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Book of abstracts

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18. “Soil improver N mineralization predictor”, a Farmmaps application to predict nitrogen mineralization from organic fertilizer based on the SNOMIN model

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Introduction

Predicting nitrogen (N) mineralization from organic fertilizers is one of the major barriers to their efficient usage, as N mineralization depends on weather, and soil properties like organic matter and moisture content that are variable between and within crop growing seasons. To facilitate farmers in the management of N, we developed an application that predicts nitrogen mineralization from a set of soil improvers based on the dynamic soil N model SNOMIN (Berghuijs et al., 2024). This app gives insight on available N for crop use throughout the year, depending on the type of soil improver and timing of application.

Methodology

We developed an application based on the soil nitrogen model SNOMIN and made it available for farmers on Farmmaps platform (*farmmaps.eu*). SNOMIN is a soil Carbon and N model based on Janssen model (Janssen, 1984), NDICEA (van der Burgt et al., 2006), MINIP-C and MINIP-N (Heinen & de Willigen, 2005). The main addition of SNOMIN to these models is the possibility of simulating C(carbon) and N dynamics in different soil layers. C and N dynamics are driven by mineralisation of soil N and C, and the stoichiometry of soil microbial biomass. Model input parameters for SNOMIN were measured in the lab for 3 different soil improvers coming from composting facilities of members of the living labs of the BIN2BEAN project in Amsterdam, Hamburg and Egaleo as well as, 8 different soil improvers from partners of the EconNutri project. To estimate input parameters for specific soil improvers, C-decomposition and N-mineralization of the compost was measured by incubating a mix of soil and compost.

Results and discussion

Preliminary results from the variability in SNOMIN input for the different compost will be presented at the conference along with a description of the app.

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