

# Towards a paradigm for the convergence of production, marketing and environmental protection in the field of the organic olive oil production chain- Conclusions from the BIOLMED project

Ehaliotis, C.<sup>1</sup>, Martinis, A.<sup>2</sup>, Minotou, Ch.<sup>3</sup>

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## Abstract

*The majority of innovations pioneered within/for the organic olive oil production (OOOP) chain may, and are, increasingly becoming, adopted by the conventional olive oil production chain, especially regarding cultivation, inputs related to plant/ecosystem protection and trade/promotion of specialized high quality products. Therefore the OOOP-chain may become a pioneering paradigm, for the implementation and convergence of agricultural production, marketing, sustainable rural development and environmental/biodiversity protection EU policies in the Mediterranean. Moreover, it appears that OOOP systems are increasingly becoming model systems for developing, applying and evaluating innovations that may have far more general applicability for Mediterranean agriculture. There is little divergence between conventional and organic production regarding water consumption and waste production, but the OOOP-chain has a lower impact as regards to soil erosion, desertification, pollution due chemicals and fertilizers (minimal), and effects on wildlife/vegetation biodiversity. Regarding pest and disease control, *Bactrocera oleae* is the most common pest problem, but effective means of control are available. On the contrary, *Verticillium* wilt is constantly expanding and, although not still a widespread problem, it is difficult to manage. Bottom-up demand for innovations, however, tends to underrate the need for innovations on common marketing priorities, trade policies, infrastructure and joint promotion strategies. Regarding "biopesticides" and "natural products", approval protocols and legislation regarding synthetic inputs should also be fully applied to these products, to assure safe development of the OOOP sector. By working on innovations, differentiations, measures, policies and strategies regarding the organic olive oil production chain in the Mediterranean (OOOP) we realized that OOOP may have a much wider impact. By merging all major attributes of environmentally safe, sustainable agriculture, and becoming a key parameter of integrated rural development in the Mediterranean OOOP may serve as paradigm that*

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1 Agricultural University of Athens, Dept of Natural Resources and Agricultural Engineering. Email: ehaliotis@aua.gr

2 TEI of the Ionian Islands, Department of Environmental Technology and Ecology. Email: amartinis@teiion.gr

3 University of Ioannina, Department of Sustainable Management of Protected areas. Email: charmini@otenet.gr

*may be tailored to apply to a much wider range of agricultural and agro-industrial activities. Features of OOPC in line with this view are discussed below*

## **The Green Shift**

Organic olive oil production (OOOP) is the major shared extensive organic production sector in the Mediterranean in terms of agricultural land coverage and people involved.

Organic farming accounts for a relatively small but increasing share of EU cultivation. In Italy, already around 16% of olive-growing areas have been certified as being organic. In other countries, however, like Greece percentages are lower (4-5%) but expansion potential is huge. In all the Mediterranean countries of the EU olive farming consist by far the greater organic share of land under organic farming activity, often exceeding 50 %.

Environment and sustainability oriented policies of the EU in the olive oil sector consist a framework of interrelated and multidimensional policies (Camasara et al., 2010). It appears that OOOP systems are increasingly becoming model systems for developing, applying and evaluating innovations that may have far more general applicability for Mediterranean agriculture. The majority of innovations pioneered within/for the organic olive oil production chain may, and are increasingly becoming, adopted (either fully or partly following customizing) by the conventional olive oil production chain. This is especially true regarding 1, cultivation (were trends, especially in the Mediterranean, point towards fighting erosion/desertification and increasing carbon storage in soils), 2, inputs related to plant/ecosystem protection (were green chemistry and environmental biotechnology are substituting for conventional wide range pesticides) and 3, trade/promotion of specialized high quality products rather than bulk agricultural product trading. The organic olive oil production chain may become “a peak of the iceberg”, i.e. a pioneering paradigm, for the implementation and convergence of agricultural production, marketing, sustainable rural development and environmental/biodiversity protection EU policies in the Mediterranean. For example, within the EU's key biodiversity policy instruments, namely the Birds Directive (79/409/EEC) and the Habitats Directive (92/43/EEC), Member States are required to designate Special Areas of Conservation (SACs), under the Habitats Directive. Local authorities responsible for the sites must set up environmental management plans and carry out restoration so that the sites achieve 'favourable conservation status'. In these areas, agriculture is allowed and considered complementary to environmental protection. Agriculture and conservation must work side-by-side. Since in these widespread areas low impact and environmentally-friendly farming practices and production systems are required, the organic olive oil production chain becomes favourable and advantageous.

## **Things to do**

There is little divergence between conventional and organic production regarding water consumption and waste production, but the OOOP-chain has a lower impact as regards to soil erosion, desertification, pollution due chemicals and fertilizers (minimal), and effects on wildlife/vegetation biodiversity. Bottom-up demand for innovations, however, tends to underrate the need for innovations on common marketing priorities, trade policies, infrastructure and joint promotion strategies, and this should be addressed.

*Pest and disease control:* *Bactrocera oleae* is the most common pest problem, but effective means of control are available. On the contrary, *Verticillium* wilt is constantly expanding and, although not still a widespread problem, it is difficult to manage.

*Development costs for innovations:* "Blanket" applications of innovations are not the hallmark of organic production chains, and this applies well into the organic olive oil case. On the contrary, their characteristics include working hand-in-hand with ecological balances, adaptation to local conditions and diversification at all levels (agro-ecosystem, production-system, promotion and trade). Therefore the philosophy of centralized and uniform market chains and the production of inputs applicable under a wide variety of conditions is, with certain notable exceptions, not suitable to the organic olive oil production chains. This poses a difficulty regarding investment costs for developing and evaluating innovations for the agro technological and biotechnological industry. Such difficulties are less pronounced regarding marketing and trading.

*Reliability of certification system:* As organic olive oil gets a greater share in the market consumers are increasingly worried about the performance and reliability of the certification system. A demand was expressed for a less bureaucratic and more in-farm/post-harvest analysis based system (including in farm presence of certification agents and robust post harvest chemical/microbiological testing). The issue of a strict authorization and accountability framework for certification agents was also raised. Consumers also raised the issue of lack of information regarding previous history of the farm and surrounding activities.

Innovation regarding *common marketing priorities, trade policies and infrastructure* and joint promotion strategies will accelerate the expansion and "maturation" of the organic olive oil market. "Green" marketing policies should go beyond organoleptic properties of organic olive oil compared to conventional products. In parallel to the notion of "gourment" that addresses various senses and levels of appreciation, rural community structures, landscape/farming scenery and ecological balances should be directly linked to organic olive oil products.

*Biopesticides* are considered "natural products" and there is an approach from the general public (but also from a part of the scientific community) that they should not necessarily pass through all evaluation stages. Moreover several "natural products" with pesticide properties are marketed as soil or plant growth/vigor improvers, but used by farmers for their pesticide properties. Cases of unofficial promotion of these properties were reported by farmers in the thematic/focus groups. *Adaptation and application of the legislation for synthetic pesticides to biopesticides is a crucial innovation that should be implemented regarding the reduction of potential environmental impact of the "organic production chain"*. For example, the toxicity of rotenone does not justify its excessive use in the past, and recent data suggest that "natural" products may have a significant impact on soil microbial biodiversity. It appears that rules regarding recognition zones, placing biopesticides in the market, and on biopesticide use should be updated and not significantly differentiated from what applies to synthetic products.

*Soil Organic Matter:* The majority of the Mediterranean areas in which organic olive growing is practiced are dominated by soils of mid-low fertility, particularly poor in organic matter (>2% and often >1%) often on sloppy terrain. They are consequently poor in organic nitrogen sources, with poor/fragile soil structure, and prone to erosion. Therefore the conservation and increase of organic inputs in these soils is of prime importance regarding their sustainability (apart of the associated need of using soils

as a carbon sink for reducing atmospheric CO<sub>2</sub>). However, the EU legislation is restricting application of manures and organic materials to European soils into minimal amounts per unit area, apparently based on the carbon and nutrient leaching problems indeed present for Northern European soils. Differentiated policies and legislation are needed for the environmental conditions and the soils of the South. Recycling of olive mill wastewaters, especially regarding agrochemical free organic production should be enhanced by relevant policies. Nowadays, agro-industrial by-products, such as olive mill wastes and wastewaters are treated as industrial pollutants while they contain no xenobiotics and are derived by a simple physical process that separates vegetative oil from vegetative waters in the olive-mill decanter.

Production costs: Despite a favorable development framework, production costs in OOP, especially those related to plant protection, fertility management and marketing are high, subsidies are expected to decline and therefore innovations at both the farm/production level and the trade/marketing level should also focus in making the organic olive oil production chain economically viable.

Participation in policy making: The IFOAM EU Group is still the only EU level network on organic farming policy but has a limited influence in general farming policy (Moschitz and Stolze, 2007). Environmental and consumer groups are not highly involved in organic farming policy, and general farmers' union, at the EU is not particularly active into supporting organic farming. Organic olive oil production is probably the largest organic production activity regarding farm size, number of farmers involved and single product economic value in the Mediterranean basin, however local olive farmer organizations are not integrated into networks influencing policy at the EU level.

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