









# LIFE "Smart Fertirrigation"

"LIFE Environment and Resource Efficiency" - LIFE14 ENV/ES/640

Integrated pig manure digestate processing for direct injection of organic liquid fertilizer into irrigation systems



<p><b>Summary</b></p>  <p><b>LIFE Smart Fertirrigation</b></p>	<p>LIFE Smart Fertirrigation aims to <b>demonstrate the environmental and economic feasibility</b> of an <b>innovative approach to processing digestate</b> from pig manure at biogas plants.</p> <p><b>Spain is Europe's second largest producer of pig meat</b> with 99.561 pig farms and more than 26 million pigs that generate 70 million kg of manure per day (2.7kg/animal per day), leading to important environmental problems. Many anaerobic digestion plants have been established to convert the tremendous amount of pig slurries into biogas and digestate. While biogas can be transformed into renewable energy, <b>the digestate has untapped potential</b>.</p> <p>The team is comprised of a <b>transnational partnership</b> and consists of 7 members, one from Germany, one from The Netherlands, and five from Spain. Each member adds value to the team as a whole due to their international character and expertise in different disciplines. The project in general <b>adds value for the EU</b> since it is in line with current EU policies and legislation and other European programmes related to more sustainable agriculture and livestock management.</p> <p>This project aims to demonstrate that digestate can be used as a high-quality, suitable and safe biofertiliser by focusing on <b>three specific goals</b>:</p> <ol style="list-style-type: none"> <li><b>Increase the recycling of natural resources in digestate:</b> Apply an innovative approach to treatment in order to recover the liquid fraction with its natural nutrients for direct injection into irrigation systems. By being able to apply precise volumes of natural liquid fertilisers when needed, farmers will obtain harvests at much lower costs.</li> <li><b>Substitute mineral fertilisers, lowering their negative impact on the environment:</b> The environmental impact of Nitrogen and Phosphorous present in manufactured fertilizers will be neutralised, reducing greenhouse gas emissions and preventing soil acidification and eutrophication.</li> <li><b>Reduce phosphorous levels in pig manure by testing innovative enzymes in feed:</b> Due to swine intestines' incapacity to digest phosphate present in pig feed, about 90% of phosphorous content is released in their manure. Innovative phytase enzymes can significantly reduce excreted phosphate in manure preventing over-enrichment.</li> </ol> <p>In this way our project will provide significant cost savings to farmers and new income for biogas producers through the enhanced use of natural resources, substitution of the use of mineral fertiliser and minimization of the environmental footprint of agriculture.</p> <p>To start, the <b>integral digestate system</b> will be designed, a selection of the fields where trials where the <b>liquid fertilizer</b> will be tested and farmers to trial the <b>phytase-enhanced pig diets</b> will be carried out. The trials will take place during the majority of the project's duration and will be closely monitored to measure impact and results. In order to guarantee a fluent execution of the project, all team members will be responsible for managing the project and for communication and dissemination activities.</p> <p>The project's demonstration is expected to <b>result</b> in:</p> <ul style="list-style-type: none"> <li>- 50% more cost effective liquid fertilizers and 70% substitution of inorganic fertilizers in the project area</li> <li>- Prevention of CO2 emissions by substitution of inorganic fertilisers</li> <li>- Reduction of P levels in tested pig manure</li> <li>- Savings in energy and chemical through biological treatment of ammonia</li> </ul>
<p><b>Execution</b></p>	<p>1st September 2015 - 31st December 2018</p>
<p><b>Total project budget</b></p>	<p>2.628.126 €</p>
<p><b>EU Financial Contribution</b></p>	<p>1.491.973 €</p>
<p><b>Contact:</b></p>	<p><a href="http://www.smartfertirrigation.eu">www.smartfertirrigation.eu</a>      <a href="mailto:life@transfer-lbc.com">life@transfer-lbc.com</a></p>
<p style="text-align: center;"><b>Involvement</b> <span style="float: right;"><b>Country</b></span></p>	
<p style="text-align: center;"><b>Coordinating Beneficiary</b></p>	
<p>1 <b>COPISO Soria</b> <a href="http://www.copiso.com">www.copiso.com</a></p>	 <p>Leader of the LIFE Project Members provide manure and participate with land for field tests Overall project management Dissemination</p> <p style="text-align: right;">Spain</p>
<p>2 <b>Purines Almazán (PURAL)</b> <a href="http://www.pural.es">www.pural.es</a></p>	 <p>Technical assistance &amp; management (connections, sensors, etc.) Integrated management of digestate Dissemination</p> <p style="text-align: right;">Spain</p>
<p>3 <b>Comunidad de Regantes del Canal de Almazán</b> <a href="http://www.regantesdealmazan.com">www.regantesdealmazan.com</a></p>	 <p>Technical assistance Management of the irrigation system Monitoring of results</p> <p style="text-align: right;">Spain</p>
<p>4 <b>Teqbio</b></p>	 <p>Integrator clarification treatment Operations (all processes before irrigation) Monitoring of results</p> <p style="text-align: right;">Spain</p>
<p>5 <b>Transfer Consultancy</b> <a href="http://www.transferconsultancy.com">www.transferconsultancy.com</a></p>	 <p>Diffusion and Communication strategies Website &amp; Layman's report</p> <p style="text-align: right;">Spain</p>
<p>6 <b>Dorset Agrar und Umwelttechnik</b> <a href="http://www.dorset.nu">www.dorset.nu</a></p>	 <p>Technical assistance Solid fraction drying and gas stream treatment Dissemination</p> <p style="text-align: right;">Germany</p>
<p>7 <b>Bosman Watermanagement International</b> <a href="http://www.bosman-water.nl">http://www.bosman-water.nl</a></p>	 <p>Technical assistance Fuzzy Filter and liquid treatment Integration with gas stream treatment</p> <p style="text-align: right;">The Netherlands</p>