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The Project Attracap: Optimisation of an Attract-and-Kill Strategy for Wireworm Control in Potato

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Abstract

Wireworms, the polyphagous soil-dwelling larvae of click beetles (Coleoptera: Elateridae), are a major insect pest of worldwide relevance causing tremendous yield losses in several crop production systems, like potatoes, maize and other grain crops, oil crops as well as vegetables. Within the last years wireworm damage in potato production substantially increased, both in conventional and organic production systems, resulting in existence-threatening yield losses for farmers. Currently, effective plant protection strategies are not available due to the progressive phase-out of effective synthetic chemicals.

Based on previous projects, an innovative and effective control strategy was developed, using biological components. A capsule releases carbon dioxide (CO_2) upon contact with the soil humidity, which attracts the wireworms towards these capsules, where they come into contact with an isolate of the entomopathogenic fungus *Metarhizium brunneum*, thus substantially enhancing the frequency of fungal infections of wireworms. The project aims at improving the efficacy levels of in previous projects developed product candidate ATTRACAP®. The innovative formulation technology and resulting beads will be fine-tuned and tested and validated under varying field conditions. Apart from the academic partners, members of the project consortium comprise the company producing the product, and consultants which stay in contact with the farmers and will help with set-up of field experiments. As an outcome of the project an optimised product ATTRACAP® will be available, helping both conventional and organic farmers to maintain a sustainable potato production. This poster will present the first results of the recently started project including field trials 2017.

Our formulation will pave the way towards novel "Attract-and-Kill" strategies in pest control.

Keywords: Attract-and-kill, biocontrol, biological control agents, CO_2, entomopathogenic fungi, formulation

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