



Soil and water

The EU Soil Observatory (EUSO), using 18 indicators from the Soil Health Dashboard (SHD), found that 60-70% of soils in the European Union (EU) are currently unhealthy, primarily due to unsustainable management practices. At the same time soil, nutrients and pesticides end up in the rivers and lakes all over the continent. Can measures within agriculture and forestry in combination effectively preserve soil health and improve water quality, and secure both food production and sustainability both on land and in water for the future?

Soil erosion is the dominant form of land degradation worldwide. The average soil loss rate (2.46 t/ha/y) leads to a total displacement of 970×10 tons of soil per year on an EU level. Associated drivers such as sealing, compaction, and organic matter (OM) the decline in quality favor runoff and accelerate the phenomenon. This further influence the local farmers and their daily run of the farm through the removal of the top fertile layer, depth decrease, structure degradation, loss of fertilizers and pesticides, loss of seeds and seedlings, functional degradation of infrastructure, landslide triggering, declining ecosystem services, biodiversity loss, etc.

To answer to these challenges several municipalities and regions have started different soil-networks and field visits to ensure that the knowledge of soil health, quality and the effects of that decline is known to the farmers. Farmers can further get subsidies to make plans to improve their soil and have on-farm visits from soil advisors and pair up with other farmers to learn from each other.

Many of the suggested measures within soil,

falls in line with the measures to reduce erosion to water, and the Halden river basin sub-district is therefore interested in using the topic of soil health as a mean to increase the interest of these measures and improve water quality. These measures include catch crops, no-till methods of sowing, grass and crop-rotation. The improved soil condition will in itself also contribute to climate adaptation, by having soil that better stores and transports water down, resulting in reduced surface run-offs.

With nitrogen mainly being found in the drainage water, there is still the need of measures to secure drainage water is not pipelined straight to the river basins but also held back to retain some of the nutrient. Soil health might improve nutrient uptake in the crops, which might reduce the need for this, but is part of the knowledge we need to improve on regional and local level.

Soil might be a better introduction to new measures than water for a farmer, as it is more directly connected of their run of the farm and with consequences on their future yield.



Soil networks

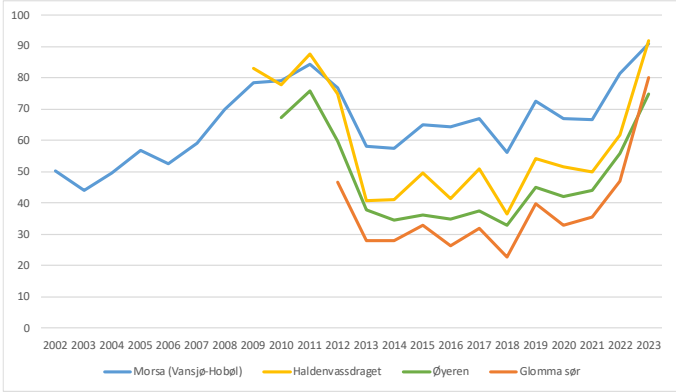
Rakkestad Business Council is one of the coordinators for one of the many new initiatives on soil health. Locally the municipality made a strategic decision to focus on soil health, combined with a political initiative from the county for a regional focus as well.

Through meetings, field visits and dissemination efforts, RBC has been reaching almost 300 farmers in the three involved municipalities. Nearly a 100 shovel samples to look at infiltration in the field has been conducted. The project to coordinate and further work on the topic has been financed for another two years and more resources has been advised to ensure the network.

Still there is need to go from the stage of information, demonstration and dissemination to the stage where farmers change their operations to a more soil sustainable way of operation. With learning from other countries and to look at sister regions would be a benefit to ensure to stress the importance to change and the successes from other regions in face with a change in climate, a societal expectation of increase in yield and more local sourcing.



Soil health magazine publication from RBC



Changes in tilled area with removal of rule in 2013 and re-introduction in 2023

Water management

The Halden river basin sub-district has been working on agricultural measures to ensure and improve the water quality in the river basin since 1990s with data on lake concentrations on nutrients going back to 1976. Still there is the need for more measures, where soil health has opened for a new perspective to add to the benefits of for example no-till methods of sowing cereals. The no-till measure has been the focus since the 80s, with the change in policy depending on political structure on state level. The return of an abolished rule for the region on 60% no till of total area, was reintroduced in 2023, after its removal in 2013.

Data from these periods in several regions show the importance of specific policy with requirements, but with a substantial contribution through subsidies to ensure a sustainable change in operation for the local farmer. A balanced combination of the “whip and the carrot”.

The national agency for agriculture collects the results on agricultural measures that are subsidized but has not had the requirement for the farms to report their soil samples and results from these. The data is only on each individual farm, and efforts are started to collect these data, but can only be supplied voluntarily dating back from 2024. New legislation has included an obligatory reporting of soil sample results, and this might be the start of a national database.

Possible partnerships

We are interested in cooperation with similar projects, networks or efforts in other countries, to share experiences, learn from each other and to improve the measure to work combined with soil health and water quality. We are especially interested in those that also have done or are working on educational and/or informational materials to engage and reach landowners.

We are also interested in the evaluation of policy, and to look at how it can be improved. What needs to be changed to improve the preservation of soil health. We are interested in using the existing networks and landowners and farmers that have shown an interest in the topic, and do for example testing of new technologies and sampling to create datasets and assist farmers in gaining knowledge on how their soil is and how it can be improved.

