

Oltre.bio – Innovative Management of Organic Cherry Growing and Organic Table Viticulture

Short description of the OG

Oltre.bio links agriculture with government and research in the Apulia region. It focused on two main crops, organic table grapes and cherries, using an ecosystem approach to improve crop quality through soil and water management. Agronomic and post-harvest techniques were keys to success. By prioritising sustainability and organic practices, Oltre.bio aimed to produce top-quality fruit while promoting environmental conservation and biodiversity.

Benefits

Increasing soil fertility and managing adversity by using advanced sensors to analyse adversity early. Rationalizing and better managing the irrigation supply, post-harvest, and packaging.

Stage of implementation

Oltre.bio has ended (2019-2023).

Key Data Box

Theme

Climate change adaptation
Organic fertilization
Pest management
Soil health
Value chain
Water-use efficiency
Digital technologies

Context

Apulia region, South of Italy.
On-farm composting to produce compost tea, application of DSS to improve water-use efficiency, sustainable adversity management and innovative packaging to increase shelf-life represent best practices at the experimental level in the region.

Duration

4 years (2019-2023)

Partners involved.

Producer organisations, research bodies, universities, regional institutions, innovation brokers.

Budget

495.000,00€

Particularity

In the context of the Apulia region, which is particularly suited to agriculture, the project aimed to create an ecosystem between private companies, research bodies, and regional institutions to foster soil health and water-use efficiency. This objective was pursued through innovative solutions experimented on-farm.

Main achieved or expected results

- **Improved soil fertility**

Public opinion is shifting towards sustainable agri-food products with a low environmental impact. The recovery of waste and organic residues through on-farm composting is key to achieving sustainability in agroecosystems (Fig. 1).

Figure 1. On-farm composting at the CREA-AA experimental farm



Compost tea is a liquid extract of organic and inorganic molecules and microorganisms (Fig. 2). The process usually lasts about 5–8 days. The Oltre.bio project aimed to enhance the understanding of compost tea production and its application in Apulia's organic cherry orchards and vineyards (Fig. 2).



Figure 2. Production of compost tea at the CREA-AA experimental company

- **Water use efficiency by using the Decision Support System (DSS) in organic table grape vineyards.**

The sensors measure soil moisture, temperature, electrical conductivity, and atmospheric pressure at the farm level. Data is gathered in Blueleaf[®] software to aid farmers in making informed decisions, enhancing their awareness and efficiency in the field (Fig. 3).



Figure 3: Communication method between hardware and software

- **Innovative packaging to increase the shelf life of organic cherries and organic table grapes**

BlowDevice[®] technology, patented by UNIBAS and Ninetek Ltd, gives the packaging breathable characteristics to extend the shelf life of perishable organic fruit (Fig. 4). The device was

recognized as a 'key technology' in Europe. A packaging machine for industrial use has been developed.



Figure 4. Organic table grapes stored under MAP in packaging equipped with BlowDevice®

- **Adversity management**

Different natural extracts were tested on the farms at blooming and before harvest to control the incidence of pre- and post-harvest rot in the main crops. Chitosan was the most effective product, reducing the development of rot by over 68% in post-harvest cherries (Fig. 5).



Figure 5. Application of treatment and the effect of natural extracts to control post-harvest rot

- **Phytosanitary and agronomic bulletins**

Oltre.bio partners carried out weekly field inspections on the farms involved in the project. The data collected on phytosanitary management and technical guidance were disseminated through 39 bulletins.

- **Phytosanitary management notebooks**

The main project outcome was the development of two notebooks dedicated to pest management for farm companies and technicians.

Existing materials

Videos

- **Oltre.bio. The new organic challenge:**
<https://www.youtube.com/watch?v=4uijvoO302k&t=3s>
- **Discover the results of the project:**
<https://www.youtube.com/watch?v=HiyblypTeno&t=188s>
- **How to get compost and compost tea. Oltre.bio project demonstration day on 29/04/2022:** <https://www.youtube.com/watch?v=TeVOBrJDkPw>

Web links

- <https://feder.bio/progetti/oltre-bio/>

- ■ Compost and extracts for the sustainability of agricultural systems: <https://feder.bio/wp-content/uploads/2017/07/Compost-ed-estratti-per-la-sostenibilita-dei-sistemi-agricoli.pdf>
- ■ On-farm compost: <https://feder.bio/wp-content/uploads/2017/07/Poster-Oltrebio-23012023-1.pdf>
- ■ Compost tea: <https://feder.bio/wp-content/uploads/2017/07/Poster-Oltrebio-23012023-2.pdf>
- ■ Organic cherry growing: a demonstration day in the field: <https://www.fruitjournal.com/cerasicoltura-bio-una-giornata-dimostrativa-in-campo-2/>
- ■ Innovative strategies for the control of pests and fungal agents: monitoring activities at the service of operators: <https://feder.bio/wp-content/uploads/2017/07/monitoraggio-e-strategia-di-controllo-dei-parassiti-nel-ciliegeto-bio-1.pdf>
- ■ Organic cherry growing: a demonstration day in the field: <https://www.fruitjournal.com/cerasicoltura-bio-una-giornata-dimostrativa-in-campo-2/>
- ■ BlowDevice®
- ■ BlowDevice®: the eco-sustainable solution for the shelf-life of table grapes: https://feder.bio/wp-content/uploads/2017/07/Blow-device_Uvadatavola_II_Apr-Mag-2022.pdf
- ■ Oltre.bio, innovative results for the organic table grape market: <https://www.rinnovabili.it/agrifood/oltre-bio-risultati-innovativi-per-il-mercato-delluva-da-tavola-biologica/>
- ■ 39 phytosanitary and agronomic bulletins:
 - 21 bulletins in 2021: https://feder.bio/wp-content/uploads/2017/07/Bollettino-fitosanitario-e-agronomico-N-1-OLTREBIO_-rev-01.pdf
 - 18 bulletins in 2022: <https://feder.bio/wp-content/uploads/2017/07/Bollettino-Fitosanitario-ed-agronomico-N-6.pdf>
- ■ 2 phytosanitary management notebooks:
 - Phytosanitary protection of the cherry tree in organic farming: https://feder.bio/wp-content/uploads/2017/07/rev-29-NOV-22-Schede-impaginate_ciliegio.pdf
 - Phytosanitary protection of table grapes in organic farming: https://feder.bio/wp-content/uploads/2017/07/REv-18-MAGGIO-2023-Schede-impaginate_vite.pdf

Further reading

- ■ Effect of Materials and Assembly Methods on Gas Selectivity of Blow® Device: https://link.springer.com/chapter/10.1007/978-3-030-39299-4_80
- ■ Effect of Packaging Technology on the Quality of Pre-cooled Clementine Fruit: https://link.springer.com/chapter/10.1007/978-3-030-39299-4_78

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