

22-7 — Soil microbiome modulated by cover cropping enhance suppression of *Meloidogyne chitwoodi* infection on potato

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Root knot nematodes (RKN) are the major group of plant parasitic nematodes that cause enormous economic losses to global agriculture (Jones et al., 2013). They have a broad host range and there is limited resistances in important crops which makes management of these plant parasites very difficult. Low to virtually no nematodes are often observed in some agricultural soils and these soils have suppressive effects mediated by microbial antagonists (Topalovic et al., 2019). This phenomenon of nematode suppressive soils has been a focus of recent research however, the factors influencing development of suppressive soils in agricultural soils and how this can be exploited for management of RKN in organic farming largely remain poorly understood. We investigated the potential of different cover crop species to modulate the soil microbiota in different field soils. It was tested whether the soil microbiota modulated by the cover crops can suppress root invasion and reproduction of the root knot nematode *Meloidogyne chitwoodi* on potato seedlings. Our preliminary findings show that microbiota from the rhizosphere of the cover crops when inoculated on potato plants in pots reduced the number of *M. chitwoodi* juveniles invading the roots compared to non-inoculated control plants. The results of nematode reproduction in potatoes and microbial composition in the rhizosphere soil of the cover crops tested will pinpoint the cover crops with the highest potential to modulate the soil microbiota to increase suppressiveness to nematode infections in the field.

Preliminary results

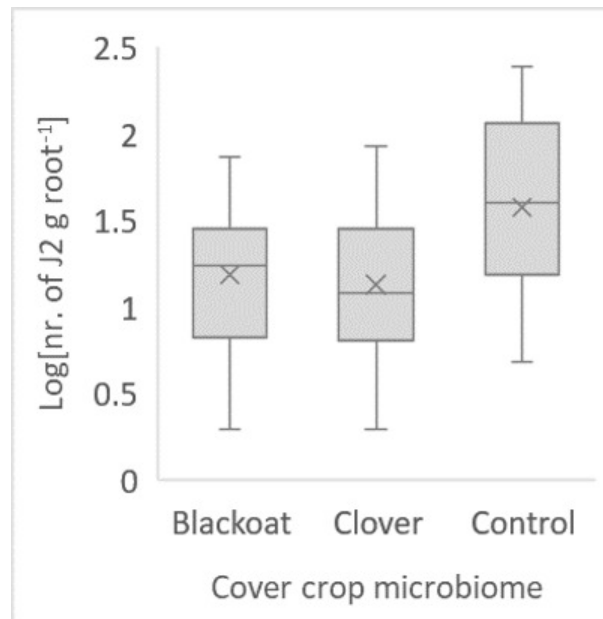


Figure 1. *M. chitwoodi* root invasion suppression on potato plants inoculated with rhizosphere microbiome from field cover crops

Literature

Jones et al., 2013. The top 10 important plant parasitic nematodes in molecular plant pathology. *Molecular plant Pathology* 14, 946-961

Topalovic et al 2019. Antagonistic role of the microbiome from a *Meloidogyne hapla* suppressive soil against species of plant parasitic nematodes with different life strategies. *Nematology* 22, 75-86

Funding

Support was provided by HORIZON EUROPE Food, Bioeconomy, Natural Resources, Agriculture and Environment (grant 101083727; NEM-EMERGE)