



### POWERFUL TOOLS

Models are powerful tools to assess impacts of management and climate on water balance, solute transport and crop yields.

It is important that hydrological processes in the soil-crop system are accurately modelled.



### PHYSICS-BASED FLOW MODELS

The use of empirical models of water flow in soil-crop models limits their applicability and increase prediction error.

Physics-based flow models are at least as parsimonious and not difficult to parameterize.



### TOO OFTEN IGNORED

Parameter uncertainty remains a challenge for both empirical and physics-based models and is too often ignored.



### AUTHORS

Nicholas Jarvis, Mats Larsbo, Elisabet Lewan, Sarah Garré (2022)

## THE ELEPHANT IN THE ROOM?

### IMPROVED DESCRIPTIONS OF SOIL HYDROLOGY IN CROP MODELS



### Powerful tools

Soil-crop simulation models are used to assess the impacts of soil management and climate change on soil water balance, solute transport and crop production.

# EJP SOIL INNOVATION HIGHLIGHTS



## TOWARDS CLIMATE-SMART SUSTAINABLE MANAGEMENT OF AGRICULTURAL SOILS

EJP SOIL is a European Joint Programme on Agricultural Soil Management addressing key societal challenges including climate change and future food supply. <https://ejpsoil.eu/>

The goal is to improve the understanding of agricultural soil management by finding synergies in research, strengthening research communities and raising public awareness.

1100+ experts, 24 countries, addressing multiple aspects of soil management across different European agroecosystems.

## EJP SOIL FUNDED PROJECT CLIMASOMA

*Recent reviews and opinion articles, whilst strongly advocating the need for improvements to crop models, fail to mention the significant role played by accurate treatments of soil hydrology. It seems to us that empirical models of soil water flow have become **the elephant in the room.***

### PROJECT COORDINATOR:

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## TARGET EJP SOIL EXPECTED IMPACT AND EU MISSION SOIL OBJECTIVES

Fostering understanding of soil management and its influence on climate change mitigation and adaptation, **sustainable agricultural production and environment.**

**SOIL MISSION:** conserve soil organic carbon stocks, prevent erosion, improve soil structure and biodiversity

### HIGHLIGHT FACTS FROM:

EJP SOIL funded project:  
CLIMASOMA



Applicability:  
all climatic zones according to  
Metzger et al. (2005)  
<https://doi.org/10.1111/j.1466-822X.2005.00190.x>

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

