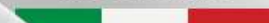




DIBAF
Dipartimento
per la Innovazione
nei sistemi Biologici,
Agroalimentari e Forestali



MADE IN ITALY



NEA DEMETRA
SISTEMI INNOVATIVI PER NUOVE COLTIVAZIONI

CONTROLLED AND ECO-SUSTAINABLE CULTIVATION OF ABOVE-GROUND PLANTS

PRESENTATION OF VALENTINA LAGHEZZA MASCI, MICHELE ANTONINI AND GIUSEPPE LAGHEZZA MASCI, TO ENEA.





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GROUP OBJECTIVES

The creation of controlled growth chambers, with a miniaturized production system for research centers and institutions, whether public or private.

(SINK)

The development of protocols and production systems that allow the controlled growth of plants above ground, for agri-food or medicinal use.

(FOTOPONICA)

The promotion and support for the creation of production structures by third parties with management control and remote monitoring.

(NEA DEMETRA- FOTOPONICA)





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THE GROWTH CHAMBER

It is the miniaturized system of a production plant, where all the phases of soilless plant cultivation are enclosed in a small space.

It is a tool designed for national and international research laboratories, which aims to put them in a position to develop and/or improve plant growth protocols.

Small-scale model of production systems.





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OPERATIONAL AND COMMERCIAL ASPECTS

- **Nea Demetra** is the owner of the Sink growth chamber along with its accompanying software, overseeing all commercial and marketing initiatives in both Italy and globally.
- **Fotoponica** functions as the laboratory where protocols will be crafted for clients looking to produce, and it will serve as the foundation for offering remote support to these clients.
- A new start-up, whether in the stages of establishment or already active, will focus on fostering synergies essential for the development and technical support of production facilities. This organization will also be responsible for the manufacturing of the **SINK**.





SCIENTIFIC RESEARCH AND DEVELOPMENT

- Controlled crop cultivation seeks innovative, safe, efficient, and environmentally sustainable methods to ensure the production of vegetables for food and other purposes. In this context, we can meticulously monitor and manage all environmental factors crucial for plant growth.

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Within the **SINK** growth chamber, plants are cultivated using liquid nutrient solutions or inert substrates. This technique offers several advantages, such as enhanced control over nutrient delivery, improved water management, and the mitigation of soil-borne diseases.

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Controlled cultivation enables year-round plant growth, irrespective of external weather conditions. This leads to the potential for greater and more uniform yields, less reliance on seasonal harvests, and a steady supply of fresh produce.

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Furthermore, when combined with cutting-edge technologies like energy-efficient LED lighting and automated control systems, these advancements allow for optimized energy usage and a reduction in the carbon footprint of agricultural practices, supporting the shift towards more sustainable farming.





SCIENTIFIC RESEARCH AND DEVELOPMENT

- Controlled crops are not only an option for food production but can also be used for the cultivation of medicinal plants. They offer new employment and development opportunities for scientific research not only in the agricultural sector but also in the pharmaceutical sector.
- The possibility of controlling environmental and nutritional factors allows the management of the stimuli or elicitors underlying the production of certain secondary metabolites, thus increasing their yield in production and probably the quality of the active ingredients or phytocomplexes produced.
- The SINK could also be used for the development of in vitro plant cultures, again with a view to the production of secondary metabolites of pharmaceutical interest.



SINK

Work in progress



SINK

Work in progress



OUR OPERATIONAL OFFICES

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