



Protecting soil organic carbon in Poland

Soil organic carbon (SOC) is the amount of carbon stored in the soil. SOC releases nutrients for plant growth, enhances the health of soil and acts as a barrier against harmful substances. SOC is being threatened due to the intensification of cropping systems, higher temperatures and changes in rainfall, amongst other aspects. Tillage is one of the main factors contributing to the loss of SOC. However, many farms are now integrating practices that can protect the soil and increase soil organic carbon, helping not only to mitigate climate change but also to improve soil health, structure and fertility and therefore yields.



Protecting soils and increasing soil organic carbon is currently a particularly important topic for government agricultural advisory services in Poland. Much of the country's soil is medium-quality with low fertility. Improving the quality of soil is an important element of the work of agricultural advisers, and their joint effort together with farmers and scientists results in the dissemination of tools and measures aimed at enriching the soil with organic matter.

Mateusz Sekowski is an adviser in Poland and he is very involved in agri-environmental projects. On a daily basis, he works with advisers and farmers in the field to improve environmental issues in agricultural holdings and help them meet the required environmental standards.

Mateusz has been working with Wieslaw Gryn, a farmer in Rogów (south-eastern Poland). Wieslaw has been developing and applying practices on his farm which protect SOC since 2006, in particular he has been using strip-till technology. "I met Mr. Gryn at one of the workshops organised on his farm," Mateusz says, "He was presenting his innovative practices for improving the soil structure. I saw so many earthworms!"



Wieslaw Gryn - farmer

Wieslaw`s farm is an arable farm producing wheat, canola, corn, soybeans covering an area of 280 ha. He often cooperates with agricultural advisory units and the visits of farmers, advisers and scientists in his fields is becoming, more and more, a daily activity.

"I try to farm according to good agricultural practice. 13 years ago I decided to stop ploughing, and limited the number of treatments and the yields have not decreased, in fact they are more stable because the organic matter in the soil has increased." Wieslaw explains. Before, when they were still ploughing the traditional way, they

noticed that earthworms were disappearing and soil life was being destroyed, "The balance of organic matter in the field can be recovered very quickly. On our farm, we now have 2-3 tons of earthworms per hectare. They produce 1-2 tons of coprolite (manure from earthworms) every day."

Strip-till technology

The idea of reduced tillage emerged on Wieslaw's farm out of necessity. His soils are not of a high quality and they are mainly loess, "Loess soils erode easily," says Wieslaw, "we also have fields in hilly areas, which is why we need to prevent soil erosion."

Wieslaw uses strip-till technology, he was inspired after visiting the USA where strip-till machines were used for sowing maize. In strip-till, alternating strips of the field are cultivated, therefore this reduces tillage. Wieslaw explains "With the strip-till cultivation, our soil can retain more water and most of the carbon is accumulated, while we do not destroy the soil structure." Run-off in the hilly areas has been reduced "Even after the violent downpours that often occur in the summer months, there is no run-off from our fields." The cultivation technique is also beneficial from a management perspective "It minimises fuel consumption, reduces workloads and reduces the involvement of multiple machines and the entire crop management is usually reduced to one passage during which the soil is cultivated, fertilised and sown, this also reduces the amount of fertilisers."

Mateusz Sekowski has been an expert in several EIP-AGRI Focus Groups including '[Moving from source to sink in arable farming](#)'.