

PHERA

PHeromones for row crop applications



pheromones for row crop applications

Summary

Mating disruption offers an effective solution to pest control and an alternative to current chemical-based insecticides. This approach uses insect sex pheromones to disrupt their reproductive cycles. Unlike chemical-based pesticides, it preserves biodiversity and has no environmental toxicity.

Although the science of mating disruption has been understood and proven for some 20 years, the cost of pheromone production has been a barrier to its deployment. However, research into production via fermentation methods has been under development for around five years. This will be able to produce pheromones at a fraction of the cost of the synthetic alternatives. The dramatic drop in price will move mating disruption for pest protection out of its current niche of high-value crops and make it affordable and accessible for large-scale row crops.

Creating an effective biotech-based method for producing pheromones will address this challenge and allow for the wider deployment of this solution. PHERA brings together the required expertise in production and formulation.

<http://www.phera.info/>

Type of Action:
Innovation Action -
Demonstration

Value Chain: VC3 – agro-based

Start date: 01 March 2020

End date: 28 February 2023

BBI JU contribution: €
6,402,164

Objectives

PHERA's key objectives are twofold; first to demonstrate the cost-efficient production of three bio-based pheromones at scale; second, to contribute to increasing agricultural productivity through sustainable methods

- From an environmental perspective, using a pheromone-based approach to pest control has minimal impact compared to existing pesticides. The production method - using yeast fermentation - is also environmentally friendly. The process uses renewable raw materials, including glycerol.
- The PHERA technology will make pheromones an affordable form of pest control for row crops, which is not currently the case. This will help to increase food production to meet the demands of a growing population while at the same time considerably reducing the long-term impact on the environment.

Expected impacts

By achieving its overall objectives, PHERA will have developed new insect pheromones for use in agriculture. These will be more affordable and accessible than existing products. It will make a significant environmental contribution by reducing, even eliminating, the usage of toxic chemical insecticides and diminishing the environmental footprint of pest control as a result. It will also make a relevant economic impact, by creating a new business sector and making the pheromone-based approach much affordable to farmers.

Additionally, PHERA will make contributions to specific BBI JU KPIs through:

- Establishing a new cross-sectoral interconnection in the bio-based economy, between the biotechnological manufacturing and agriculture sectors.
- Creating three new bio-based value chains; converting glycerine into pheromones using



This will also create a new industrial sector, dedicated to the production of these new pest control approaches. In so doing, by 2027 PHERA will help establish a new agriculture technology industry for mating disruption products for row crop production worth more than €600 million and create some 300 new jobs.

- yeast fermentation, formulating these pheromones into mating disruption products and selling the products to growers to protect their plants from insects.
- Developing and demonstrating new plant protection products that meet market requirements, all of which will use biologically produced pheromones.

Project coordination

Name: BioPhero (Denmark)

- BioPhero (Denmark)
- Bioprocess Pilot Facility BV (the Netherlands)
- Fraunhofer Gesellschaft Zur Foerderung Der Angewandten Forschung E.V. (Germany)
- Novagrica Hellas Anonimi Emporiki Exagogiki Kai Symvouleftiki Etairia Biologikon Kai Chimikon Proionton Novagrica (Greece)
- Russell Ipm Ltd. (United Kingdom)
- Sedq Healthy Crops SL (Spain)
- Isca Europe, Sas (France)