Research results on sustainable nutrient and soil organic matter management hardly finds its way to daily farm management, as the gap between research and farmers is too wide. Therefore, three organisations, the Flemish Land Agency (B), the Nutrient Management Institute (NL) and Ghent University (B), decided to start a LIFE project, called DEMETER. The aim of this project is to translate the results of scientific research on the combined management of nutrients and soil organic matter into practical recommendations to farmers, offering them a decision support tool. On a practical level, an accessible webtool with a nutrient and an organic matter module was developed. At this moment the webtool is tested on the field in collaboration with 80 arable and dairy farmers.

**RESULTS**

Field monitoring
- The selected fields have a loamy, sandy loam or sandy texture in Flanders and a sandy texture in the Netherlands.
- In Flanders, soil organic matter content is low in the loamy and sandy loam fields; respectively 63 and 56% of these fields have an organic matter content lower than 2% OM (Figure 2). In the Netherlands, 6% of the participating fields have an organic matter content below 2% OM and 59% below 3% OM (Figure 3).
- The crops on the selected fields in 2013 are maize, winter wheat, sugar beet, vegetables and potatoes in Flanders and maize, grass, winter wheat, ware potatoes, sweetcorn, ornamental plants, leek and spinach in the Netherlands.

**MATERIALS AND METHODS**

**Field monitoring (2013-2015)**
- 80 farms in Flanders and the Netherlands (Figure 1)
- 1-2 fields per farm
- Soil analytic organic matter content, pH, plant-available P, K and Mg, mineral N in the soil profile
- Analysis of organic materials: Total N and P content
- Collection of additional information for each field

**Development of the Decision Support Tool (DST)**
The DST translates insights in sustainable nutrient and soil organic matter management into practical recommendations for farmers.
- The P balance considers the application of organic materials as P input and P uptake by crops as P output.
- Mineral N balance consists of 7 input parameters (annual N inputs, mineralization of soil organic matter, catch crop, crop residues and organic materials, ploughing of permanent grassland and N deposition) and 2 output parameters (uptake by crops and leaching).

**Training of the farmers**
- **Flanders**: Twice a year the counselors of the Flemish Land Agency will visit the farmers to discuss the field results and appropriate soil management individually.
- **The Netherlands**: Three groups of each 10 farmers will meet at regular basis and discuss field results and sustainable soil management in group sessions.

**CONCLUSION**

A decision support system which advices farmers to optimise nutrient and soil organic matter management at the level of the field has been developed. During the first year of the project, all participating farms and fields were selected, soils were analysed and recommendation reports were generated. First calculations illustrate the potential of the DST as a valuable tool for fertiliser recommendations and management of soil organic matter.

A widespread use of the tool should increase awareness amongst farmers for more sustainable soil management that will maintain or increase soil organic matter whilst minimizing nutrient loss risks.