



Regenerative Farming

Rory Lay on how farming practices can support climate and biodiversity

In January 2023, Market Drayton Climate Action hosted a talk on Regenerative Farming and Soil Health by farmer Rory Lay, from Wolverley near Wem in north Shropshire, who farms sheep, cattle and arable crops with his father.

Rory is part of a **Farmer Cluster** of nearly 50 farmers across north Shropshire who farm more than 5000 hectares in total. They share knowledge and experiences and encourage each other in ways of farming that provide 'public benefits' – such as carbon capture and flood/drought prevention – and help to counteract the climate and biodiversity crises.

Over a three-year period, the cluster has set up nine Agroforestry schemes, planted more than 5000 trees and shrubs, restored/created 24 ponds, restored/created 11 orchards, set up B-line habitats for insects, and generated baseline information about their land and habitats so that they can identify the effects of managing things differently.

Rory's **family farm** has received subsidies and been involved in environmental schemes for 25 years for farming their 440 hectares in ways which minimise damage to habitats and wildlife. His overall aim now, through regenerative farming, is to achieve healthy soils → to grow healthy plants → to raise healthy animals → to feed people healthy food.

Here are the five principles of Regenerative agriculture Rory uses:

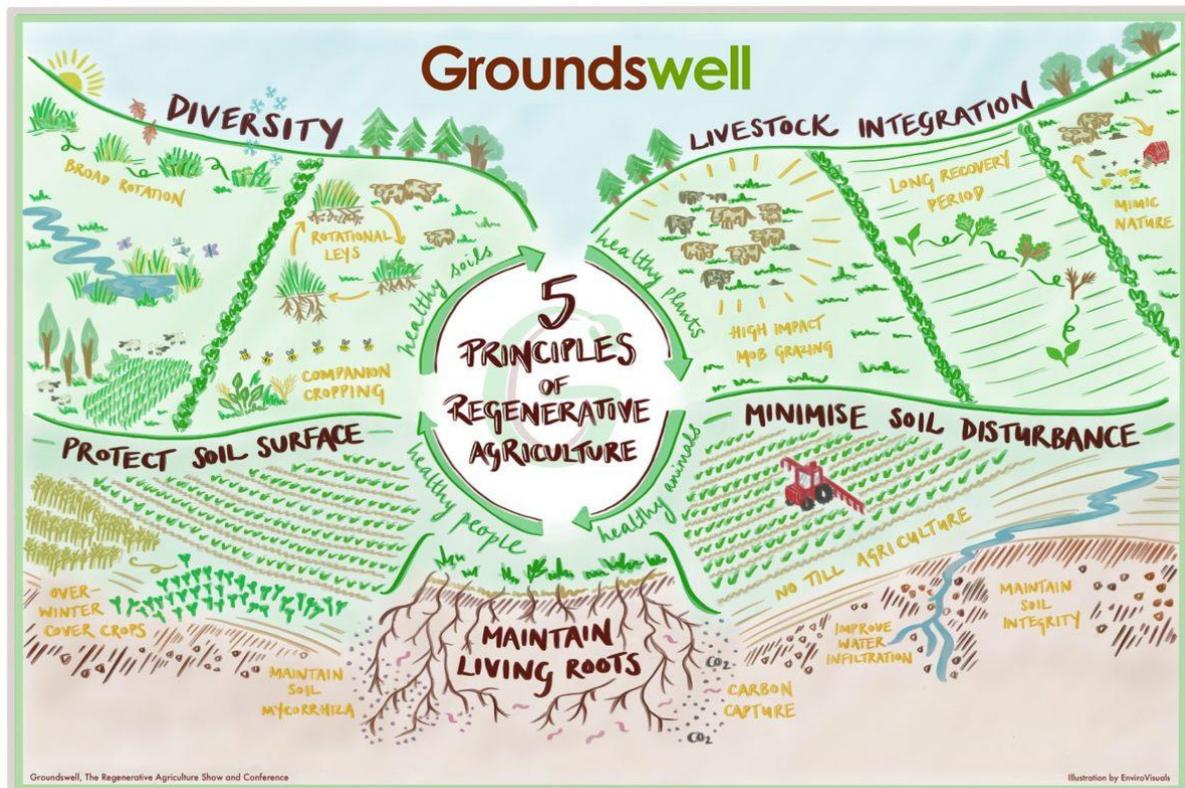


Image: Groundswell, The Regenerative Agriculture Show and Conference

For example, Rory:

- Uses a strip till drill to sow seeds, which cultivates only a narrow channel in which the seed is planted; leaving the rest of the soil/roots/soil life undisturbed.
- Sows crop mixes specifically for ground cover and deep rooting to protect the soil surface and to build soil structure and support mycorrhizal fungi.
- Grows buckwheat with other plants to share nutrients.
- Adds molasses and amino acids into nutrient sprays to help deliver the nutrients into crop leaves more efficiently.
- Ferments the straw bedding in the cattle shed using Bokashi; 'pre-digesting' the manure and markedly reducing the smell of ammonia.
- Produces an improved manure via this 'fermentation' method which makes virtually all matter usable rather than being lost to the air or by leaching.
- Is trialling the Johnson-Su method of creating a super-concentrated compost to be applied with the seeds via the strip till at sowing time.
- Carries out studies of wildlife on the farm, in conjunction with scientists, e.g. to understand carabid beetle habits and dung beetle prevalence.
- Collaborates in bird recording and surveys, including at night, to understand bird behaviours, e.g. of snipe, woodcock and fieldfares.
- Grows leguminous crops with wheat to reduce the amount of additional nitrogen fertiliser needed.
- Applies fertiliser and weed killer only according to specific need and sows extra seed in parts of fields known to be susceptible to slugs.
- Reduces the susceptibility of his wheat crop to Septoria fungus by growing multiple wheat varieties together.

Land use for grazing and animal feed crops

Weather has the biggest influence on disease levels so, here in the wetter west of England, Rory's farm is more suited to growing wheat for animal feed rather than the milling wheat used for human consumption. Milling wheat grows better in the drier east of England, typically requires more fertiliser and fungicide to grow it (costing more) and has strict quality requirements which are hard to meet. Therefore 90% of Rory's wheat is used for animal feed and 10% is used to make bioethanol.

North Shropshire weather is excellent for growing grass for animal grazing, so Rory aims for the best use of the farm by having a mix of arable crops and livestock and through building soil health to reduce the need for chemical inputs. Minimising soil disturbance and maintaining ground cover helps to maintain living roots and soil structures and supports soil organisms that remove carbon from the atmosphere.



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Carbon counting for farms is not yet common, because it can be very time consuming, needing detailed information accounting for each litre of fuel used, and the age, sex and food consumption of each animal.

Farm carbon calculation tools have different features and requirements, but using the Scottish Rural University and College assessment, AgreCalc, **Rory's mitigation efforts put him in the top 25%** of lowest emitting farms in the country. The highest carbon emissions on his farm come from enteric fermentation from the cattle and the nitrogen fertiliser used in growing wheat, but his farm already meets many of the requirements of the Environment and Land Management (ELM) schemes the government is launching in 2024.

Given that **agriculture is directly and indirectly responsible for approximately one quarter of all the world's greenhouse gas emissions** and is a significant land use in Shropshire (10% higher than across England), Rory's efforts and those of the whole Farmer Cluster to capture carbon and reduce farm greenhouse gas emissions will help our county towards its 2030 net zero target.

Market Drayton Climate Action's advocacy of regenerative farming supports our commitment to the Shropshire Good Food Partnership Pledge.

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