



Pheromones for row crop applications

## **PHERA: A Major New Grant from BBI JU Aiming to Commercialize Sustainable Pest Control with Insect Pheromones**

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A consortium of companies in Europe developing sustainable fermentation processes to produce pheromones to safely control insect pests of maize, soybean, cotton, and other row crops, has been awarded a major grant of €6.4 million.

The grant from the Bio-Based Industries Joint Undertaking (BBI JU), a partnership between the EU and several of Europe's bio-based industries, will help Europe meet its goals for sustainable agriculture.

Agricultural productivity needs to rise by 70% by 2050 to feed a fast-growing population. This challenge is made difficult by the onset of insect pesticide resistance, increased regulatory pressure on crop protection chemicals, and consumer-driven demand for clean nutritious and healthy products.

Pheromone insect controls, however, are safe, effective, affordable, and sustainable alternatives to toxic pesticides. Dispensing a pest insect's sex pheromones into the field disrupts their ability to attract or find mating partners, keeping the pest population numbers low and the crops safe. Crops protected with pheromones have less chemical residue and the natural biodiversity of fields and orchards is preserved.

The mating disruption strategy has been applied successfully for 20 years in specialty crops, such as fruits and berries, and holds enormous potential to expand into major row crops such as maize, rice, cotton, and soybeans. Producing insect pheromones through new fermentation innovations that use renewable raw materials is expected to greatly reduce costs and waste that is now associated with industrial scale pheromone synthesis.

*“Pheromones are the next generation of insect control because they work harmoniously with nature, without the environmental disturbance and pest resistance associated with traditional insecticides. “Bringing these pheromone innovations to row crops is overdue, and the PHERA grant will expedite these needed and sustainable technologies.”* **Jean Pierre Princen, President, ISCA Europe**

The Bio-Based Industries Joint Undertaking awarded the €6.4 million grant for the 2020-2022 period to a consortium of companies involved in PHERA, a new major project aiming to scale up pheromone production and application technology and to drive commercialization into major row crops. The PHERA consortium consists of companies specialized in pheromone application: SEDQ Healthy Crops (Spain), ISCA Europe (France), Russell IPM (UK), and Novagricra (Greece), as well as in bio-based pheromone production: BioPhero (Denmark). The consortium is completed with scale-up expertise from BPF (Netherlands), and life-cycle assessment capabilities from Fraunhofer (Germany).

*“Mating disruption is a vitally important tool for the management of pest species of economic importance. Growth of this technology has been constrained by the high cost of pheromone active ingredients and difficulty in optimizing the specific formulations of pheromones required for success. BioPhero’s breakthrough and novel idea allowing bio-synthesis of pheromone actives will be a paradigm shift in mating disruption technology, allowing affordable crop protection in a wider range of crop, including row crops. With our formulation technology we are excited to be part of this journey.”* **Dr. Shams Usmani, Head of Pheromone Solutions, Russell IPM**

The pheromones used in PHERA will be produced by fermentation using renewable raw materials. The project thereby directly supports BBI JU’s strategic objectives by establishing a new bio-based business for pheromone-based pest control in row crops, while helping to solve the major societal issue of achieving sustainable agricultural productivity growth.

*“At BBI JU we are very proud to fund the PHERA project which aims to develop and commercialise bio-based insect pheromones for Crop protection. Sustainable crop protection is a key challenge that supports the contribution of BBI JU to the EU Green Deal and the need for agricultural productivity to significantly rise by 2050 while keeping biodiversity.”* **Philippe Mengal, Executive Director, BBI JU**

The PHERA grant will be used directly towards two critical steps required for large scale implementation: Scaling up the production of pheromones to production in 100 cubic meter fermentation tanks, and conducting large-scale mating disruption field experiments in row-crops to prove the efficacy of the pheromone formulations offered by the pheromone application companies.

*“Pheromone-based pest control is a solution that genuinely works for the greater good of the planet. But good solutions will only become market realities if they are supported by the right players and resources. PHERA and the consortium partners will work directly to address the two essential milestones of making pheromones affordable through large scale biological production and proving the field efficacy of the solutions when applied at large scale.”* **Kristian Ebbensgaard, CEO, BioPhero**

## About the Consortium:



The Bio-Based Industries Joint Undertaking (BBI JU) is a €3.7 billion Public-Private Partnership between the EU and the Bio-based Industries Consortium. Operating under Horizon 2020, this EU body is driven by the Vision and Strategic Innovation and Research Agenda (SIRA) developed by the industry.

The BBI JU supports the creation of a strong European bio-based industrial sector which will significantly reduce Europe's dependency on fossil-based products, help the EU meet climate change targets, and lead to greener and more environmentally friendly growth.

<https://www.bbi-europe.eu/about/about-bbi>



BioPhero is a biotechnology start-up in Copenhagen (Denmark) dedicated to making affordable, safe insecticide replacements in the form of biologically produced insect pheromone active ingredients.

Our mission is to lead the global transition towards sustainable agriculture, where safe pheromone-based products become the primary method for pest control.

<https://biophero.com/>



Healthy crops  
in our hands

SEDQ is an internationally active, consolidated company, which belongs to the IBERCLOR group. Our mission is to provide increasingly efficient and effective pest-control systems.

We have been developing a wide range of sustainable solutions for our clients in the agricultural, forestry and gardening sectors for over 25 years. SEDQ synthesizes pheromones and attractants and formulates products for field application.

<https://sedq.es/en/>



Since 1996, ISCA has been a world leader in developing environmentally friendly pest control solutions with the goal of protecting our crops and protecting our planet. We purposefully design integrated pest management solutions that have minimal impact on the environment and a positive impact on public health and safety.

A wealth of innovative and ready-to-go products are now available for global use. By developing smart agriculture tools including monitoring systems, application technologies and delivery platforms for semiochemicals (including pheromones), and by using innovative synthetic chemistry, ISCA has developed a robust pipeline of products intended to provide ready to use and turn-key solutions for growers all over the world.

With research and manufacturing facilities in California, Brazil, and India, ISCA has successfully scaled up chemical synthesis processes so that semiochemical-based control solutions are now cost competitive with conventional pesticides. In addition, ISCA has application and delivery platforms that have been proven and adopted by growers in over 30 countries.

<https://www.iscotech.com/>



Russell IPM is the leading manufacturer of insect pheromone-based monitoring and control systems in the UK and one of the largest in Europe. Our core expertise is in biopesticides and behaviour-modifying chemicals. We have been translating science into innovative products to provide safe, effective and ecologically friendly solutions to the agricultural industry worldwide. Over 30 years, Russell IPM has developed more than 150 insect pheromone lures and bio-rational products. Russell IPM has an international reach with subsidiaries based in Spain, Morocco, Algeria, Jordan, India and Bangladesh. For its contribution towards sustainable agriculture company has received the Queen's Award for Innovation in 2018, 2012 and International Trade in 2011.

<https://russellipm.com/>



NovAgrica is an innovative company actively involved in the field of “green” economy. We manufacture biological and chemical products to be used in integrated pest management programs for plant protection.

NovAgrica specializes in semiochemicals by developing, producing, testing and distributing insect pheromones across the globe.

<http://www.novagraca.com/>



The Fraunhofer Institute for Building Physics IBP was founded in 1929 and is among the most experienced and established institutes of the Fraunhofer-Gesellschaft. A total of 250 employees work at the three branches in Stuttgart, Holzkirchen and Nuremberg.

For more than 30 years, the Fraunhofer IBP's department of Life Cycle Engineering has been successfully supporting companies in all industrial sectors and branches worldwide in the development of sustainable solutions for products and services.

<https://www.ibp.fraunhofer.de/>



BIOPROCESS  
PILOT FACILITY

Bioprocess Pilot Facility (BPF) is a unique public pilot facility with extensive experience in the piloting of biobased processes since the 1960s. BPF's scaled-down commercial plant is in Delft, the Netherlands. The BPF team is led by experienced technology, operations and business development professionals with extensive industrial backgrounds and expertise in bioprocess piloting.

The facility has been specifically designed to enable the transition from laboratory to industrial scale. The BPF employs a variety of production technologies to investigate and develop processes for innovative projects.

<https://www.bpf.eu/>

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