



Circular Economy and Sustainable solutions
for Agrifood in the Mediterranean

Challenge C6

CESAM SME linked to this challenge: ASCLEPIOS TECH



BACKGROUND:

Asclepios Tech offers Boxilumix[®], its technology for preventive treatment of plants using modulated light signals to reduce, from fork to farm, farmers' losses and the use of chemical inputs, and to increase the nutrient density of fresh fruit and vegetables, thus helping to bring about an efficient, healthy and sustainable agro-ecological transition for all, in a natural and sustainable way with low energy consumption.

Based on this technology, Asclepios Tech is developing Boxistick[®], a battery-powered mobile device for spot treatment of plants, as part of the CESAM project.

CHALLENGE DESCRIPTION

Challenge line	C6
Title of the challenge	Monitoring of plants growing & grape for qualities measurement after photobiological Boxistick® treatment
Objective(s) of the challenge	Check that the Boxistick® treatments defined as part of the CESAM project are relevant to large-scale berries production in real environment.
Expected results of the challenge	<p>Technical: Measure the benefit of the technology with given KPIs in terms of plants & fruits qualities.</p> <p>Economic: Measure the benefit of the technology in terms of salable fruits and preservation time.</p> <p>Environmental: Preservation without any chemical</p>
Relevance of the challenge in the frame of CESAM project	CESAM contribute to develop an autonomous, mobile, smart eco-designed solution with Boxilumix treatment inside. This entry point in the Boxilumix product range allows to demonstrate in pre and post-harvest the impact of a strong sustainable solution to reduce lost and waste, the use of chemicals, and preserve naturally the qualities of plants.
Type(s) of SME(s) we are looking for	Producer or agricultural cooperative of grape in relation with scientists.
Expected work for the applicant SME	<p>Carry out pre- and post-harvest conservation trials on an industrial scale with a cooperative or producer of grape.</p> <p><u>Pre-harvest trial with 4 modalities and 1 control</u></p> <p>Boxistick treatment of 12 vine plants per modality (4 times max = every two weeks from veraison onwards) -> 60 plants</p> <p>The parameters of each modality will be pre-registered in Boxistick.</p> <p>Non-destructive monitoring every 2 weeks of plant development until grape harvest (leaf thickness, grape berry size and color, photos, videos, etc.).</p> <p><u>Post-harvest trial with 5 modalities and 1 control for 2nd part</u></p> <p>1st part: harvesting the grapes of the treated plants constituting 5 batches</p> <p>2nd part: Boxistick treatment of 2 batches of 20 grapes per modality (5 modalities 1 time) -> 200 grape</p> <p>The parameters of each modality will be pre-registered in Boxistick.</p>

	<p>Daily non-destructive monitoring of fruits batches until rotting according to a defined protocol (weighing, measuring height and diameter, photos, videos, etc.).</p> <p>2nd batch of the 2nd part: Blind gustative testing of at least 5 grape berries per modality 3 days after harvest by a panel of 5 to 10 people (Notation)</p> <p>Weekly and final written reporting to Asclepios Tech. The final report must include an opinion on Boxistick® use and possible improvements</p> <p><i>In the event of a problem preventing the test from being carried out to the end (watering failure, breakdown, absence of personnel, etc.), the test would be repeated</i></p>
Maximum amount granted for this challenge	30.000€
Funding rate	100%
Duration of the work and proposed starting period	~8 months and up to 12 months, starting from May 2025
Effort for the applicant SME	<p>Personal cost</p> <p>Immobilization of means to grow 60 plants.</p> <p>Dedicated cold storage for fruits during testing time slot.</p> <p>The industrial installation used for processing or for storing at low temperature must be dedicated to the test with no other products in. To compensate for this constraint, the corresponding capital expenditure is included in the budget of this challenge.</p>
Intellectual Property Rights disposition	The intellectual property resulting from these tests is the exclusive property of Asclepios Tech.
Other information (if applicable)	