

NE Organic Discussion Group

Newsletter



April 2021

Welcome to the April edition of the Newsletter. Everyone has been busy with spring work and now that we have had some rain we could do with some heat.

As I intimated last month it still is not too late to make suggestions of organic farms you would like to visit but never had the opportunity. I will start the organising in the second half of May. The tour of Barnside, Duns hosted by Charley and Andrea Walker was very successful last year. Online presents an ideal opportunity to see somewhere we could never go for an actual visit in a half day.

Soil Health and Conservation Agriculture

Conservation agriculture is very topical at the moment and below is an article written by Dr Jacqueline Stroud, SRUC based at Craibstone.

What is conservation agriculture and why is it important?

Conservation agriculture is a farmer-led and farmer-spread soil management system. In the UK it is spread principally through Twitter with 1 in 14 farmers experimenting in this soils conservation system. The origins can be traced back to the USA. Farmers campaigned for help with soils management to mitigate soil erosion issues. Public science-farmer partnership led to the three principles of conservation agriculture:

- 1) Minimum soil disturbance e.g. no-tillage AND,
- 2) Keep the soil covered e.g. plant residues, undersowing AND,
- 3) Diverse rotations.

Journey into soil conservation

The journey typically begins by benchmarking the costs of crop establishment. Tillage is expensive. Hence, people begin by experimenting in tillage reduction – such as strips of direct drilled cereals. The next step is learning how to do things better so people join networks to collect ideas to adapt. Benchmarking can evolve to informal games such as Whatsapp groups for ‘how low can you go’ fuel consumption competitions - in-field tweaks to machine settings which are shared and compared.

Reducing soil disturbance and keeping the soil covered changes the microclimate, habitat and food sources for organisms. A common change is an increase in earthworms, aggregate stability and water infiltration. This creates a sense of bringing the soil back to life and rebuilds a personal connection to nature. Thus, although people tend to start the journey from an economic perspective, the changes in soil qualities and community networks can sustain its adoption. For example, in South America, conservation agriculture farmers formed ‘worm clubs’ - adopting the earthworm as their farm club emblem.

Top tips for experimenting with (soil) conservation agriculture

There are several low disturbance seed drills available in the UK. I found the practical demonstrations at GroundswellAg useful to narrow down what would work for my field experiments. Key features to consider are: tine or disc (least soil disturbance), seed slot closure mechanisms and the type of press wheels.

In terms of planning the experiment, are you going to keep the insect, weed, disease and fertilisation treatments the same? If your system has been optimised for tillage, then calendar applications may not be as informative as a more flexible approach geared towards monitoring pest and disease pressures to inform specific actions.

For the on-site drill demonstration, just before drilling it is useful to measure, note and photograph the following soil and surface features: soil water content and temperature (if possible, aggregate stability, drainage status and presence of compaction layer), plus surface plant residue amount and distribution (including whether combine or stripper header which influences residue behaviours).

Post-drilling you'll need a trowel and tape measure to assess the uniformity of seed spacing and depth of placement (check for hair-pinning of crop residue and compaction above the seed), % of soil disturbed, % soil residues remaining after seeding, and slot closure. Inexperience in using these new machines, for example, drilling in wet soil conditions can lead to common problems such as open slots and hair-pinning of crop residues.

The obvious problem no one likes to discuss: pesticide dependence

Avoiding difficult topics means associated problems are overlooked – the massive decline in farmers ecological literacy. The average contemporary farmer can accurately identify just 2 pests and 0.5 – 0.9 pest-killing organisms and/or beneficials per crop. How many can you identify?

This is a barrier to developing sophisticated experiments and new practices. For example, the (tillage sensitive) earthworm *Lumbricus terrestris* can bio-control *Fusarium* spp., with economists calculating this species has an agronomic value of £66 per hectare in fuel and pesticide savings.

Hype Vs reality: environmental credentials

Soil is a non-renewable resource, so the adoption of (soil) conservation agriculture is the foundation of an ecologically rational farming system. In reality; there are examples of implementation failures – including whole farmer networks perceiving they have adopted conservation agriculture but routinely ploughing the soil because they misunderstood.

It is a locally adapted system – which makes it difficult to generalise on its contribution to the latest environmental policy fad. The reality is that the sustainability and environmental benefits are dependent on the quality of information in the network, and objective feedback on these experiments. Conservation agriculture thrives when advisors, scientists and engineers help to create locally adapted knowledge and tools to support on-farm experiments.

Measurable changes include earthworms because they are tillage sensitive organisms. My surveys in 2018 – 2019 found 3/10 ploughed fields compared to 6/10 conservation agriculture fields have all three ecological groups (epigeic, endogeic and anecic) of worms. The epigeic and anecic earthworms are tillage sensitive. They influence surface litter breakdown rates, whilst deep vertical burrows influence rooting depth and water infiltration. If there is enough interest, we can run another survey this Spring.



Actions this spring:

- 1) Benchmark crop establishment costs (e.g. AHDB Farmbench tool)
- 2) Experiment with direct drilling
- 3) Try out undersowing or growing a green manure
- 4) Join a soil conservation network to see others' experiments
- 5) Get in contact with your local SAC Consulting office if you'd like to take part in a 60-minute earthworm survey

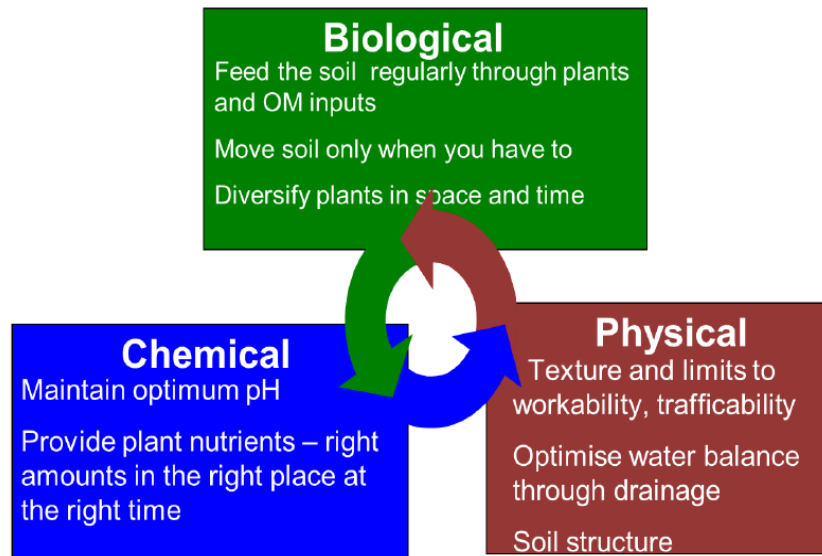
If you are interested in benchmarking your crop costs, SAC Consulting is facilitating AHDB Farmbench groups throughout Scotland – Contact your local office for details. For more details on Conservation Agriculture, please look at the Farming for a Better Climate website (<https://www.farmingforabetterclimate.org>) for details about the soil regenerative group in Angus.

Dr Jacqueline Stroud

As you will all know soil health is very important especially in organic systems and one aspect is soil biology. The Scottish Farm Advisory site has numerous resources including the Valuing your soils booklet and TN721: Soil Biodiversity and Soil Health, and is worth a look [Soils resources for farmers from Farm Advisory Service](#)

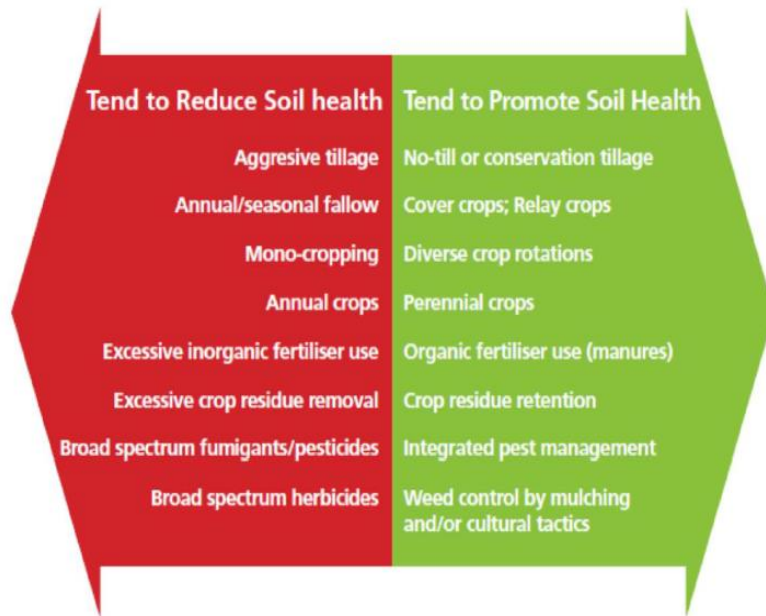
There was a FAS meeting on 17 November 2020 on Organic Farming and Soil Health. During this meeting Paul Hargreaves gave a presentation on Soil Biology: and its importance as an indicator of soil health. I have copied a few of his slides below but if you would like a copy of his full presentation or to know more about the identification of different worm types or how to carry out a worm count please get in touch.

Components of Soil Health



Stockdale et al, 2017, Food and Energy Security

Management Practices



No 'one size fits all' due to varying soil type, agricultural system and climate

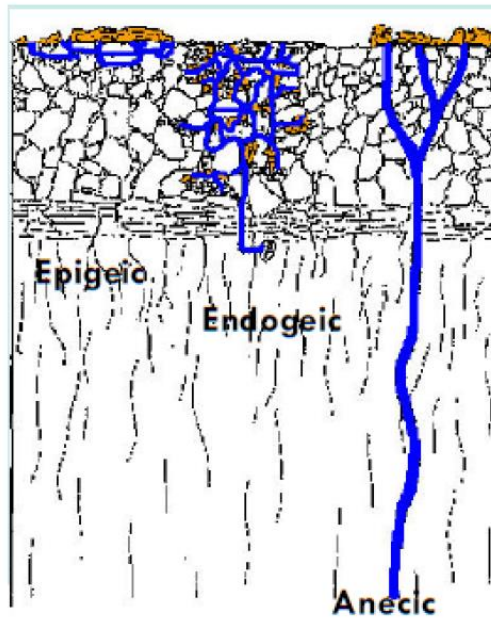
Earthworms



Can be very good indicator of soil quality as:

- they do not move very far (10 metres)
- can live for up to 10 years
- exposed to soil changes – pH, waterlogging, compaction, organic matter

Earthworms



Modified from Fraser and Boag 1998



The European Union and
the Rural Development
Europe Investing in Rural Areas

Three main types:

Litter Feeders (Epigeic) – found close to the soil surface or in the litter layer

Shallow Burrowers (Endogeic) – found in extensive borrows close to the soil surface and feed on organic material

Deep Burrowers (Anecic) – more vertical borrows and mix mineral soil with organic material from the surface

Summary



- Living soil is important for crop yield and quality
- Organisms can be an indicator of soil health
- Earthworms are identifiable
- Earthworms respond to soil conditions



You might also like to watch this video on soil health tests or listen to the podcast.

YouTube link [here](#)

QMS Podcast: [Soil Health](#). Emily Grant from Forrit (Farming and Consultancy) on the Rock On Soils project, with Alex Brewster. Rock On Soils was a nine-month farm innovation project funded through the EU and ScotGov via KTIF.

Help for New Entrants

New farmers, crofters or those who have set up their business in the last five years, are entitled to [free support through the FAS mentoring programme](#)

Events

READ > Balcaskie Estate on going organic

With [AECS](#) currently open in Scotland, Soil Association Certification spoke to **Sam Parsons**, farm manager at **Balcaskie estate**, who has recently converted the farm to organic. [He shares his learnings and advice](#) on making key production changes to improve efficiency, economics and nutrients.

EVENT > [Learnings from New Zealand](#), Wednesday 5 May, 8–9.30pm

Learn about **diverse forages and dynamic grazing management** from John King and farmers from New Zealand and share experience on holistic and dynamic grazing techniques. A #FABulousFarmers SW Herbal Leys Learning Network session.



Woodland creation for business resilience
How trees can help farm management and add income
Thursday 20 May, 11am–12.30pm. Online event

Join us to learn how farmer Colin Lowrie of Blegbie Farm, East Lothian is using woodland creation as part of his mixed farm's toolkit to diversify activities and income streams. In this webinar Colin will be joined by Virginia Harden Scott of Scottish Forestry and Andrew Baker, UK Woodland Carbon Code Markets Advisor, to discuss:

- Colin's experience: benefits and challenges of planting trees for farm management, e.g. adding value to unproductive land; managing new and old woodland (20 hectares added in 2018 –2019); his experience with Scottish Forestry grants and support; future plans
- Basics of timber markets and demand
- Funding for woodland creation
- The UK Woodland Carbon Code
- Your questions.

FREE and open to crofters, farmers, land managers and foresters. Booking is required.

Book online

For more information contact Ana on 0793 082 4983
(aallamand@soilassociation.org)

This event has been developed in partnership with Scottish Forestry



Links to a couple of Information Notes which might be of interest if you are interested in farm woodland can be found below. If you would like any further information or advice please get in touch.

[Farm Woodland Information Note: Basic Advice about accessing the Forestry Grant Scheme for Woodland Creation](#)

<https://www.fas.scot/downloads/woodland-creation-and-carbon-sales/>

Organic Research Centre

April's 40th anniversary theme is pasture, leys and soil health.

May's 40th anniversary theme is health and sustainable food systems.

Please also remember you can follow all our 40th anniversary updates on our [Facebook](#), [Twitter](#) and [LinkedIn](#) pages.

#40organic #sustainableresearch #exploreorganic #ORC40

[40th anniversary communication hub](#)