



agrovista  
seeds



# Cover Crops key mixtures and straights



*growing through  
innovation*



# WELCOME

## TO AGROVISTA'S COVER CROP BROCHURE 2019.

The exponential rise in the awareness of cover crops within the arable sector has been driven by the need to find new solutions for worsening problems on many UK farms.

Improvements in economies of scale in modern farming systems, compounded by tight rotations, have undoubtedly put pressure on our soils, which needs to be addressed. There is also an increasing requirement for non-chemical solutions for weed, disease and pest problems.

Both of these areas have led to the proliferation of interest in, and a growing adoption of, cover crops in the UK.

The ability of cover crops to improve soil fertility and structure has been recognised in Europe for several years. It is a legal requirement in some areas of the continent to ensure there is no bare land, which has led to multi-million Euro investments from breeders.

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

Agrovista's work at Project Lamport in Northamptonshire has provided our customers with pragmatic solutions for grassweed control, using different husbandry approaches whilst harnessing breeders' innovation. This work has been truly remarkable. Although it leans on well-known academic assumptions around spring drilling in blackgrass control, it has led the way

through use of specific cover crop mixtures in establishing a practical and cost-effective method of drilling spring cereals on soils that were hitherto considered too heavy.

Growing cover crops requires a different mindset as it is function, not yield, that is key. When introducing species to the farm where considerations go beyond 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, and it is vital you source good advice.

Agrovista's experience at Project Lamport and elsewhere 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 do contact your local Agrovista agronomist and visit Lamport on 3rd and 4th July where we look forward to sharing our findings with you.

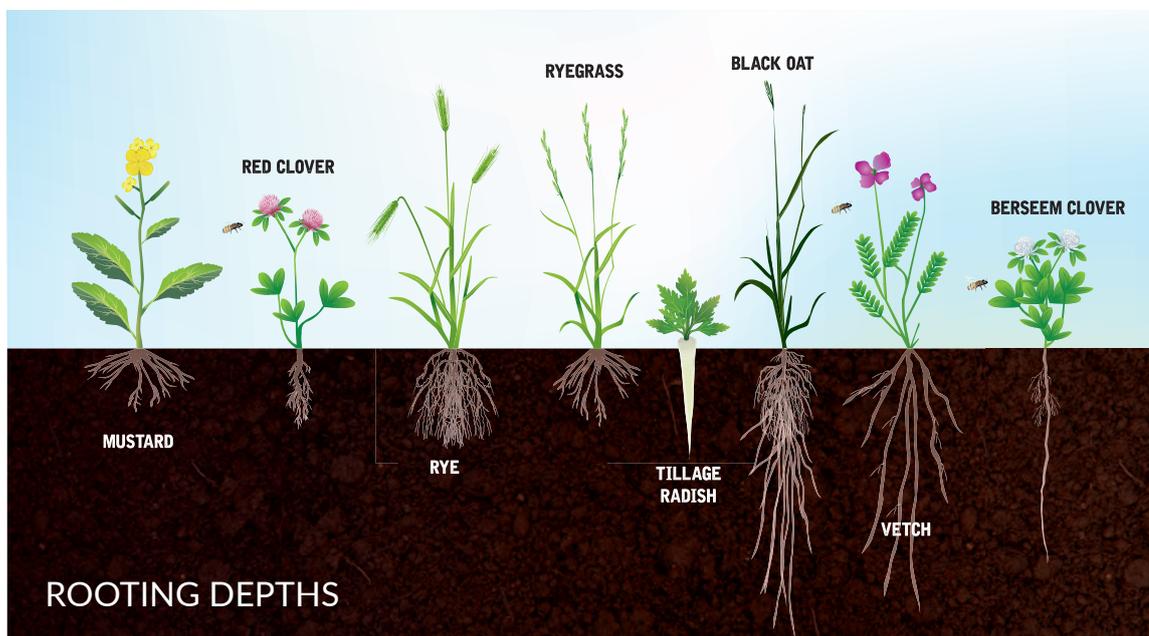
Until then, we hope our cover crop booklet will whet your appetite.

**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.
- High Carbon/Nitrogen ratio for slow release of nutrients back into the soil

## 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.



## HOW DO AGROVISTA RESEARCHED 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

## A NEW 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...



## HOW DO AGROVISTA RESEARCHED GRASS WEED SPECIALISED 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.

Mixture	Black Oats + Phacelia	Suitable for grass weed control situations	Yes
EFA compliant 2019	Yes	Sowing Rate	15 kg/ha
Pack Size	15 kg	Sowing Depth	10-15 mm
Sowing Date			
Product Information	<p>Sprinter Pro has been specifically designed to help with problem grass weed situations. Adherence to the principals of the "Lampport 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.</p>		
Cover crop destruction guidelines	<p>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.</p>		

## N-STRUCTURE BLACK OAT + 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.

Mixture	Black Oat + Berseem Clover	Suitable for grass weed control situations	Yes
EFA compliant 2019	No	Sowing Rate	15 - 20 kg/ha
Pack Size	25 kg	Sowing Depth	10-15 mm
Sowing Date			
Product Information	<p>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.</p>		
Cover crop destruction guidelines	<p>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.</p>		

## MAXIMUS COVER CROP BLACK OAT + 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.

Mixture	Black Oat + Common Vetch	Suitable for grass weed control situations	Yes
EFA compliant 2019	Yes	Sowing Rate	25 kg/ha
Pack Size	25 kg	Sowing Depth	15-25 mm
Sowing Date	<p>JAN FEB MAR APR MAY JUN JULY AUG SEP OCT NOV DEC</p>		
Product Information	<p>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.</p>		
Cover crop destruction guidelines	<p>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.</p>		

## 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.

Mixture	Berseem Clover + Phacelia + Common Vetch	Suitable for grass weed control situations	Yes
EFA compliant 2019	No	Sowing Rate	10 kg/ha
Pack Size	20 kg	Sowing Depth	10-15 mm
Sowing Date	<p>JAN FEB MAR APR MAY JUN JULY AUG SEP OCT NOV DEC</p>		
Product Information	<p>Legume Pro is the ultimate catch crop to structure and condition the soil before planting late sown cereals. Beware if previous crop spring treated with clopyralid. Check previous herbicide use.</p>		
Cover crop destruction guidelines	<p>Glyphosate should be applied 1-2 weeks pre winter wheat crop drilling.</p>		

## 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.

Mixture	Black Oats + Phacelia	Suitable for grass weed control situations	No												
EFA compliant 2019	Yes	Sowing Rate	10 kg/ha												
Pack Size	20 kg	Sowing Depth	10-15 mm												
Sowing Date	<table border="1"> <tr> <td>JAN</td><td>FEB</td><td>MAR</td><td>APR</td><td>MAY</td><td>JUN</td><td>JULY</td><td>AUG</td><td>SEP</td><td>OCT</td><td>NOV</td><td>DEC</td> </tr> </table>			JAN	FEB	MAR	APR	MAY	JUN	JULY	AUG	SEP	OCT	NOV	DEC
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 OAT + ASIAN RADISH

Asian 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.

Mixture	Black Oat + Asian Radish	Suitable for grass weed control situations	No												
EFA compliant 2019	Yes	Sowing Rate	25 kg/ha												
Pack Size	25 kg	Sowing Depth	15-25 mm												
Sowing Date	<table border="1"> <tr> <td>JAN</td><td>FEB</td><td>MAR</td><td>APR</td><td>MAY</td><td>JUN</td><td>JULY</td><td>AUG</td><td>SEP</td><td>OCT</td><td>NOV</td><td>DEC</td> </tr> </table>			JAN	FEB	MAR	APR	MAY	JUN	JULY	AUG	SEP	OCT	NOV	DEC
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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.

Mixture	Oilseed Radish + Ethiopian Mustard + White Mustard	Suitable for grass weed control situations	No
EFA compliant 2019	No	Sowing Rate	15 kg/ha
Pack Size	15 kg	Sowing Depth	15 - 25 mm
Sowing Date			
Product Information	<p>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.</p>		
Cover crop destruction guidelines	<p>Macerate crop ten days after flowering and immediately incorporate into the soii.</p>		

## 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.

Mixture	Oilseed Radish + Ethiopian Mustard + Japanese Oat	Suitable for grass weed control situations	No
EFA compliant 2019	Yes	Sowing Rate	15 kg/ha
Pack Size	15 kg	Sowing Depth	15 - 25 mm
Sowing Date			
Product Information	<p>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.</p>		
Cover crop destruction guidelines	<p>Macerate crop ten days after flowering and immediately incorporate into the soii.</p>		

## 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 2019	Only when mixed with Vetch, Phacelia, Mustard, Lucerne or Radish
Sowing Rate	15 - 25 kg/ha
Sowing Depth	15-25 mm
Sowing Date	

## 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 2019	Only when mixed with Barley, Oats or Rye.
Sowing Rate	3 - 6 kg/ha
Sowing Depth	20-30 mm
Sowing Date	

## 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 2019	Only when mixed with Barley, Oats or Rye.
Sowing Rate	10 - 120 kg/ha
Sowing Depth	40 - 60 mm
Sowing Date	

## FODDER RADISH (INC TILLAGE RADISH)

Excellent at trapping and retaining residual Nitrogen. Produces large amounts of biomass, type 1 and 2 varieties are able to suppress nematodes. Not suitable where grass weed control is the key criteria.

EFA compliant 2019	Only when mixed with Barley, Oats or Rye
Sowing Rate	6 - 10 kg/ha
Sowing Depth	10 - 20 mm
Sowing Date	

## 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 2019	Only when mixed with Barley, Oats or Rye.
Sowing Rate	6 - 12 kg/ha
Sowing Depth	20 - 30 mm
Sowing Date	

## 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 2019	No
Sowing Rate	2 - 5 kg/ha
Sowing Depth	8 - 12 mm
Sowing Date	

## 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 2019	No
Sowing Rate	10 - 12 kg/ha
Sowing Depth	8 - 12 mm
Sowing Date	

## 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 2019	No
Sowing Rate	40 - 50 kg/ha
Sowing Depth	20 - 30 mm
Sowing Date	



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