

# Catch crops

The benefits, management  
and their role in compliance

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# Introduction

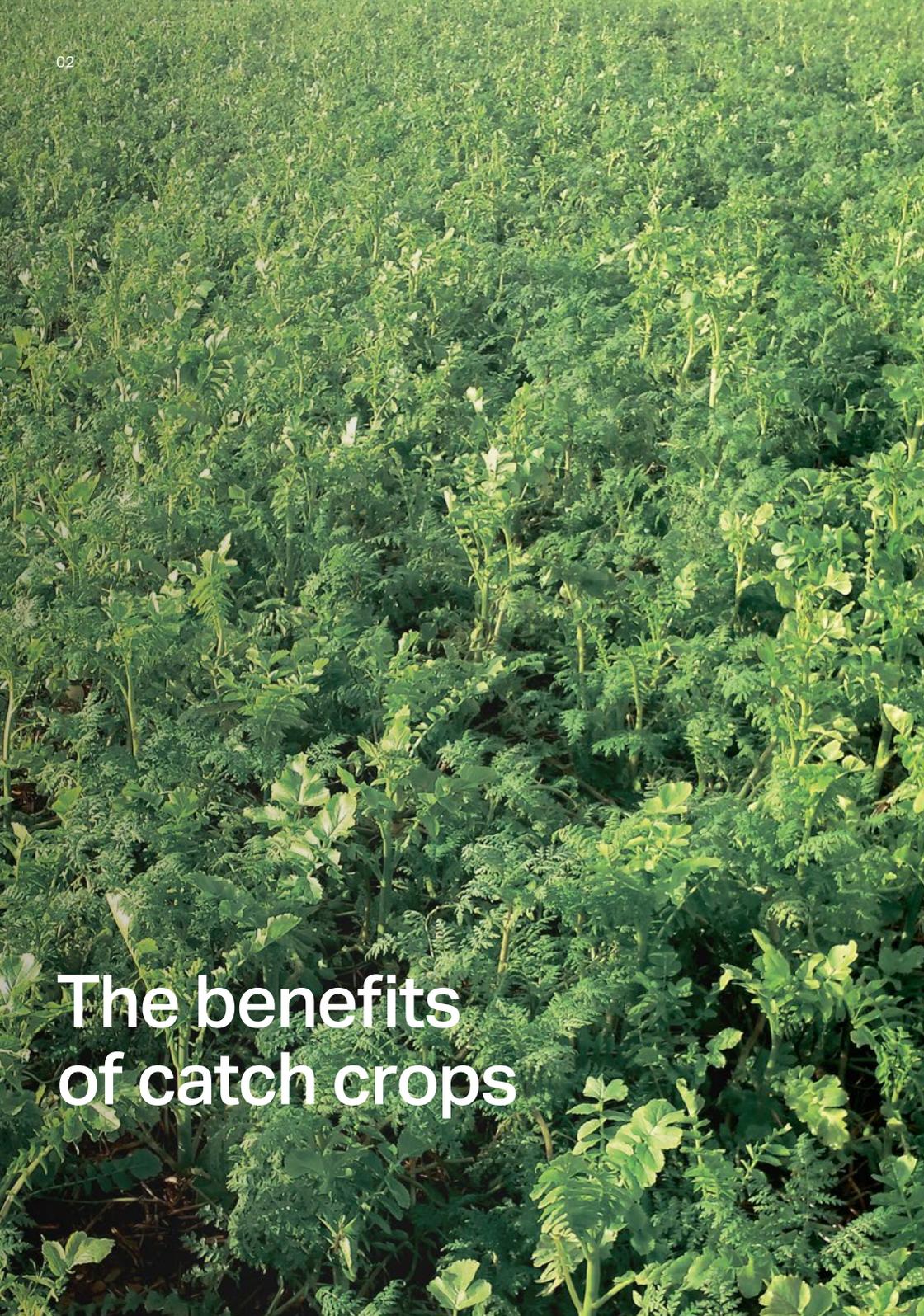
In recent years we have seen renewed interest in the use of catch crops in Ireland.

Also known as cover crops or green manure, catch crops have a role to play within regulatory requirements for green cover under the GLAS (Green Low-Carbon Agri-Environment Scheme) rules, but the increased interest is more about farmers' desire to use them to improve crop productivity and soil structure.

There are different options available in terms of the species or mixtures that can be used as catch crops. In this guide we aim to help explain the requirements for catch crops under GLAS and examine the benefits of growing catch crops. We also explore the suitability of different crops and mixture options to different requirements.

We hope you will find this guide useful when planning an effective catch crop programme.

# The benefits of catch crops



## The benefits of catch crops

Catch crops are planted to reduce nutrient leaching from the soil following the main crop. The catch crop scavenges available nitrogen and other nutrients.

Cover crops are grown to provide “green” cover to the soil. Cover crops will help prevent soil erosion while also suppressing weeds. Some cover crops can also reduce incidence of pests and disease.

Green manure describes crops which are sown for the purpose of incorporation into the soil to help improve and condition it, while also releasing nutrients into the soil.

In this brochure we will refer to all of these as “catch crops”.

Fig 01.

### Holding nutrients in place

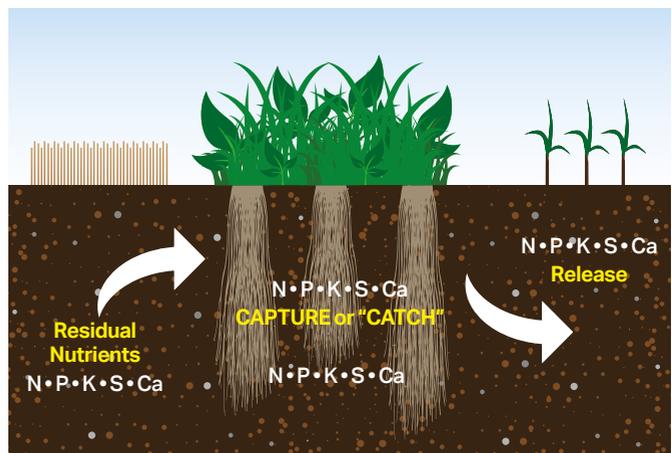


Fig 02.

**The benefits of catch crops**



## GLAS

Catch crops are an important part of both GLAS and Greening Schemes. If participating in either of these schemes it is important to comply with the rules within each scheme. See [www.agriculture.gov.ie](http://www.agriculture.gov.ie) for further information.

The objective within GLAS is to establish a catch crop that will absorb nutrients and prevent leaching in the autumn/winter period.

- Catch crops must be sown annually by 15th September
- Use a mixture of at least 2 crops from the list of prescribed crops
- Light cultivation techniques must be used for sowing – ploughing is not permitted
- Catch crops must remain in place until 1st December
- Grazing of catch crops is not permitted before 1st December

The following is the list of prescribed catch crops permitted within GLAS and their sowing rates:

Fig 03.

### List of prescribed catch crops

Catch Crop	Sowing rate (kg/ha)	Type
Forage/ Fodder rape	3-5	Brassica
Tillage radish	5	Brassica
Leafy turnip	5	Brassica
Mustard	6-10	Brassica
Vetch	12	Legume
Peas	30	Legume
Crimson clover / Berseem Clover	10-15	Legume
Beans	90-100	Legume
Oats (& black oats)	75-100	Cereal
Rye	65-80	Cereal
Phacelia	2-5	Other
Buckwheat	30-40	Other

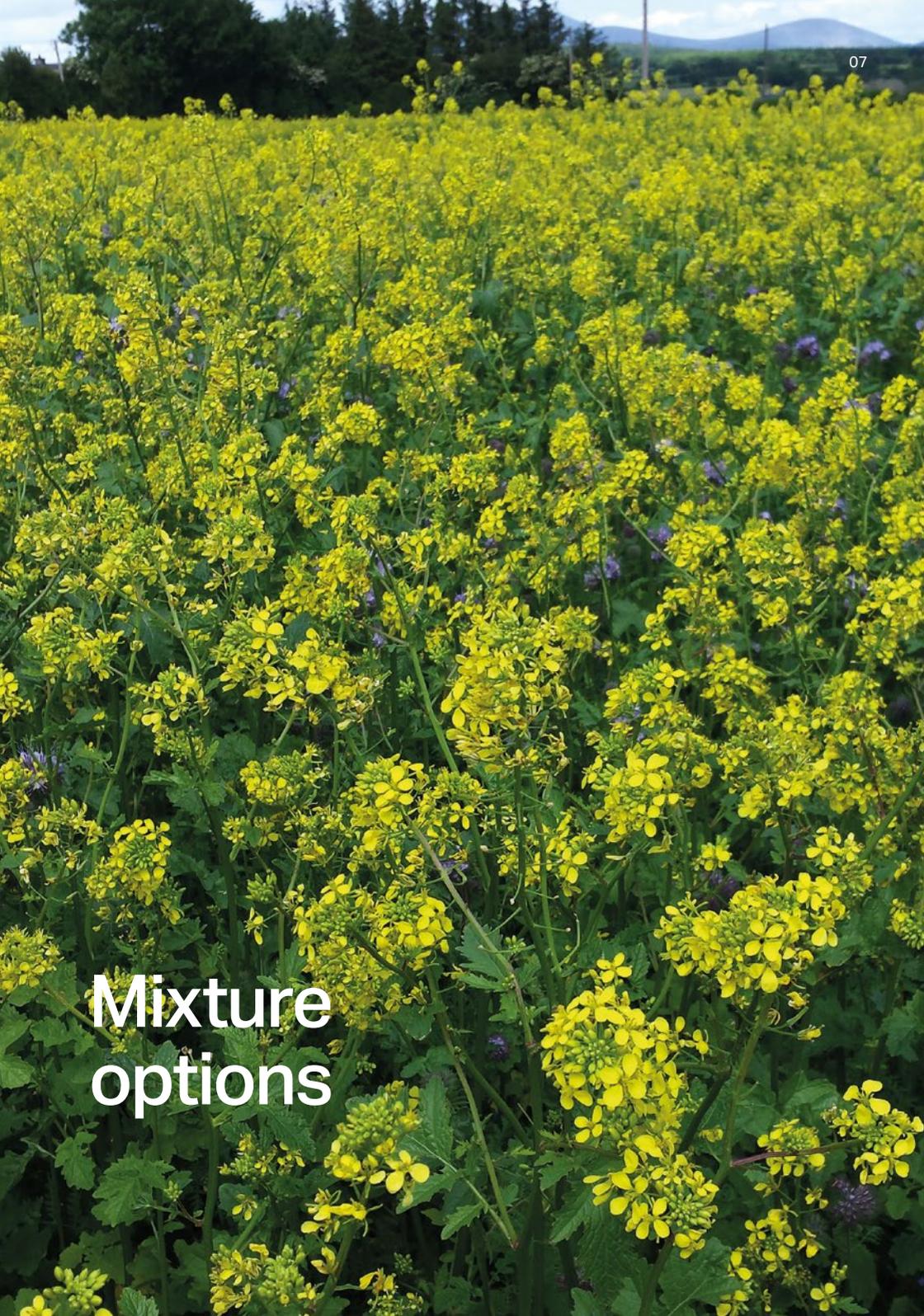
## Greening

Catch crops can play a very important role in fulfilling Greening obligations.

1. As an Ecological Focus Area (EFA)
2. When grown in GLAS under equivalence they negate the necessity for crop diversification. There is a reduction in the GLAS catch crops payment in this case.

The catch crop mixture must contain at least 2 species from the list of prescribed crops. The list is the same as those prescribed under GLAS (see previous page), however the seed rates are not specified but should be somewhat similar to the seeding rates within GLAS.



A large field of yellow and purple flowers, likely a cover crop or wildflower field, with mountains visible in the background under a clear sky. The text 'Mixture options' is overlaid in the bottom left corner.

# Mixture options

## Mixture options

Regardless of whether or not you are participating in the GLAS or Greening schemes, catch crops offer multiple benefits to improving soil condition in arable situations. At Germinal we have designed a range of catch crop mixtures to comply with GLAS and Greening rules, while also bringing multiple benefits to your soil.

When sowing catch crops it is important to remember:

- Sow as early as possible (prior to 15th of September for GLAS / Greening requirements)
- Ensure you select from the list of prescribed catch crops
- If you have a brassica in your arable rotation e.g. oilseed rape – do not use a catch crop mixture containing a brassica
- Do not allow catch crops to set seed (weeds in future crops)

We recommend you select one of the following mixtures when sowing your catch crop:

- Soil Booster Pro
- Soil Booster Max
- Soil Booster Plus
- Soil Booster Graze

Fig 04.

### The key benefits of each mixture

	Soil Conditioning	Reduce nutrient leaching	Increase soil organic matter	Fix Nitrogen	Nematode Control	Animal Forage*
Soil Booster Pro	Y	Y	Y	Y		
Soil Booster Max	Y	Y	Y	Y	Y	
Soil Booster Plus	Y	Y	Y		Y	
Soil Booster Graze	Y	Y	Y			Y

\*Can be grazed after 1st December. Soil Booster Plus can also be grazed but if grazing is a priority Soil Booster Graze will be the best option.



### Soil Booster Pro

21 kg

Phacelia 3 kg / Vetch 18 kg

1.5 ha Pack

Vetch is a popular option to quickly provide green cover and fix Nitrogen. It is particularly good at competing against weeds. With good frost tolerance it can maintain canopy over the winter. Phacelia is very quick to establish and produces a large root which helps improve soil structure. Soil Booster Pro is an ideal option where oilseed rape is in the mixture as radish or brassicas could be problematic.

#### Key Benefits

- Fast establishment
- Nitrogen fixing
- Improves soil structure
- Suited to rotations containing oilseed rape
- Suppress weeds



### Soil Booster Max

1 ha Pack

25 kg

Tillage Radish 5 Kg / Vetch 19 kg / Phacelia 1 kg

This mixture provides rapidly growing green cover which will help condition the soil and reduce erosion. The vetch will fix atmospheric nitrogen and boost the overall performance of the cover crop mixture. Phacelia will grow rapidly and quickly provide green cover while helping to reduce nutrient loss from the soil. It will condition the soil and improve soil structure by helping to increase air movement and improve drainage. Tillage radish will scavenge nutrients from lower down in the soil and bring them to the upper layers, where the next cash crop can utilise them.

#### Key benefits

- Quick establishment
- Nitrogen fixing
- Nutrient scavenging & reduced nutrient leaching
- Soil conditioning
- Reduces erosion
- Suppress weeds



### Soil Booster Plus

2 ha Pack

20 kg

Tillage Radish 10 kg / Forage rape 6 kg / Phacelia 4 kg

This mixture provides rapidly grown green cover which will help condition the soil and reduce erosion. Phacelia will quickly provide green cover while helping reduce nutrient loss from the soil. Tillage radish will condition the soil and improve soil structure by helping to increase air movement and improve drainage. The taproot will also help scavenge nutrients from lower down in the soil and bring them to the upper layers where the next cash crop can utilise them.

#### Key benefits

- Rapid establishment
- Nutrient scavenging
- Reduces nutrient leaching
- Soil conditioning
- Suppress weeds



### **Soil Booster Graze**

**2 ha Pack**

16 kg

Forage rape 6 kg / Leafy Turnip 10 kg

Soil Booster Graze will scavenge nutrients, condition the soil and can also be used as a forage option for grazing animals after the 1st December. A rapidly growing mixture which will quickly establish green cover. Soil Booster Graze will reduce nutrient leaching and condition the soil by improving soil structure through drainage, aeration and reducing soil erosion.

Soil Booster Graze will provide a valuable high energy feed for winter grazing of cattle and sheep. Animals will require constant access to water and a fibre source e.g. silage if grazing this mixture.

#### **Key benefits**

- Rapid growth
- Soil conditioning
- Improves soil structure
- Reduces nutrient leaching
- Suppress weeds
- Suitable for grazing after 1st December



# Catch crops options

To simplify the selection of catch crops we have developed a star rating to indicate the suitability of each catch crop to conventional Irish conditions. We have taken into consideration that the crop will not be sown until late summer/autumn, the potential benefits of the crop, the price and availability of the crop and its suitability to Irish growing conditions.

In some cases the recommended sowing rate will be higher than the rate outlined due to the method and timing of sowing.

\*\*\*\*\* = suitable as a catch crop in Ireland

\* = less suitable as a catch crop in Ireland



### Forage rape ★★★★★

Can be grazed after 1st December as a forage for cattle or sheep. Rapid growing ability with good winter hardiness. A high energy feed for grazing ruminants.

**Sowing rate:** 3-5 kg/ha

**Frost tolerance:** Good

**Biomass:** Good

**Pests & diseases:** Generally not a problem, but clubroot could become an issue if brassicas are used as a cover crop over a period of years.



### Tillage radish ★★★★★

A deep rooting plant which extracts nutrients from deep in the profile and helps open channels in the soil for subsequent crops. Improves water movement and drainage and increases airflow through the soil.

**Sowing rate:** 5 kg/ha

**Frost tolerance:** Poor – frost will help decay tillage radish and thus avoid the requirement for chemical spray

**Biomass:** Will generate large biomass quickly

**Pests & diseases:** Generally not a problem, but clubroot could become an issue if brassicas are used as a catch crop over a period of years.



### Mustard ★★★

A rapidly growing annual which will help reduce nitrogen leaching, and also suppress weeds.

**Sowing rate:** 6-10 kg/ha

**Frost tolerance:** Low, but this helps in its incorporation as it will be largely diminished over the winter

**Biomass:** Good

**Pests & diseases:** Generally not a problem, but clubroot could become an issue if brassicas are used as a cover crop over a period of years.



### Leafy turnip ★★★★★

A member of the brassica family, with high early vigour. Their deep rooting will help condition the soil and relocate nutrients from the sub-soil to the top. Will also help reduce nitrogen leaching.

**Sowing rate:** 5 kg/ha  
**Frost tolerance:** Good  
**Biomass:** Yields of 3–5 t DM, suitable as a forage crop

**Pests & diseases:** Generally not a problem, but clubroot could become an issue if brassicas are used as a cover crop over a period of years.



### Oats & Black Oats ★★★

Provide cover over the winter to help reduce soil erosion due to good tillering capacity. Oats have poor winter tolerance and are easily killed and worked back into the soil. Useful for weed suppression and as a nurse crop with hairy vetch.

**Sowing rate:** 75–100 kg/ha  
**Frost tolerance:** Poor  
**Biomass:** Reasonable

**Pests & diseases:** Generally not a problem.



### Peas ★

Peas have good nitrogen fixation abilities and can be sown as a nitrogen fixing crop in an area declared as an EFA. Generally, peas are not suited for sowing after a main cereal crop as it is too late in the season for them to establish.

**Sowing rate:** 30 kg/ha  
**Frost tolerance:** Poor  
**Biomass:** Good if sown early in the season  
**Pests & diseases:** Generally not a problem.



### Beans \*

Beans, like peas have excellent nitrogen fixation abilities and can be sown as a nitrogen fixing crop in an area declared as an EFA. Beans are not suited for sowing after a main cereal crop as it is too late in the season for them to establish.

<b>Sowing rate:</b>	90–100 kg/ha
<b>Frost tolerance:</b>	Poor
<b>Biomass:</b>	Good if sown early in the season
<b>Pests &amp; diseases:</b>	Generally not a problem.



### Vetch \*\*\*\*\*

This is probably the most suitable legume for sowing as a cover crop due to its ability to fix nitrogen at lower temperatures than many other legumes.

<b>Sowing rate:</b>	12 kg/ha
<b>Frost tolerance:</b>	Good
<b>Biomass:</b>	Rapidly produces a large biomass
<b>Pests &amp; diseases:</b>	Generally not a problem.



### Rye \*\*\*

Extensive and deep rooting so excellent for soil conditioning. Effective at reducing nitrogen leaching over the winter.

<b>Sowing rate:</b>	65–80 kg/ha
<b>Frost tolerance:</b>	Good
<b>Biomass:</b>	Good
<b>Pests &amp; diseases:</b>	Monitor at establishment for leather jackets, slugs and frit-fly. Generally not a problem once established.



### **Crimson clover / Berseem clover \***

Clovers have excellent capability to fix nitrogen at soil temperatures above 8°C and are less effective over the winter period. Not suited to August/September sowing.

- Sowing rate:** 10–15 kg/ha. Avoid sowing too deep  
**Frost tolerance:** Berseem clover is sensitive to frost.  
Crimson clover can tolerate frost  
**Biomass:** Moderate  
**Pests & diseases:** Generally not a problem.



### **Phacelia \*\*\*\***

A rapidly growing crop, which will reduce nitrogen leaching and suppress weeds, with a beneficial root structure.

- Sowing rate:** 2–5 kg/ha  
**Frost tolerance:** Poor  
**Biomass:** Lower biomass than many other cover crops, but it works extremely well as part of a mixture and the recommendation would be to sow it with other cover crops  
**Pests & diseases:** Generally not a problem.



### **Buckwheat \*\***

Establishes quickly and helps suppress weeds. A rapidly growing crop which will help reduce nitrogen losses. Buckwheat is good to scavenge phosphate in the soil which it can make available for subsequent crops after incorporation.

- Sowing rate:** 30–40 kg/ha  
**Frost tolerance:** Poor  
**Biomass:** Good  
**Pests & diseases:** Generally not a problem.



# Management of catch crops

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## Sowing

Rapid establishment of catch crops following harvest will ensure there is adequate moisture for germination before stubbles dry out from lack of cropping cover.

## When to sow

Spring or autumn is the best times to grow catch crops. In the autumn the earlier that they can be established the better to make use of longer days and warmer ground temperatures. Every day counts once the cereal crop is harvested.

## How to sow and establish

Drilling a catch crop keeps the soil active all the time. The leaching of nitrogen is minimised and the organic matter that will be incorporated in the upper soil is maximised.

Catch crops can be drilled directly into stubble or broadcast onto cultivated ground.

Since all mixes contain a mixture of small and big seed a sowing depth of 1.5cm to 3cm is recommended. Rolling is important to ensure good soil-to-seed contact and help maintain soil moisture for germination and growth.

## Fertiliser

Farmyard manure/compound fertiliser could be applied prior to cultivation/drilling to provide the growing plants basic nutrients. This will maximise growth and subsequent biomass for grazing or cover for overwintered crops.

Nutrients applied will be taken up by the growing catch crop and released upon breakdown in the spring to the following cash crop. Where sown as a Greening requirement, minimal fertiliser if any is recommended. However if intending to graze the catch crop, applications of nitrogen and phosphate are essential to increase yield.

### **Incorporation of the catch crop**

Generally temperatures over winter in Ireland are not low enough to kill the crop, so it is recommended to burn them off with a herbicide or cut with a flail mower. Incorporation then can generally be done by ploughing or rotavating. After burning off, the catch crop can be incorporated by discing and the cash crop can be drilled in.



Find out more

## Find out more

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[germinal.ie](http://germinal.ie)



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### Contacts:

#### **Diarmuid Murphy**

Technical Sales Manager

085 747 3865

[diarmuid.murphy@germinal.com](mailto:diarmuid.murphy@germinal.com)



#### **Dr Mary McEvoy**

Technical Development Manager

087 962 2520

[mary.mcevoy@germinal.com](mailto:mary.mcevoy@germinal.com)



#### **Jim Gibbons**

Sales and Production Manager

086 257 3389

[jim.gibbons@germinal.com](mailto:jim.gibbons@germinal.com)



#### **Niall Laffan**

Technical Sales Manager

085 841 6477

[niall.laffan@germinal.com](mailto:niall.laffan@germinal.com)



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**Germinal Ireland Limited**  
Horse & Jockey, Thurles,  
Co. Tipperary

T: +353 (0)504 41100  
[ireland@germinal.ie](mailto:ireland@germinal.ie)



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