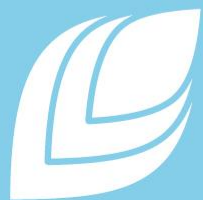


- 1. Effects of sheep wool pellets and black soldier fly (*Hermetia illucens*) frass on soil biota**
- 2. The impact of Black Soldier Fly (*Hermetia illucens*) larvae frass on the abundance and diversity of springtails (*Collembola*) and on cereal crop yield**
- 3. The impact of various organic materials in pot experiments on the survival of forest trees**



**EJP SOIL**  
European Joint Programme

EJP SOIL has received  
funding from the European  
Union's Horizon 2020  
research and innovation  
programme: Grant  
agreement No 862695



# Effects of sheep wool pellets and black soldier fly (*Hermetia illucens*) frass on soil biota

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## Introduction

Sheep wool valuable resource for slow release nutrients, organic origin.

*Hermetia illucens* larvae are highly efficient decomposers of various types of organic wastes, frass is valuable organic fertilizert.

## Materials and Methods

Field trial with five treatments:

- Control (unfertilized)
  - Sheep wool pellets were applied 40, 60, 80 kg N/ ha
  - *H. illucens* frass was applied 40, 60 kg N/ha
- Each treatment was replicated three times.

## Results

- There were 3 earthworm species in 2022 and 4 in 2023.
- Higher the frass norms had greater impact on earthworm abundance (2.2 kg: 96.0±14.1 vs 1.65 kg: 85.3±23.4 in 2022).
- Microbial respiration was reduced by higher rate of sheep wool pellets.
- The yields from experiment were 6.4 -7.9 t/ha



Photos Noormets, M., Ivask, M., Shanskiy, M.



# The impact of Black Soldier Fly (*Hermetia illucens*) larvae frass on the abundance and diversity of springtails (Collembola) and on cereal crop yield

Reissaar Rihard<sup>1\*</sup>, Kuu Annely<sup>1</sup>, Sutri Merit<sup>1</sup>, Talgre Liina<sup>2</sup> and Shanskiy Merrit<sup>1</sup>

In the field trial, there were six different treatments:

- control (unfertilized)
- mycorrhiza (unfertilized)
- mycorrhiza + frass (74 kg N/ha)
- small dosage of frass (74 kg N/ha)
- large dosage of frass (150 kg N/ha)
- full agrotechnology (fertilized with NPK mineral fertilizer, 150 kg N/ha).

Each treatment was replicated three times.

- highest average abundance = mycorrhiza + frass
- total of 42 species of springtails were identified

The most abundant species were:

- *Xenylla grisea*
- *Parisotoma notabilis*
- *Folsomia quadrioculata*.



\*Photo by Andy Murray

*Hermetia illucens* larvae are highly efficient decomposers of various types of organic waste, food waste, and agricultural by-products.



# The impact of various organic materials in pot experiments on the survival of forest trees

Kuu Annely and Shanskiy Merrit

The aim of this research project is to find techniques and materials that retain moisture for forest trees to assist in better rooting in mining areas

- The pot experiment
- Various organic materials (sheep wool pellets, sheep wool discs, biochar, sewage sludge etc.)

Results:

- Biochar and sheep wool discs had a positive impact
- The sheep wool pellets and mixture of materials (sheep wool pellets, biochar, sewage sludge on top) had a negative impact



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