

Soil Carbon Project Farmer Workshop

Woodland Valley Farm, Ladock, TR2 4PT – Wednesday 13th February 2019, 10:30 – 14:30

It was great to see so many enthusiastic project farmers get together at Woodland Valley Farm (thank you to Chris and Columb for hosting) to discuss how the Soil Carbon Project is progressing and the importance of soil health in general.

Cashing in on Carbon

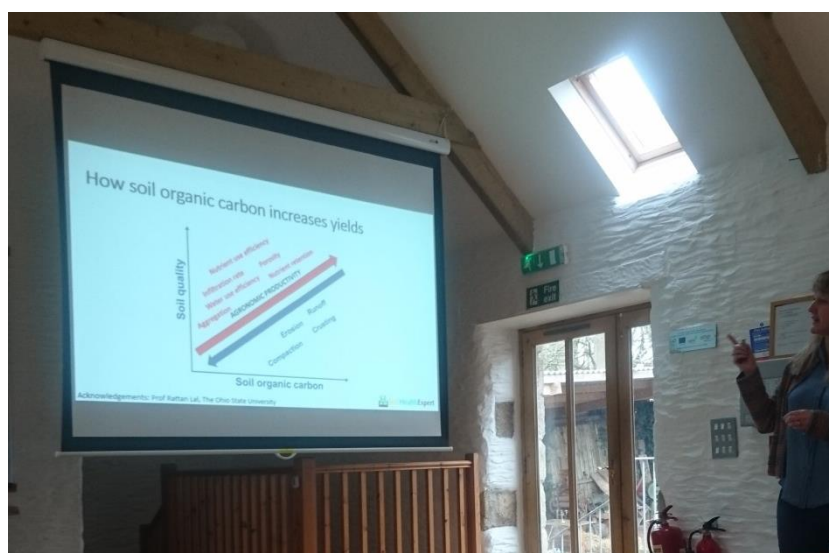
After a quick reminder of what the project is about, we had a fascinating talk from Dr. Jenni Dungait, a leading Soil Health and Carbon Expert. The talk “Cashing in on Carbon” summarised Jenni’s research on how soil carbon can improve soil quality and yield of crops and livestock.

We also heard Jenni’s thoughts on the potential for “carbon credit” payments to farmers as part of a future government payment scheme; Jenni drove home the point that agriculture is the only industry capable of locking up carbon through the actions of plants growing in healthy soils.

Jenni also explained that soils can reach a saturation point where they no longer accumulate more carbon.

This prompted lots of discussions on

how to pay farmers to take up carbon without penalising those farmers who already have high levels of soil carbon. We decided that it was important to include payments to maintain soil carbon levels on land that is near saturation.



Soil Carbon Project – The Results So Far

Following Jenni’s talk, we heard from Becky Willson, project lead for the Soil Carbon Project. Becky summarised the findings of Year 1 of the project, with apologies to the farmers who are still waiting on results, perhaps 4000 bags of soil was a little overwhelming for the lab!

Becky showed us that the majority of samples from the project were above the recommended 3% organic matter (OM) level, with the average result at 9.16% (although once the peaty Fenland soil results were removed, the project average across all depths came down to 7.7%) and soil OM% decreasing with depth. The results were then separated into different field types (arable, horticulture, grass ley, permanent pasture); this showed that permanent pasture had the highest



OM% and arable the lowest. Similar results were found for soil carbon yield (in tonnes/hectare); with permanent pasture holding the most carbon and arable the least.

Next, Becky showed us the results from the proxy tests (worm counts, soil structure, infiltration and aggregate stability) and highlighted areas where each field type was scoring highest. Horticultural fields had the best VESS (soil structure) scores and infiltration rates, suggesting a link between the two. Arable fields had the highest number of worms per soil pit, although this may be due to the majority of the arable fields being sampled in the spring when weather and soil conditions were more worm-friendly. Permanent pasture fields had the best aggregate stability scores, there may be a relationship here with organic matter and soil carbon. A more detailed summary of the Year 1 results (to date) can be found in the attached presentation. Once the first year analysis is completed, the analysis will be completed on the full data set.

In-Field Variation – North Wyke

Will Razey, from Rothamsted Research's North Wyke site, gave a presentation on the work he is carrying out through the Soil Carbon project looking at in-field variability of soil organic matter and how to design the best sampling method to take account of this variation. .

Some of you will have had Will visiting to conduct his grid sampling and he explained how he is using the results to test different sampling designs. Will explained that more variable fields require more detailed sampling than the conventional 'W' shape to get a representative result. It is therefore important to consider field history and how this could have affected the soil (for example if the field has previously been managed as separate fields, or whether hedges have been removed) when thinking of sampling for SOM and carbon.

Discussions

Following a delicious lunch, we moved into more detailed discussions around three main topics regarding the Soil Carbon Project and any potential changes for year two.

First, there were discussions about the field sampling methods and whether farmers would be keen to conduct their own soil tests, or if they should be carried out by government agencies or private companies. There was a consensus in the room that independent professionals would be well placed to carry out the testing; this would ensure sampling methods are consistent and would reduce the feeling of government regulators "checking up" on farming practices. It could also avoid the risk of people "cheating" their results, particularly if there is the potential for payments for soil carbon sequestration.

There was a desire for a new "soil health professional" to work independently, assessing soil health and offering advice and solutions based on soil test results. It was agreed that this would require more labs to cope with the increase in soil samples and the point was raised that if all farms and fields were tested, the workload may prove challenging. It was suggested that farms could be



baselined then sampled less frequently, with the proxy tests used to assess soil health more regularly.

This brought us on to what proxy measures we should be using and which are the most valuable in terms of assessing soil health. Some suggestions of extra proxy tests included the sniff test (although care is needed with Health and Safety impacts) to identify healthy-smelling soils, worm classification, counting earthworm casts on the soil surface and a VESS Plus score to include root structure and health. There was a consensus that farmers were happy to do these tests as a way of getting to know their farm soils better, and there was a desire to assess some of the proxy measures more regularly to avoid seasonal variations.

Interesting discussions ensued around the link between what soil tests and assessments are being taken and the questions that are being asked. It is important to determine what questions need to be answered and then designing a sampling strategy that answers the question. It may well be that some of the simple tests carried out using a spade are the most accurate!

Finally, the soil report layout was discussed and whether they are clear and easy to understand. There was a consensus that the tests need to be explained better which will be actioned by the project team, including producing a sampling guide with explanations of what the tests mean. Most of you had confidence in the results, but wanted more data to see changes over the years. There were discussions about whether two years is enough time to see changes in soil carbon and decided that ideally we would test over a longer timeframe to get more information on change. Commonly soil tests take place for organic matter every five years and there is an opportunity to see if continuation funding can be sought for the project to carry on the good work.

Thank you to everyone who came along and contributed and here's to a good second year of the project.

