



Contents

Introduction	02
– Meet the team	03
Planning your forage requirements	04
Aber High Sugar Grasses (HSG) range	05
– General purpose, cutting and grazing	06 – 19
- Overseeding	20
– Aber HSG for anaerobic digestion	21 – 22
Forage breeding for a sustainable future	23
Clover Blends	24
– Clover Blends	25
– Red clover	26
Alternative forage crops	27
– Puna II perennial chicory	28 – 29
– Tonic plantain	30
– Herb options	31
– Lucerne	32 – 33
– Planning brassica crops	34
– Forage brassica options	35 – 37
– Brassica mixtures	38 – 39

02

Germinal continues to drive progress in support of British farmers

Grassland is the biggest crop in the UK, accounting for two thirds of agricultural land. Any small improvement you make in how you manage your grassland can impact your productivity.

Grass and forage seed specialists

As specialists in forage, we are ideally placed to help farmers improve performance and address challenges faced on farm. Our combination of technical expertise and practical knowledge is one of our greatest assets. We work alongside you to share our knowledge and give advice on grassland management when you most need it.

Quality forage, real gain

Our focus on the future and developing the solutions you need means we deliver new varieties that help British livestock farmers meet the challenges they face. In recent years our new grass and forage varieties have consistently delivered improvements in forage use and environmental performance, driving on-farm efficiency, maximising yields and farmers' profitability.

Proven products to help sustain your business

With innovation at the heart of all we do, Germinal is committed to research and development. Our ongoing, exclusive partnership with the Institute of Biological, Environmental and Rural Sciences (IBERS) at Aberystwyth University has led to the development of market-leading seed varieties, including Aber High Sugar Grasses. All our new varieties are also tested at our own research station in Wiltshire, where trials are undertaken with scientific rigour in a real-life farming situation. We take our products from the lab to the field, so you know Germinal's products work effectively on farm. Throughout this catalogue you'll hear from farmers themselves about how they're using Germinal products and the gains they've made in their businesses as a result.





Meet the team 03

Meet the team

This year's catalogue, Forage Seed 2021, reinforces the technical information and practical insight into our products provided by our expert team in the field.



National Agricultural Sales Manager 07990 578550

Ben has worked in the seed trade for all but six years of his career since graduating with a degree in agriculture in 1993. He is passionate about on-farm productivity from good grassland management and believes there are always improvements to be made in forage production and utilisation



William spent 25 years on his family dairy and sheep farm near Lanark, gaining valuable on-farm experience to complement his agricultural qualifications. William always aimed to maximise his production from forage through regular reseeding to maintain high-quality leys; a policy he now helps farmers adopt through his role with Germinal.

Helen Mathieu

Central, Eastern and North West England and North Wales 07866 456056

Helen is a qualified agronomist bringing 30 years specialist experience in grassland and forage to Germinal. Much of Helen's time is spent sharing her extensive knowledge and practical know-how with livestock farmers to help them make positive changes on farm to boost productivity and long-term profitability.

Paul Morgan Southern England and South Wale 07713 878069

12 years' experience in the agricultural supply trade, including the animal health sector. His in-depth knowledge of High Sugar Grasses helps him support farmers make forage improvements to the benefit of their livestock production.

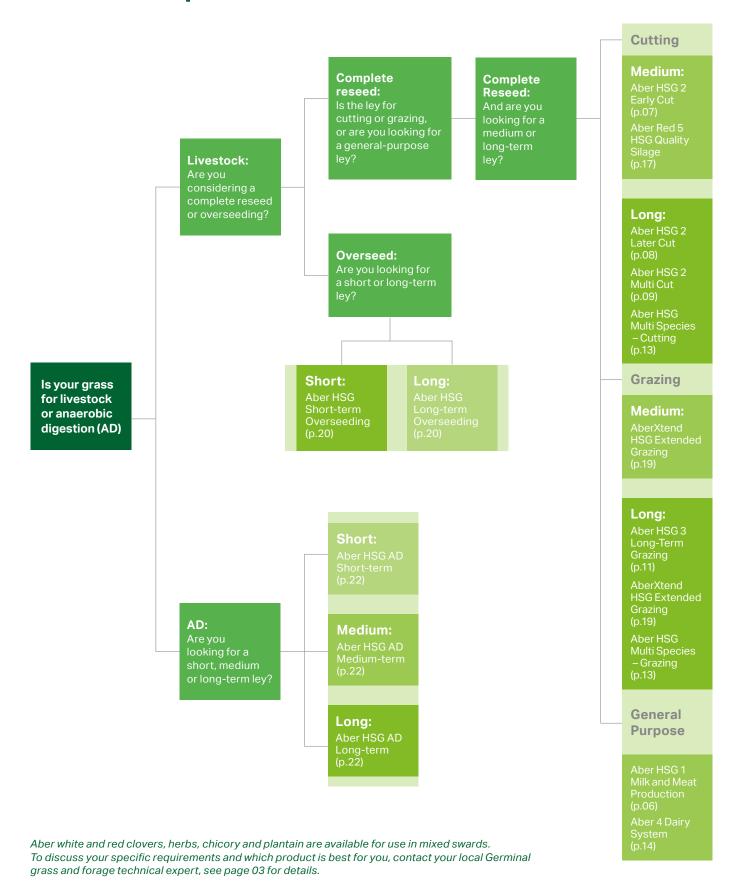








Planning your forage requirements



Aber HSG

Aber High Sugar Grass (HSG) range

As the name suggests, grasses within the Aber HSG range contain higher levels of sugar, and therefore energy, than those found in conventional ryegrasses. This high level of available energy helps bacteria in the rumen of livestock convert more of the protein in forage into meat and milk. Without enough energy, most forage protein is wasted, producing ammonia and methane. So, not only does the extra energy from high sugar grasses help produce more meat and milk but reduces the production of these gases.

Aber HSG varieties dominate the most highly-rated varieties for metabolisable energy (ME) yield/ha, a key determinant of livestock performance. Even small increases in ME can produce important increases in milk production and liveweight gain. Milk yields have been seen to rise by 6% and significant liveweight gains shown in both sheep and beef cattle. Choosing mixtures comprising top-ranking Aber HSG varieties is one step towards a more productive and profitable business.

The Aber HSG range includes short, medium and long-term leys with specialist mixtures for cutting and grazing systems, as well as general purpose leys. Aber HSG mixtures are also available for overseeding and for biogas production. Each product contains a carefully selected combination of Aber varieties to fit its specific requirements.



General Purpose Aber HSG 1 Milk and Meat Production

Aber HSG 4 Dairy System

Grazing Aber HSG 3 Long-Term Grazing

AberXtend HSG Extended Grazing

Aber HSG Multi Species

Cutting Aber HSG 2 Early Cut

Aber HSG 2 Later Cut Aber HSG 2 Multi Cut Aber HSG Multi Species Aber Red 5 HSG Quality Silage

Overseeding Aber HSG Short-term Overseeding

Aber HSG Long-term Overseeding

Anaerobic digestion Aber HSG for AD Short-term

Aber HSG for AD Medium-term Aber HSG for AD Long-term

Aber HSG

LONG TERM

Aber HSG 1Milk and Meat Production

and beef cattle, sheep and finishing lambs.

May. It is best cut 5 - 10 days before its heading date.

Aber HSG 1 Milk and Meat Production is a grass mix ideally

suited to long-term, general-purpose use, particularly

set-stock grazing or cutting. Suited to grazing by dairy

Aber HSG 1 is your best choice when looking for a high-performance general-purpose ley. It contains a mixture of high sugar grasses for high digestibility and increased dry matter intakes. It produces a dense sward,

which resists poaching. Aber HSG 1 is ideally suited to set-stock grazing,

while also offering the potential for a heavy, high-quality silage cut in late

With good management, an Aber HSG 1 sward maintains quality for at least









Benefits of Aber HSG 1

7 years.

- · High digestibility to drive dry matter intakes
- Suitable for all grazing stock (NB. unsuitable for horses)
- · Long-term sward with options for a variety of farm requirements
- · Outstanding grazing yield and grazing D-value
- Lower ammonia excretion reducing environmental impact
- 100% Aber HSG grasses

Kg / acre Variety **Heading Date** Type 3.00 AberZeus Perennial Ryegrass 27 May 3.00 AberWolf Perennial Ryegrass 28 May 4.00 AberGreen Perennial Ryegrass 30 May 4.00 AberGain Perennial Ryegrass (T) 04 Jun 1 00 AberDairy White Clover Blend 15.00

Heading date average for Aber HSG 1 Milk and Meat Production is 30 May for central Britain. When cutting for silage, aim to cut 5 - 10 days before average heading date for optimum quality. Optimum spread of heading dates within mixtures for grazing and cutting results in better performance of the leys.

MAY I JUNE

Fig 01.

Aber HSG 1 Milk and Meat Production:

T = Tetraploid

Fig 02.

Aber HSG 1 Milk and Meat Production:

Spread of heading dates

10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 1 2 3 4 5 6 7 8 9 10

OPTIMAL CUTTING WINDOW

MEDIUM TERM



Aber HSG 2 Early Cut



Aber HSG 2 Early Cut is a specialist grass mixture bred specifically for the production of high-quality silage with first cut from the end of April to mid-May.

If you are looking for a high-quality, high-yield silage early in the season, Aber HSG 2 Early Cut is ideal. Cutting silage early gives you the ability to capture the very best D-value and protein levels before they begin to drop in mid-May. It delivers good yield also, overcoming a common reason for delaying a first cut - the fear of what's gained in quality is lost in quantity.

Delaying the first cut can be at the expense of missing a crop at its prime, jeopardising the potential of an increase in milk yield.

Benefits of Aber HSG 2 Early Cut

- Delivers quality and yield over 3 4 years
- Optimum heading date range: 16 25 May
- · Outstanding ME yield

Kg / acre	Variety	Туре	Heading Date
6.00	AberClyde	Perennial Ryegrass (T)	25 May
5.00	AberEcho	Hybrid Ryegrass (T)	16 May
4.00	AberEve	Hybrid Ryegrass (T)	21 May
15.00			

Heading date average for Aber HSG 2 Early Cut is 20 May for central Britain.

When cutting for silage, aim to cut 5 - 10 days before average heading date for optimum quality.

Optimum spread of heading dates within mixtures for grazing and cutting results in better performance of the leys.

Fig 03.

Aber HSG 2 Early Cut:

T = Tetraploid

Fig 04.

Aber HSG 2 Early Cut: Spread of

heading dates



AberClaret Red Clover



LONG TERM

Aber HSG 2 Later Cut



Aber HSG 2 Later Cut is a specialist silage mixture for when you're aiming to cut a high-quality crop in mid-to-late May.

Aber HSG 2 Later Cut gives you good mid-season growth and persistence, maintaining performance throughout the season. This straight grass mixture's heading date in early June makes Aber HSG 2 Later Cut ideally suited for later silage cuts.

Choose the Aber HSG 2 Later Cut + AberClaret red clover variety to increase the protein content of your silage, reduce protein losses in the clamp and benefit from red clover's nitrogen-fixing ability.

Benefits of Aber HSG 2 Later Cut

- Produces up to four high-quality, high-yielding silage cuts
- Optimum heading date range enables high-quality silage crop mid to late-May
- · Quality and yield maintained for at least five years
- 100% Aber HSG grasses
- · Works well with red clover

Kg / acre Variety **Heading Date** Туре 6.00 AberGain Perennial Ryegrass (T) 04 Jun 4.00 AberBite Perennial Ryegrass (T) 05 Jun 5.00 AberBann Perennial Ryegrass 07 Jun 15.00

Heading date average for Aber HSG 2 Later Cut is 07 June for central Britain.

When cutting for silage, aim to cut 5 - 10 days before average heading date for optimum quality.

Optimum spread of heading dates within mixtures for grazing and cutting results in better performance of the leys.

Fig 05.

Aber HSG 2 Later Cut:

T = Tetraploid

Fig 06.

Aber HSG 2 Later Cut:

Spread of heading dates



AberClaret Red Clover

Aber HSG

Aber HSG 2 Multi Cut

LONG TERM



Aber HSG 2 Multi Cut is a specialist silage mixture designed to produce large quantities of leafy, high-quality silage from multiple cuts during the period of peak grass growth.

If you aim to have three cuts in the clamp by mid-June, Aber HSG 2 Multi Cut is the best option for you. Aber HSG 2 Multi Cut's mixture of Aber High Sugar Grass varieties provide plenty of early season growth and maintain quality and yield throughout the season.

It is suited to a late April first cut with subsequent cuts at four to five weekly intervals, with three cuts in the clamp by late June to early July. Swards will be ideal for late season or winter grazing if required.

Benefits of Aber HSG 2 Multi Cut

- · Ideal for early season cutting, avoiding stemmy later season growth
- Exceptional ME yield/ha
- Narrow heading date range to allow close control of silage production and quality
- Excellent ground cover maintained for soil protection and prevention of weed ingress
- Aber High Sugar Grass content enhances silage fermentation
- Using a multi-cut system gives consistent leafy production

Aber HSG 2
Multi Cut:

T = Tetraploid

Kg / acre	Variety	Туре	Heading Date
3.50	AberSpey	Perennial Ryegrass (T)	29 May
4.00	AberZeus	Perennial Ryegrass	27 May
3.50	AberAvon	Perennial Ryegrass	03 Jun
4.00	AberGain	Perennial Ryegrass (T)	04 Jun
15.00			

Heading date average for Aber HSG 2 Multi Cut is 31 May for central Britain.

When cutting for silage, aim to cut 10 - 15 days before average heading date for optimum quality.

Optimum spread of heading dates within mixtures for grazing and cutting results in better performance of the leys.

Fig 08.

Aber HSG 2 Multi Cut:

Spread of heading dates



AberClaret Red Clover



LONG TERM

Aber HSG

AVAILABLE TIMOTHY

Aber HSG 3 Long Term Grazing

Aber HSG 3 Long Term Grazing is a popular grass mixture for long-term grazing in rotational and set-stock systems. It is suited to grazing both cattle and sheep.

Aber HSG 3 Long Term Grazing is your best choice when looking for a high-performance grazing ley. It contains a mixture of high sugar grasses with the highest ratings for grazing quality and yield. The biggest-selling mixture in the Aber HSG range, containing five varieties, it comes with options tailored to specific farm requirements.

With good management, an Aber HSG 3 sward performs for 7 - 10 years.

Benefits of Aber HSG 3 Long Term Grazing

- · High digestibility to drive dry matter intakes
- Suitable for all grazing stock (NB. unsuitable for horses)
- Long-term sward with options for a variety of farm requirements
- Outstanding grazing yield and grazing D-value
- Lower ammonia excretion reducing environmental impact
- 100% Aber HSG grasses
- · Persists for up to 10 years

Kg / acre	Variety	Туре	Heading Date
3.00	AberZeus	Perennial Ryegrass	27 May
2.00	AberMagic	Perennial Ryegrass	28 May
3.00	AberGreen	Perennial Ryegrass	30 May
3.00	AberLee	Perennial Ryegrass	07 Jun
3.00	AberBann	Perennial Ryegrass	07 Jun
1.00	AberPasture	Clover Blend	
15.00			

Optimum spread of heading dates within mixtures for grazing and cutting results in better performance

Fig 10.

Aber HSG 3 Long **Term Grazing:**

Spread of heading dates Heading date average for Aber HSG 3 Long Term Grazing is 01 June for central Britain. When cutting for silage, aim to cut 5 - 10 days before average heading date for optimum quality. of the leys.

AVAILABLE WITH PUNA II







Fig 09.

Aber HSG 3 Long **Term Grazing:**

> JUNE MAY

12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 <mark>27 28 29 30 31 **01 02 03 04 05 06 07** 08 09 10 11 12</mark>

Aber HSG

Aber HSGMulti-Species

LONG TERM

Aber HSG Multi-Species is a specialist mixture for lower input systems where improving soil health is a priority.

Aber HSG Multi-Species Grazing provides a long-term ley ideal for rotational and set-stocked grazing. Aber HSG Multi-Species Cutting contains vetch and annual white clover to boost dry matter production in the first year.

Aber HSG Multi-Species Grazing and Cutting both contain a mixture of high sugar grasses, legumes and herbs. The mixture of plants within the sward drives dry matter production. Areas of poor soil health also benefit from the plants' different abilities to fix and lift nitrogen, with their water uptake increasing performance in dry conditions. Aber HSG Multi-Species produces a dense sward which resists poaching.

Benefits of Aber HSG Multi-Species

- Superior sward performance through complementary plant species
- · Improved soil structure and fertility
- Increased drought tolerance
- Lower ammonia excretion reducing environmental impact
- Legumes and herbs combined with Aber HSG grasses

Kg / acre	Variety	Туре	Heading Date
3.00	AberGreen	Perennial Ryegrass	30 May
3.00	AberZeus	Perennial Ryegrass	27 May
3.00	AberClyde	Perennial Ryegrass (T)	25 May
1.00	Comer	Timothy	08 Jun
0.75	Tonic	Plantain	
0.50	Puna II	Chicory	
1.00	AberPasture	Clover Blend	
0.75	Callisto	Red Clover	
0.75	Avisto	Red Clover	
13.75			

Kg / acre	Variety	Туре	Heading Date
3.00	AberGreen	Perennial Ryegrass	30 May
3.00	AberZeus	Perennial Ryegrass	27 May
3.00	AberClyde	Perennial Ryegrass (T)	25 May
1.00	Comer	Timothy	08 Jun
0.75	Tonic	Plantain	
1.00	AberDairy	Clover Blend	
0.75	Callisto	Red Clover	
0.75	Avisto	Red Clover	
4.00	Vetch	Vetch	
1.00	Fixation	Clover	
18.25			

AVAILABLE WITH RED CLOVER





Fig 11.

Aber HSG Multi-Species Grazing:

T = Tetraploid

Fig 12.

Aber HSG Multi-Species Cutting:

T = Tetraploid

Aber HSG

LONG TERM

Aber HSG 4Dairy System



Aber HSG 4 Dairy System is a grass mix ideally suited to the production of high-quality silage followed by rotational grazing.

If you are a dairy farmer looking for one or two cuts of high-quality silage before focusing on the best possible rotational grazing, Aber HSG 4 Dairy System is for you. You can expect a first cut in mid-late May with an optional second cut 5 - 6 weeks later. Alternatively, the ley can be used for high-quality rotational grazing. It is suitable for grazing mid to late season as well as through the winter. It is available with and without white clover.

Benefits of Aber HSG 4 Dairy System

- · High-quality silage and outstanding aftermath grazing
- Dense and persistent sward maintaining excellent ground cover for soil protection and prevention of weed ingress
- 100% Aber HSG grasses
- · High digestibility to drive dry matter intakes
- Lower ammonia excretion reducing environmental impact
- · Outstanding grazing yield and grazing D-value

Aber HSG 4
Dairy System:

T = Tetraploid

Kg / acre	Variety	Туре	Heading Date
2.00	AberWolf	Perennial Ryegrass	28 May
3.00	AberGreen	Perennial Ryegrass	30 May
3.00	AberGain	Perennial Ryegrass (T)	04 Jun
2.00	AberBite	Perennial Ryegrass (T)	05 Jun
2.00	AberBann	Perennial Ryegrass	07 Jun
2.00	AberChoice	Perennial Ryegrass	10 Jun
1.00	AberDairy	Clover Blend	
15.00			

Heading date average for Aber HSG 4 Dairy System is 04 June for central Britain. When cutting for silage, aim to cut 5 - 10 days before average heading date for optimum quality.

Optimum spread of heading dates within mixtures for grazing and cutting results in better performance of the leys.







Tony Ball

Five years ago, when Tony Ball expanded his dairy herd from 200 to 500 cows, he was looking to bring more of the farm into forage acreage and reduce his reliance on cereals and bought-in feed. He needed a grass which could provide several cuts of silage and good grazing and has found Aber HSG 4 Dairy System provides that balance.

"HSG 4 does two good quality early silage cuts and then recovers well to become part of the grazing rotation. I've also had good results from Aber HSG 2. I like its strong red clover element as well as a high yield, meaning I can reduce my fertiliser input on those pastures. On this farm, HSG 2 suits four cuts of silage with good levels of protein. I use Aber HSG 3 and HSG 1 for longer-term grazing. Having had good results from Germinal grasses for eight years now, I always stick with Germinal when looking for a new mix. I sometimes discuss what I need with the local Sales Manager, Helen, but also use the catalogue to find something suitable."

Farm details

- Vernons Oak Farm, Sudbury, Ashbourne
- 1,100 acres, with 900 acres as forage over two sites
- Established 500 cow dairy herd, all-year-round calving
- Average milk yield 10,000 litres
- 3,000 3,500 litres from forage
- · 3.9% butterfat, 3.3% protein (liquid contract)
- New additional 200 cow, autumn block-calving herd
- Average milk yield 9,000 litres
- 4.5% butterfat, 3.35% protein (cheese contract)

Ian Farrant

Producing a home-grown source of protein for his 1,100 strong beef enterprise is a key objective for lan Farrant. But so is providing plenty of high sugar grass to support strong growth rates during the grazing period. For the last ten years, lan has used Aber HSG 4 in order to meet these twin objectives, producing silage with a 19% protein content and enough quality grazing to support average weight gains of 1kg/day in finishing cattle.

"We rotationally graze our cattle during the spring and summer months and take as many follow-on silage cuts as grass covers and regrowth rates allow. We have found the HSG 4 is a very versatile seed mix and complements our approach on the farm well. It provides plenty of high sugar grasses for grazing in the early part of the season, with the clover coming through later in the season to compensate as grass growth rates tail off. On grazed grass alone, cattle are achieving average weight gains of around 1kg/per day during the grazing season, which I am really pleased with.

"The clover also boosts the protein content of our silage and this helps support strong growth rates in cattle during the housed period. With the clover coming through more strongly later in the season, we find each silage cut we take has a progressively higher protein content, with first cut yielding around 16% protein and final cuts producing silage with a protein content of 19%."

Farm details

- Underley, Tenbury Wells, Worcestershire
- 1,100 cattle, calves to finished cattle
- Finishing 750 800 beef cattle each year
- 300 acres grass, with 150 acres permanent pasture, 150 acres temporary leys
- Grows 120 acres of maize



MEDIUM TERM

Aber Red 5 HSGQuality Silage

Aber Red 5 HSG is designed specifically for high-quality silage production, with the potential for increased protein content and reduced fertiliser costs.

Aber Red 5 HSG is ideal for increasing protein production on farm, reducing your bought-in feed requirement. Aber Red 5 HSG's new generation, longer-lasting red clover increases protein content with genuine 4 - 5 year persistency, well above the 2 - 3 years associated with red clover leys.

Aim for a first cut between red clover's early flower bud and 50% flowering stage, with subsequent cuts at five to six weekly intervals. The ley also provides excellent aftermath grazing for finishing lambs.

Benefits of Aber Red 5 HSG

- Improved protein content of silage
- · Outstanding grazing yield and grazing D-value
- Performance maintained for 4 5 years
- Lower ammonia excretion reducing environmental impact
- 100% Aber HSG grasses

Fig 15.

Aber Red 5 HSG
Quality Silage:
T = Tetraploid

Kg / acre	Variety	Туре	Heading Date
2.00	AberZeus	Perennial Ryegrass	27 May
3.00	AberGreen	Perennial Ryegrass	30 May
4.00	AberGain	Perennial Ryegrass (T)	04 Jun
1.80	AberClaret	Red Clover	
0.60	Callisto	Red Clover	
0.60	Avisto	Red Clover	
12.00			

For optimum forage quality, aim to cut red clover silage when 25% of red clover plants are in flower.

MAY | JUNE

Fig 16.

Aber Red 5 HSG Quality Silage:

Spread of heading dates

07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 01 02 03 04 05 06 07 OPTIMAL CUTTING WINDOW

AberClaret Red Clover

18



MEDIUM / LONG TERM

AberXtend HSGExtended Grazing

AberXtend HSG Extended Grazing offers a high-performing sward for cattle and sheep over a longer grazing season.

AberXtend HSG's mix of high sugar grasses produces high-quality grazing throughout the season from mid-February without compromising performance. Its white clover increases digestibility and dry matter intakes. With good management, an AberXtend HSG sward maintains quality for 5 - 7 years, under set-stocked and rotational grazing regimes.

Benefits of AberXtend HSG Extended Grazing

- High-quality grazing from early spring to autumn
- Exceptional grazing and ME yield
- · High digestibility to drive dry matter intakes
- 100% Aber HSG grasses with Aber white clover blend
- Lower ammonia excretion reducing environmental impact
- Suitable for all grazing stock (NB. unsuitable for horses)

Fig 17.

AberXtend
HSG Extended
Grazing:

T = Tetraploid

Kg / acre	Variety	Туре	Heading Date
5.00	AberDart	Perennial Ryegrass	25 May
5.00	AberZeus	Perennial Ryegrass	27 May
4.00	AberGain	Perennial Ryegrass (T)	04 Jun
1.00	AberPasture	Clover Blend	
15.00			

Heading date average for AberXtend HSG Extended Grazing is 29 May for central Britain.

When cutting for silage, aim to cut 5 - 10 days before average heading date for optimum quality.

Optimum spread of heading dates within mixtures for grazing and cutting results in better performance of the leys.

MAY | JUNE

Fig 18.

AberXtend HSG Extended Grazing: Spread of heading dates 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 <mark>25 26 27 28 **29** 30 31 </mark>1 **2 3 4** 5 6 7 8



Aber HSGOverseeding



If you are looking to boost your grassland production in the short to medium term, and see an early return on investment, overseeding can provide a quick fix.

Overseeding offers the chance to rejuvenate swards with minimal time out of production. The Aber HSG Overseeding mixtures are specifically designed for this purpose, establishing rapidly by blending with existing grass in your leys.

Available as Aber HSG Short-term Overseeding and Aber HSG Long-term Overseeding.

Benefits of Aber HSG Overseeding

· Rapid establishment

Kg / acre

3.00

3.00

4.00

10.00

10.00

- Increased dry matter yields and D-value
- · Reduced requirement for bought-in feed

Variety

AberClyde

AberGain

AberBite

- 100% Aber HSG grasses
- Suitable for all grazing stock (NB. unsuitable for horses)

Fig 19.

Aber HSG
Long-term
Overseeding:

T = Tetraploid

Fig 20.

Aber HSG Short-term Overseeding:

Kg / acre	Variety	Туре	Heading Date
5.00	AberEcho	Hybrid Ryegrass (T)	16 May
5.00	AberNiche	Festulolium	22 May

Туре

Perennial Ryegrass (T)

Perennial Ryegrass (T)

Perennial Ryegrass (T)

Heading Date

25 May

04 Jun

05 Jun

T = Tetraploid



Grass as a feedstock for anaerobic digestion

Grass provides a relatively cheap and readily-available feedstock for anaerobic digesters, and interest is growing due to the range of advantages it offers over other biogas fuels.

Medium and long-term grass leys are a more environmentally sustainable option than crops requiring annual cultivations and most farmers have the equipment and infrastructure in place to produce and handle grass. Grass can be used fresh (offering the highest rate of gas production) and can be cut and carried on a rotational basis. It can also be stored and used as silage. Grass leys allow more opportunity to spread the waste product from digesters, whether liquid or solid, without the need to plough back under.

Medium to long-term grass leys cut three or more times a year reduce blackgrass seed production; by constantly cutting the ley there is little if any seed returning to the soil. The viability of undisturbed blackgrass seed within soil reduces by 70% a year, so after three or more years of grassland, blackgrass seed populations are reduced dramatically. The majority of blackgrass volunteers germinate in the autumn, so establishing your grass ley in the spring (even under-sown to a cereal crop) helps to further reduce blackgrass populations.

Fig. 21 illustrates the cost-effectiveness of grass compared to other biogas fuels.

Fig 21.	F	ig	2	1.	
---------	---	----	---	----	--

Comparative costs of methane production:

	Estimated Fresh Weight (Tonnes / Acre / Year)	Cost £ / Acre	Methane m³ / Tonne	Methane m³ / Acre	Cost £ / m³
Spring Barley (35%DM)	10	£480.00	108	1080	£0.44
	12	£480.00	108	1296	£0.37
Spring Triticale (35%DM)	12	£485.00	108	1296	£0.37
	14	£485.00	108	1512	£0.32
Winter Hybrid Rye (35%DM)	14	£535.00	108	1512	£0.35
	16	£535.00	108	1728	£0.31
	18	£535.00	108	1944	£0.28
Hybrid Ryegrass (25%DM)	26	£635.00	90	2340	£0.27
	28	£635.00	90	2520	£0.25
	30	£635.00	90	2700	£0.24



Aber HSG for AD

The Aber HSG mixtures for AD are ideally suited to biogas production offering short, medium and long-term ley options.

When producing grass as a feedstock for anaerobic digestion, the Aber HSG mixtures for AD give you a distinct advantage. The high sugar content of Aber HSG mixtures generates a higher yield and rate of biogas production than general grassland varieties. Research shows this to be the case whether ensiled or a fresh crop.

Aber HSG mixtures for AD

Fig 22.

AD Short-term:

T = Tetraploid

Kg / acre	Variety	Туре
4.00	AberClyde	Perennial Ryegrass (T)
5.00	AberEve	Hybrid Ryegrass (T)
5.00	AberNiche	Festulolium (T)
14.00		

Fig 23.

AD Medium-term:

T = Tetraploid

Kg / acre	Variety	Туре
6.00	AberEve	Hybrid Ryegrass (T)
8.00	AberWolf	Perennial Ryegrass
14.00		

Fig 24.

AD Long-term:

T = Tetraploid

Kg / acre	Variety	Туре
5.00	AberWolf	Perennial Ryegrass
4.00	AberGreen	Perennial Ryegrass
5.00	AberBite	Perennial Ryegrass (T)
14.00		



The role of white and red clovers in modern sustainable livestock farming is expanding as new varieties offer additional benefits. White clover increases intakes of grass by livestock but also has a number of other important functions.

It helps promote summer grazing when grass productivity might be slowing up, increasing nutrient intakes. Its strong creeping stem also makes it more tolerant of grazing and enables the plant to store energy and protein over winter and into spring. It is also able to fix nitrogen, reducing the requirement and cost of fertiliser applications.

The white clover blends, bred at IBERS, Aberystwyth University are leading the way in producing higher yields and lasting longer. For example, newer varieties are achieving optimum targets of a 30 - 35% contribution to total sward dry matter under a range of management systems.

White clover is best grown as a companion to perennial ryegrass, the variety dependent on the sward's primary use. See p.05 for details of the Aber HSG range. Common uses are with long term leys for continuous sheep grazing through to medium term leys for rotational sheep or cattle grazing and short term cutting and cattle grazing leys.

White clover blends*

High production grazing and cutting Cattle set stocking and rotational sheep grazing Continuous or rotational grazing, upland and lowland

* Specific blends of white clover can be requested to suit a particular farming system or requirement

AberDairy AberPasture AberSheep

Clover Blends 25

Clover BlendsWhite clover

Aber grass mixtures are offered with clover as standard. In addition, clover blends are available to suit a particular farming system or requirement.

AberDairy

If you are running a high-yielding herd, AberDairy can help boost milk yield under both grazing and cutting regimes. It works alongside Aber HSG varieties to provide a balanced sward.

AberPasture

AberPasture contains a blend of white clovers ideal for cattle set stocking and rotational sheep grazing.

AberSheep

AberSheep suits all sheep systems, from continuous to rotational grazing on upland or lowland farms. Containing the new white clover variety, AberLasting, this blend gives increased persistency and drought tolerance.

Benefits of Clover Blends

- Increased output of milk and meat from forage
- · Improved soil structure and grazing quality
- · Balanced grass/clover sward
- Suitable for a wide range of soil types and management systems
- 100% Aber clover varieties

Fig 25.

AberDairy:

Fig 26.

AberPasture:

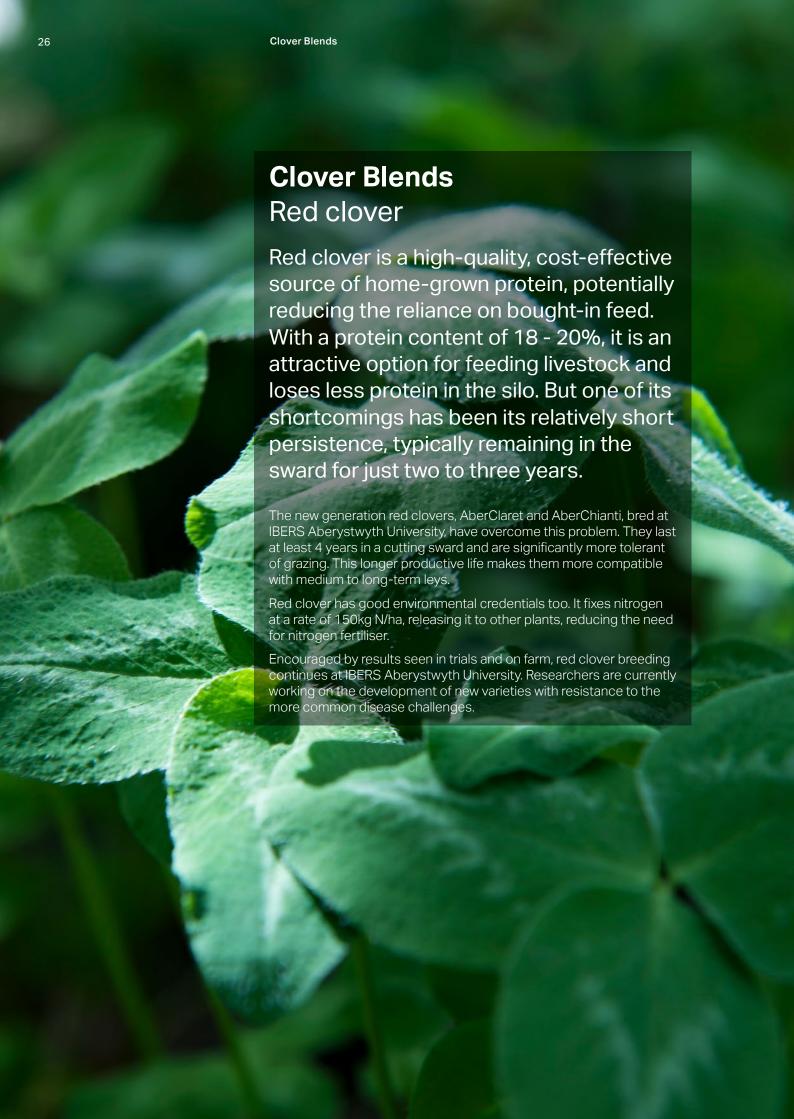
Fig 27.

AberSheep:

%	Variety
33	AberDai (medium leaf)
33	AberHerald (medium leaf)
34	AberSwan (medium - large leaf)

%	Variety
25	AberSwan (medium - large leaf)
25	AberHerald (medium leaf)
20	AberDai (medium leaf)
15	AberPearl (small - medium leaf)
10	AberLasting (small - medium leaf)
5	AberAce (small leaf)

%	Variety
50	AberLasting (small - medium leaf)
35	AberAce (small leaf)
15	AberPearl (small - medium leaf)



Alternative forage crops

Growing alternative forage crops is all about cost efficiency. Homegrown crops help cut feeding costs and fill feeding gaps. They complement efforts to improve grassland and produce high-quality grazing and grass silage, as a companion, break or following crop.

For example, herbs such as chicory and plantain can be used in a mixed grazing sward providing valuable minerals to flushing ewes or finishing cattle. Fast-growing summer-sown brassicas can follow early cut grass or slower-growing kale to provide feed through the winter. When used between grass leys, brassicas are an effective break crop, disrupting the life cycle of pests able to damage newly-established leys. This can also help boost future forage stocks.

Brassicas include a wide variety of crops from leafy kales and forage rapes, to root crops, including stubble turnips and swedes. They are a versatile feeding solution to fill summer grazing gaps, extend autumn grazing, or support out-wintering systems.

Hybrid brassicas, such as Redstart or Swift, take 10 - 12 weeks before a crop is ready to graze, but if drilled early enough can provide multiple grazings. The grazing turnip, Appin, is also capable of multiple grazing into November. Hybrid brassicas' tolerance of the cold means they can also provide forage for out–wintering taking the pressure off conserved forage stocks.

Germinal alternative forage crop range

Puna II chicory mixtures Lamb Finisher; Lamb Finisher with white clover

Livestock Grazer

Herb options Soil and Animal Health Herbs pack

Lucerne Timbale; Galaxie; Galaxie Max

Kale Maris KestrelHybrid brassica Swift; Redstart

Forage rape Stego
Stubble turnip Vollenda
Grazing turnip Appin
Swede Triumph

Brassica mixtures Winter feed; Late Sown Winter Feed;

Summer Multigraze; Autumn Multigraze



Puna IIPerennial Chicory

Puna II is a forage crop for use as a pure stand or part of a mixed sward in medium to long-term rotational grazing.

Puna II perennial chicory is the superior choice of chicory when seeking a broad-leaved forage crop as part of a mixed sward with grass and clover or grown alone in a pure stand. It can boost growth rates and productivity to finish stock earlier. This perennial variety, bred in New Zealand, gives greater persistency lasting 2 - 5 years, longer than the short-lived common chicory.

Benefits of Puna II

- · High palatability to drive growth and productivity
- Capable of producing 10 tonnes dry matter/ha/year
- · High-quality feed throughout the summer
- Valuable mineral content for optimal growth and development
- Suitable for finishing stock, calves and flushing ewes
- Long persistency of 2 5 years
- · Rapid regrowth after grazing
- Tolerance to drought and disease
- Improved soil structure
- Good compatibility with perennial ryegrass





Puna IIPerennial Chicory mixtures

Fig 28.

Lamb Finisher:

Kg / acre	Variety	Туре
1.00	Puna II	Perennial Chicory
1.00	Tonic	Plantain
2.00	Callisto	Red Clover
1.25	Avisto	Red Clover
5.25		

Key benefits in summary

- 2 3 years intensive finishing mixture
- Red clover can contribute up to 150kgN/ha
- Full production from May to September
- High protein forage suitable for finishing early lambs

Fig 29. **Lamb Finisher**

with White Clover:

Kg / acre	Variety	Туре
1.00	Puna II	Perennial Chicory
1.00	Tonic	Plantain
1.00	Callisto	Red Clover
1.50	Avisto	Red Clover
1.00	Aran	White Clover
5.50		

Key benefits in summary

- As Lamb Finisher, but with the benefit of white clover to improve ground cover during late season
- 2 3 years duration

F	iq	3	0

Livestock Grazer:

T = Tetraploid

Kg / acre	Variety	Туре
4.00	AberWolf	Perennial Ryegrass
4.00	AberEve	Hybrid Ryegrass (T)
0.75	Puna II	Perennial Chicory
1.50	Tonic	Plantain
1.00	Aran	White Clover
11.25		
	<u>"</u>	

Key benefits in summary

- 3 4 year medium term ley
- Ideal for lambs, beef youngstock finishing (or calves) or flushing ewes
- The grasses in this mixture offer improved grazing and ground cover in autumn



Tonic Plantain

Tonic plantain is an ideal forage herb in mixed species swards with Aber High Sugar Grasses and Aber white and red clovers to boost growth and liveweight gain.

Tonic plantain is a protein and mineral-rich forage well suited to intensive or rotational grazing systems for dairy and beef cattle, sheep and finishing lambs. Its high protein and mineral content make it a nutritious addition to a mixed sward alongside Aber High Sugar Grasses and clovers. Tonic plantain offers good spring and autumn growth, allowing a longer productive season and shows rapid regrowth post-grazing.

Benefits of Tonic plantain

- Suitable for all grazing stock
- Excellent nursing crop for ewes post-lambing
- · High digestibility to drive intakes and growth
- Stimulates milk production
- Outstanding protein content and D-value
- High mineral content, particularly selenium and copper
- Drought tolerant



Soil and Animal Health Herbs pack



Adding diversity to your leys with the Soil and Animal Health Herbs pack can increase the overall performance of a sward.

The Soil and Animal Health Herbs pack's mixture of leguminous herbs helps you make the best use of the natural resources above and below ground. Improve your soil health and structure by increasing the mixture of plants in your swards. The increased plant activity will also reduce your nitrogen losses and increase your carbon capture, improving your overall environmental impact across the farm.

Benefits of Soil and Animal Health Herbs

- Suitable for all grazing stock
- · Increased performance from a mixed sward
- · Improved soil health and structure
- Drought tolerant

Birdsfoot Trefoil

Black Medic

 Lower nitrogen losses and increased carbon capture reducing environmental impact

Puna II perennial chicory

Deep rooted, drought tolerant and mineral rich

Tonic plantain

Deep rooted, drought tolerant and mineral rich

Burnet

Deep tap root and mineral rich

Alsike clover

Nitrogen fixing legume

Sheeps Parsley

Deep rooted and mineral rich

Yarrow

Deep rooted and drought tolerant

Fig 31.

Soil and Animal Health Herbs Pack:

An effective multi-species sward will contain a balance of different plants with varying leaf and root architecture. This should increase the efficiency with which the sward captures light, water and nutrients and converts them into forage. Additional herbs can increase the diversity and further enhance the value of the sward.



Mineral rich, anthelmintic properties

Low and prostrate nitrogen fixing legume

Lucerne

Timbale

Galaxie

Galaxie Max

Lucerne offers the potential to provide an economic source of homegrown protein, reducing reliance on bought-in feed and fertiliser.

If you are looking for an alternative cutting crop, lucerne is certainly worth considering. It can also be grazed under specific conditions, and however you choose to use it, it offers a highly digestible alternative for livestock farmers. It's best suited to free-draining soils, so avoid heavier land, and is able to thrive in dry conditions. Similar to clover, lucerne provides a high protein homegrown alternative to bought-in feeds and leaves residual nitrogen in the soil for subsequent crops.

With good management, lucerne maintains quality for 4 - 6 years.

Benefits of lucerne

- Highly palatable, protein-rich complementary feed to drive intakes
- Outstanding yield and D-value
- · Good drought tolerance
- Selected varieties for UK conditions
- Lower ammonia excretion reducing environmental impact

Varieties selected for UK conditions

Timbale

Galaxie

Galaxie Max

A blend of Timbale and Galaxie

Supplied pre-inoculated and treated with Seed Applied Solution for better establishment and to stimulate early development

Fig 32.

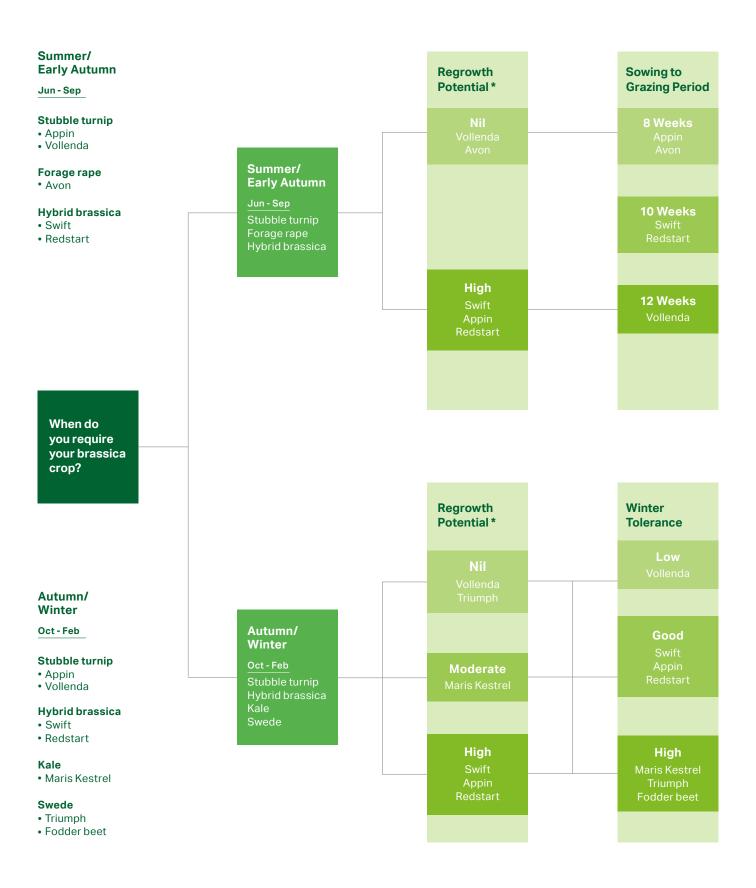
Improved
development
of roots and
foliage is seen
in the lucerne
seedlings on the
right as a result of
Precidose seed
treatment:







Planning your brassica crops



 $^{{\}it *Rate and extent of regrowth depends on weather conditions.}$

Forage brassicasKale



Kale is a high-quality, cost-effective winter feed for all classes of stock.

It can also help overcome grass shortages towards the end of summer. This high-yielding, high leaf-to-stem ratio variety is highly digestible, suitable for grazing.

Benefits of kale

- · High palatability driving intakes
- · Outstanding leaf-to-stem ratio
- Good cold weather and frost tolerance
- Stems resistant to lodging
- · Ideal for outwintering
- Suitable for all classes of stock

Variety

 $\textbf{Maris Kestrel} \quad \text{Sow at 2 - 3kg/acre from May to the end of June. Feed from July to the following February.}$

Hybrid brassicasSwift and Redstart



If you're looking for a flexible, cost-effective forage crop, hybrid brassicas are a new interspecies of kale and rape, ideal for high energy grazing of cattle and sheep.

The crop grows quickly and vigorously, offering grazing options from July to around the end of January depending on sowing date.

Benefits of hybrid brassicas

- High energy and protein
- Suitable for cattle and sheep
- Fast and vigorous growth offering multiple grazing opportunities
- · Good cold weather and frost tolerance
- · Good late season yields

۷a	ri	et	ν

Swift Sow at 2 - 3kg/acre from May to the end of August. Feed from July to the following January.

Redstart Sow at 2 - 3kg/acre from May to the end of August. Feed from July to the following January.

Grazing turnipAppin



Like stubble turnip, grazing turnip offers a flexible feeding option reducing reliance on concentrates during the autumn and winter.

It, too, can be used as a catch crop during summer shortfalls.

Benefits of grazing turnip

- · High palatability and easy-to-digest driving intakes
- Suitable for cattle and sheep
- Fast growing with excellent regrowth potential offering versatile grazing
- Wide sowing window

Variety

Appir

Drill at 2kg/acre (or broadcast at 3kg/acre) from March to mid-September. Feed from May to December.

Triumph

Swede Triumph

A high-yielding feed suitable for outwintering all classes of stock.

Benefits of swede

- · High energy feed for cattle and sheep
- · Outstanding dry matter yields
- · Good cold weather tolerance

Variety

Triumph

Drill at 250g/acre (precision drilled) from mid-May to end of June. Feed from December to March.

Forage rape Stego

Stego

Rape is a fast-growing, high protein feed particularly well-suited to finishing lambs.

It also offers potential for extended grazing of cattle through summer, autumn and winter.

Benefits of forage rape

- · High leaf-to-stem ratio
- · Excellent disease resistance
- · Suitable for outwintering

Variety

Stead

Drill at 2.5kg/acre (or broadcast at 4kg/acre) from March to July. Feed from June to December.

Stubble turnip Vollenda

Vollenda

Stubble turnip is another flexible forage crop offering a cost-effective feeding solution in summer, autumn or winter for sheep or cattle.

As well as providing a main crop, it can be used as a catch crop during summer grazing shortfalls.

Benefits of stubble turnip

- · High energy and protein
- Suitable for cattle and sheep
- · Easy establishment and quick growth
- · Good clean grazing for lambs

Variety

Vollenda

Drill at 2 - 3kg/acre from May to the end of August. Feed from July to the following January.

Brassica mixtures

Brassica mixtures are an effective way of tailoring a grazing crop more precisely to specific circumstances.

Individual crops including kale, forage rape and turnips have their own strengths but also grow well in combination.

Benefits of Brassica mixtures

- Increased choice of forage for livestock
- Higher dry matter intakes

2.25 Main use

Late lamb finishingFlushing ewes

Improving late season grazing when grass growth is declining

• Greater overall production per hectare

Kg / acre	Variety
1.00	Maris kestrel
1.00	Swift hybrid brassica
2.00	
Main use Out-wintering for all ruminant livestock	Key featuresA winter-hardy blend of palatable fodderYield potential of over 12 tonnes DM/ha
Kg / acre	Variety
0.75	Swift hybrid brassica
0.75	Redstart hybrid brassica
0.65	Appin grazing turnip
0.10	Maris Kestrel kale
2.25	
Main use Out-wintering for sheep or cattle	Key features • Fast growing fodder for late sowing
Kg / acre	Variety
0.50	Appin grazing turnip
1.00	Swift hybrid brassica
0.90	Avon rape
0.10	Maris Kestrel kale
2.50	
Main use • Early lamb finishing • Supplementary summer grazing for dairy or beef cattle	 Key features A blend of fast growing grazing turnips and forage rape with the added high yield, quality and regrowth potential of Swift Regrowth potential
Kg / acre	Variety
1.25	Swift hybrid brassica
1.25 0.90	Swift hybrid brassica Appin grazing turnip

Key features

 A blend that combines the winter hardiness and quality feed value of Swift for later grazing and the rapid establishment of Appin grazing turnip

Fig 33.

Winter Feed:

Fig 34.

Late Sown Winter Feed:

Fig 35.

Summer Multigraze:

Fig 36.

Autumn Multigraze:



Tom Mansell

With grass growth suffering as a result of drought in 2018, Tom Mansell's initial motivation for drilling Redstart hybrid brassica on his farm was to provide a source of early season grazing for his dairy cows and supplement anticipated shortfalls in forage. However, not only did the crop end up providing a valuable source of feed, it also proved to be a very effective break crop and is now being employed to help improve poorly performing land.

"In 2019 I strip-grazed 80 of my low-yielding cows on 17 acres of Redstart from early February through to late March, and this took a lot of pressure off my forage stores. The Redstart had a direct feed benefit and helped maintain the herd's milk from forage performance, but it also proved to be a useful break crop and improved the soil condition of the old grass ley into which the brassica mix had been drilled.

"I have subsequently taken over a neighbouring farm which has a number of old, poorly performing grass leys. Following my experiences last year, I have now drilled 47 acres of Redstart into the leys as break crops, with the primary goal of rejuvenating these areas of the farm. The fact that by grazing the brassica mix the herd will continue to improve the percentage of milk produced from forage is an added benefit and was a further motivation to drill the crop."

Farm details

- · Tilstone Bank Farm, Tarporley, Cheshire
- · 230 strong dairy herd, all-year-round calving
- Average milk yield 8,700 litres
- 4,500 litres from forage
- Average of 1,100 litres per cow from grazed grass
- 4% butterfat, 3.3% protein
- 450 acres, which includes maize, grass leys and brassicas

Find out more

Should you require any more information or to request a selection of free brochures and technical guides, please visit our website:

germinal.co.uk



Aber® is a registered trademark of Germinal Holdings Ltd.

The mixtures in this brochure are correct at the time of going to press and the supplies of the varieties used in the mixtures should be adequate for this season. If, however, we do run short of some, they will be replaced by the next best variety on the Recommended List.





Germinal

Camp Road Witham St. Hughs Lincoln LN6 9QJ

T: +44 (0) 1522 868714 lincoln@germinal.co.uk



Germinal is committed to an environmentally sustainable future. This brochure is made from entirely bio-degradable products.

Please recycle this brochure.