

Regenerative Agriculture: Keeping soil covered

Practical Guide



Regenerative Agriculture is a set of farm management principles which put soil health at the centre of agriculture practice. This approach has many benefits including 'ecosystem services' such as water filtration, nutrient cycling and increased biodiversity. It can also boost the soil food web. The soil food web refers to the complex relationship between the diverse groups of fauna and flora that is found in soil. A healthy soil web can contribute towards:

- Decomposition of organic matter
- Improved nutrient cycling
- Retention of nutrients
- Bioturbation (the movement of gases and water into and through the soil)
- Disease suppression
- Toxin decomposition

This Practical Guide looks at the fourth principle of regenerative farming: Keeping soil covered

Keeping the soil covered has many benefits including protecting the soil from erosion caused by heavy rain and wind or preventing the soil from drying out in a drought. Often in Scotland the soil is left bare throughout the winter months, between harvest and sowing of the following spring crop.



Reducing soil erosion risks

Keeping the soil covered can be achieved in a number of different ways, from creating a mat of dead plant material from crop residue such as straw or by sowing a cover crop to protect the soil.

Cover crops are non-cash crops that are grown between two cash crops. The primary purpose of the cover crops is to provide cover for the soil surface, acting as a shield and enrich the soil. There are two different cover cropping options, depending on your requirements:

- **Short-term mixes:** faster growing species such as radish, mustard, phacelia, buckwheat and linseed
- **Over-winter mixes:** Winter rye, spring oats, winter vetch, linseed, buckwheat or stubble turnips

Five Principles of Regenerative Agriculture:

1. Maintaining a living root
2. Minimising soil disturbance
3. Maximising crop diversity
- 4. Keeping soil covered**
5. Integrating livestock

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Websites

www.farmingforabetterclimate.org

See also:

[Soil Regenerative Agriculture Group - Farming for a Better Climate](#)

[Valuing your soils | CREW | Scotland's Centre of Expertise for Waters](#)

[Home | Scotland's soils \(environment.gov.scot\)](#)



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	Brassicas	Legumes	Grasses/cereals
Example species	Mustards, radishes, turnips	Vetch, clovers, beans	Oats, rye, rye-grass
Benefits	Grow rapidly in the autumn. Establishment systems tend to fit with farm equipment.	Fix nitrogen. Amount of nitrogen fixed depends on species, growth and temperature.	Can deliver good early ground cover. Vigorous rooting. Good at mopping up left over nutrients.
Characteristics	Autumn sown brassicas can provide good ground cover and deep rooting. This can mitigate leaching risks and improve soil structure.	As well as nitrogen fixing, legume roots can help to improve soil structure, depending on species, field condition and duration in the ground.	For autumn sowing, species can establish quickly, and some offer a wider range of sowing times.
Sowing	Often late-summer or early autumn sown. Small seeds can be broadcast.	Tend to be slower growing than brassicas, and need to be sown earlier (late July-August) to maximise growth and promote nitrogen fixation	Sowing times vary depending on species. From July to October
Considerations	Establishment is critical for growth. Potential rotational conflicts.	Potential rotational conflicts.	Potential green bridge. Can potentially become a volunteer in following crop.

Benefits of cover crops:

Different cover crops have different properties, so it is important to select the appropriate cover crop or mix suited to your own farming system and objectives. Cover crop choice depends on the farming practices, soil type and the equipment available.

Cover crops can be used to meet the requirement for Ecological Focus Areas (EFA) or for Agri environmental schemes. Cover crop costs can vary depending on the species and mix chosen. The costs and benefits of growing a cover crop should be considered, looking at the following crop and through the whole rotation.

The rotation on the farm should be considered before choosing any cover crops. For example, potential clubroot problems could be seen in rotations where vegetable brassicas or oilseed rape are included. Careful selection and management of cover crops and rotations can help to minimise and manage any rotational conflict. Cover crops can:

- Stabilise and reduce soil erosion
- Remove compaction and improve soil structure
- Increase soil biology
- Used as extra livestock feed
- Reduce overall cultivation costs through increased soil biological activity
- Help to control weeds
- Be sown to meet Ecological Focus Area (EFA or Agri-Environment requirements)
- Create habitat for wild birds, small mammals and insects during the winter.



Cover cropping is one of the topics the Soil Regenerative Agriculture Group have explored in more detail as part of their work with Farming for a Better Climate. Take a look at the groups findings at [Soil Regenerative Agriculture Group - Farming for a Better Climate](#)