



Circular Economy and Sustainable solutions
for Agrifood in the Mediterranean

Challenge C5

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	C5
Title of the challenge	Monitoring of plants growing & berries 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 (sector, type of entity, size...)	Producer or agricultural cooperative or association producers of berries 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 soilless cultivation of small fruits, preferably strawberries, in greenhouses on substrate.</p> <p><u>Pre-harvest trial with 5 modalities and 1 control</u> Boxistick treatment of 100 plants per modality (1 time just after plantation) -> 600 plants The parameters of each modality will be pre-registered in Boxistick.</p> <p>Non-destructive monitoring 2 to 3 times a week of plant & fruits development until fruit harvest (height and width measured, fruit production, water absorption, photos, videos, etc.).</p> <p><u>Post-harvest trial with 5 modalities and 1 control</u> Boxistick treatment of 2 batches of 50 fruits per modality (1 time) -> 600 fruits</p>

	<p>The parameters of each modality will be pre-registered in Boxistick.</p> <p>1st batch: Daily non-destructive monitoring of fruits until rotting according to a defined protocol (weighing, measuring height and diameter, taking photos). Preservation at normal cold storage.</p> <p>2nd batch: Blind gustative testing of at least 5 fruits 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	Up to 12 months, starting from May 2025
Effort for the applicant SME	<p>Personal cost</p> <p>Immobilization of means to grow 600 plants under real greenhouse conditions.</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 dispositions	The intellectual property resulting from these tests is the exclusive property of Asclepios Tech.
Other information (if applicable)	