



EnviroSeeds

CATCH & COVER CROPS



Foreword

Soil fertility and structure are under severe pressure through use of heavy machinery, intensive rotations and declining organic matter content. Compounded by increased weed, disease and pest problems, cover cropping has become a popular cultural means to begin the journey to remedying this. Recent reforms to the Common Agricultural Policy also mean that cover crops can be used to meet 'Greening' requirements.

Cover cropping is not a new concept and is already used extensively in France, Germany and elsewhere in Europe, but it is important that the choice of species or mixture is tailored to your own farm and with specific aims in mind.

The varieties in the **EnviroSeeds** range are either produced here in the UK or carefully selected from some of the leading European breeders, ensuring that we only supply products that are fit for purpose. Our mixtures are formulated on the back of three years of trials, which we invite farmers and merchants to attend to make their own observations alongside ours.

This brochure aims to inform you about the potential benefits of cover crops and how you can best work towards achieving your aims - from selecting the right varieties to creating the right mixture. Coupled with the relevant technical information, we hope this guide will enable you to make well-informed decisions, tailored to your own farm situation.

Any information provided in this catalogue is given in good faith. We cannot accept any legal liability for information given in this guide.

Legislation

An overhaul to the Common Agricultural Policy (CAP) in 2014 and 2015 means that the Basic Payment Scheme now consists of Cross Compliance and 'Greening' – which is worth 30% of the total payment. The three pillars of 'Greening' are Permanent Grassland, Crop Diversification and Ecological Focus Areas (EFAs). Catch and cover crops are proving popular as farmers look to take advantage of the incentive to experiment with cover crops and improve soil quality for the long term.

Seed Regulations

- Greening mixtures may contain species currently covered by seed regulations and those that are not regulated (these include black oats, niger, etc).
- Regulated species must be fully certified to the standards in the Seed Marketing Regulations – having achieved purity and germination standards.
- Mixtures containing any certified species should have percentages of these species declared on a green label, and any uncertified species should be listed.
- Cover crops are subject to the same farm-saved seed rules as cash crops – although cover crops are not taken to harvest, the farm-saved & seed payment is due at the time of sowing.
- Farm-saved seed must have been originally produced from certified seed on the farmer's own holding. It is illegal to use uncertified grain brought in from another farm.

INTRODUCTION

03

Ecological Focus Areas (EFAs)

- Ecological Focus Areas are areas or features that the EU has decided are beneficial for the climate and/or environment.
- If a farmer has more than 15 hectares of arable land, they will need EFAs.
- If a farm does need EFAs, the areas and features used must be equivalent to at least 5% of the total arable area declared on their BPS application.

EFAs – What Counts?

Feature/Area	What it's worth?
Hedges	1m=5sqm
Buffer Strips	1m=9sqm
Fallow	1sqm=1sqm
Catch/Cover Crops	1sqm=0.3sqm
Nitrogen Fixing Crops	1sqm=0.7sqm

EFA Compliant Species

- | | | |
|------------|-----------|--------------|
| ✓ Rye | ✓ Barley | ✓ Lucerne |
| ✓ Vetch | ✓ Mustard | ✓ Oil Radish |
| ✓ Phacelia | ✓ Oats | |

Mixtures must be sown, and in the ground for either:

31st August – 1st October – Catch Crop

1st October – 15th January – Cover Crop

For the latest information regarding EFAs, see www.gov.uk/cap-reform.

BENEFITS OF CATCH & COVER CROPS

Cover crops can be used for a wide variety of purposes, so having a clear idea of what specific aims you want to achieve is paramount in getting the required results. A well composed mixture can have numerous benefits to the soil when integrated carefully in to the crop rotation.

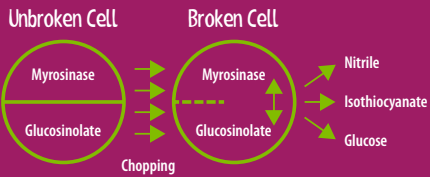
Soil Structure

Cover crops benefit physical soil structure, breaking up compaction and encouraging water uptake. Species such as oil radish produce deep, penetrative roots, but there are many other species that can also be used effectively. Lateral root growth from species such as mustard and fibrous root networks from species such as black oats and linseed all effectively relieve compaction in different layers of the soil. This root structure combined with the leaf canopy also prevent soil erosion.

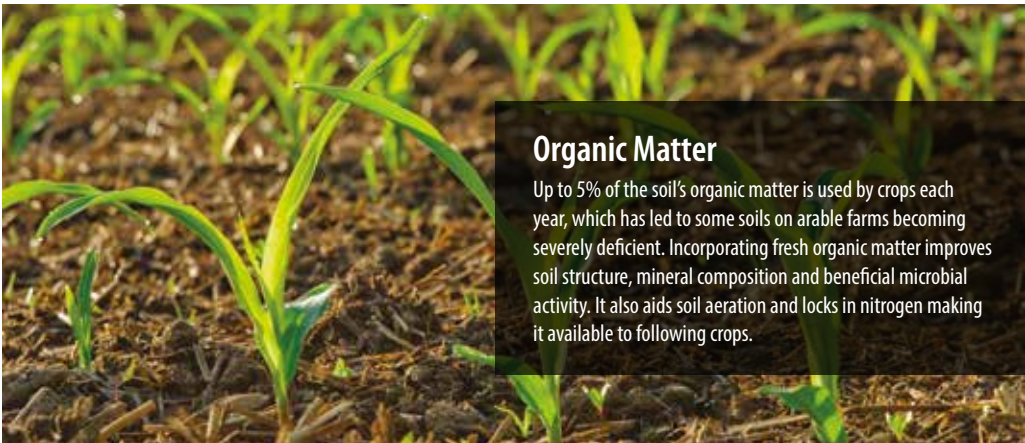


Biofumigation

Biofumigation is the process of using plant chemicals to suppress soil-borne pathogens, nematodes, insects and weeds. When a suitable variety of brown mustard (see Vittasso and Scala) is chopped and incorporated in to moist soil, chemical reactions produce Isothiocyanate (ICT), a natural biofumigant with similar insecticidal effects to Methyl Bromide or Metham Sodium. Scala, and particularly Vittasso, contain very high levels of Glucosinolates in the cell vacuoles. When the crop is finely chopped, the vacuoles burst allowing the enzyme Myrosinase to react with the Glucosinolates.



The result is the production of the biofumigant Isothiocyanate (ICT). For best effect, the crop should be finely chopped at the point of flower to maximise the Glucosinolate content and then incorporated in to moist soil conditions. Water is essential for the chemical reaction to take place.



Organic Matter

Up to 5% of the soil's organic matter is used by crops each year, which has led to some soils on arable farms becoming severely deficient. Incorporating fresh organic matter improves soil structure, mineral composition and beneficial microbial activity. It also aids soil aeration and locks in nitrogen making it available to following crops.



Nematode Control

Specific varieties of oil radish control certain plant-parasitic nematodes by up to 90%. The roots secrete pheromones which lure the larvae from their cryptobiotic state in the cysts. Then once in the roots, the larvae are subsequently unable to develop to maturity and die.

Type 1 nematode resistant varieties have the ability to reduce nematode populations by up to 90%.

Type 2 nematode resistant varieties have the ability to reduce nematode populations by up to 85%.

For maximum nematode control, sowing rates should be increased to 25kg/ha to produce high biomass and close root proximity. When crop is 75% in bloom it should be mown to a height of 25-30cm for the plant to regrow. 50kg/ha of nitrogen is required in heavy soils.



Allelopathy

Allelopathy describes the chemical inhibition of one plant by another, due to the release of substances acting as germination or growth inhibitors. Black oats have a powerful allelopathic effect on broad leaved weeds, making them the ideal choice for weed suppression. It is essential to wait a minimum of two weeks after the destruction of a black oats crop before sowing a cash crop to minimise any negative effects from the allelopathic chemicals excreted during decomposition.

Weed Control

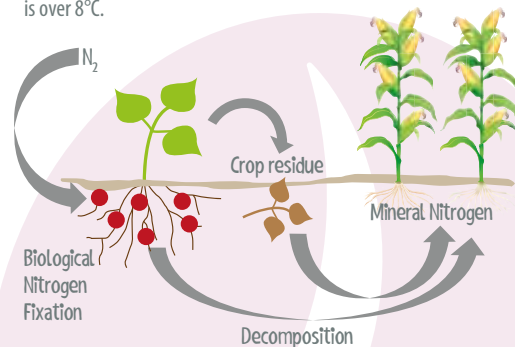
Cover crop species control weeds through light and nutrient deprivation. Faster growing brassica species and phacelia are most effective.

Nitrogen

Additional nitrogen can be made available for cash crops by fixing nitrogen from the atmosphere or preventing nitrogen leaching from the soil.

FIXATION

Legumes fix nitrogen from the atmosphere making it available to the following crops. Quick growing species such as crimson clover and berseem clover are best for short breaks between cash crops, whereas vetches are more effective for a longer growing period. It is important to note that legumes become most effective at fixing nitrogen when the soil temperature is over 8°C.



LEACHING PREVENTION

Nitrogen and other nutrients are lost through leaching when soil is left bare for any period of time, particularly over the winter when rainfall is high. Scavenging this nitrogen from the soil and holding it for the following crop is often easier and more effective than attempting to fix additional nitrogen from the atmosphere. It can be done effectively with cereals and mustard.

KEY SPECIES



EFA Species

Black Oat *Avena strigosa***Variety:** DELUX

DELUX is the newest variety of black oats from leading European breeder Panam, developed specifically for the cover crop market. DELUX combines late maturity, rapid establishment and high biomass production.

- More frost sensitive than other cereals
- Allelopathic variety
- Controls root lesion nematode (*Pratylenchus penetrans*)
- Resistant to root-knot nematode (*Meloidogyne hapla*)
- Develops fibrous roots to relieve soil compaction
- Resistant to rust, barley yellow dwarf virus and aphids

Sowing Period: Aug-Oct
Sowing Depth: 1-2cm

Sowing Rate: 30-50kg/ha
Winter Hardy: NO



EFA Species

Forage Rye *Secale cereale***Variety:** TURBOGREEN

TURBOGREEN is the perfect rye variety for cover crops – suitable for very late sowings, quick to establish and late maturing. Forage rye scavenges nitrogen from the soil making it accessible to the following crop.

- Late maturity and good lodging resistance
- High dry matter yield
- Rapid tillering and root development
- Strong weed suppression even at low sowing rates
- Reduces nutrient leaching and soil erosion
- Resistant to rust and aphids

Sowing Period: Aug-Oct
Sowing Depth: 1-2cm

Sowing Rate: 30-50kg/ha
Winter Hardy: YES



EFA Species

Vetch *Vicia sativa***Variety:** SLOVENA

SLOVENA is more tolerant to frost than most common vetch varieties making it the number one choice to go through the winter. Most effective at fixing nitrogen when allowed a prolonged growing season in either spring or autumn.

- Large seed size ensures strong early vigour
- Fixes nitrogen available for the following crop
- Breaks down quickly once incorporated
- Produced in the UK and trusted on farm
- Excellent companion to both black oats and rye
- Organic seed also available

Sowing Period: Mar-Oct
Sowing Depth: 1-2cm

Sowing Rate: 50kg/ha
Winter Hardy: VARIETY DEPENDENT



EFA Species

White Mustard (type 2) Sinapsis alba

Variety: **SUNSHINE**

SUNSHINE is UK produced and much more than just 'white mustard' – high vigour, late flowering and powerful nematode resistance. Bred in Scandinavia, SUNSHINE is more frost tolerant than most other white mustard varieties.

- High vigour and late maturing
- Produces high dry matter
- Rapid establishment
- Type 2 beet cyst nematode (*Heterodera schachtii*) resistant – Pf/Pi 0.200
- Organic seed also available

Sowing Period: Apr-Sept
Sowing Depth: 0.5cm

Sowing Rate: 10-15kg/ha
Winter Hardy: NO



EFA Species

Brown Mustard Brassicajunceae

Variety: **SCALA**

SCALA is the choice brown mustard variety for a winter hardy cover crop to suppress weeds, pump water and improve soil structure. Using SCALA provides maximum benefit to the soil at an economical price per hectare.

- Developed by leading breeder Vandinter Semo
- Strong early vigour, medium maturity
- Rapid autumn growth and winter hardy
- Exceptional root development in a short period of time
- Active against *Pythium*, *Rhizoctonia* and *Verticillium*
- See page 4 for more information on biofumigation

Sowing Period: Apr-Sept
Sowing Depth: 1-2cm

Sowing Rate: 5kg/ha
Winter Hardy: YES*

*Brown mustard usually withstands temperature down to -5°C.



KEY SPECIES

07

EFA Species

Brown Mustard Brassicajunceae

Variety: **VITTASSO**

VITTASSO combines the benefits of brown mustard as a cover crop with powerful biofumigation capability. Produced by KWS to control wireworm, PCN, *Pythium*, *Rhizoctonia*, *Verticillium*, Silver Scurf and *Sclerotinia*.

- Improves soil health and catches nitrogen
- Increases organic matter and suppresses volunteers
- Versatile sowing period and winter hardy
- A well grown crop of VITTASSO can significantly improve the profitability of potato crops through increased yields, improved quality and reduced use of pesticides

Sowing Period: Apr-Oct
Sowing Depth: 1-2cm

Sowing Rate: 5kg/ha
Winter Hardy: YES*

EnviroSeeds

KEY SPECIES



EFA Species

Oil Radish (type 1) Raphanus sativus

Variety: IMAGE

IMAGE is the leading variety of nematode resistant oil radish on the market in the UK. As a type 1 variety, IMAGE is capable of reducing beet cyst nematode (*Heterodera schachtii*) populations by over 90%.

- Late to mature, offering a prolonged vegetative growth period
- Good resistance to lodging
- High dry matter yield
- Strong tap root and scavenges nitrogen
- For maximum effect in controlling nematodes, sowing rate should be increased to 25kg/ha

Sowing Period: Apr-Sept
Sowing Depth: 1-2cm

Sowing Rate: 10-25kg/ha
Winter Hardy: NO



EFA Species

Oil Radish (type 2) Raphanus sativus

Variety: PINA

PINA combines very late flowering and maturity with powerful resistance to beet cyst nematode (*Heterodera schachtii*). PINA is the leading type 2 resistant oil radish available from specialist Dutch breeder Vandinter Semo.

- Quick to establish and late to mature
- Effective in mixtures and as a standalone crop
- High biomass production
- Strong tap root and scavenges nitrogen
- For maximum effect in controlling nematodes, sowing rate should be increased to 25kg/ha

Sowing Period: Apr-Sept
Sowing Depth: 1-2cm

Sowing Rate: 10-25kg/ha
Winter Hardy: NO



STRUCTURATOR



DAIKON

EFA Species

Tillage Radish Raphanus sativus

Varieties: STRUCTURATOR & DAIKON

Tillage radish is a term coined to the radish varieties that produce significantly larger root mass than standard varieties. EnviroSeeds offers DAIKON, which produces a thick, bulbous root, and STRUCTURATOR which has a deeper penetration in to the soil.

- The most effective varieties to relieve soil compaction
- Extremely strong tap roots
- High biomass production
- Scavenges nitrogen
- Suppresses weeds

Sowing Period: Apr-Aug
Sowing Depth: 1-2cm

Sowing Rate: 10-15kg/ha
Winter Hardy: NO



EFA Species

PHACELIA

Phacelia tanacetifolia

- Very quick to establish
- Good weed suppressant
- Matures in 10-12 weeks
- Produces large root mass
- Excellent pollinator

Sowing Period: Apr-Oct Sowing Rate: 10-15kg/ha
Sowing Depth: 1-2cm Winter Hardy: NO



EFA Species

LUCERNE

Medicago sativa

- Long term perennial
- Excellent nitrogen fixer
- Long tap root
- Suits light, chalky soils
- High DM, high protein

Sowing Period: Apr-Oct Sowing Rate: 20kg/ha
Sowing Depth: 1-2cm Winter Hardy: YES



EFA Species

ETHIOPIAN MUSTARD

Brassica carinata

- Fast growing brassica
- Easy to establish
- Excellent weed suppressant
- Produces very leafy canopy
- Tolerates poorer soils

Sowing Period: May-Aug Sowing Rate: 15kg/ha
Sowing Depth: 2-3cm Winter Hardy: YES



CRIMSON CLOVER

Trifolium incarnatum

- Nitrogen fixing annual
- Sow summer/post harvest
- Rapid growth in spring
- Suppresses weeds
- Tolerant of poor soils

Sowing Period: Aug-Sep Sowing Rate: 15kg/ha
Sowing Depth: 1cm Winter Hardy: YES



BUCKWHEAT

Fagopyrum esculentum

- Very quick growing annual
- Extremely tender to frost
- Excellent weed suppressant
- Nectar rich pollinator
- Scavenges phosphates

Sowing Period: May-July Sowing Rate: 70kg/ha
Sowing Depth: 2-3cm Winter Hardy: NO



BERSEEM CLOVER

Trifolium alexandrinum

- Nitrogen fixing annual
- Very quick growing
- Tender to frosts
- Suppresses weeds
- Good companion to oats

Sowing Period: Mar-Aug Sowing Rate: 15kg/ha
Sowing Depth: 1cm Winter Hardy: NO



LINSEED

Linum usitatissimum

- Easy and quick to establish
- Suits thinner soils
- Good companion to Legumes
- Fibrous root structure
- Scavenges nitrogen

Sowing Period: Apr-Aug Sowing Rate: 50kg/ha
Sowing Depth: 2-3cm Winter Hardy: NO

ENVIROSEEDS MIXTURES



EFA Compliant

EnviroSeeds GRABBER

Our most popular cover crop mixture comprising rye and winter vetch; the ideal mixture to go through the winter. SLOVENA vetch has a prolonged growing season and fixes nitrogen at lower temperatures than other legumes. Rye develops a strong root structure to scavenge nitrogen and provide good ground cover to suppress weeds.

- Fixes and catches nitrogen
- Overwinters
- Low cost
- Good weed suppression

Contents:	Sowing Rate:
80% TURBOGREEN Rye	35-50kg/ha
20% SLOVENA Vetch	



EFA Compliant

EnviroSeeds AUTUMN DM

Suitable for early autumn sowing with high dry matter production. Phacelia puts on a large amount of growth in a short period of time. The three different rooting structures improve soil structure and scavenge nitrogen. The inclusion of rye ensures cover through the winter even once the phacelia and vetch have been killed by frost.

- Suitable for early sowing
- High dry matter
- Fixes and catches nitrogen
- Good for soil structure

Contents:	Sowing Rate:
80% TURBOGREEN Rye	35kg/ha
15% KWARTA Vetch	
5% STALA Phacelia	



EFA Compliant

EnviroSeeds ECOCOVER

Can be sown down to 25kg/ha for the most economical cover or catch crop solution. White mustard is quick to establish and fast growing. As it is tender to frost, it is also easy to incorporate in to the soil. Together with the prostrate growth of rye, this mixture is good at suppressing weeds, as rye still gives good ground cover through the winter.

- Low cost
- Covers ground through winter
- Fast establishment
- Good weed suppression

Contents:	Sowing Rate:
80% TURBOGREEN Rye	25-50kg/ha
20% SUNSHINE White Mustard	



EFA Compliant

EnviroSeeds CATCHMORE

Great mixture for scavenging nitrogen from the soil. White mustard and phacelia establish and grow very quickly, making this mixture particularly good for growing over the short catch crop period for EFAs. Suitable for use as an over winter cover crop as rye and brown mustard are frost tolerant.

- Very quick growing
- Catches nitrogen very quickly
- Suitable for catch crop
- Covers ground through winter

Contents:

60% TURBOGREEN Rye
25% SUNSHINE White Mustard
10% SCALA Brown Mustard
5% STALA Phacelia

Sowing Rate:

25kg/ha



EFA Compliant

EnviroSeeds SPRINTER

Specifically for early autumn sowing where high biomass is required but mixture is not required to overwinter. DELUX is exceptionally quick to establish but late to mature, reducing risk of unwanted seed shed. KWARTA vetch establishes and grows quickly in the autumn.

- Best sown in early autumn
- Short term, very quick growing
- Fixes and catches nitrogen
- Winter kill is likely

Contents:

70% DELUX Black Oats
30% KWARTA Vetch

Sowing Rate:

25-35kg/ha

ENVIROSEEDS MIXTURES



EFA Compliant

EnviroSeeds SOIL REVIVOR

Diverse mixture to improve soil structure and provide plenty of top growth. Fibrous roots of black oats and deep rooting radish break up soil compaction and improve soil quality. Black oats produce large amounts of dry matter and scavenge nitrogen.

- Diverse mixture
- Good for soil structure
- High dry matter
- Catches nitrogen

Contents:

80% DELUX Black Oats
15% ANNA Oil Radish
5% SCALA Brown Mustard

Sowing Rate:

25kg/ha

ENVIROSEEDS MIXTURES



EnviroSeeds PAN BUSTER

A blend of three leading oil radish varieties; great for improving soil structure and suppressing weeds. Sowing at 10kg/ha encourages greater root growth to break up soil compaction. Higher sowing rates encourage greater top growth. Late maturing varieties selected specifically for cover crops.

- Deep rooting
- Breaks up soil compaction
- Cost effective
- Very quick growing

Contents:	Sowing Rate:
40% ROMESA Oil Radish	10-15kg/ha
30% PINA Oil Radish	
30% ANNA Oil Radish	

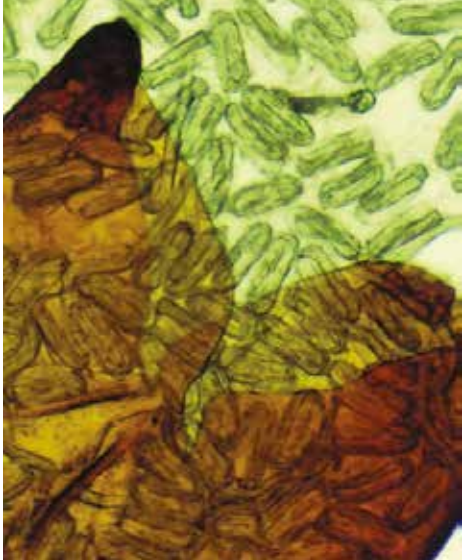


EnviroSeeds HYDROMAX

Cost effective solution for fast establishment and good ground cover to suppress weeds. Can be used effectively to improve soil structure and take moisture out of the soil over a short period of time. When turned over in to the soil, brown mustard has a biofumigation effect.

- Deep, fibrous roots
- Good weed suppression
- Catches nitrogen
- Low cost

Contents:	Sowing Rate:
70% SUNSHINE White Mustard	12.5kg/ha
30% SCALA Brown Mustard	



EnviroSeeds NEMASHIELD

New for 2016, created specifically to target soil borne pathogens. NemaShield contains type 2 resistant varieties of both white mustard and oil radish to maximise control of beet cyst nematode (*Heterodera schachtii*).

- Powerful anti-nematode effect
- Breaks up soil compaction
- High biomass production
- Scavenges nitrogen

Contents:	Sowing Rate:
50% IRIS White Mustard	25kg/ha
50% PINA Oil Radish	

Specie	Latin Name	Type	Sowing Rate per ha	Sowing Depth	Sowing Period	EFA Compliant	Over Winter Use	Nitrogen Fix	Leaching Prevention	Organic Matter	Soil Structure	Biofumigant	Allelopathic	Nematode Control	Weed Control
MUSTARD															
Brown	Brassica juncea	Brassica	5kg	1-2cm	Apr-Oct	YES	YES								
White	Sinapis alba	Brassica	10-15kg	0.5cm	Apr-Sept	YES	NO								
White (type 2)	Sinapis alba	Brassica	10-15kg	0.5cm	Apr-Sept	YES	NO								
Ethiopian Mustard	Brassica carinata	Brassica	15kg	2-3cm	May-Aug	YES	YES								
VETCH															
Common	Vicia sativa	Legume	50kg	1-2cm	Mar-Oct	YES	YES								
Hairy	Vicia villosa	Legume	25kg	2-3cm	Apr-Sept	YES	YES								
OIL RADISH															
Classic	Raphanus sativus	Brassica	10-15kg	1-2cm	Apr-Sept	YES	NO								
Type 2	Raphanus sativus	Brassica	10-25kg	1-2cm	Apr-Sept	YES	NO								
Type 1	Raphanus sativus	Brassica	10-25kg	1-2cm	Apr-Sept	YES	NO								
Tillage	Raphanus sativus	Brassica	10-15kg	1-2cm	Apr-Aug	YES	NO								
OTHER SPECIES															
Berseem Clover	Trifolium alexandrinum	Legume	15kg	1cm	Mar-Aug	NO	NO								
Black Oats	Avena strigosa	Cereal	30-50kg	1-2cm	Aug-Oct	YES	NO								
Buckwheat	Fagopyrum esculentum	Polygonaceae	70kg	2-3cm	May-July	NO	NO								
Crimson Clover	Trifolium incarnatum	Legume	15kg	1cm	Aug-Sept	NO	YES								
Linseed	Linum ultimassimum	Linum	50kg	2-3cm	Apr-Aug	NO	NO								
Lucerne	Medicago sativa	Legume	20kg	1-2cm	Apr-Aug	YES	YES								
Niger	Guizotia abyssinica	Asteraceae	10kg	1-2cm	Apr-Aug	NO	NO								
Phacelia	Phacelia tanacetifolia	Boraginaceae	5-8kg	0.5cm	Mar-Aug	YES	NO								
Rye	Secale cereale	Cereal	30-50kg	1-2cm	Aug-Oct	YES	YES								
Sunflower	Helianthus annuus	Asteraceae	12.5kg	2-3cm	Apr-Aug	NO	NO								
ENVIROSEEDS MIXTURES															
Grabber		Mixture	35-50kg	1-2cm	Aug-Oct	YES	YES								
Autumn DM		Mixture	35kg	1-2cm	Mar-Sept	YES	YES								
EcoCover		Mixture	25-50kg	1-2cm	Aug-Sept	YES	YES								
CatchMore		Mixture	25kg	1-2cm	Aug-Sept	YES	YES								
Sprinter		Mixture	25-35kg	1-2cm	Aug-Oct	YES	NO								
Soil Revivor		Mixture	25kg	1-2cm	Aug-Sept	YES	NO								
Pan Buster		Mixture	10-15kg	1-2cm	Apr-Sept	NO	NO								
HydroMax		Mixture	12.5kg	1-2cm	Apr-Sept	NO	YES								
NemaShield		Mixture	25kg	1-2cm	Apr-Sept	NO	NO								

Information provided above is given in good faith and should act as a guide only. Local conditions, weather and crop rotations must always be taken in to account.

COMPOSING A MIXTURE

ENVIROSEEDS offers a comprehensive range of cover crop mixtures but extends to bespoke mixtures also. Composing a mixture that is both viable and economical can be challenging – the three steps below offer some methodology to enable you to do so.

1 Identify the Priorities

- Organic Matter
- Soil Structure
- Biofumigation
- Pest Control
- Weed Control
- Allelopathy
- Nitrogen Fixing
- Leaching Prevention
- Erosion Control
- Water Uptake

2 Duration

- Sowing Date
- Winter Hardiness
- EFA Compliance
- Risk of Seed Shed

3 Practicalities

- Rotational Conflict
- Seed Rate
- Seed Size
- Sowing Depth
- Management
- Cost

AVOID...

Inappropriate seed rates – mixture percentages are based on weight rather than seed number.

For example, there are over ten times the number of seeds per gram of phacelia than rye.

More than five species in a mixture – low quantities of lots of species will have little positive effect on the soil.



Allelopathy

Weed growth can be inhibited by growing allelopathic varieties of black oats. This doesn't affect the following crop as long as a minimum of two weeks is left after incorporation before sowing. See page 5 for more details.

Biofumigation

The process of using plant chemicals to suppress soil-borne pathogens, nematodes, insects and weeds. More information can be found on page 4.

Carbon/Nitrogen Ratio

The ratio of the weight of organic carbon to the weight of total nitrogen in soil. Micro-organisms in the soil must balance the concentration of nitrogen to carbon in their cells, so if a bacterial colony consumes a lot of carbon and expands, it must also find enough extra nitrogen to keep its own C/N ratio the same as the original community. This can lead to a shortage of available nitrogen for crops.

Clubroot Resistance

Raphanus sativus is clubroot resistant as a species – therefore referring to specific varieties as 'clubroot resistant' is misleading. White mustard on the other hand is susceptible to clubroot.

Green Manure

Plant material incorporated in to the soil while green, or soon after maturity.

Nematodes

Microscopic worms abundant in many soils, of which there are thousands of species.

Certain varieties can reduce nematode populations in the soil – see page 5 for more details.

Type 1 nematode resistant varieties have the ability to reduce nematode populations by up to 90%.

Type 2 nematode resistant varieties have the ability to reduce nematode populations by up to 85%.

Nitrogen Fixation

The biological conversion of elemental nitrogen to organic combinations or to forms readily utilised in biological processes.

Organic Matter

The soil content comprising plant and animal residues at differing stages of decomposition.

Raphanus sativus

Fodder Radish, Oil Radish, Classic, Type 1, Type 2, Tillage Radish, Daikon

All of these terms refer to the same species - Raphanus sativus.

Soil Erosion

The loss of soil through water, wind, ice or other geographical agents.

Winter Hardy, Frost Tolerant and Over Winter Use

References to winter hardiness, frost tolerance and over winter usage are made throughout this guide. However these factors are widely affected by weather, sowing date, location and many other factors. Therefore, this information is given as a broad indication only and should be treated accordingly.



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