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Ivan Tolpe Award 2017 for BioEcoSIM project for the best innovation in manure treatment

For her work within the EU-funded research project BioEcoSIM the Fraunhofer scientist Dr. Jennifer Bilbao received the Ivan Tolpe Award on February 9th 2017 in Ghent, Belgium. In the framework of this project, the involved partners developed a new process to valorize pig manure into various fertilizers and soil improvers. In this way, agricultural residues can be reused promoting the principle of circular economy.

The Ivan Tolpe Award 2017 goes to the EU-funded research project BioEcoSIM. Between October 2012 and December 2016, 14 project partners from four European countries developed a new process for the recovery of fertilizers and soil improvers from manure. The project was coordinated by Dr. Jennifer Bilbao. The scientist is head of the research group Nutrient Management at the Fraunhofer Institute for Interfacial Engineering and Biotechnology IGB in Stuttgart. In her role as project coordinator, she accepted the Ivan Tolpe Award on February 9th 2017 during a formal ceremony in Ghent, Belgium.

The prize, endowed with 2000 Euro, is awarded every two years by the Flemish Coordination Center for Manure Processing (VCM) for pioneering developments in manure processing. The aim of the Flemish institution, headquartered in Bruges, is to support sustainable manure processing activities in Flanders. For this purposes, the VCM provides a platform for exchange between policy and the agricultural and private sector. The Ivan Tolpe Award will be given this year for the second time. For the first time, trans-regional and international contributions were also considered. The prize is named after Ivan Tolpe, a pioneer in the field of manure processing.

BioEcoSIM - From a problem to valuable raw materials

Because of its nutrients content, manure is used to fertilize agricultural land. However, in areas with intensive animal husbandry, such as some regions in Flanders, manure field application is due to legal regulations not always possible. Over-fertilization can lead to contamination of the groundwater by nitrate and oversaturation of the soil by phosphorus. For this reason, the excess manure – which consists of 90 per cent of water – must be exported to regions where fertilizers are needed. This is expensive for farmers and does not provide a sustainable solution.

Therefore, farmers require new technologies to process manure so that nutrients are extracted as marketable products to avoid negative environmental impacts while reducing costs.

FRAUNHOFER INSTITUTE FOR INTERFACIAL ENGINEERING AND BIOTECHNOLOGY IGB

This is where the EU project BioEcoSIM sets in. "The process we have developed recovers organic soil improvers with a low concentration of phosphorus as well as mineral fertilizers such as ammonium sulfate and phosphate salts from the manure," explains Bilbao. "On this basis, we can recover fertilizers and soil improvers, which are easy to handle, store, apply with common agricultural technology and can be marketed as a product."

A further advantage of the method is that the recovered substances can be mixed individually with a nutrient composition that is adapted to specific types of plants and soils. This makes it possible to produce tailor-made fertilizers to meet the needs of the clients. Therefore, the overall process uses energy-efficient technologies and follows the principle of circular economy.

Successful process development tested in pilot plant

In the BioEcoSIM project, various methods and technologies for the processing of manure into high-quality products were successfully developed and tested as separate modules in a pilot plant for over one year. This plant was installed on a farm in Kupferzell, Germany. Here, manure from Flanders could be processed and recycled as well. The project has successfully proven that a variety of products can be recovered from manure by a cost-efficient process.

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Dr. Jennifer Bilbao receives the Ivan Tolpe Award 2017 from the hands of Gianni Tolpe, the son of the 2013 deceased pioneer of manure processing the prize is dedicated to. (© Flemish Coordination Centre for Manure Processing) | Picture in printing quality: www.igb.fraunhofer.de/press

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The **Fraunhofer Institute for Interfacial Engineering and Biotechnology IGB** develops and optimizes processes and products in the fields of health, chemistry and process industry, as well as environment and energy. We combine the highest scientific standards with professional know-how in our competence areas – always with a view to economic efficiency and sustainability. Our strengths are offering complete solutions from the laboratory to the pilot scale. Customers also benefit from the cooperation between our five R&D departments in Stuttgart and the institute branches located in Leuna, Straubing and Würzburg. The constructive interplay of the various disciplines at our institute opens up new approaches in areas such as medical engineering, nanotechnology, industrial biotechnology, and environmental technology.
