

The Project ATTRACAP: Optimization of an attract-and-kill strategy for wireworm control in potato

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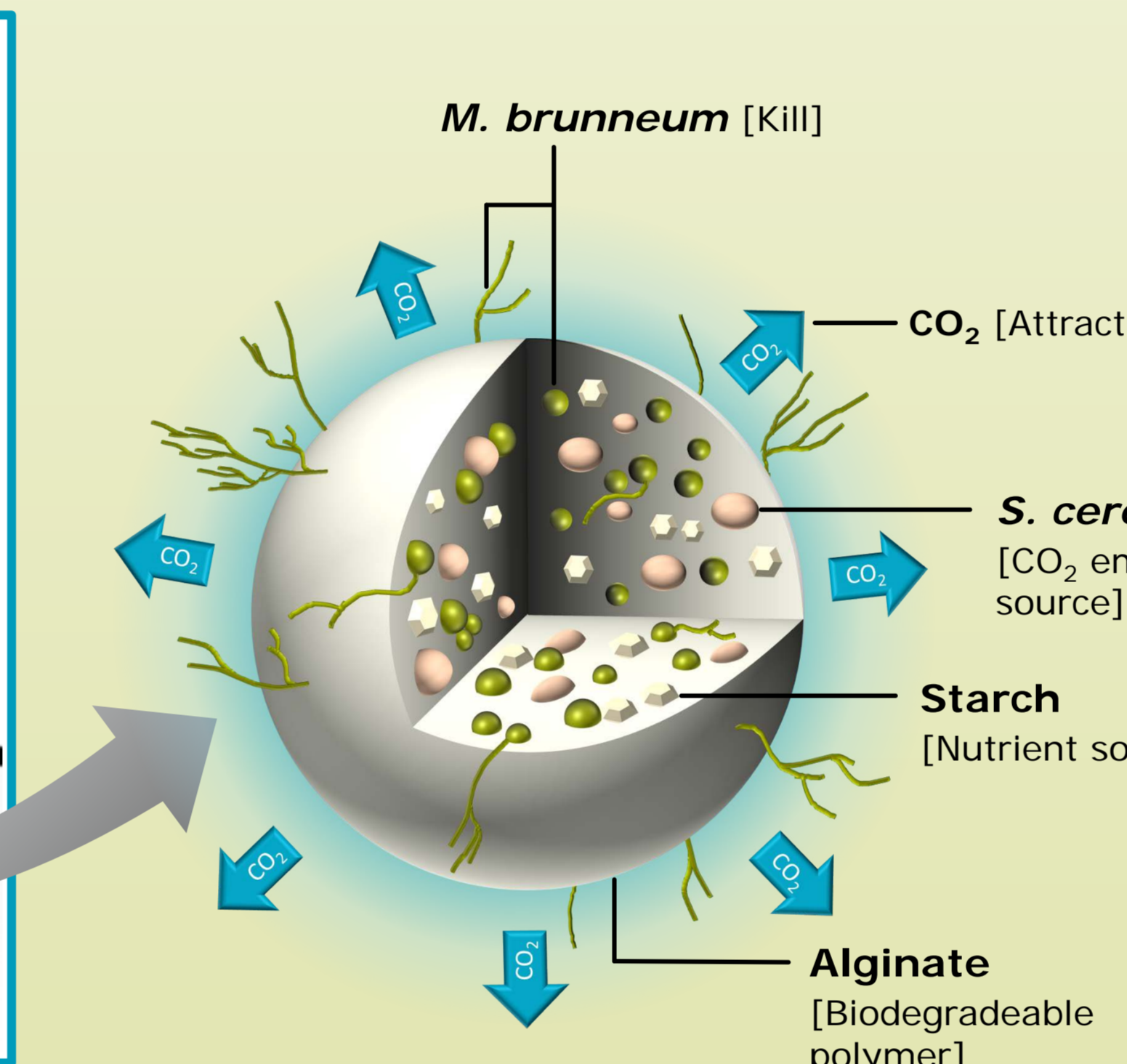
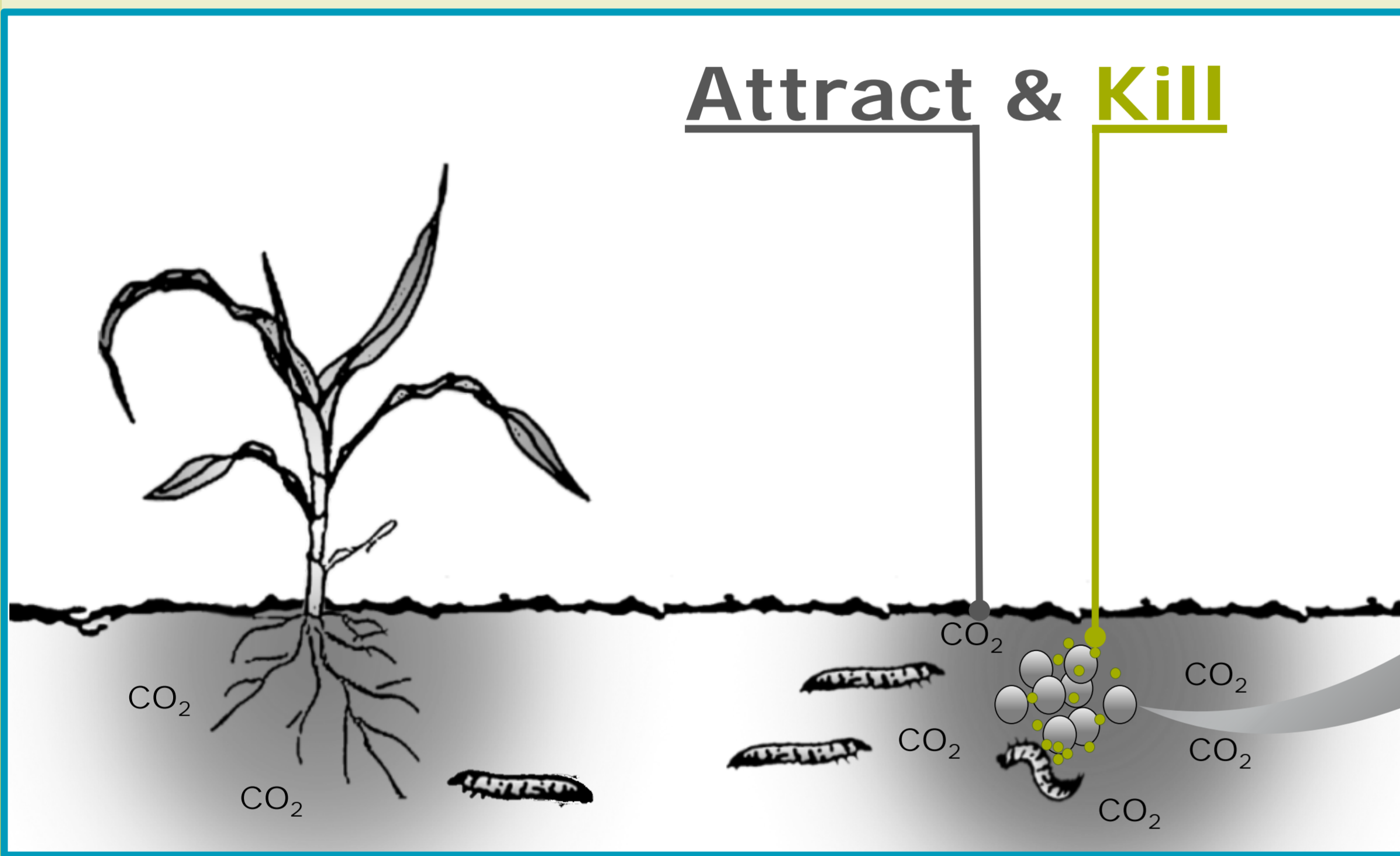
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Background and Objectives

In the last years wireworm damage has become an increasing problem; even low populations of these polyphagous soil dwelling larvae of click beetles (*Agriotes spp.*) can lead to severe economic losses, especially in potato cultivation.

The larvae use CO₂ to locate the roots of living plants. During their active period from March to May and in August/September they drill tunnels in the potato tuber. They may live up to five years in soil before pupating.

Currently, effective plant protection strategies are not available. Chemical insecticides have recently been restricted or abandoned and crop rotation or disturbance of soil does not lead to considerable wireworm reduction.



Control strategy based on previous projects (ATTRACT, INBIOSOIL):

Capsules release CO₂ produced by baker's yeast (*S. cerevisiae*)¹. An entomopathogenic fungus (*Metarhizium brunneum*) acts as the kill compound.

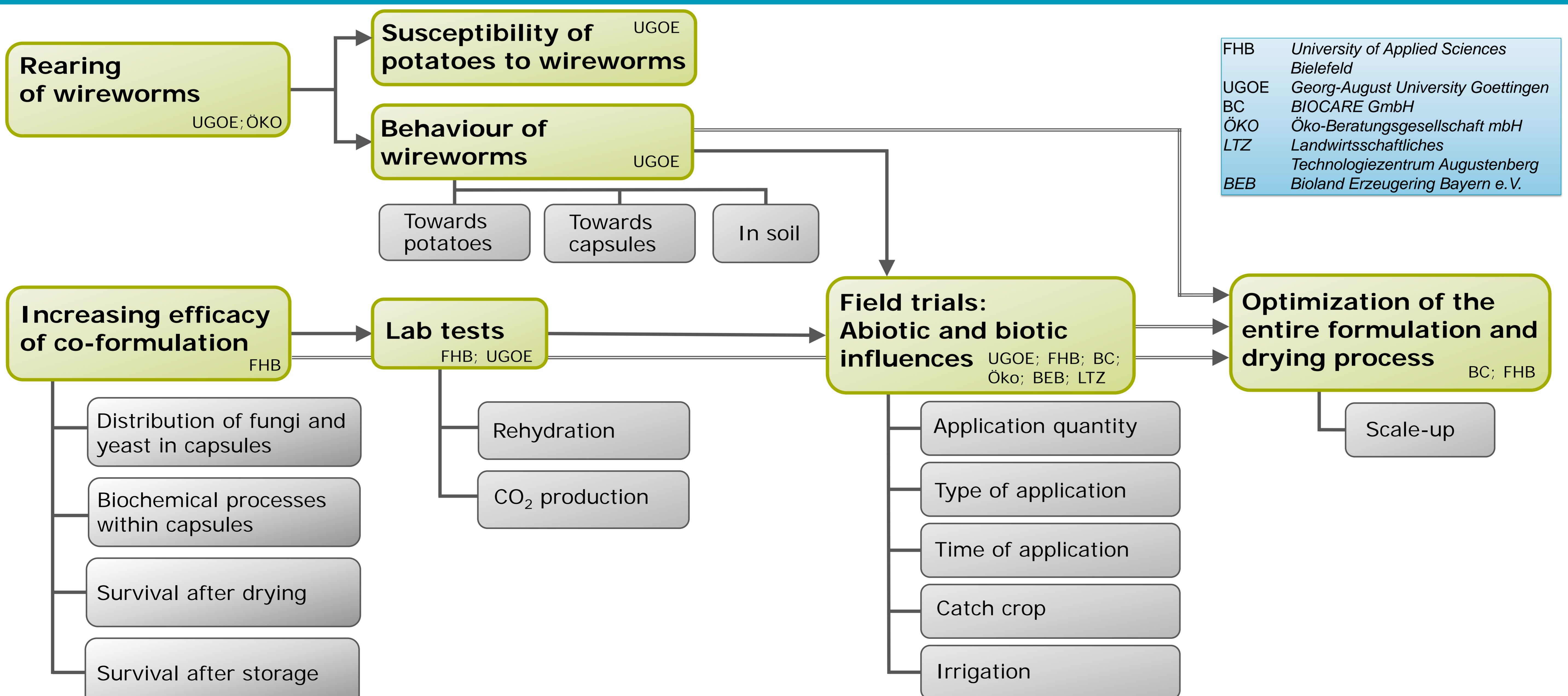
When the capsules are applied in soil they absorb its moisture, thereby initiating the attracting agent's production process as well as the growth of fungus spores out of the capsules². Wireworms are attracted to the CO₂ source and get infected with fungus conidia by contact with the capsules. After 1-2 weeks the larvae are killed by the fungus³.



Objectives

- Fine-tuning of formulation
- Further development of innovative formulation technology (230 t in 2017)
- Testing and validation under varying field conditions
- Improving efficacy levels of the product ATTRACAP® and reducing production costs

Project Structure



Project start: 1st June 2017

References

¹Humbert et al., 2017a; Humbert et al, 2017b; Vemmer et al, 2016; Schumann et al, 2014a; Schumann et al, 2014b; Schumann et al 2014c; Schumann et al, 2013 | ²Przyklenk et al, 2017 | ³Brandl et al, 2017