

## RURACTIVE OPEN CALL - CHALLENGE 4

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| <b>Title of the challenge</b>                                                            | <b>Cooling system for the grape harvest</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>Dynamo (pilot location)</b>                                                           | Südburgenland, Austria                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <b>RDD</b><br><b>(Rural Development Driver)</b><br><i>addressed by the challenge</i>     | Sustainable agrifood systems and ecosystem management                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>Overall context description and specific context to be addressed by the challenge</b> | <p>The wine-growing region in southern Burgenland is characterised by its small-scale structure and a large number of part-time farmers. With a total area of 420 hectares and around 100 wine makers, the "Weinidylle" is the smallest wine region in Austria. Climate change is increasingly affecting viticulture, particularly the timing of the harvest. Due to the earlier ripening of the grapes, the harvest in recent years has often taken place during the height of summer.</p> <p>However, the high temperatures during harvest accelerate the oxidation process, negatively impacting the quality. A cooling system compatible with the farmers' existing equipment is needed to keep the grapes cool during harvest.</p>                                                                                |
| <b>Scope of the Challenge</b>                                                            | The aim is to develop a cooling system prototype to ensure the quality of the grape harvest.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <b>Solution requirements</b>                                                             | <ul style="list-style-type: none"> <li>• <b>Portable Cooling System:</b> Develop a portable cooling unit that can be attached to or integrated into existing harvesting equipment (e.g., grape harvesters, trailers, or storage bins).</li> <li>• <b>Temperature-Controlled Harvesting Containers:</b> Design temperature-regulated bins or containers that can maintain cool temperatures during the transport of harvested grapes.</li> <li>• <b>Mobile Cooling Trailers:</b> mobile cooling trailers that travel alongside the harvesters, providing a constant cooling stream (air or liquid-based) to the grapes immediately upon harvest.</li> <li>• Proposed solutions must be sustainable, low cost, and easy to maintain, to promote a sustainable upscale of the solutions after the project end.</li> </ul> |
| <b>Specific objectives and expected outcomes</b>                                         | <p><b>Specific objectives:</b></p> <ul style="list-style-type: none"> <li>• <b>Preserve grape quality:</b> Ensure that grapes maintain optimal freshness and quality from harvest through to processing by cooling them immediately after picking.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |

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|                            | <ul style="list-style-type: none"> <li>• <b>Minimise spoilage and oxidation:</b> Reduce the risk of spoilage and oxidation by lowering the temperature of the grapes as soon as they are harvested, thereby retaining flavour and aroma.</li> <li>• <b>Facilitate easy integration with current equipment:</b> Create systems that can attach to or integrate with existing harvesting equipment, avoiding the need for costly machinery upgrades and simplifying implementation.</li> <li>• <b>Promote sustainable practices</b> and empower community with modern techniques.</li> </ul> <p><b>Expected Outcomes</b></p> <ul style="list-style-type: none"> <li>• <b>Improved grape quality and yield:</b> With immediate cooling, the grapes retain their quality, reducing spoilage and maximising the yield of premium-quality grapes.</li> <li>• <b>Greater accessibility for small and medium-sized farmers:</b> The system's affordability and ease of integration makes it accessible for farmers of all sizes, promoting adoption across various scales of operation.</li> <li>• <b>Enhanced productivity and harvest management:</b> By integrating cooling into the harvesting process, farmers can optimise their workflow, allowing for faster and more efficient grape processing and transport.</li> <li>• <b>Increased citizen involvement</b> in environmental education activities.</li> </ul> |
| <b>Available resources</b> | <ul style="list-style-type: none"> <li>• Data from wine associations</li> <li>• Infrastructure from wine makers</li> <li>• Cooperation with the research and innovation Burgenland</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |