Arable

Roadmap to Net Zero

FARM NET ZERO

Soil 101:

- Soil Testing
- Measuring and Assessing Soil Carbon
- Earthworms
- The importance of managing soil pH
- Soil Compaction
- Joel Williams at Prideaux

Hedges:

- Hedgerows for carbon capture
- Hedges, a win-win

Cover Cropping:

- Cover crops
- Outwintering on forage/cover crops
- Grazed winter cover crops
- Trial: Overwinter grazing at Ennis Barton, Blable and Tregooden Farms

Min Till:

- Maize and soil health: how it adds up
- Maize: maximising soil health and crop yield

Reduced Nitrogen Use:

- Reducing Nitrogen Usage in Crop Production
- Best Practice for Fertiliser Use Efficiency
- Getting Started with Foliar Feed
- Foliar Fertiliser with Tow & Fert

Reduced Chemical Inputs:

- Diversity and Efficiency – the Journey at Pensipple
- Wheat: alternative options for the control of Septoria
- Population wheat

Illustrations by Alex Bebbington

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Arable emissions come mainly from fuel and inputs (artificial fertiliser and sprays). Over five years, the Farm Net Zero (FNZ) project has produced a range of resources to help understand methods to reduce emissions and increase sequestration. These resources are listed below and include factsheets from trials and reports from on-farm events, collated into practical on-farm actions.

Start with the soil

- Soil Testing identifies the distribution of nutrients across a farm, allowing for targeted applications of fertilisers.
- Measuring and Assessing Soil Carbon creates an understanding of existing carbon stocks on farm. Increasing soil carbon content can offset emissions.
- Earthworms are an important part of a healthy farm ecosystem, cycling nutrients and aerating soil.
- The importance of managing soil pH is a vital part of reducing emissions from artificial fertiliser. Incorrect soil pH disrupts fertiliser efficiency, creating a waste of resources, money and emissions.
- Soil Compaction affects crop productivity and can require the use of excess fuel to remediate issues and fertiliser to boost productivity.
- Joel Williams at Prideaux provided a valuable insight into the process of soil carbon cycling and storage.

Grow hedges thicker and taller:

- Hedgerows for carbon capture are an important feature of the farmed landscape, as well as having major biodiversity benefits.
- "Hedges, a win-win" reports on an event held on a FNZ farm where they manage their hedgerows to increase biodiversity and carbon capture.

Use cover crops to protect the soil:

- Cover crops protect soil from erosion and compaction between cash crops. The living roots can also help to maintain carbon inputs into the soil.
- Outwintering on forage/cover crops integrates livestock into arable. With appropriate management, this can boost soil nutrient cycling.
- Grazed winter cover crops can include a range of plant species. This factsheet details which species grew best on Cornish farms.
- "Trial: Overwinter grazing at Ennis Barton, Blable and Tregooden Farms" details the results of trialling cover crops for outwintering cattle and the effect on soil health on three FNZ farms.

Use minimum tillage to establish crops where possible:

- "Maize and soil health: how it adds up" summarises a trial by FNZ monitor farmers on reducing tillage in maize production and subsequent crops. Reduced tillage led to lower fuel use, with associated emissions reductions, and protected soil carbon from disturbance.
- "Maize: maximising soil health and crop yield" highlights the benefits of reduced tillage and interrow cover crops in maize production.

Reduce artificial nitrogen fertiliser use:

- Reducing Nitrogen Usage in Crop Production is a key part of reducing the farm's carbon footprint, as artificial nitrogen has a high carbon footprint.
- "Best Practice for Fertiliser Use Efficiency" explains the benefits of optimising fertiliser application to mitigate any negative environmental effects.
- Getting Started with Foliar Feed can help to reduce the use of high emissions artificial fertiliser.
- Foliar Fertiliser with Tow & Fert is one method of applying liquid inputs to both arable and grass crops

Reduce chemical inputs:

- "Diversity and Efficiency – the Journey at Pensipple" details the steps that one FNZ farm is taking to reduce the footprint of wheat production.
- "Wheat: alternative options for the control of Septoria" provides more information on the Septoria trial at Pensipple.
- Population wheat can be one method of boosting the resilience of wheat crops, reducing their chemical inputs.