOVATION)

Subtitle 1
- A long-term experiment established for monitoring soil fertility and grapevine yield and quality in Mediterranean countries.
- Predictive models calibrated for SOC and N turnover estimation in Mediterranean vineyards, and estimation of the potential for soil carbon sequestration by proper management.

Subtitle 2
- The experiences exchange between farmers, advisors and researchers has improved the knowledge on good practices.
- The successful practices are adopted by large number of winegrowers in the Mediterranean countries.
PARTNERSHIP

Italy:
- Consiglio per la Ricerca in Agricoltura e l'Analisi dell'Economia Agraria: CREA-ABP Centro per l'Agrobiologia e la pedologia, CREA-VIC Unità di ricerca per la viticoltura, CREA-ENO Centro di ricerca per l’enologia.
- The technical advising and connection with vine-growers in Italy is done through SPEVIS private company (Stazione Sperimentale per la Viticoltura of Ruggero Mazzilli) – 84 organic vine-growers

France:
- Bordeaux Sciences Agro
- VITINNOV

Turkey
- Çukurova Üniversitesi Rektörlüğü
- General Directorate of Agricultural Resaerch and Policy

Sweden
- Swedish University of Agricultural Sciences

Spain
- Universidad de la Rioja

Slovenia
- Agricultural institute

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I strongly recommend you these reading: suggestions, insights and toolkits inside …

Thank you for your attention!

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