

## Wireworm research collaboration now in second phase

ENIGMA, Fera's collaborative research model looking at ways of combatting future wireworm threats, is entering the second phase of its research.

The first Enigma project, launched in 2022 to address wireworm damage in potato crops and advance Integrated Pest Management (IPM) techniques for growers, has continued to achieve significant breakthroughs, according to the project's team members.

Wireworms, the larvae of Click Beetles (Elateridae), represent a continued and growing threat. As pest populations grow, and climate change alters their behaviour, their threat necessitates the need to develop novel integrated pest management (IPM) strategies.

Wireworms can remain in the soil for up to five years and a field can be home to all stages of the wireworm lifecycle, all feasting on roots, tubers and organic matter in the soil.

Last year marked a series of pivotal milestones for the Enigma team in developing a sustainable solution for wireworm control, reinforcing its impact on pest management strategies. Modelling suggests that wireworm will become more prevalent in northern areas of the UK, and at higher elevations, as a result of the rising soil temperatures caused by climate change.

Following thorough identification processes, including DNA barcoding, the team's experts have been able to produce maps that show the current geographic ranges of the five wireworm species of most concern to growers across the UK.

By modelling wireworm activity, the team can predict how these geographic ranges are likely to evolve between now and 2040, forecasting where the pest could become an issue for growers in the future, and which species they need to look out for.

Using life history studies in lab cultures and from field samples has enabled Fera to model wireworm populations throughout the year. This allows the team to provide its partners with up-to-date information on where and when to target sustainable pest control methods to be most effective at protecting crops.

The second phase of the research will involve working on an individual basis with project partners, aiming to use the outputs from Enigma 1 to tailor more effective IPM strategies on-farm.

New partners are being sought to join the project and continue the research into better pest management and anyone interested in being involved is urged to get in touch with Collaborative Research Projects Director, Adam Bedford.

In 2024 the project team launched another Enigma project, which is set to improve the knowledge of Tobacco Rattle Virus (TRV) epidemiology and develop an improved predictive diagnostic service that can be offered to the UK potato sector, putting Spraing control in the hands of growers. It's hoped the service will bring faster turnaround times and reduced costs for growers, helping them to improve yields, and promote a sustainable and successful business.

Further projects are planned for 2025.

## Grower featured in broadcast series

A SHROPSHIRE potato grower features in a new three-part series exploring how farmers are feeding Britain while safeguarding the environment.

Jim Bubb, who provides processing potatoes for McCains, appears in the second episode of a podcast supported by Lloyds Banking Group, entitled 'Making Sense Of Sustainable Farming'

The series has been produced by Tortoise Media and explores innovative approaches and solutions that balance food production with environmental stewardship and fair incomes for farmers. Tortoise Media is a British news website co-founded in 2018 by former BBC News director and The Times editor James Harding and former US ambassador to the United Kingdom Matthew Barzun.



Wireworm feast on roots and tubers, causing considerable damage, which two current projects are seeking to address. Photo: Emerald Research



There is an increasing wireworm issue in Southern England. Photo: Emerald Research

## Innovate UK funds wireworm control

EMERALD Research Ltd (ERL) and a South West potato grower have won an 18-month Innovate UK project to tackle wireworm damage in potatoes.

The £56,000 project will evaluate several soil improvers that are rich in prebiotic polysaccharides and other naturally-occurring, environmentally-safe biochemicals. These have initially shown positive results in stimulating the reproduction and development of

normal soil microflora as well as providing antagonism or deterrence to wireworms.

Since Mocap® (ethoprophos) was withdrawn from the market in 2019 due to its high soil toxicity, farmers and growers have been left with trying to mitigate wireworm damage by cultural means and by using products based on specific botanical extracts with biocide activity, which has had inconsistent results. Potato losses to wireworm can range from 15-35%

Southern England is known to have an increasing wireworm issue, which is also thought to be spreading north and ERL is undertaking field-scale trials in the South West, testing three different candidate products. The project will look to document a post-treatment level of wireworms in the fields, while also recording the effects on soil health, tuber damage and marketable crop yield.

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