

# SoCoRisk

## Implementation of soil compaction risk assessment system: end-user's evaluation of potentials and barriers



Norwegian University of Life Sciences



UNIVERSITÀ DEGLI STUDI DI PADOVA



Norsk Landbruksrådgiving



### Summary

Soil compaction due to traffic with modern agricultural machinery is one of the major threats to soil quality. Ever increasing weights of farm machinery particularly result in compaction of the subsoil (the soil below tillage depth), which is effectively persistent. Compaction adversely affects soil ecosystem services, in particular regulating services (e.g. flood control) and production services (e.g. agricultural production), resulting in significant ecological and economic damage to farmers and society.

The aim of the SoCoRisk project is to integrate the use of Terranimo<sup>®</sup>, a decision support tool for prevention of soil compaction, into farmer's strategic planning.

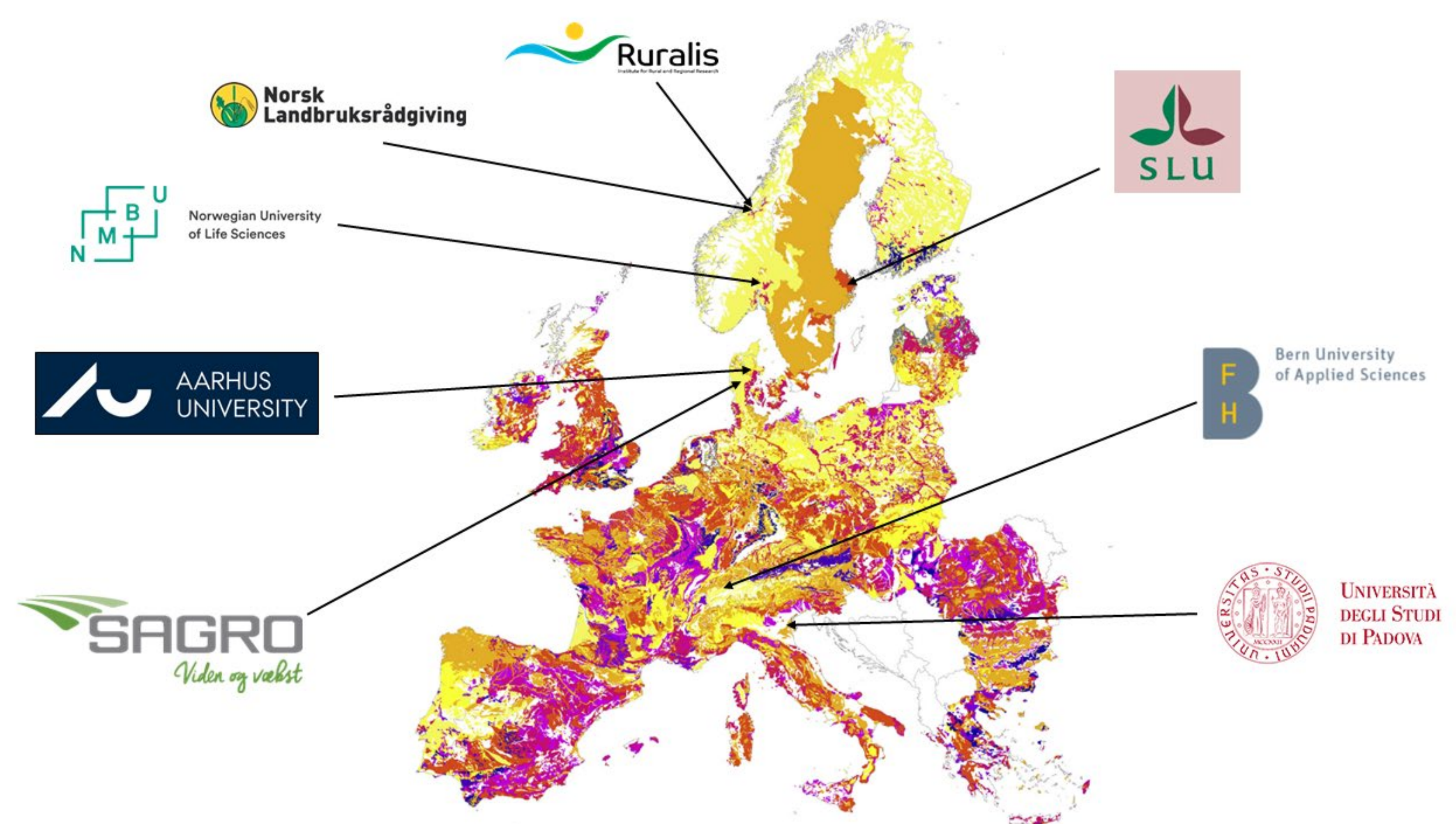
We use a transdisciplinary approach involving soil scientists, agronomists, and social scientists as well as farmers, contractors, advisers and representatives from authorities. Within living labs in Norway, Sweden, Denmark, Switzerland, and Italy, we first identify and address potentials and barriers of using Terranimo<sup>®</sup> along a north-south gradient in Europe, and for a range of farming systems. Based on the identified barriers and potentials, we develop new ways (e.g. presentation of farm-scale maps of compaction risk) of using Terranimo<sup>®</sup> for farmers' decisions.

The ambition is to improve farmers' day-to-day planning of field operations, including hiring of contractors with their respective machinery, and further, to enable strategic planning of investments in new machinery and adjustments to crop rotations based on identification of critical field operations.

### Three research questions

The aim of the SoCoRisk project is to integrate the use of Terranimo<sup>®</sup> into farmers' strategic planning. The three research questions we are addressing are:

- 1) What are the potentials and barriers of using Terranimo<sup>®</sup> in its present form?
- 2) Which new ways of using Terranimo<sup>®</sup> would be efficient for end-users?
- 3) Which strategies could be developed for the use of Terranimo<sup>®</sup> by farmers in their decision making and planning?



**Welcome to Terranimo<sup>®</sup> International**

Terranimo<sup>®</sup> is a model for prediction of the risk of soil compaction due to agricultural field traffic.

Start Terranimo<sup>®</sup> by clicking one of the buttons to the right.

The different versions provide country-specific soil types.

Terranimo <sup>®</sup> Global	
Terranimo <sup>®</sup> Denmark	Terranimo <sup>®</sup> Norway
Terranimo <sup>®</sup> United Kingdom	Terranimo <sup>®</sup> France
Terranimo <sup>®</sup> Belgium-Flanders	Terranimo <sup>®</sup> Finland
Terranimo <sup>®</sup> Netherlands	

An introduction to Terranimo<sup>®</sup>  
 Vejledning på dansk  
 Een inleiding tot terranimo

Web site provided by: Italian University: Faculty of Science and Technology, Department of Agricultural Sciences; Photo: H.C. Thomsen. Report technical problems to webmaster: EMail: laura@slu.se. Version 3.0.0. Build 9109. Release date: 13 March 2022.



Strengths	Weaknesses	Opportunities	Threats
<ul style="list-style-type: none"> <li>• Gode dataindsamlingsmuligheder</li> <li>• Gode muligheder for at få adgang til data</li> <li>• Gode muligheder for at få adgang til data</li> <li>• Gode muligheder for at få adgang til data</li> </ul>	<ul style="list-style-type: none"> <li>• Gode muligheder for at få adgang til data</li> <li>• Gode muligheder for at få adgang til data</li> <li>• Gode muligheder for at få adgang til data</li> <li>• Gode muligheder for at få adgang til data</li> </ul>	<ul style="list-style-type: none"> <li>• Gode muligheder for at få adgang til data</li> <li>• Gode muligheder for at få adgang til data</li> <li>• Gode muligheder for at få adgang til data</li> <li>• Gode muligheder for at få adgang til data</li> </ul>	<ul style="list-style-type: none"> <li>• Gode muligheder for at få adgang til data</li> <li>• Gode muligheder for at få adgang til data</li> <li>• Gode muligheder for at få adgang til data</li> <li>• Gode muligheder for at få adgang til data</li> </ul>

### Preliminary results

- A living lab involving soil scientists, agronomists, social scientists, farmers, contractors, advisers, has been established in each of the five countries participating.
- In each country, stakeholders have been actively participating to a first workshop.
- SWOT (Strengths, Weaknesses, Opportunities, Threats) analysis showed similarities and differences between the five countries.
- Stakeholders are all aware of the problem of soil compaction.
- There were differences in the knowledge of the online tool for risk assessment.
- Generally, it was mentioned that the online tool is not easy for day-to-day use in its present form, and several common suggestions for improvement came out from the discussions (facilitated data inputs, spatialized outputs, assessment from the weather forecast, etc.).
- The economic incentive of using the tool is missing (consequences of soil compaction on the yields).

### Potential impact

- There is a huge interest for a further development and adaptation of the online tool from a range of stakeholders (farmers, contractors, advisers, etc.) from all countries participating.
- There was a general interest among stakeholders for a strategic use the tool.

### Future research activities

- Synthesis of the results from the five living lab first workshop
- Definition of the new features and/or interface for the online tool
- Second living lab workshop to be hold in each country to discuss the new prototype of the tool
- Synthesis of the results from the five living lab second workshop

Topic 2: Identify and address barriers for adoption of ICT technologies in the agri- food systems

