Essex Rivers Hub

www.essexrivershub.org.uk

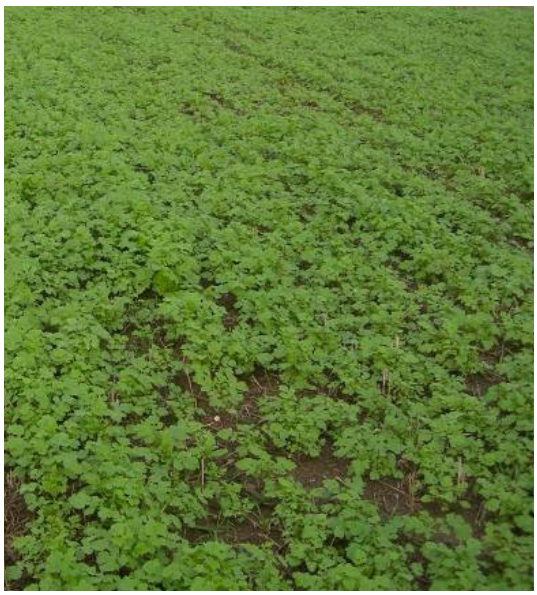
Winter cover crops

TECHNICAL INFORMATION NOTE

May 2014

Summary

The use of cover crops is not a new technique, having been around since before the Romans. However, with more extreme weather patterns, a much greater emphasis on soil and water protection and farmers looking to extend rotations it is likely that cover crops, once again, will have an increasingly important role to play.



Types of cover crop

- Cereals (e.g. winter barley, winter rye)
- Legumes (e.g. clover, vetches)
- Brassicas (e.g. OSR, mustard, radish)
- Forage turnips (e.g. in stubble)
- Phacelia
- Buckwheat

Advantages of cover crops

- **Soil structure benefit**. Improving the soil structure by increasing levels of soil organic matter and earthworm activity. Also an increase in aeration and water-holding capacity which benefits root development and increased windows of work.
- **Minimised erosion and nutrient losses**. Cover crops can significantly reduce the risk of run-off, erosion and loss of topsoil and nutrients (N, P).
- **Reduced risk of surface water pollution.** The main route for phosphate to enter a watercourse is by soil run-off. Cover crops can therefore considerably reduce surface water pollution.
- **Nitrogen retention & reduced nitrate leaching**. Nitrate is highly soluble and is readily leached through the soil profile. Cover crops can take up 30-50 kg N/ha which would otherwise be leached over winter. Some cover crop N can be available to the following spring crop and the remaining cover crop N is released slowly from the increased soil organic matter reserves.
- **Over winter ground cover helps suppress weed growth.** Rapid germination and fast growth from plants such as oil radish and mustard can suppress weed seed germination and growth and stabilise the soil.
- **Biofumigation potential**. Mustard (in particular) contains glucosinolates which can be deadly to weeds, soil-borne pathogens and nematodes. When they are rolled or disced, cells are broken and release glucosinolates. They combine with a naturally occurring enzyme and water, producing a fumigant.
- **Fix additional atmospheric N.** Some species (such as clovers and vetches) can fix additional atmospheric nitrogen.
- **Improved wildlife habitat.** Cover crops help to improve wildlife on the farm. They provide a habitat for many different species above ground (including natural pest predators) and also help improve the activity of microbes in the soil.

On farm practicalities

- Decide what you want to achieve and what is right for your farm. Different cover crops have different attributes so seek advice on the best cover crop mixes.
- Consider where it fits into the rotation.
- Cover crops are typically sown in the autumn, left for 4-5 months and then destroyed while green.
- Early establishment is critical. Establishment needs to be as close behind the previous crop as possible. Legumes in particular like a warm soil and getting them growing quickly will help them to fix more nitrogen.
- Destroy after mid-Dec but before end Feb (to discourage seeding and promote rapid N release).
- No fertiliser or manure is applied.
- There is potential to include cover crops in an existing ELS agreement (seek advice from FWAG East on how to go about this).
- Use seed from a trusted source.

Choosing a cover crop

- For reducing nitrogen losses a fast-growing leafy crop such as forage rye or rape might be useful.
- If nitrogen fixation is important include a legume.
- If phosphorus levels are an issue, buckwheat might be considered. It can improve the availability of P from soil reserves as it is particularly effective at solubilising P.
- Deep-rooted plants such as chicory and lucerne may prove useful in improving trace element availability later in the rotation.
- Mixtures of species with different attributes can provide a range of useful benefits.

Autumn workshops

Through the Essex Rivers Hub several cover crop trial workshops will be held in the autumn so keep an eye out for invitations after harvest.

The Essex Rivers Hub is a partnership project that has been developed by the Essex Wildlife Trust and the Environment Agency. Other partners involved in the project include FWAG East, Chelmer & Blackwater Catchment Partnership, Essex & Suffolk Water, Dedham Vale & Stour Valley Project, Parish Councils and the Rural Communities Council for Essex (RCCE), Essex County Council and the Rivers Trust.