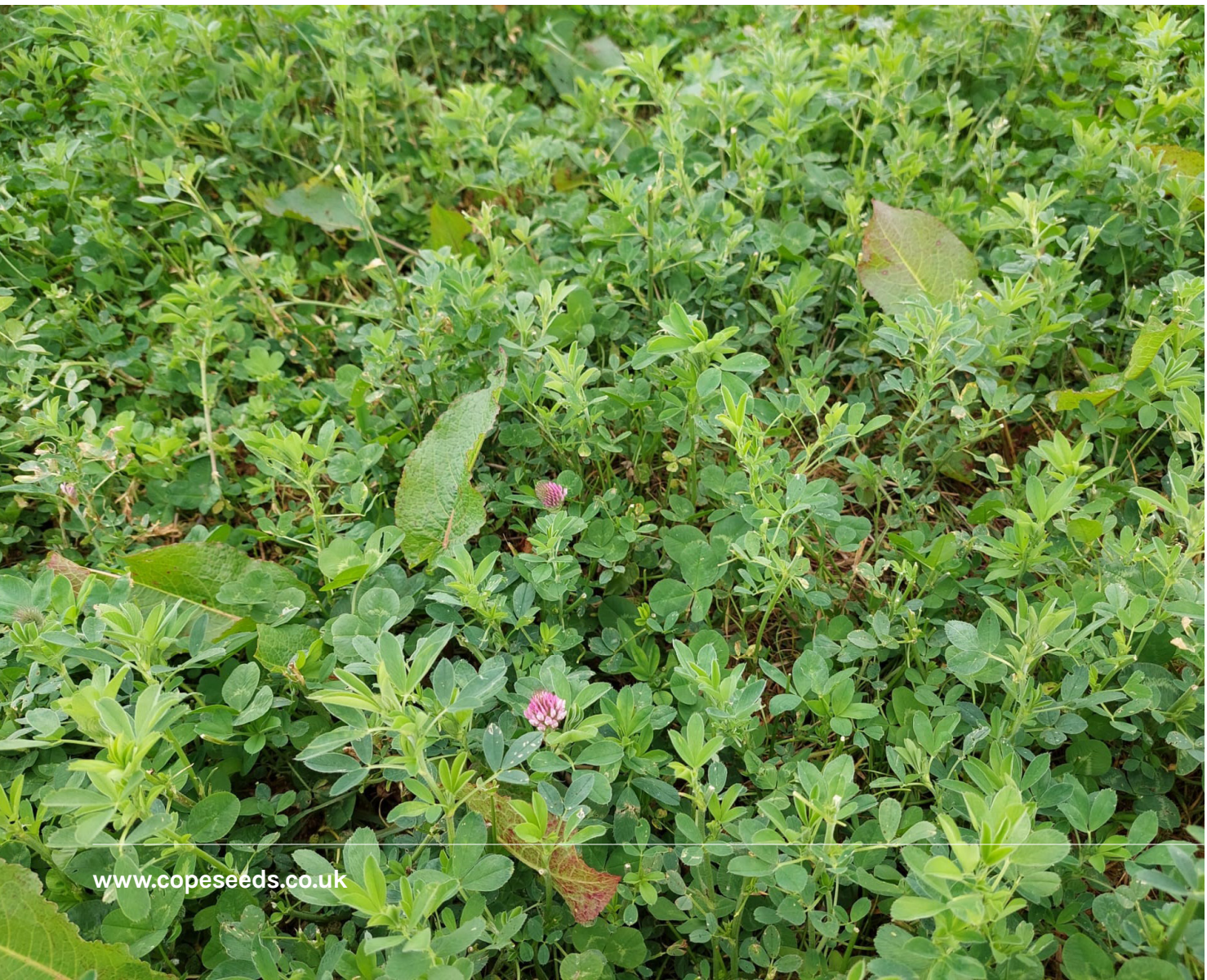
Cope
Seeds & Grain

# Cover Crops Brochure



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# What is a cover crop?

**A cover crop is a non-cash crop, grown primarily for the purpose of protecting or improving soils, between periods of regular crop production. Cover crops can be used repeatedly as part of a long-term strategy to improve soil quality, the build up of organic matter and provide other benefits such as the retention of nutrients.**

**The duration of the cover crop can vary from only a few weeks to several months or years, depending on the farming approach being adopted and the specific objectives to be achieved.**

**Cover crops return fresh organic material to the soil, which can increase the soil's physical characteristics and biological activity leading to benefits in soil structure, and potential reduction of erosion. Cover crops can deliver agronomic benefits; for example, cover crops can help to interrupt certain pest and disease life cycles or can be used as part of wider weed management strategies. Cover crops can also provide a wider habitat value and give rise to options for livestock and supplementary feeding opportunities for wildlife.**

**Good crop establishment and growth are important to maximise these benefits. As well as direct management of the cover crop, destruction and following-crop establishment should be considered.**

# Why use cover crops?

### —— BUILDING SOIL FERTILITY AND ORGANIC MATTER:

Cover crops can be used as green manures to add fresh organic material back to the soil. AHDB funded research has shown that this improves worm numbers and microbial activity. In the longer term, regular use of cover crops can raise soil organic matter content.

### —— IMPROVING SOIL STRUCTURE:

Any cover crop with a vigorous root system can help improve soil structure and if needed, open up soils, improving access to water and nutrients. Assessing soil structure helps select the right cover crop to address the underlying soil problems that you have. Cover crops can help retain & draw nitrogen into the system. Cover crop type and growth will influence how much nitrogen is captured and when it is released, but Soil Mineral Nitrogen tests have shown greater availability to following crops.

### —— REDUCING SOIL EROSION:

Cover crops provide ground cover during risk periods for soil erosion by wind and/or water. Defra-funded research showed that cover crops sown early post-harvest, reduce sediment loss from surface run-off over winter. As a general guide, once more than a third to half of ground is covered, there is a substantial reduction in run-off and erosion risks. Useful species mixtures for this objective are those that will grow rapidly in the autumn and provide good ground cover.

### —— WEED AND PEST MANAGEMENT:

Certain cover crops have high levels of glucosinolates which, when incorporated, can reduce and inhibit some soil pests such as nematodes in the following crops. Cover crops may outcompete weeds with some (eg: rye and oats) having a degree of allelopathic activity, thus reducing the weed burden. These effects, however, are small compared with the impacts of, for example, drilling date and cultivations.

## —— REDUCING NUTRIENT LOSS:

Defra funded research shows that the uptake of nitrate by cover crops before the onset of winter drainage reduces nitrate leaching and losses of nitrates, ammonium and nitrous oxide (a greenhouse gas). Another benefit is the reduction of soil run-off lessens the loss of phosphate attached to soil particles.

## —— IMPROVING WATER QUALITY:

Cover crops benefit the environment by reducing losses of sediment, nutrients and pesticides, which can impact on water quality and habitats. Losses are more likely to occur in autumn and winter when soil moisture and rainfall levels are high. Cover crops help prevent nitrate leaching through the soil profile into watercourses or groundwater as the nitrogen is taken up by the cover crop.

## —— CREATING HABITAT:

Cover cropping provides winter cover and a habitat for wild birds, small mammals and insects and grazing opportunities for wildlife. The generation of predator habitat afforded through cover crops could increase pest management strategies.

| SPECIES | SOWING PERIOD | INCORPORATION PERIOD | ROOT TYPE | NITROGEN HOLDER/FIXER |
|---|---|---|---|---|
| **White Mustard** | Spring-Early Autumn | 8 weeks from sowing | Fibrous Root system | Holder |
| **Brown Mustard** | Spring-Autumn | Autumn-Spring | Taproot | Holder |
| **Phacelia** | Spring-Summer | 10-12 weeks from sowing | Shallow & Fibrous | Holder |
| **Buckwheat** | Spring-Summer | Summer-Autumn | Shallow with good penetration | Holder |
| **Crimson Clover** | Spring | Summer-Autumn | Taproot with fibrous branched roots | Fixer |
| **Linseed** | Spring-Summer | Autumn-Winter | Taproot with fibrous branch roots | Holder |
| **Gold of Pleasure** | Spring-Autumn | Autumn-Spring | Taproot with branch roots | Holder |
| **Fodder Radish** | Summer-Autumn | Autumn-Spring | Deep Taproot | Holder |
| **Daikon Radish** | Summer-Autumn | Autumn-Spring | Deep Penetrating Taproot | Holder |
| **Berseem/Egyptian Clover** | Spring-Early Summer | Late Summer-Autumn | Taproot with fibrous root net-work | Fixer |
| **Black Oats** | Late Summer-Autumn | Winter-Early Spring | Fibrous Root System | Holder |
| **Winter Rye** | Late Summer-Autumn | Spring | Fibrous Root System | Holder |
| **Forage Rape** | Spring-Autumn | Autumn-Spring | Deep penetrating taproot | Holder |
| **Vetches** | Spring-Autumn | Winter-Early Spring | Taproot | Fixer |
| **Lucerne** | Spring-Early Autumn | Autumn-Spring | Very Deep Taproot | Fixer |
| **White Clover** | Spring-Early Autumn | Autumn-Spring | Creeping stolons with shallow roots | Fixer |
| **Red Clover** | Spring-Early Autumn | Autumn-Spring | Large Strong Taproot | Fixer |
| **Yellow Sweet Clover** | Spring | Summer-Autumn | Long Taproot | Fixer |

# Cover Crop & Green Manure Species Options

**Cover crops and green manures are important for building and maintaining soil fertility and structure, they can help with weed control and can be grazed. They're normally incorporated back into the soil, either directly, or after removal and composting.**

**Cover crops are best sown mid to late summer to achieve the best results. This is usually done after the combine and straw removal.**

## Buster Cover Mix

| | |
|---|---|
| **35%** | Buckwheat |
| **15%** | Linseed |
| **15%** | Daikon Radish |
| **12%** | Crimson Clover |
| **12%** | Fodder Radish |
| **6%** | Gold of Pleasure |
| **5%** | Phacelia |

— ABOUT

A mixture containing species with aggressive, deep roots that will help with difficult compacted soils and producing huge amounts of biomass. During the winter months this mixture can benefit the soil by providing vast quantities of Organic matter, prevent nutrients being lost and penetrate through compacted soil.

Sowing rate: 15-20 kilos per ha / Pack size: 25 kgs & 500kgs

## N-Liven Cover Mix

| | |
|---|---|
| **60%** | Winter Vetch |
| **20%** | Crimson Clover |
| **10%** | Linseed |
| **10%** | Phacelia |

— ABOUT

The primary role of this seed mix is Nitrogen fixation to boost soil fertility between main crops especially two cereal crops. The mix maintains cover well into late winter and provides a range of rooting depths for enhanced soil aeration and drainage. The mix could also be grazed as a means of removal rather than chemical or cultivation methods.

Sowing rate: 15 kilos per ha / Pack size: 25kgs

## N-Trap Cover Mix

| | |
|---|---|
| **65%** | Buckwheat |
| **35%** | Egyptian Clover |

Sowing rate: 10 kilos per ha / Pack size: 25kgs

— ABOUT

A combination of fast-growing species that act as an alternative food source and distraction to pests that prey on brassica crops. The canopy cover has the potential to slow the progress of flea beetle whilst fixing and releasing nitrogen to companion oilseed rape crops. The cover crop will die back over winter for ease of management.

# N-Rich Cover Mix

| | |
|---|---|
| **80%** | Forage Rye |
| **20%** | Winter Vetch |

Sowing rate: 50-70 kilos per ha / Pack size: 25kgs & 500kgs

— ABOUT

The Vetch and Rye components each offer an excellent cover crop mixture for the winter. Vetches are fast growing, and they have a very prolonged growing season, combined with excellent winter hardiness, and have the advantage of being able to fix nitrogen at lower temperatures than other legumes. Forage rye is deep rooting which provides a good underground network for the plant to scavenge most of the nitrogen left by the previous crop.

# N-Retain Cover Mix

| | |
|---|---|
| **30%** | Spring Vetch |
| **15%** | Buckwheat |
| **15%** | Crimson Clover |
| **12%** | Fodder Radish |
| **10%** | Daikon Radish |
| **10%** | Egyptian Clover |
| **5%** | White Mustard |
| **5%** | Phacelia |

— ABOUT

A balanced mixture that contains fast growing species which produce large amounts of biomass. The species used in the mixture offer a wide range of rooting depths some having a fibrous root systems and others producing long taproots. Both types of roots help to soak up and retain any residual nutrients which may have left behind by the previous crop.

Sowing rate: 15-25 kilos per ha / Pack size: 25kgs & 500kgs

# N-Scent Cover Mix

| | |
|---|---|
| **50%** | Egyptian Clover |
| **50%** | Fenugreek |

Sowing rate: 10 kilos per ha / Pack size: 25kgs

— ABOUT

Two fast growing species that both can fix Nitrogen and act as a distraction to plant pests and predators. Fenugreek gives off a distinctive aroma that deters flea beetle.

# N-Hance Cover Crop

| | |
|---|---|
| **60%** | Forage Rape |
| **30%** | Winter Vetch |
| **7%** | Fodder Radish |
| **3%** | White Mustard |

— ABOUT

Two fast growing species that both can fix Nitrogen and act as a distraction to plant pests and predators. Fenugreek gives off a distinctive aroma that deters flea beetle.

Sowing rate: 30-50 kilos per ha / Pack size: 25kgs & 500kgs

# Living Mulch

| | |
|---|---|
| **100%** | Rivendell White Clover not Buckwheat |

Sowing rate: 4 kilos per ha / Pack Size: 25kgs

— ABOUT

This is based on a small leaved white clover that is sown to act as a living mulch into which, main crop cereals can be sown.

# Rescue Mix

| | |
|---|---|
| **50%** | Buckwheat |
| **15%** | Fodder Raddish |
| **15%** | White Mustard |
| **10%** | Gold of Pleasure |
| **10%** | Brassica Carinata |

— ABOUT

This mixture will benefit the soil against winter erosion, whilst providing grazing for livestock in late winter.

Sowing rate: 12-15 kilos per ha / Pack size: 10kgs

# Marvel

| | |
|---|---|
| **42%** | Vetch |
| **4%** | Crimson Clover |
| **4%** | Persian Clover |
| **46%** | Black Oats |
| **4%** | Phacelia |

— ABOUT

An economically price multi-purpose Brassica mix, Marvel certainly ticks all the boxes in terms of achieving cover crop objectives.

Sowing rate: 30 kilos per ha / Pack size: 12kgs

# Kwik Mix

| | |
|---|---|
| **80%** | Fodder Radish |
| **20%** | White Mustard |

Sowing rate: 12-15 kilos per ha / Pack size: 10kgs

— ABOUT

Fast growing because of their quick establishment there is good weed suppression, with excellent Nitrogen scavenging.

# Late Cover Mix

| | |
|---|---|
| **75%** | Forage Rape |
| **14%** | White Mustard |
| **11%** | Fodder Radish |

— ABOUT

This mixture will benefit the soil against winter erosion, whilst providing grazing for livestock in late winter.

Sowing rate: 12-15 kilos per ha / Pack size: 10kgs

# Booster

| | |
|---|---|
| **42%** | Vetch |
| **4%** | Phacelia |
| **8.5%** | Berseem Clover |
| **42%** | Black Oats |
| **3.5%** | Persian Clover |

— ABOUT

A non-brassica mix providing rapid cover, Nitrogen fixation and soil organic matter enhancement.

Sowing rate: 30 kilos per ha / Pack size: 12kgs

# Boost Mix

| | |
|---|---|
| **70%** | Brassica Carinata |
| **10%** | Hybrid Brassica |
| **10%** | Fodder Radish |
| **10%** | Brown Mustard |

— ABOUT

Provides good soil structure improvement and provides large amounts of organic matter.

Sowing rate: 6 kilos per ha / Pack size: 10kgs

# Panbuster 1

| | |
|---|---|
| **56.25%** | Oil Radish |
| **43.75%** | Crimson Clover |

Sowing rate: 10 kilos per ha / Pack size: 8kgs

— ABOUT

Designed to improve sub surface drainage via deep root penetration, plus increase residual soil Nitrogen levels.

# Panbuster 2

| | |
|---|---|
| **22.22%** | Tillage Radish |
| **38.89%** | Oil Radish |
| **38.89%** | Berseem Clover |

Sowing rate: 11 kilos per ha / Pack size: 9kgs

— ABOUT

Alternative option to combine deep root penetration whilst boosting soil organic matter and soil Nitorgen levels. Tillage Radish Oil Radish Berseem Clover or Crimson Clover Sowing rate 11.25 kilos per ha Pack size 9 kilos Decoy Rapid cover provided with nematode multi resistant components, plus impressive soil structure improvement, (Option also with Nematode resistant Brown Mustard).

# Flyer

| | |
|---|---|
| **25%** | Interval (Kale x Rape hybrid) |
| **50%** | Mustard |
| **12.5%** | Stubble Turnips |
| **12.5%** | Green Clover |

— ABOUT

A low cost Brassicae mixture, giving extremely quick growth and ground cover. Superb root development helps to maximise biomass, in the short term. Excellent results in terms of sizeable Dry matter contribution with potential livestock utilisation (great for drying out heavy/wet soil types).

Sowing rate 10 kilos per Ha / Pack size: 10kgs

# Companion

| | |
|---|---|
| **79%** | Vetch |
| **21%** | Berseem Clover |

Sowing rate: 15 kilos per ha / Pack size: 12kgs

— ABOUT

A specialist blackgrass control mixture for sowing into Winter Rape. Traps key nutrients (including Nitrogen), improves soil porosity and friability. Evidence of reduced slug & Fleabeetle activity by using this mixture, plus reduction of grass weed populations.

# Fallower

| | |
|---|---|
| **50%** | Vetch |
| **50%** | Black Oats |

Sowing rate: 25kgs per ha / Pack size: 10kgs

- → Helps exhaust weed seed bank
- → Leaves valuable Soil N contribution
- → Rapid soil fertility & soil organic matter improvement

— ABOUT

Sow into Autumn stubbles, prior to planned spring cropping. Combines both exceptional growth with extra overall biomass contribution. Helps improvev soil structure, particularly on heavier soils. Critically this mixture encourages grass weeds (inc blackgrass) to establish in Autumn within the sown cover crop. They can then be subsequently destroyed prior to Spring sowing.

# Multi Species Cover Crop

| | |
|---|---|
| **40%** | Rye |
| **22%** | Vetch |
| **15%** | Black Oats |
| **7%** | Mustard |
| **6%** | Fodder Radish |
| **5%** | Spring Linseed |
| **3.5%** | Phacelia |
| **1.5%** | Tillage Radish |

## ABOUT

This is a highly diverse 8 species mix which will maximise the benefits of structure, nutrient availability, water holding ability and to enhance and improve soil micro biology. As with multi species forage swards, the enhanced diversity of this mix produces a wider range of plants produce biomass and a variety of root shapes and sizes below ground.

Sowing rate: 22.5kg per ha / Pack size: 22.5kgs

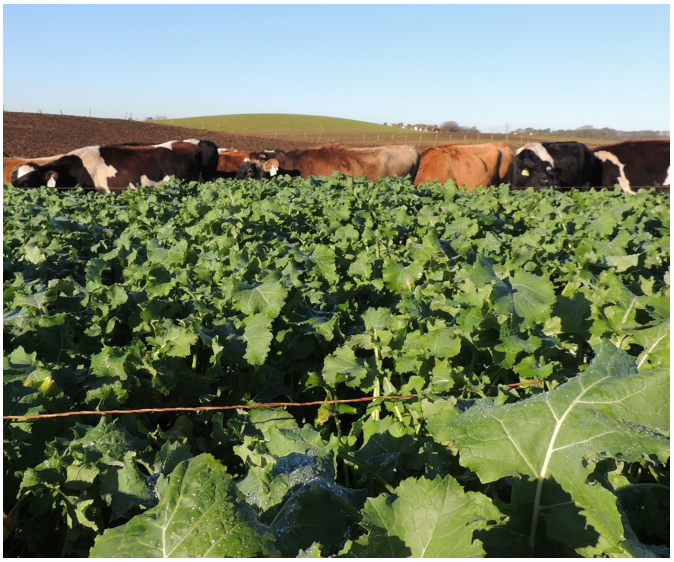
# Late Sown Winter Cover

| | |
|---|---|
| **28%** | Westerwold Ryegrass |
| **20%** | Crimson Clover |
| **4%** | Red Clover |
| **4%** | Alsike Clover |
| **20%** | Mustard |
| **16%** | Fodder Radish |
| **4%** | Tillage Radish |
| **4%** | Phacelia |

## ABOUT

In the majority of situations sown just before or after the combine, this mix covers the soil, fixes N while the weather is warm and picks up N that would otherwise be lost. This mix will stay green and continue to grow until severe frosts. The grass component provides a useful grazing bite.

Sowing rate: 5 kg per acre / Pack size: 5kgs



# Early Green Manure and N Fixer

| | |
|---|---|
| **26%** | Italian Ryegrass |
| **12%** | Crimson Clover |
| **11%** | Sweet Yellow Clover |
| **9%** | Berseem Clover |
| **6%** | Red Clover |
| **16%** | Mustard |
| **10%** | Tillage Radish |
| **10%** | Fodder Radish |

— ABOUT

Sown into warm soils, this mix can provide up to 150kg of N per hectare from a summer sowing. With very rapid growth with the potential to leave in over winter.

Sowing rate: 5kg per acre / Pack size: 11kgs

# Sterling Cover

| | |
|---|---|
| **20%** | Phacelia |
| **80%** | Buckwheat |

Sowing rate: 25 kg per acre / Pack size: 25kgs

# BCN Mix

| | |
|---|---|
| **60%** | Fodder Radish |
| **20%** | Buckwheat |
| **10%** | Vetch |
| **10%** | Fodder Rape |

Sowing rate: 15 kilos per acre / Pack size: 15kgs

# Organic Cover Crop Mixtures

## Organic Grazable Cover Crop

| | |
|---|---|
| **7%** | Balansa Clover |
| **8.5%** | ORGANIC Crimson Clover |
| **36%** | ORGANIC Common Vetch |
| **18%** | Winter Vetch |
| **4%** | ORGANIC Stubble Turnips |
| **7%** | ORGANIC Forage Rape |
| **10%** | ORGANIC Fodder Radish |
| **5%** | Brown Mustard |
| **4.5%** | ORGANIC Phacelia |

Sowing rate: 7.0 kilos per acre / Pack size: 7kgs

## Organic Late Sown for Late Feed

| | |
|---|---|
| **40%** | ORGANIC Forage Rape |
| **30%** | ORGANIC Stubble Turnips |
| **20%** | Turnip |
| **10%** | Rape/Kale Hybrid |

Sowing rate: 2.25 kilos per acre / Pack size: 9kgs

**Cope Seeds can formulate any mixture to suit your individual farm's requirements, unfortunately, not all cover crops can be formulated to comply with the Organic 70% designation due to the availability of organic stock species.**

Many cover crops can be grazed in late winter, this will achieve removal of of the vegetation. However, some species used in mixtures are less palatable, so the selection of species must be considered, for their use.

Method of destruction of the cover crop, will vary depending on the species within the mixture. Some species such as Phacelia, Black Oats, Vetch and some clovers will be killed by hard frosts due to their frost intolerance. However, should the species persist, they may require agrochemical or mechanical intervention to destroy them. Where livestock are available many cover crops are grazed to remove their growth, if this is not an option, then topping or shredding to enable best incorporation.

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