An innovative ‘Toolbox’, aimed to help farmers achieve a good balance between crop productivity, soil health and soil carbon storage, has been developed as a result of a major EU research project called SmartSOIL.

Every arable farmer knows that soil organic matter is at the heart of profitable crop production. It helps improve the workability of soils, store water and increase nutrient supply. As leading soil scientist Professor Pete Smith from Aberdeen University says “Good management of soil organic matter is essential for producing high quality crops at yields that deliver good economic returns”.

What is less well known is that soil carbon, a key constituent of soil organic matter, improves the physical and biological properties of the soil; and potentially the profitability of farming systems. Accumulating soil carbon through good management also has the added advantage of tackling climate change by stopping it being released into the atmosphere as CO2. So for the farming community, scientists and policy makers alike, an important question is: What management practices result in a good balance between crop productivity, soil quality and soil carbon storage?

The SmartSOIL project set out to answer this. “Advisers, leading farmers and policy makers from 6 countries were consulted throughout the project. With their input and support the SmartSOIL Toolbox was developed” Dr Julie Ingram of Countryside and Community Research Institute, University of Gloucestershire, UK explained,

A number of agricultural practices can enhance soil carbon content and contribute to improving long-term crop productivity.

“The SmartSOIL toolbox is an interactive platform which will show advisers and farmers potential changes in yield and soil organic carbon content which can result from implementing these practices” said Professor Jørgen Olesen, the project coordinator, from Aarhus University, Denmark..

The Toolbox includes:

- The SmartSOIL Tool, a Decision Support Tool which allows farmers and advisers to experiment virtually to see the effect of changes in practice on their yields and soil carbon

- FactSheets summarising benefits, costs and experiences associated with the different management practices which increase or sustain soil carbon (cover crops, residue management, conservation agriculture, adding manures, crop rotations)
- Real Life Cases from selected farmers in six different European countries showing the benefits, drawbacks and costs of implementing these practices
- Videos demonstrating the application of different management practices on farm
- Policy options to promote beneficial management practices at national and EU level
- Maps for policy makers and scientists which indicate areas at risk of losing soil organic carbon, and current carbon stocks in the EU

The Toolbox can be found at smartsoil.eu/smartsoil-toolbox/about and will be available in English, Danish, German, Spanish, Italian, Hungarian and Polish.