



# LIFE FROSTDEFEND

Newsletter # 7

December 2025



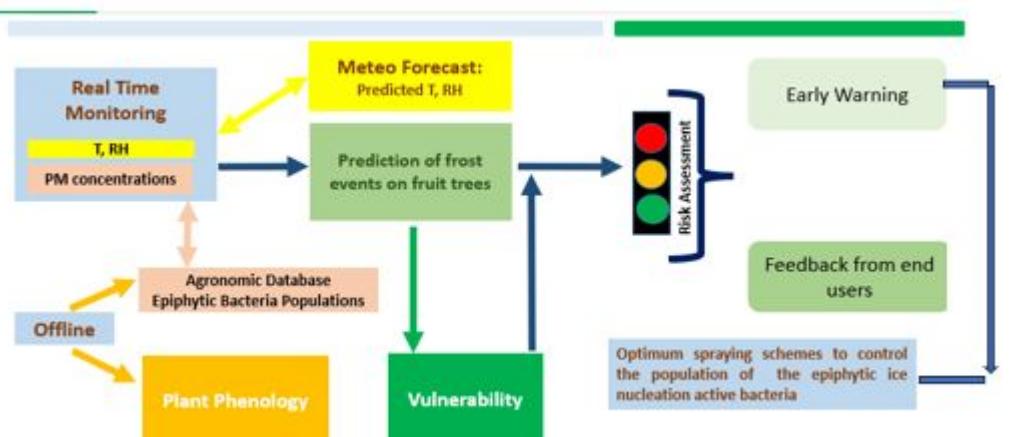
LIFE20 CCA/GR/001747

# LIFE-FROSTDEFEND Updates



As winter advances and low temperatures become more pronounced, citrus orchards enter a period of increased vulnerability. Frost is not merely a temporary weather event, but a factor that can directly impact yield, fruit quality, and the long-term viability of the trees. Under frost conditions, growers are required to act immediately and effectively.

The LIFE-FROSTDEFEND system integrates meteorological forecasts, citrus frost hardiness, and estimates of bacterial populations to predict the risk of frost damage, enabling more accurate predictions and timely risk notifications.



Access the Tool via the following link:  
<https://app.frostdefend.eu/stations>

During the project, different spraying schemes were tested as a means of increasing citrus tolerance to frost damage. These schemes were applied to young lemon trees grown under harsh conditions, allowing their effectiveness to be evaluated under real field stress scenarios.

The results were particularly encouraging, showing that spraying reduced frost symptoms by more than 35% compared with the untreated control when applied 48 hours before a frost event, highlighting the potential of these practices as a valuable tool for protecting citrus orchards against frost risk.

# LIFE-FROSTDEFEND Updates

Monitoring devices have been installed in seven plots



INRAE experimental plot in Clermont-Ferrand



Commercial plot in Temeni (Aeghion)



Experimental plot in Kounina (500 m a.s.l.)  
(Aeghion)



Commercial plot in Valimitika  
(Aeghion)



Experimental plot in Kounina (850 m a.s.l.)  
(Aeghion)



Commercial plot in Laconia



Commercial plot in Argolida

# Info-day Events and Workshops



In October 2025, the Agricultural University of Athens (AUA), a member of the LIFE–FROSTDEFEND consortium, organized two combined info-day and workshop events for farmers, local stakeholders, representatives of local authorities, and agronomists.

The events aimed to present the scientific basis of the project, demonstrate practical frost mitigation solutions, and strengthen the link between end-users and the LIFE–FROSTDEFEND services as the project moves toward its final phase.

Building on this positive engagement, two additional combined info-day and workshop events are planned for January 2026, in Sparti, Laconia (Greece), and Clermont-Ferrand, France.

Updates will follow!



# Info-day in Argolida



- The event took place on October 15, 2025, at the Agricultural Cooperative of Koutsopodi, with valuable assistance provided by Mr. Vaggelis Kyriakou, owner of the local farm supply business Anyfion S.A. and a member of the project's steering committee.
- During the first event, LIFE-FROSTDEFEND scientists introduced citrus producers to the relationship between specific leaf bacteria and frost damage, highlighting the importance of predicting and managing bacterial populations ahead of frost events.
- Participants were informed about available frost damage mitigation measures, with particular emphasis on the LIFE-FROSTDEFEND application, which provides orchard-level frost risk forecasts and alerts. The role of copper sprays as an effective and lower-carbon mitigation method compared to conventional practices was also presented.
- Agronomists received hands-on training on the monitoring system and on the setup and functionality of the FROSTDEFEND application, enabling them to support farmers as trusted intermediaries.



# Info-day in Aeghion



The Aeghialia Info-day and Workshop was held on October 22, 2025, and was jointly organized by AUA and the consortium member Agricultural Cooperatives Union of Aeghion (ACUA) at the ACUA premises. This event followed the same format and was also well received by farmers, agronomists, and local stakeholders. Active participation and numerous questions demonstrated strong interest in the FROSTDEFEND application and its practical use, as well as in documenting crop characteristics and past frost damage experiences.



# Student seminar at the AUA



- A student seminar was organized at the Agricultural University of Athens on December 17, 2025. The seminar was titled “Ζημιές από παγετό στις δενδρώδεις καλλιέργειες, στρατηγικές πρόγνωσης και μετριασμού (Frost damage of tree crops, forecasting and mitigation strategies)”.
  - The seminar was attended by 97 students enrolled at the 5<sup>th</sup>, 7<sup>th</sup> and 9<sup>th</sup> semester of the Crop Science undergraduate programme, and at the 3<sup>rd</sup> semester of the Agribusiness and Supply Chain Management undergraduate programme. Instructors were AUA Professors Yiannis Papadakis and Dimitri Georgakopoulos.
  - Professor Papadakis presented the latest information on citrus crops resilience to frost damage, factors which affect resilience, and spoke about passive and active frost damage mitigation measures.
  - Professor Georgakopoulos presented information on the biology, ecology and physiology of epiphytic ice nucleation-active bacteria with focus on their dual role as plant pathogens and frost damage initiators. He presented the rationale behind the Life-Frostdefend project, project activities, the design of the Frostdefend forecasting tool and application, and stressed the effectiveness of copper sprays to mitigate frost damage of tree crops, method with lower carbon emissions compared to commonly used ones by farmers.



# LIFE-FROSTDEFEND @ CEMEPE Conference



The LIFE FROSTDEFEND project will organize a Special Session on “Climate Change Adaptation in Agriculture” at the 13th International Conference on Environmental Management, Engineering, Planning & Economics (CEMEPE), and SECOTOX Conference. The conference will bring together scientists, policymakers, and professionals from around the world to discuss cutting-edge research across a wide range of environmental topics.



**THE CEMEPE 2026 CONFERENCE WILL TAKE PLACE BOTH WITH PHYSICAL AND VIRTUAL PRESENCE**

Follow the link for details and registration

<https://cemepe13.civil.auth.gr/>

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