agrovista
seeds

Cover Crops
key mixtures and straights

2020

growing through
innovation

Welcome

to Agrovista's Cover Crop Brochure 2020

Awareness of cover crops within the UK arable sector has increased considerably recently, driven by the need to find new solutions for worsening problems within our industry. This season will continue to challenge us, following inclement weather conditions throughout autumn and winter.

Improvements in economies of scale in modern systems, alongside tight rotations, have undoubtedly put pressure on our soils. There is also an increasing need for non-chemical control options for weeds, pests and diseases. The result of this has been the proliferation of interest in, and a growing adoption of, cover crops.

The role of cover crops in improving soil fertility and structure has long been recognised in Europe. It is a legal requirement in some countries to ensure there is no bare land, which has led to multi-million Euro investments from breeders.

Although cover crops are relatively new to the UK, we can draw a wealth of experience from them. The level of innovation in plant species and varieties available to Agrovista and you as our customer, is already impressive.

Work at Agrovista's Project Lamport in Northamptonshire has provided our customers with practical solutions for grassweed control, using different husbandry approaches whilst harnessing breeders' innovation. Informed by well-respected academic insight regarding spring drilling in blackgrass control, Project Lamport has led the way in using specific cover crop mixtures.

The study has shown that they can provide a practical and cost-effective method of drilling spring cereals on soils that are typically considered too heavy.

Growing cover crops requires a different mindset because it's function, not yield, that is the end goal. When introducing species to the farm where considerations are more than simply output, it is important to have complete trust in your agronomy provider. Questions around species, varieties, potential long-term volunteer pitfalls, seeding dates, rooting habits and EFA requirements can all be baffling, so good advice is pivotal.

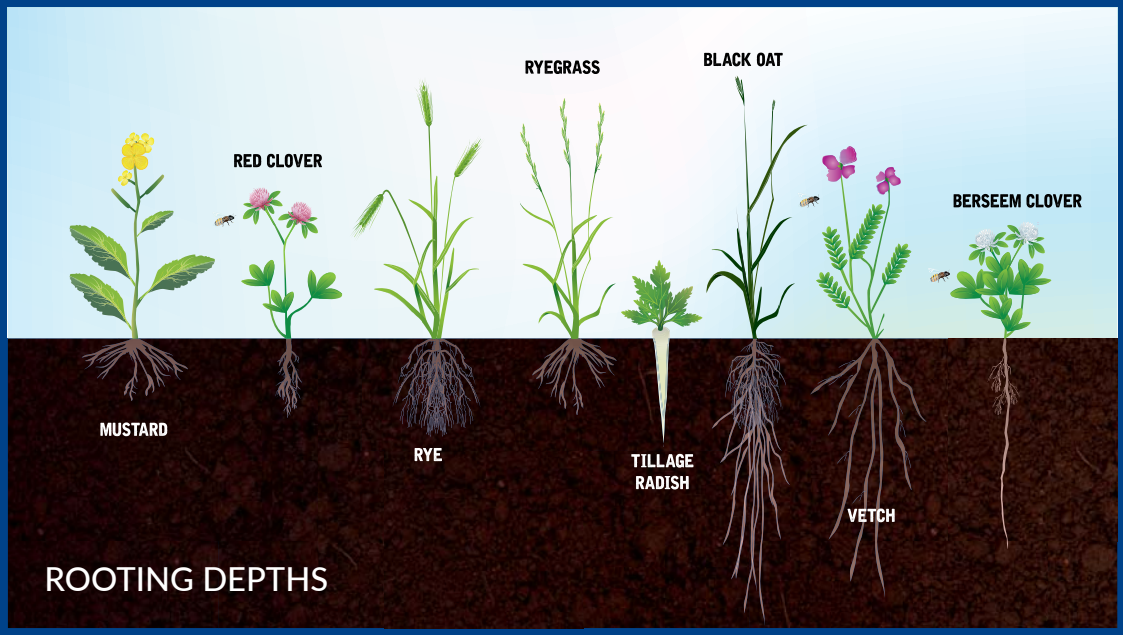
Agrovista's experience at Project Lamport and through our wider business means you can trust us to give you the best advice based on what are, in my opinion the best cover crop trials in the arable sector.

Please contact your local Agrovista agronomist for more information and we hope our cover crop brochure will whet your appetite.

TOM NICKERSON
Head of Seeds

What components do I need in my cover crop?

- Varieties that do not set seed before crop destruction
- Species that do not create a long-term volunteer problem
- Species that have different rooting habits - essential for soil structure improvement
- Species with low Carbon:Nitrogen ratio for better nitrogen utilisation
- Species that do not create an extra pest or disease problem
- Do they need to be EFA compliant?



Agrovista has evaluated specific cover crop mixes which -

- Create a platform to ease spring drilling, allowing a third crop
- Are allowed as part of the EFA
- Help with soil structure, to allow better water infiltration and soil drying
- Help with increasing organic matter, soil micro flora and fauna

Why use Vetch, Berseem Clover, Phacelia and Radish in cover crops?

Common Vetch

- Excellent at nutrient recycling
- Extensive rooting system with good soil conditioning
- Excellent weed suppressant

Berseem Clover

- Single and multi cut varieties available. Multi cut varieties are not suitable for companion cropping
- High biomass production in the autumn with powerful tap root and good soil structure properties
- Tabor Berseem Clover will give fast mineralisation (low Carbon/Nitrogen ratio) and is very frost sensitive

Phacelia

- Easy to establish and not as susceptible to pest damage as clovers or vetches
- High biomass production with extensive root structure
- Very attractive to bees and ideal in mixtures with Black Oats

Radish

- Quick to establish with deep tap roots helping to break up compacted soils
- Radish can help to trap residual nutrients for use in the following crop. Avoid where oilseed rape is in the rotation

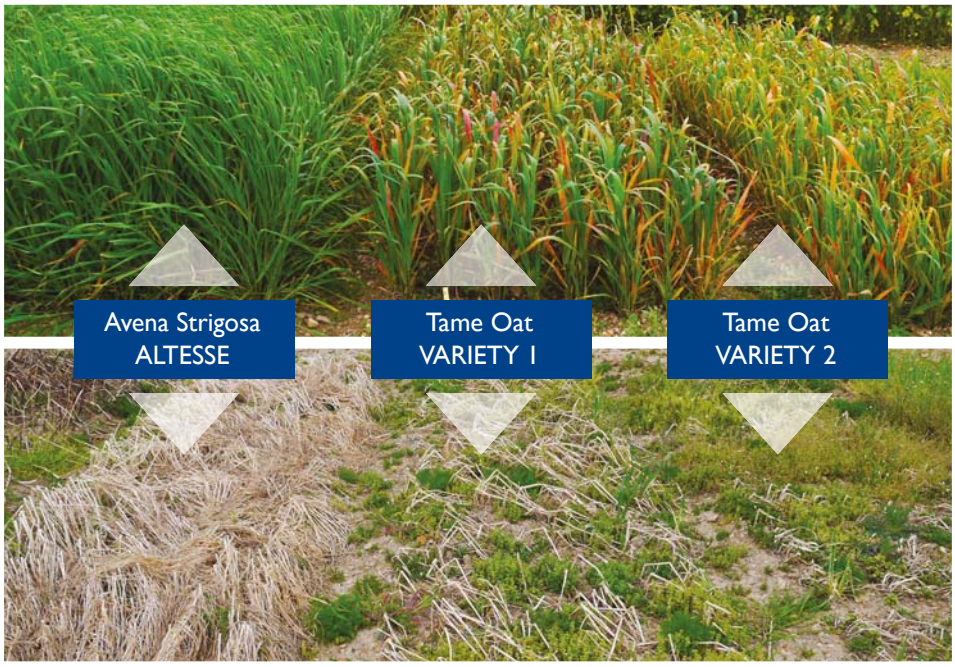
Altesse Black Oats

Avena strigosa (Black Oats) varieties must be specifically bred to minimise seed production and shedding. The oats also have to have a low Carbon:Nitrogen ratio.

Not all Avena strigosa species are equal; some are early varieties that will grow too quickly and have the potential to set seed which may create problems in the following crop.

Avena strigosa should be mixed with a correct partner for the situation.

Drilling date: 22nd August 2014 **Picture** November 2014



Drilling date: late Autumn **Picture** post destruction

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soil health

How do Agrovista Soil Health catch and cover crops work?

- Researched and developed specific species to improve structure and soil condition
- Improved structure and soil condition using powerful rooting of the cover crop
- Reduce nutrient losses from bare ground
- Reduce pest incidence associated with bare ground in summer, wheat bulb fly
- Improve water infiltration
- Improve organic matter while structuring and conditioning the soil

The concept: The use of cover crops in blackgrass control

Previous research has clearly shown that spring cropping can have a dramatic effect on the reduction of blackgrass populations. The problem has been that blackgrass can be the dominant weed on heavy, difficult soils in to which it can often be hard to establish a spring crop.

Imagine if it was possible...

To go from this...

...to this without selective chemistry

How do Agrovista grass weed specific catch and cover crops work?

- Developed as crop with unique properties
- Slower early establishment allows weeds to germinate in the autumn
- After main grass and broad leaved weed germination, the cover crop grows prolifically to get biomass above and below ground to help soil structure, drainage, nutrient capture and ground cover
- Cover crop and associated weeds are then destroyed in the spring using glyphosate
- Direct drill into the decaying or dead cover crop
- Great results with disc drills but other common drills can be used (with changes in practice)
- Land is left with a mat of decaying tissue between the slots which prevents soil movement and exposure between the rows
- This severely limits grass weed germination in the spring

SPRINTER-PRO *Black Oats + Phacelia*

The Altesse Black Oat has a low C:N ratio to allow quick plant breakdown and release of nutrients. The addition of Phacelia creates a beneficial root profile which has excellent soil conditioning properties while the Altesse Black Oat aids soil drying at depth.

Suitable for grass weed control situations	✓	**EFA compliant 2020**	✓
Sowing Rate	15 kg/ha	**Sowing Depth**	10-15 mm
Pack Size	15 kg		
Sowing Date	JAN FEB MAR APR MAY JUN JULY AUG SEP OCT NOV DEC		
Product Information	Sprinter Pro has been specifically designed to help with problem grass weed situations. Adherance to the principals of the "Lamport System" are crucial to obtain best results. A reduced level of Phacelia in this mix ensures grass weeds can still germinate and are able to be destroyed before the following crop is drilled. Care must be taken not to allow the Phacelia to set seed.		
Cover crop destruction guidelines	Glyphosate should be applied 6-8 weeks before drilling the following crop if possible. Second Glyphosate application should be applied pre drilling of the following crop to remove small grass weeds.		

MAXIMUS COVER CROP *Black Oats + Common Vetch*

The original cover crop solution for grass weed control. Correct use allows germination of autumn weeds and improved soil structure via different rooting profiles. Ideal soil preparation to allow for direct drilling of spring crops.

Suitable for grass weed control situations	✓	**EFA compliant 2020**	✓
Sowing Rate	20 - 25 kg/ha	**Sowing Depth**	15-25 mm
Pack Size	20 kg		
Sowing Date	JAN FEB MAR APR MAY JUN JULY AUG SEP OCT NOV DEC		
Product Information	Maximus Cover Crop is the original cover crop solution for problem grass weeds designed to aid spring drilling using the "Lamport System". In a grass weed situation following OSR or early sowing reduce seed rate to 20kg/ha. Check previous herbicide use to ensure no residual damage occurs to the cover crop.		
Cover crop destruction guidelines	Glyphosate should be applied 6-8 weeks before drilling the following crop if possible. Second glyphosate application should be applied pre drilling of the following crop to remove small grass weeds.		

N-STRUCTURE *Black Oats + Berseem Clover*

Addition of Berseem Clover provides a deeper rooting structure with minimal soil disturbance. Rapid breakdown of plant biomass aids rapid release of nutrients.

Suitable for grass weed control situations	✓	**EFA compliant 2020**	✗
Sowing Rate	15 - 20 kg/ha	**Sowing Rate**	10-15 mm
Pack Size	20 kg		
Sowing Date	JAN FEB MAR APR MAY JUN JULY AUG SEP OCT NOV DEC		
Product Information	For those preferring to use Berseem Clover as opposed to Vetches or Phacelia then N-Structure provides the ideal solution. When used in a grass weed situation following OSR or early sowing reduce seed rate to 15kg/ha. The use of clover means N-Structure is not EFA compliant. Check previous herbicide use to ensure no residual damage occurs to the cover crop.		
Cover crop destruction guidelines	Glyphosate should be applied 6-8 weeks before drilling the following crop if possible. Second glyphosate application should be applied pre drilling of the following crop to remove small grass weeds.		

LEGUME PRO *Berseem Clover + Phacelia + Common Vetch*

Non cereal catch crop utilising powerful deep rooting of Berseem Clover, shallower structuring from vetches and the soil conditioning from Phacelia.

Suitable for grass weed control situations	✓	**EFA compliant 2020**	✗
Sowing Rate	10 kg/ha	**Sowing Depth**	10-15 mm
Pack Size	20 kg		
Sowing Date	JAN FEB MAR APR MAY JUN JULY AUG SEP OCT NOV DEC		
Product Information	Legume Pro is the ultimate catch crop to structure and condition the soil before planting late sown cereals. Beware if previous spring crop treated with clopyralid. Check previous herbicide use.		
Cover crop destruction guidelines	Glyphostate should be applied 1-2 weeks pre winter wheat crop drilling the following crop.		

SPRINTER-MAX *Black Oats + Phacelia*

Sprinter Max benefits from a far higher inclusion rate of Phacelia than Sprinter Pro giving much greater ground cover potential and greater root biomass in first 12 inches of soil profile. The combination of Phacelia with Altesse Black Oats allows excellent soil conditioning while still helping to dry soils at depth.

Suitable for grass weed control situations	✗	**EFA compliant 2020**	✓
Sowing Rate	10 kg/ha	**Sowing Depth**	10-15 mm
Pack Size	20 kg		
Sowing Date	JAN FEB MAR APR MAY JUN JULY AUG SEP OCT NOV DEC		
Product Information	Sprinter Max is ideal as both a catch or cover crop. Higher inclusion rates of Phacelia ensure excellent ground cover and weed suppression. Phacelia has a complementary root structure to Black Oats making Sprinter-Max perfect for improving soil structure. Ideal where concerns over pests such as slugs and pea & bean weevil rule out species such as Common Vetch.		
Cover crop destruction guidelines	Phacelia should be destroyed before seed set and 6-8 weeks before following crop is drilled.		

TILLAGE MAX *Black Oats + Oil Radish*

Oil Radish works in combination with Black Oats to provide deep soil penetration and improved drainage. Not suitable in areas where problem Blackgrass or Ryegrass are an issue.

Suitable for grass weed control situations	✗	**EFA compliant 2020**	✓
Sowing Rate	15 - 25 kg/ha	**Sowing Depth**	15-25 mm
Pack Size	20 kg		
Sowing Date	JAN FEB MAR APR MAY JUN JULY AUG SEP OCT NOV DEC		
Product Information	Tillage Max is suitable in rotations where peas and beans have replaced OSR. Avoid where OSR or brassica crops are in rotation. For early sowing reduce seed rate to 20 kg/ha. Check previous herbicide use to ensure no residual damage occurs to the cover crop.		
Cover crop destruction guidelines	Glyphosate should be applied 6-8 weeks before drilling the following crop if possible. Second glyphosate application should be applied pre drilling of the following crop to remove small grass weeds.		

HARDY MIX-PCN REDUCTION

Oilseed Radish + Ethiopian Mustard + White Mustard

Proven reduction of PCN with good levels of soil structure improvement and nutrient trapping capability

Suitable for grass weed control situations	✗	**EFA compliant 2020**	✗
Sowing Rate	15 kg/ha	**Sowing Depth**	15-25 mm
Pack Size	15 kg		
Sowing Date	JAN FEB MAR APR MAY JUN JULY AUG SEP OCT NOV DEC		
Product Information	Hardy Mix is designed to reduce PCN levels whilst having a beneficial affect on soil structure. For autumn incorporation sow from the end of July to mid August. For spring incorporation sow from September onwards. Treat as a commercial crop drilling into a clean seedbed and adding N:P:K as required. Up to 90% of any applied nutrients will be available to the following crop.		
Cover crop destruction guidelines	Macerate crop ten days after flowering and immediately incorporate into the soil.		

HARDY MIX EFA-PCN REDUCTION

Oilseed Radish + Ethiopian Mustard + Japanese Oat

Proven reduction of PCN with good levels of soil structure improvement and nutrient trapping capability. Addition of Black Oats qualifies this mixture for EFA status.

Suitable for grass weed control situations	✗	**EFA compliant 2020**	✓
Sowing Rate	15 kg/ha	**Sowing Depth**	15-25 mm
Pack Size	15 kg		
Sowing Date	JAN FEB MAR APR MAY JUN JULY AUG SEP OCT NOV DEC		
Product Information	Hardy Mix is designed to reduce PCN levels whilst having a beneficial affect on soil structure. For autumn incorporation sow from the end of July to mid August. For spring incorporation sow from September onwards. Treat as a commercial crop drilling into a clean seedbed and adding N:P:K as required. Up to 90% of any applied nutrients will be available to the following crop.		
Cover crop destruction guidelines	Macerate crop ten days after flowering and immediately incorporate into the soil.		

ALTESSE BLACK OATS

Altesse is the most versatile black oat variety suitable for a wide range of sowing dates. A low C:N ratio ensures rapid breakdown and release of nutrients. Beneficial root profile helps to dry soils at depth.

EFA compliant 2020	Only when mixed with Vetch, Phacelia, Mustard, Lucerne or Radish
Sowing Rate	15 - 25 kg/ha
Sowing Depth	15-25 mm
Sowing Date	JAN FEB MAR APR MAY JUN JULY AUG SEP OCT NOV DEC

PHACELIA

Phacelia produces a very dense root system and is ideal as a catch or cover crop. Very effective at suppressing weeds and a good potash scavenger. Ideal partner for Black Oats.

EFA compliant 2020	Only when mixed with Barley, Oats or Rye.
Sowing Rate	2 - 5 kg/ha
Sowing Depth	10-15 mm
Sowing Date	JAN FEB MAR APR MAY JUN JULY AUG SEP OCT NOV DEC

COMMON VETCH

Nitrogen fixing and deep rooting helping to improve soil structure and nutrient status. Excellent weed suppressant. Mix with Black Oats for EFA compliancy.

EFA compliant 2020	Only when mixed with Barley, Oats or Rye.
Sowing Rate	5 - 40 kg/ha
Sowing Depth	15-25 mm
Sowing Date	JAN FEB MAR APR MAY JUN JULY AUG SEP OCT NOV DEC

FODDER RADISH *(inc Tillage Radish)*

Excellent at trapping and retaining residual Nitrogen which is then slowly released back into the soil. Produces large amounts of biomass and the large tap root helps to break up compacted soils. Type 1 and 2 varieties are able to suppress nematodes.

EFA compliant 2020	Only when mixed with Barley, Oats or Rye
Sowing Rate	5 - 10 kg/ha
Sowing Depth	10 - 20 mm
Sowing Date	JAN FEB MAR APR MAY JUN JULY AUG SEP OCT NOV DEC

WHITE MUSTARD

Mustard can help to improve soil structure but has a high C:N ratio and so takes a long time to break down and release nutrients back into the soil. Type 1 and 2 varieties are able to suppress nematodes.

EFA compliant 2020	Only when mixed with Barley, Oats or Rye
Sowing Rate	6 - 12 kg/ha
Sowing Depth	10-20 mm
Sowing Date	JAN FEB MAR APR MAY JUN JULY AUG SEP OCT NOV DEC

TABOR BERSEEM CLOVER

Powerful tap root makes Berseem Clover ideal for improving soil structure. Good partner for Black Oats in a catch or cover crop mixture. The variety Tabor is best for companion planting with oilseed rape.

EFA compliant 2020	No
Sowing Rate	2 - 5 kg/ha
Sowing Depth	5 - 10 mm
Sowing Date	JAN FEB MAR APR MAY JUN JULY AUG SEP OCT NOV DEC

NIGER

Close relation to sunflowers hence very frost sensitive. Produces large amounts of biomass especially in mixtures with Phacelia and Mustard. When sown with Phacelia it is very attractive to bees. Niger is also fairly drought tolerant.

EFA compliant 2020	No
Sowing Rate	5 - 10 kg/ha
Sowing Depth	10 - 20 mm
Sowing Date	JAN FEB MAR APR MAY JUN JULY AUG SEP OCT NOV DEC

CRIMSON CLOVER

Fast establishment and excellent weed suppression. Good source of forage for livestock. Overwinters well with rapid spring growth. Able to tolerate poorer quality soils.

EFA compliant 2020	No
Sowing Rate	5 - 10 kg/ha
Sowing Depth	5 - 10 mm
Sowing Date	JAN FEB MAR APR MAY JUN JULY AUG SEP OCT NOV DEC

CRESS

Very quick to establish and used extensively in Europe as a catch crop. Use as a partner to Black Oats, Clovers or Phacelia.

EFA compliant 2020	No
Sowing Rate	10 - 20kg/ha
Sowing Depth	5 - 10 mm
Sowing Date	JAN FEB MAR APR MAY JUN JULY AUG SEP OCT NOV DEC

BUCKWHEAT

Excellent at trapping excess nitrogen. Creates good ground cover and performs well on poorer soil types. Excellent weed suppressant, improves soil structure and is a good phosphorous scavenger. Seed carry over can be a problem before maize or beet the following spring.

EFA compliant 2020	No
Sowing Rate	25 - 50 kg/ha
Sowing Depth	15 - 25 mm
Sowing Date	JAN FEB MAR APR MAY JUN JULY AUG SEP OCT NOV DEC

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