

What is SoilMAT and why is it being developed?

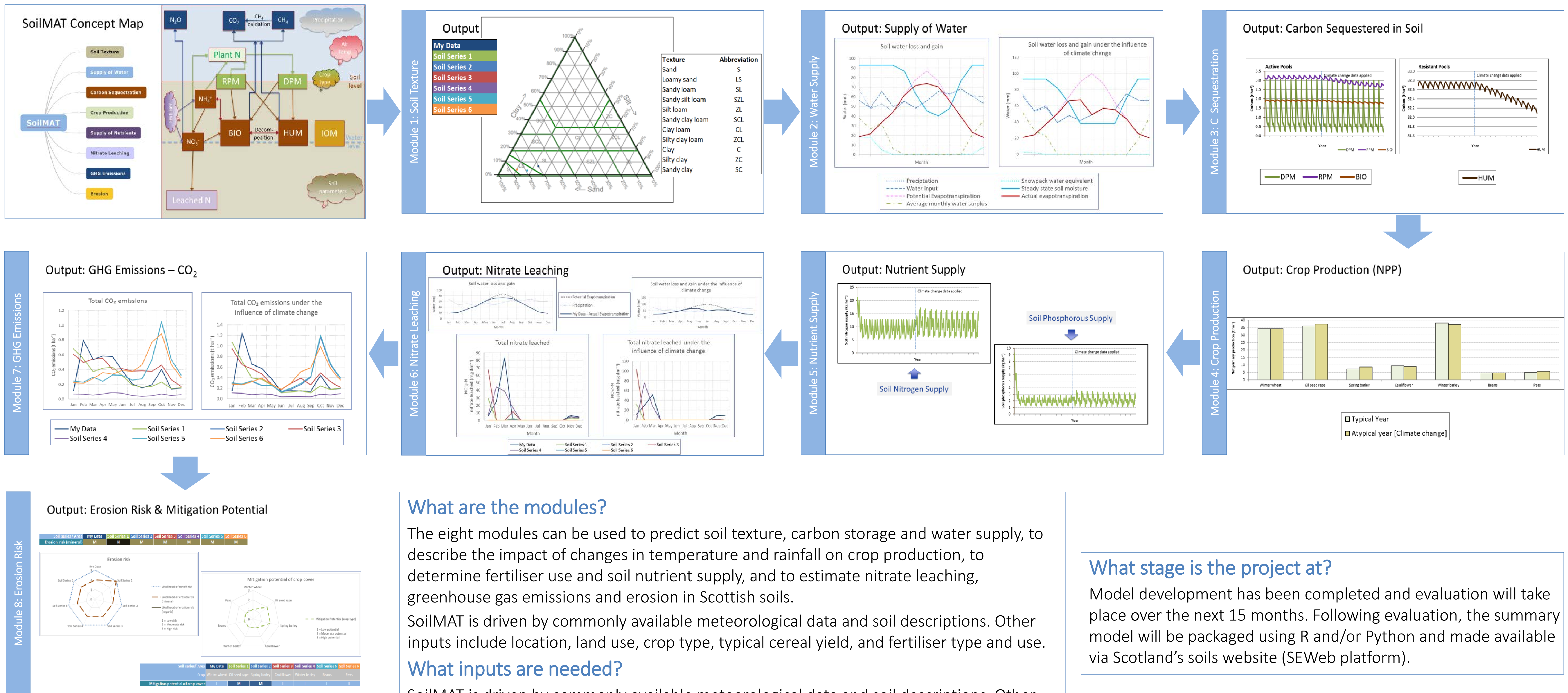
The Soil Management Assessment Tool (SoilMAT) is being developed as part of the soils work in the Scottish Government's Rural, Environment Science and Analytical Services (RESAS) Division 2016 - 2021 programme.

SoilMAT can model the fate of carbon and nutrients in the soil/ plant system by predicting the response of soils to external change by environmental-drivers, e.g. land use and climate. This enables an assessment of the relationships between soils and water quality, climate change and agriculture to be made. It is envisaged that results may be used to directly inform policy and/ or planning decisions.

What type of model is SoilMAT?

SoilMAT is a simple summary process-based model, which uses published validated process models from scientific literature. The models have been initially developed in MS Excel to meet the brief of transparency set by the Scottish Government's RESAS Developing summary soil process models.

The model has been designed to have minimal user inputs to aid quick and easy understanding by non-expert users, e.g. by policymakers.



What are the modules?

The eight modules can be used to predict soil texture, carbon storage and water supply, to describe the impact of changes in temperature and rainfall on crop production, to determine fertiliser use and soil nutrient supply, and to estimate nitrate leaching, greenhouse gas emissions and erosion in Scottish soils.

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What inputs are needed?

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What stage is the project at?

Model development has been completed and evaluation will take place over the next 15 months. Following evaluation, the summary model will be packaged using R and/or Python and made available via Scotland's soils website (SEWeb platform).