

## **Basic research meets agricultural practice: Optimisation of available control measures for wireworms (*Agriotes* spp., Coleoptera: Elateridae) a destructive pest of field crops.**

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Wireworms, the larvae of click beetles (Coleoptera: Elateridae), are abundant soil-dwelling insects which attack the below-ground parts of a wide range of crops, thereby inflicting severe economic damage. To date, wireworms are considered one of the most difficult pests to control mainly due to a variety of reasons: Depending on soil environmental conditions, wireworms show extensive vertical movements in the soil column, going deeper when conditions are adverse and moving to the upper soil layers for feeding. Predicting these vertical movements and identifying when wireworms actually dwell in upper versus deeper soil layers is crucial for the decision and timing of control measures for these pests. However, there are at least nine pestiferous species of elaterid larvae occurring in European agriculture. Most of these species are indistinguishable for the naked eye and cause similar damage symptoms, but their biology and ecology varies considerably which calls for species-specific control tactics. And, besides the species, also the larval instar needs to be taken into account as the behavior of wireworms can change dramatically according to their developmental stage.

Within two topic-related projects, laboratory experiments will be conducted to reveal how specific parameters affect larval vertical movement behavior of abundant *Agriotes* species. The influence of soil temperature and soil moisture on the behaviour of the main pestiferous species of wireworms will be examined. The two investigated soil types will represent typical soils in Austrian potato and maize production areas. Further objectives are to find out whether the presence of entomopathogenic fungi affects the vertical migration behaviour of wireworms and if the type of soil influences the virulence of these fungi against *Agriotes* larvae under defined and constant laboratory conditions.