

FORAGER

Issue 25 / Spring 2021



APPROACHES TO RESEEDING

The how and what of a reseed

SLURRY APPLICATION STRATEGIES

CONTRACTOR INSIGHTS

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FORAGER

Issue 25 / Spring 2021

FORAGER is available free of charge to farmers and industry specialists

To be added or removed from the magazine mailing list please contact: forager@reverberate-pr.co.uk
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NEW PARTNERSHIP TO HELP FARMERS ACHIEVE NET ZERO

Germinal and the Institute of Biological, Environmental and Rural Sciences (IBERS) at the University of Aberystwyth have announced a new long-term research alliance. It sees Germinal directing and employing a core team of forage and grassland researchers at the institute, as well as sponsoring a Chair of Innovative Grassland Research. The new team embedded at IBERS brings together a unique collaboration of science and agriculture to address climate challenges

and enhance agricultural productivity. It will build on achievements seen from the previous 35 years of collaboration between the organisations, including the award-winning Aber High Sugar Grasses proven to reduce emissions from livestock farms.

Germinal and IBERS are also establishing an industry net zero from productive grassland group to bring cutting edge science and the agricultural industry together to ensure a greener, more resilient future

for ruminant livestock agriculture.

Commenting on the development, William Gilbert, Group Managing Director, Germinal, said:

“Through this new partnership Germinal’s vision to embed researchers within agricultural business to help facilitate innovation is being fulfilled. It acts as an exemplar for public-private co-operation and helps us deliver cutting-edge innovation to directly benefit both individual farmers and wider society.”

Professor Iain Donnison, Director of IBERS, added:

“Our new partnership builds on a proven track record of collaboration, delivering even greater integration. It combines the resources and expertise at IBERS with the knowledge and commercial market access of Germinal. It allows us to work together and accelerate research activity to address the Government’s target of net zero from 2050, while retaining a thriving food and farming industry.”



IBERS grass trial plots, Aberystwyth



Grass breeding at IBERS has a proven track record of collaboration over 30 years

HANDLING TREATED SEED

It’s never the wrong time to review how to handle farm products safely. This is particularly important for maize growers with the change in regulations on seed dressings at the beginning of last year. The banned methiocarb treatments (Mesurol) have largely been replaced with the use of ziram treatments (Korit and Initio). Like methiocarb, these still need careful handling, so here’s a reminder of how to handle dressed maize seeds safely:

- Always wear basic personal protective equipment (PPE) including gloves, overalls and a face mask when handling bags of treated seed and when filling or emptying the hoppers
- Check all bags are intact on arrival and keep in a well-ventilated, locked store
- When emptying bags of seed, reduce exposure to dust by wearing a mask
- Dispose of empty bags; do not reuse



- Clean up any spillage; spilled seeds are a danger to chickens and other farm animals
- When drilling, direct any dust towards the ground
- Protect birds and other wildlife by making sure seeds are well-covered with soil
- Above all, treat products with respect and follow the manufacturer’s guidance.



IMPORTANT RULES ON GRASSLAND HERBICIDE USE

Grazing/cutting intervals

All grassland herbicides specify statutory grazing intervals; the time animals must be excluded after application – usually 7-14 days. Where ragwort is present, exclusion can be at least 6 or 7 weeks until the plant has died and rotted down. Cutting intervals are advisory and typically 21 to 28 days to allow optimal root kill. This also allows weed biomass to decay and reduces the amount put in the silage clamp. If cut earlier, control is weaker and increased amounts of biomass can end up in the clamp. To gain the most from herbicide treatments, follow the use and application requirements specific to each product. This includes water volumes which legally must not go below those specified as it results in sprays being too concentrated as well as reducing control of perennial weeds.

Manure for gardeners

Any manure supplied to gardeners must be free of herbicide residues so susceptible vegetables, such as potatoes, beans and tomatoes, are not affected. If hay is being sold off farm, particularly to stables, and weed control is needed, use products such as Doxstar Pro or Envy which don’t lead to these issues when the manure is collected and used elsewhere.

For more guidance contact the Corteva Technical Hotline on **0800 689 8899** or **UKHotline@corteva.com**

FORAGE SEED 2021

Germinal has published its annual catalogue, Forage Seed 2021. It details Germinal’s award-winning forage products, including the Aber High Sugar Grass range. Throughout the catalogue, farmers share their experiences of how they’ve gained more from their forage through careful product selection and grassland management. Forage Seed 2021 is available to download from **www.germinal.co.uk**.



CONGRATULATIONS GRACE!

Germinal’s Herbage Seed Production and Product Development Officer, Grace Welling, was named 2020 Agricultural Student of the Year in the *Farmers Weekly Awards*. Grace graduated from Harper Adams in 2020 and is based at the Germinal Research Station. Commenting on her success, Grace said: “I am extremely shocked and humbled to receive such a prestigious award. All I have achieved is as a direct result of those who have inspired and supported me. My father always advocated you are never done learning and former employer, David Janaway, inspired me to do better every day. I hope this award is the first step in a long career of working hard and learning every day.”



NEW MACHINERY PLATFORM

LAMMA Show has released an innovative digital machinery platform, ‘LAMMA 365’. It covers everything from news and reviews to price and specification comparisons, providing a handy resource for farmers and contractors wanting to know the latest on new products.



The multi-media content includes videos, podcasts, webinars and a directory of leading manufacturers. Users are able to select and save topics of interest, making it fully customised.

A new feature added since its launch is a review comparison tool, the first of its kind in ag machinery. The tool compares machinery and technology reviewed on the platform side by side. Users see how specs measure up, comparing pros and cons and expert views to help support buying decisions.

Find out more: **www.lamma365.com**



RESEEDING

WHAT'S YOUR APPROACH THIS YEAR?

If you've decided where to reseed this year, now is the time to think about what and how. James Marshall explores the points to consider.

The most productive leys can generate 1kg DM from grazed grass for 5p and the same amount from grass silage for 10-12p. But for the best performance, leys must be sown with top grass varieties – typically perennial ryegrasses.

“The grass varieties used for reseeding are specifically bred to produce quality grass that supports livestock performance and are 25-50% more responsive to nitrogen fertiliser, compared to old, permanent pasture,” explains Ben Wixey, National Agricultural Sales Manager at Germinal. “It is these grasses that convert into either meat or milk most efficiently.

“To maintain the long-term profitability of any livestock business, it is vital grazing and silage land is as productive as possible. Reseeding regularly, and in a way that suits your system and specific forage needs, is key to achieving this.”

Take into account deterioration rates

Planning regular reseeds helps counteract the natural deterioration of grass leys caused by competition between grass varieties. In livestock

systems, perennial ryegrasses aren't allowed to mature enough to produce viable seed. Native grasses, such as meadow grass, pollinate and seed all year long. They can lie dormant in the soil before being revived by vehicle or livestock movement and are prolific at filling spaces in a sward. Now is a good time to walk grass leys to gauge deterioration, flag up areas of need and create a reseed priority list.

Autumn vs spring reseeding

“There is no right or wrong answer for when to carry out grass reseeds, both have benefits and drawbacks,” continues Ben. “The decision needs to be based on predicted land availability for the year ahead and future forage requirements.”

Easier weed control is a benefit of spring reseeds, with the whole summer in which to identify, repair and spray problem areas as the ley matures. The weather is on a farmer's side too, with longer days, good moisture levels and higher soil temperatures; factors that aid early grass growth. Opting for spring reseeding also allows a winter break crop of brassicas to be sown before putting



Using the pull test to check young grass plant establishment

a field to grass. But reseeding in spring does mean valuable grazing or silage land is out of production during the spring and summer months.

During autumn, there is less pressure on grass availability, and an autumn reseed gives grass leys more time to establish and settle, providing a firmer ley. It also takes land out of production when it's least needed, with grass growing slowly during autumn and winter ready for spring. This makes autumn reseeds the only viable option for some, but comes with poorer weather, possible water logging and low soil temperatures, all of which hinder germination rates and the number of plants established.

Cultivation and drilling

Farm type, crop rotation and soil conditions largely dictate which reseeding method is used to produce the all-important level, uniform seedbed required for a consistent sowing depth and good seed-to-soil contact.

Ploughing is good for levelling-up ground, alleviating soil compaction issues in topsoil and helping to create a fine, firm seedbed. Thanks to the high level of seed-to-soil contact in a well-made seed bed, the risk of a reseed failing to establish is also significantly reduced. But ploughing can be expensive if several cultivations are required and can disturb weed seed banks in the soil. It can also

potentially release more soil carbon and breakdown soil organic matter.

“New grass seed doesn't mind being drilled or broadcast,” says Ben. “What does matter is good seed-to-soil contact, as this allows the seed to imbibe moisture from the soil and enables the germination process to get going quickly.

“If white clover is in a grass mix, the seed prefers to be on, or very close to the soil surface, which sways some producers towards cultivation and broadcast methods. But as long as clover is drilled at a depth no deeper than 1cm, it will still perform well.”

Management principles

Before a reseed, test soil to identify any nutrient deficiencies and apply the required inputs well in advance of reseeding to allow time for uptake in the soil. More detailed soil fertility tests are needed every three to five years, so fertiliser and lime application programmes can be developed to help optimise grass ley performance.

Reseeding a minimum of 10 to 15% each year is recommended to maximise the quality and performance of grass leys. Identify poorer-performing grass leys by walking grassland regularly, taking repeated grass growth measurements and recording field-specific silage yields. Concentrate on reseeding poorer leys first.



“NEW GRASS SEED DOESN'T MIND BEING DRILLED OR BROADCAST. WHAT DOES MATTER IS GOOD SEED-TO-SOIL CONTACT.”

BEN WIXEY

“Once a ley is established, but before any silage cuts are taken, it should be lightly grazed,” concludes Ben. “This initial graze should be at no less than 4cm or 1,500kg DM/ha. This helps develop a robust sward by reducing weed competition and encouraging tillering.”

Overseeding better than not reseeding

A full reseed is the most reliable long-term way to improve the performance of grass leys but is a financial investment and takes land out of production. As a result, many farmers opt to overseed, or overstretch, existing grass leys.

“If there isn't the time, money or land available for a full reseed, overstretching is a good option,” says Ben. “It can also kick-start a reseeding programme and deliver short-term returns.

“But it's important to recognise the limitations. Initial plant growth and vigour is inhibited by competition from established plants. Some farmers fall into the trap of not allowing an overseeded ley to establish before grazing. In good conditions, a field can look green, leafy and ready to use, but a premature graze can cause significant damage. Livestock uproot poorly-established grass plants, preventing regrowth. A quick test is to grab a grass leaf between your thumb and finger and try to tear it. If the whole plant comes out, the grass needs more time to establish, but if just the leaf tears, it should be good to go.”

IT'S TIME TO DEVELOP A SLURRY APPLICATION STRATEGY



“WE NEED TO STOP VIEWING SLURRY AS A WASTE PRODUCT AND REGARD IT AS A VALUABLE FERTILISER TO USE APPROPRIATELY.”

RACHEL MONTGOMERY

With ever-tightening regulations on farm inputs, assessing the nutrient content of slurry and developing an application strategy is vitally important. What's more, the production and economic benefits can be substantial. James Marshall finds out more.

During winter there's time to ruminate over the status of slurry stores and think about slurry management for the year ahead.

With increasing pressure to curb input applications, farmers are being urged to develop a detailed strategy to ensure slurry is used as efficiently as possible.

“If new regulations further limit slurry use, farmers must make sure the applications they are allowed to make result in tangible grass performance gains,” explains independent dairy consultant, Rachel Montgomery. “Choosing the best application methods at the right time, used in a targeted manner, gives potential to redress environmental concerns while also reducing input costs and increasing land productivity.

“Purchased inputs aren't applied to land at the wrong time, using inefficient methods or without planning. It needs to be the same with slurry. We need to stop viewing it as a waste product and regard it as a valuable fertiliser to use appropriately,” Rachel says. “If managed correctly, 1,000 gallons of quality slurry delivers the nutrient and performance benefits of a 50kg bag of 5:5:30 (N:P:K) fertiliser.”

Know what you're working with

To produce an effective slurry strategy, farmers must know what they have in terms of slurry quality and land on which it's applied.

“Soil testing identifies fields most in need of fertiliser and must dictate the land chosen for slurry application,” continues Rachel. “We need to progress from

automatically spreading on land close to slurry stores, or historically spread. Slurry must be applied on fields most in need of it, whatever distance from the farm. There is little point applying it on grassland with P and K indices between 2 and 3. It is better used in fields with low K indices.”

Once target fields are identified, slurry quality needs to be assessed for dry matter (DM) and nutrient content. Wet weather influences slurry DM content, as does yard runoff entering stores; both dilute nutrient density. Portable meters measure DM content and farm testing kits are available to analyse N, P and K. The industry average is 6% DM, so adjust nutrient availability to this level.

“Knowing the nutritional value of slurry and nutrient deficiencies of targeted land, application rates can be adjusted accordingly so specific soil performance objectives are achieved,” says Rachel.

Choose the right time

When slurry is spread influences how much nitrogen is available and its environmental impact; an issue set to become more contentious over coming years.

The temptation is to empty slurry tanks in the autumn before cows are housed, but there are disadvantages to this approach. Rain and wet ground risk slurry run off, reducing its utilisation by grass; it's used more effectively in spring.

“Temperature is a key consideration,” explains Rachel. “When temperatures rise, ammonia emissions increase while spreading. This isn't good for the environment and wastes valuable

nitrogen better used to help grass grow! Ammonia emissions double with every 5°C rise in air temperature.

“The ideal day for spreading is cooler and overcast. Early spring is good, as conditions can be favourable and farmers can empty slurry stores before the hot summer weather.”

Consider application methods

To gain the most from slurry, it's worth reviewing how it's applied. Broadcasting slurry is cheap and easy (especially with higher DM slurries), but nutrient loss and contamination reduces its benefit to grass growth.

Using targeted applicators is not straightforward and can involve significant financial outlay but Rachel points out the benefits.

“When using a trailing shoe or slurry injectors, a higher percentage of slurry nutrients reach the plant base, ammonia emissions are lower and risk of slurry run-off is minimised. Slurry can be applied during the grazing season without significant disruption; the wait to put livestock back on grazing land after spreading reduced from six to three weeks,” says Rachel.

Overall, Rachel is positive about future slurry management and farmers' changing attitudes.

“I think most farmers are taking a more planned, targeted approach,” she concludes. “Not only due to changing regulations, but because they see it makes economic and business performance sense.”



Using a targeted applicator helps more slurry nutrients reach the plant base

SLURRY APPLICATIONS COMPARED

- Compared to using a splash plate, ammonia loss is 30-60% lower using a trailing shoe and 70-80% lower with shallow injection methods
- 1,000 gallons of 6%DM slurry applied by trailing shoe in spring can deliver 9 units N: 5 units P: 30 units K. This equates to 27N: 15P: 90K at an average spreading rate of 3,000 gallons/acre. Applied by splash plate, nitrogen falls to 18N in spring and 9N in summer.
- NVZ closed period dates on grassland, with organic manures containing highly readily available nitrogen:
 - Sandy/shallow soils: 1st September - 31st December
 - All other soil types: 1st October - 31st January



Independent dairy consultant, Rachel Montgomery

CONTRACTOR INSIGHTS

For most livestock farmers, successful forage-making is heavily dependent on their contractor being on farm at the right time. Forager asked three business owners for their top tips on building a good relationship with agricultural contractors to produce the best possible forage.

Mark Tellwright and **Rob Buxton** are partners in MRT & RJB Contracting, running a team of nine over the summer. They say communication is everything when planning forage-harvesting. Mark recommends starting the conversation early in the year and sharing proposed timings for harvest, so contractors can build a picture of who needs them when. "Clearly, weather conditions can change the best-laid plans, but if we have a rough idea of our clients' schedules, we can plan staffing and machinery requirements accordingly," says Mark. "It's a real juggle, so the more information we have and the closer clients stay in touch, the better. Farmers see how well their grass is growing every day and will have a clear plan in their head for how many cuts they intend taking. If they don't share that information it's hard for contractors to react. This is especially important if a farmer is thinking of going earlier or later than usual, as a contractor will probably assume it'll be the same as the previous year."

When the contracting team arrives at the farm, Rob recommends being

around to answer questions and talk through specifics such as chop length. "It's also really helpful if farmers can make sure they are ready for us when we arrive," he comments. This includes having the clamp swept out and the inoculant standing by, the field gates open, overhanging branches cut back and cattle out of the way so the crew don't have to keep opening and shutting gates. "While we are usually charging by the acre rather than the hour, we are often racing against the weather and any hold-ups impede our progress to the next field or the next farm," he says. "We really appreciate it when everything is ready for us to be in and out as quickly as we can."

"We have noticed over the years, farmers have upped cow numbers, and therefore their forage requirement, without always increasing clamp capacity," Mark remarks. "Clamps need to be big enough to accommodate sufficient areas within their legal limits as this enables efficient compaction and improved forage quality."

"We are seeing more and more clients adopting a multi-cut approach to grass

silage-making and want to work with them to work out a fair payment model for them and us. While lighter cuts may mean a slight reduction in forage quantity, we use the same high horse-powered machinery for both multi-cut and conventional silage cuts so many of the contracting costs remain the same.

"Again, communication between farmer and contractor about the price structure around multi-cut activity is key. Talking through a system to suit both businesses is the best way to develop a long-standing relationship paying dividends for farmer and contractor," Rob adds.

Contractor: **Mat Stantiford**
Business Name: **SC Marsh Ltd**
Location: **West Dorset**
Annual forage harvest: **12,000 acres**



Mat Stantiford runs a team of 12 and agrees communication and preparation are key to keeping things on track. Ensuring access points are clear and the area around the clamp is free from machinery and clutter is vital. He also recommends drawing a quick map of the fields to be harvested and pointing out any hazards to the team when they arrive. "It's really helpful if the farmer can brief the first member of the team to arrive, usually the mower operator, on the plan for the day and assess any risks," advises Mat. "They will then relay this detail to the rest of the team. Think about mentioning wet patches in fields, hidden ditches and overhead power lines; encounters with any of these could cause a delay to harvesting or, at worst, an accident."

through details like contractor availability, clamp management and charge rates. "Some people are put off multi-cut systems because of the perceived additional contracting costs, but for the quality of forage you can make by going earlier and cutting regularly at the same stage of growth, there's often a good business case for it," he says. "While we have to use the same machinery, the more frequent, lighter cuts in a multi-cut system tend to be quicker to pick up and put less strain on equipment. As a result, most contractors have a slightly different charging mechanism for multi-cut vs. conventional silage-making. Our job is to help clients make the highest-quality forage, so we're really happy to work out the best option for a specific farm."

Pay the bill

With ever-tightening margins and high overheads, both Mat and Mark also note the importance of paying contractor bills on time. "We ask customers to be up to date with payments for last year's work before they start harvesting forage in the spring, either by having split payments or an agreed payment plan," says Mark. "It really does help if clients pay on time," agrees Mat. "If there's rain forecast and two farmers are shouting for you to go out to them, when push comes to shove, you are going to go to the one who pays their bill on time!"

Fourth cut grass silage going into the clamp in August 2020

"OUR JOB IS TO HELP CLIENTS MAKE THE HIGHEST-QUALITY FORAGE, SO WE'RE REALLY HAPPY TO WORK OUT THE BEST OPTION FOR A SPECIFIC FARM."

MAT STANTIFORD



Contractors: **Mark Tellwright** and **Rob Buxton**
Business Name: **MRT & RJB Contracting**
Location: **Staffordshire/Derbyshire borders**
Annual forage harvest: **8,000 acres**

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THE LATEST IN CUTTING EDGE FORAGE RESEARCH



Left: Multi-species trial plots at Germinal Research Station

Below: Harvesting trials plots



FIRST YEAR RESULTS FROM MULTI-SPECIES RESEARCH

Multi-species leys are of increasing interest to farmers because of the benefits being seen in soil fertility and forage quality. Forager looks at the latest research.

Understanding the potential value of adding species to a grass ley is the subject of an on-going trial at the Germinal Research Station (GRS). Current work suggests adding legumes, herbs and wildflowers can benefit total dry matter yield per hectare. Results from the 2020 harvest indicated a mixture combining several legumes and herbs (including chicory, plantain, red and white clover) with multiple grass species (including cocksfoot, timothy, meadow fescue and perennial ryegrass) showed the highest yield. The mixture showed a yield 3.06tDM/ha higher than a stand-alone sward of perennial ryegrass. Analysis of the total yield showed over 60% resulted from the chicory and plantain. This is the first year's results and the interaction of different species over time will be reviewed under simulated rotational 21-28-day grazing intervals for the next two seasons.

It does appear, however, increasing the sward's biodiversity with a wider range of species doesn't necessarily increase yield further. When species such as birdsfoot trefoil, sainfoin and yarrow were included in small amounts no further benefit on yield was seen. That said, the potential 'unseen' benefits of these species such as improved soil structure, high mineral content and increased digestive utilisation via tannin intake have yet to be investigated and measured.

The trial is also analysing the effect of nitrogen on different grass species. The first year's results show when nitrogen application is increased from 150kgN/ha to 250kgN/ha, the multi-species

plots containing perennial ryegrass as a single grass is favoured over the plots with multiple grasses. This can probably be attributed to the high nitrogen use efficiency of perennial ryegrass in comparison to the other grasses.

This multi-species work aims to develop what we know in this area further. By assessing yield, forage quality, species persistency, nitrogen interactions and grazing management, GRS aims to build a more accurate picture of the value of multi-species leys on farm. To narrow the gap between pure science and realistic farm use, an on-farm multi-species trial has also been set up.

BREEDING GRASS SEED FOR YIELD AND QUALITY

The attention of breeding work on grass quality and forage output can be detrimental to seed yield. But one without the other makes quality grass unsustainable. Forager finds out why.

Grass breeders are conflicted. To provide the best quality grass for livestock farmers, the target is for a plentiful cover of highly digestible leaves. But the seed from which to grow grass comes from grass with more stems and seed heads – just what the farmer doesn’t want but just what the merchant needs to maintain supply!

At the moment, a very small proportion, as little as 15%, of potential seed can be harvested. Some of this due to the plant’s genetic make-up causing seed heads to shed large amounts of seed prior to harvest. Grass seed is also harder for a combine to lift, unlike bigger, more robust, grain seeds.

As a result, scientists at the University of Aberystwyth’s Institute of Biological, Environmental and Rural Sciences (IBERS) are studying the genomic markers of perennial ryegrasses to



identify those characteristics impacting seed yield. These include seed dispersal, known as seed shatter, the number of spikelets in a seedhead and seed length. The Innovate UK-funded project forms part of the long-term collaboration between IBERS and grass seed experts, Germinal.

Now working with the sixteenth generation of perennial ryegrasses since the partnership began in 1980, researchers have an unequalled breeding population of germplasm from which to build.

Commenting on the research, IBERS’ Senior Grass Breeder, Alan Lovatt, said: “IBERS’ unique breeding method gives us the ideal platform to develop new characteristics. The well-established breeding population is a high-performing resource for agronomic traits and has generated many ground-breaking grass varieties. Improving the seed production of future varieties allows many more farmers to benefit from the improved performance.”

The work on identifying genetic markers for seed yield has been carried out simultaneously with trials on forage yield and quality at IBERS and the Germinal Research Station in Wiltshire. Trials carried out in Wiltshire aim to confirm the sought-after attributes of any new varieties are replicated in real-life situations before reaching the market. The on-going yield and quality trials show continuous improvements in these traits, vital for livestock farmers.



HIGH YIELD POTENTIAL FOR NEWEST PIONEER MAIZE VARIETY

The 2020 results from the annual Pioneer Accurate Crop Testing System (PACTS®) trials show Pioneer’s newest hybrid, P7948, offers farmers impressive yields for both livestock forage and biogas production.

A high yield and an ability to harvest early enough to avoid the vagaries of autumnal weather are usually on a maize growers’ list of requirements but also conflict. An early harvest can prevent the crop yielding highly enough.

Over three years and across 18 trial sites, P7948’s dry matter yield was 12.8% above the control on favourable sites. Over the same three-year period, it was also grown under film across 11 sites where conditions were

less favourable for maize. A high silage yield was seen here too, with a DM content higher than the high dry matter control.

Other results in this year’s PACTS® trials show the ongoing success of



P7948 hybrid maize

Pioneer’s earliest maturing varieties, P7326 and P7034. P7326 is attractive to farmers wanting good, early yields of high-quality silage, reaching 30% DM quickly. It’s a safer option for farmers, particularly in marginal maize-growing areas.

P7034 is a dent-type variety, producing starch easier for rumen bacteria to degrade, making energy more available to livestock. Dent varieties prefer warmer climates, so haven’t been a popular choice in our colder temperatures. But P7034 is a new variety bred specifically for cool, maritime conditions and continues to do well across the PACTS® trial sites in all but the very coldest areas of the UK and Ireland.

SPRING FOCUS

HOW DO YOU MAKE A SUCCESS OF MULTI-CUT?



Kaia Hillsmith
Kite Consulting

A multi-cut grass silage system can help increase the amount of high-quality forage grown and mitigate risk. But what are its real benefits and costs, and how can we plan the ‘perfect’ multi-cut season? Forager talks to Kite Consulting.

Multi-cut mitigates risk on several levels. First, it helps to cushion farms from the price volatility of bought-in feed, by substituting some with homegrown forage. Increased homegrown forage also helps to maintain rumen health, providing the cow with the exact feed their rumen is designed for to turn into milk. Finally, multi-cut also makes the most of the UK’s often brief weather windows, as crops are harvested in a shorter period.

“We see fresh weight grass yields of around 17.5t per acre in a five cut (multi-cut) system, while a three-cut system might be somewhere nearer 14t,” says Kaia Hillsmith from Kite Consulting. “It’s not just the quantity of grass that increases but also the quality. Both the energy and protein within the grass plant decreases as it matures, so cutting at an earlier stage and with a greener stem, means a higher-quality feed. By mimicking a rotational grazing system and cutting every 28-35 days, we also see the benefits of that green stem with a quicker regrowth.”

What does this mean nutritionally?

A three-cut system usually produces an ME of about 10.8 MJ/kgDM and a crude protein (CP) of about 14%. This rises to an ME of 11.7 MJ/kgDM and approximately 16% CP on a five-cut system. Similarly, smaller, drier cuts translate to an average DM of 35% for a five-cut system, compared to 28% DM for a three-cut.

“When you convert these figures into DM yield, the step up in nutritional quality is really noticeable,” says Kaia. “With a three-cut system at 4.2tDM/acre and five-cut at 6.1tDM/acre, that’s an increase in yield of about 1.9tDM/acre.”

What about the cost?

Kaia stresses it’s important to understand the cost of a multi-cut system in order to

evaluate its performance in a business; “It’s so important when evaluating a multi-cut system to calculate the true nutritional value of the forage crop produced and what that means in terms of cow performance and reduced feed costs. Looking at DM yield and assuming a 10% loss due to shrinkage, clamp and feedout losses, we’re left with 3.8tDM/acre for the three-cut system and 5.5tDM/acre for the five-cut.

“In Table 1 we’ve modelled the cost of producing this in both systems. Three-cut comes out at £481 per acre, while five-cut is £622 per acre. The majority of this comes from increased harvest costs. When you split those down to a cost per tonne of DM, they become £127/tonne for the three-cut system and £113 for the five-cut (see table 1).

TABLE 1 Dry Matter Utilisation and Costs

	3-cut system	5-cut system
Yield utilised – tonnes DM per acre	3.8	5.5
Cost per acre	£481	£622
Cost per tonne DM	£127	£113



TABLE 2 Costings per MJ ME

	3-cut system	5-cut system
Yield utilised – tonnes DM per acre	3.8	5.5
ME (MJ/kg DM)	10.8	11.7
MJ per acre	40,824	64,496
Cost per unit of energy (£ per MJ)	1.18	0.96



Mike Bray
Kite Consulting

“Using the same ME and yields, the MJ of energy grown in the two systems can also be compared (see Table 2) working out at 40,824 MJ/acre (three-cut) and 64,496 MJ/acre (five-cut).

“That’s nearly 24,000 or 58% more MJ of energy grown per acre in the multi-cut system, which can substitute bought-in energy costs,” says Kaia.

Successful multi-cut

Mike Bray from Kite Consulting gives some tips on how to make a success of multi-cut:

- Have a plan. Think about how many cuts you are aiming for and plan those dates out, every 28 to 35 days starting from about 1st May. This gives you the first cutting date, if conditions allow. As the cutting window is time-critical with multi-cut, it’s worth sharing your ‘activity window’, eg. 2nd – 5th May, with your contractor in case weather conditions are poor on the first day.
- Have additive and silage sheets ready well in advance of those

activity windows. Slurry and fertiliser applications also need to be ready. You need to be returning to fields within 24 hours of harvesting in order to meet the next cutting date.

- Monitor grass growth and pay attention to weather forecasts, hoping the next cut falls within the window you’ve set. If not, adjust accordingly and stick to it! Your contractor is a key member of your team at silage making; communicate your intent and have a regular invoice and payment process.
- At harvesting, be around to monitor the silage-making process and make sure tedding times and DM are being achieved. Don’t rush to fill the clamp, make sure there is good compaction. Monitor chop length. At 35% DM, length needs to be as low as 10mm. If conditions are harder and DMs lower, you might need to go longer on the chop length in order to reduce clamp slippage. Monitor the cutter bar height (ideally around 75mm) in order to leave behind a good stubble length and aid a good quick regrowth.

Feeding multi-cut

Mike points out there is a very big difference between silage made in a five-cut system and a three-cut one. “In the multi-cut system, a much higher percentage of leaves rather than stems is preserved. The high leaf content and younger plant means a lower NDF and a higher sugar content. At 35% DM, we are seeing nine, 10 or even 11% sugars.”

These higher DM silages have a lower acid load and therefore a higher pH. The combination of these factors, together with better digestibility, allows farmers to feed higher intakes. “To be truly effective you need to be looking at a minimum of 55% total DM inclusion as forage,” Mike adds. “What we end up with is a reduced concentrate requirement without losing the same potential energy. We’re allowing the ruminant to behave more as nature intended, converting forage NDF into protein.”



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Arable wholecrop barley and vetch, undersown with multi-species mix.

COULD YOU BENEFIT FROM USING A MULTI-SPECIES LEY?

Multi-species grass mixes are increasing in popularity thanks to the benefits they bring to livestock performance, soil health and biodiversity. Mixes are most often used in sheep or low-input beef enterprises but gaining interest in the dairy sector too. Lauren Goringe looks at how they work and shares some farmer tips for successful establishment.

What is a multi-species mix?

A multi-species mix includes at least one type of grass, legume and herb. The different characteristics of the varying plant types are designed to work together to maximise the use of light, moisture and nutrients above and below ground. As with traditional grass and clover mixes, high sugar grasses provide the basis for performance, supplemented with the protein from legumes which also provide palatability to increase dry matter intakes. The addition of herbs provides further protein, energy and trace elements, with their drought-resistant properties helping to produce forage and feed when ryegrass and clover production dip.

“Plantain and chicory are the leading agricultural forage herbs in multi-species, as they cope well within a competitive sward and perform consistently across soil types,” explains William Fleming, Area Sales Manager at Germinal. “In terms of legumes, red and white clovers

are most commonly used in multi-species mixes but more complex options include birdsfoot trefoil, sainfoin, vetch, lucerne and crimson clover. All bring different attributes; vetch for example provides amino acid balancers and lucerne delivers high protein, fibre and vitamins.”

What are the benefits?

Livestock farmers are using multi-species mixes for a number of reasons. With ever-changing weather patterns, introducing more species into a sward helps to regulate forage availability at either end of the season and provide ongoing herbage and dry matter in times of drought. The range of plants in a multi-species mix also provides root systems working at various soil strata. These, in turn, bring a range of trace elements to the surface for animals and also aid soil structure and fertility. Environmentally, more species in a field means more opportunities for biodiversity, attracting a wider range of insects into the crop.

To reduce a farm’s dependence on bought-in nitrogen, red and white clovers have valuable nitrogen-fixing properties and with the increased persistency red clovers now have, they are making the concept of a multi-species mix even more attractive. Modern varieties continue to yield effectively into their third, fourth and fifth seasons, providing real opportunities to build soil fertility and soil structure.

The benefits of a diverse sward are of most value, however, when looking at animal performance as William explains: “Plantains come quickly in the spring and their perennial leafy forage is highly palatable, providing ewes with more milk to produce heavier lambs at weaning. Similarly, the red clovers continue into the autumn to provide ‘rocket fuel’ to finish lambs, so the mixes provide a good option for those looking to buffer the shoulders of the season. We’re hearing some great stories of these leys helping lambs get away quicker and improving fat covers, and we have trials taking place to gather data on this.”

“LAMB GROWTH RATES ARE REALLY GOOD; I THINK THE DIFFERENT ROOTING DEPTHS OF THE MULTI-SPECIES HELP BREAK UP THE PANS BRINGING DIFFERENT MINERALS TO THE SURFACE.”

SIMON BAINBRIDGE



Are there any limitations?

There are limited options for weed control once a multi-species ley is established so it’s important to address issues prior to sowing. For optimum establishment and persistency, soil fertility must be good, with a pH of 6.0 or above and mixes should be sown in warm soils in spring or from June to August. “As a rule, multi-species mixes are suited to lighter, drier soils,” says William. “While herbs tend to thrive in periods of drought, they can fail in waterlogged or heavier soils. In terms of longevity, we expect the herbs within a ley to persist for up to five years. Also, red clover contains phytoestrogens which can impact ewe fertility, so it is recommended to avoid putting ewes on these leys six weeks pre- and post-tupping.”



USING MULTI-SPECIES TO IMPROVE RESILIENCE

Simon Bainbridge farms 670ha (1,650 acres) in Northumberland with his family, rearing 180 suckler beef, 1,500 breeding ewes and 24,000 laying hens. No concentrate or grain is fed to ruminants on the farm, relying solely on grass and forage to finish stock. So, when forage yields dropped by 50 per cent in the 2018 drought, Simon decided to try planting multi-species leys to improve the farm’s resilience in future dry periods.

About 120ha (300 acres) of multi-species cutting leys have now established on the farm, mainly comprising clovers, perennial ryegrass and timothy, plus Tonic plantain and vetch. The rotation starts with a break crop of brassicas, followed by an arable silage crop of barley and vetch (sown at 16kg and 2kg/ha respectively). The arable crop is undersown with the new multi-species ley of clovers, grass and plantain. “We used to use an arable crop of oats but it was too competitive and the new ley didn’t get away as we wanted,”

explains Simon. “The barley and vetch combination is working well, but again, we try and harvest it as soon as possible so it doesn’t smother the new ley.”

The farm only uses manure and lime for fertiliser and Simon is pleased with how the new forage crops are performing: “Lamb growth rates are really good; I think the different rooting depths of the multi-species help break up the pans bringing different minerals to the surface. Cattle are doing well too; we have just sent some finished cattle on at 20 months which were only fed milk, grass and forage crops.”

“Of course, we’re still fine-tuning and continually learning,” Simon concludes. “Before establishing a multi-species ley, I recommend looking at what is already voluntarily growing on your farm. You’ll have more chance of establishing existing species successfully than trying new ones.”

YOUR GUIDE TO ESTABLISHING AND MANAGING WINTER BRASSICAS

With fluctuating feed prices, erratic weather patterns and unpredictable grass growth the norm, many farmers are using winter brassicas as a reliable, 'go to' feed during the winter. To maximise performance, brassicas must be established and managed correctly. Forager takes a look at how.

Winter brassicas can reduce the need for bought-in concentrates, relieve pressure on conserved forage stores and reduce machinery, as well as housing, costs. And the benefits go beyond the financial. Winter brassicas can be useful break crops between reseeds or 'pioneer' crops sown in previously uncultivated land.

If winter brassicas are established well, not only can output per hectare (in terms of dry matter and improved animal performance) increase but also profitability.

Planning

Brassica forage crops are valuable in a rotational policy, so it is best to plan brassica utilisation with an overall feed strategy in mind. Assess feed requirements over the whole farm, highlighting when potential feed gaps are most likely to occur, ie. when demand in kgDM/ha per day from grass outstrips supply. Brassica crops can also be used to reduce levels of purchased protein. Depending on the variety used, crude protein can range between 14–20%.

During spring, think about the year ahead and how to use winter brassica crops to help achieve feed goals; taking into account how much needs to be grown, land availability and which brassicas to grow. Each brassica has its own growing and nutritional characteristics and supports different levels of livestock. For example, kale can provide 10tDM/ha, so 100 cows or roughly 500 ewes can be fed for a week on one hectare of land (AHDB).

Brassica forage crops can provide quality grazing from June right through to February or even March on occasion. But they need to be ready at the right time to meet specific grazing objectives. This could be filling a gap in forage production during summer, extending autumn grazing or supporting a full outwintering system. Early sowing often leads to higher yields in both root and leafy brassica crops but digestibility reduces when over-mature. Sowing too early for a targeted grazing period therefore reduces feed utilisation (see table 1).

Site selection and preparation

Assessing the topography and geography of land for winter brassica crops is important. Ground shouldn't be too steep, and must be well away from watercourses, dry out quickly and have natural features to shelter livestock, such as trees and hedges. To avoid the risk of clubroot, land mustn't have been sown with brassicas for at least five years.

Land should be soil tested at least eight weeks before planting to check soil nutrient levels and pH. Optimum pH levels for winter brassica growth are between 5.8 and 6.5, with P and K indices of two. If pH levels are below 5.8, phosphate is less available and crop performance suffers. If soil tests highlight deficiencies, fast-acting lime and fertiliser must be applied to redress problem areas.

Mobile fencing provides the maximum frontage to allow all animals within a group to access the crop easily. Strip grazing is the most effective method, moving livestock downhill where ground

is sloping. Back fencing is useful to prevent livestock poaching grazed land and protect any regrowth.

Sheep and cattle grazing brassicas need a fibre source accounting for 30% of dry matter – usually straw or haylage. Overfeeding winter brassicas can lead to reduced intake and performance, as well as risking health problems such as goitre and anaemia. Placing bales in a field while ground conditions are still dry helps prevent damage to the crop and soil from the impact of machinery. This also reduces the amount of labour needed during the feeding period.

Establishment methods

Pasture or weed covers over 2tDM/ha need to be sprayed with glyphosate. After a seven-day rest, graze hard or cut to remove as much vegetation as possible. Once removed, apply the first application of fertiliser and lime.

The aim is to produce an even, dense crop of brassicas, so seeding rates need to be kept quite high (see table 2). If seeding rates are too low, plants grow thicker stalks which have less nutritional value than the leaf.

Good seed-to-soil contact is essential for successful germination, so most farmers use conventional cultivation to create a firm, clean seedbed. If conditions allow, some prefer direct drilling to maintain a firmer soil surface. If so, drill seed when soil temperatures are 10°C and rising. Seed should be sown at around 1cm depth with either method.



Beef sucklers grazing Swift hybrid brassicas

Early management of the crop

The first six weeks of a brassica crop is the most critical. Newly-sown crops need to be closely monitored for weed ingress, disease and pest damage. If slug damage is expected to be high, pellets can be drilled alongside brassica seed or applied at a later date.

Brassicas are particularly prone to sulphur deficiency, indicated by yellowing leaves. A deficiency should be confirmed by a FACTS-qualified advisor, who can advise on any necessary remedial actions.

For early summer sown crops, the bulk of fertiliser for winter brassicas should have gone into the seedbed. Nitrogen (N) application rates depend on the sowing date of a crop; summer growth rates are high and might warrant increased nitrogen.

Kale is more responsive to N inputs once leaves are growing so it's best to divide N applications, with half applied into the seedbed and the other half as a top dressing six to eight weeks after a kale crop is sown.



TABLE 1:

Crop Type	Sowing Period	Sowing to Utilisation Interval	Utilisation Period
Kale	May to late June	20 weeks	November to February
Swede (natural)	Mid-May to late June	25 weeks	December to March
Hybrid brassica (single graze)	Mid-June to late August	10 weeks	September to January

TABLE 2:

Crop type	Seed rate (kg/ha)
Kale	5 – 7.5
Swede (natural)	2.5
Hybrid brassica (single graze)	5 – 7.5

In our 'Over the Farm Gate' feature we follow the progress of farmers from across the world. Each is an innovative grassland manager, running sheep and/or beef enterprises in a different climate and topography.



TARGETED GRASSLAND MANAGEMENT REDUCES NEED FOR INPUTS

FARM FACTS

- **96ha** 96ha (237 acres) tillage and grasslands + **15ha** (37 acres) forestry + **1ha** (2.5 acres) wild bird cover
- **950 ewes** + 250 replacement ewe lambs
- **1.92** lambs/ewe
- **1,800** grass-finished lambs; **300g** average daily gain (ADG)



Brian Nicholson

Brian Nicholson, Johnstown, County Kilkenny, Ireland

Fourth generation sheep farmer Brian Nicholson focuses on growing exceptional forage to feed 1,200 spring lambing ewes and replacements, as well as roughly 1,800 lambs finished on his County Kilkenny farm.

Nearly all lambs are finished on grass and forage crops using a rotational grazing platform, with only a small number fed concentrate at the tail-end of the year when energy in the grass is low. Sheep are moved every three days depending on grass growth, and paddocks rested for 21 days with surplus grass cut and baled. In their first year, replacement ewe lambs are run dry and used as a clean-up mob.

Ewes are grazed most of the year, only coming inside to lamb. About one month pre-lambing, they are fed high-quality grass silage, minerals, soya and barley, with triplet ewes topped up as needed. Triplet lambs are fostered onto single ewes or artificially reared.

Brian takes weekly grass measurements alongside regular soil sampling, to keep inputs to a minimum and manage the flock's nutrition. Grassland production achieves an average 12tDM/ha, 67-72 D-value, 11-12 ME and 12% protein.

"We use science to make informed decisions about what we plant, where and when," Brian explains. "This includes planting red and white clover to fix nitrogen and helps us reduce the amount of fertiliser used as it's our biggest expense."

Using plantain also keeps inputs low and benefits the soil: "Plantain helps

lower the sheep's worm burden, so we can treat them less often. This, in turn, improves soil ecology as these treatments can disturb the beneficial bugs and organisms."

He uses brassicas like Redstart, a fast-growing, high energy rape/kale hybrid, as a break crop in the tillage rotation. "The rams' growth rate on Redstart is consistent with the lambs on grass at 300 g/day. It regrows after grazing, allowing us to keep the sheep on it longer and works well in our tillage rotation."

100-YEAR FARMING FAMILY COMMITTED TO INNOVATIVE PASTURE

Scott McKenzie, Clinton, South Otago, NZ

A New Zealand farming family who recently celebrated 100 years on their farm has no regrets about shifting from conventional pastures to specially-bred high sugar grasses. They say benefits to stock and land are significant and long-lasting.

Scott McKenzie runs a large sheep, beef and forestry operation in New Zealand's Otago region. The 800-hectare property is home to three generations of the McKenzie family: Scott and his wife Jo, Scott's brother Ryan and wife Jennel, and

ROTATIONAL, LEAN GRAZING DRIVES PROFITABILITY

Graham Lofthouse, Bankhouse Farm, Stow, Galashiels, Scottish Borders

Graham Lofthouse runs a suckler beef and sheep farm near Galashiels in the Scottish Borders on land sitting 200-300m above sea level. He finishes lambs and cattle on grass, selling beef at 16 months directly from the farm and supplying lamb to Marks & Spencer. With a focus on profitability, he maximises livestock performance through targeted feeding and choosing genetics to suit his system.

Ten years ago, Bankhouse Farm transitioned to a rotational grazing system and began investing more in grass and forage quality. The move has extended the grazing season by 6-8 weeks for sheep and 4 weeks for cattle, as well as dramatically reducing bought-in feed by 60%.

Both ewes and cows graze most of the year. They are overwintered on beet fodder and Redstart with bale grazing, and housed from mid-winter until around April. Graham puts the best forage in front of his sheep and uses cattle to tidy

up fields and reset the grass for better growth by grazing it down to 4cm.

In his spring lambing closed flock of EasyCare sheep, Graham uses comprehensive data to develop maternal lines and targets 100-day ewe efficiency. Lambing begins around 6 April, and he aims to have all lambs off the farm by mid-July.

By customising seed mixes for each field, Graham's forage production is very good on what can be difficult land. With only 60kg of nitrogen applied annually (including slurry), he is achieving 9tDM/ha for grass and 23.5tDM/ha for fodder beet. The silage fed to ewes contains 24% DM, 12.3 MJ ME/kg DM and 18% protein, with a D-value of 72.

"Given our location, which includes hillsides and a riverbed, different fields are seeded depending on conditions like soil, aspect and water table," he explains. "We primarily seed with high sugar varieties of perennial ryegrass and include other species like timothy, cocksfoot, festulolium, plantain, chicory and red and white clover."

FARM FACTS

- **109ha** (269 acres) owned, plus 35ha (86.5 acres) rented
- **508** EasyCare ewes + 108 ewe lambs
- **90** Angus x Stabiliser suckler cows
- **9.0tDM/ha** (3.6tDM/acre)
- **1,000** grass-finished lambs
- Beef ADG: **1.2kg/day**
- Lamb to weaning ADG: **0.3kg/day**
- **2016** AgriScot Scottish Sheep Farm of the Year



Graham Lofthouse

their parents Colin and Elaine.

Nearly 400ha is planted in Germinal's high sugar grasses and clovers. The remaining land is largely unproductive hill country and used for forestry.

Scott planted the farm's first paddock of Germinal high sugar grass in 2005. Fifteen years later, the pasture is persisting; an impressive performance in a region subject to environmental extremes. The Otago climate is one of the most diverse in New Zealand.

"My grandad always told me if the sun is shining take your coat, but if it's raining please yourself. That about sums it up, as the weather is fast changing and very variable. Any pasture we plant needs to handle both the wet and dry," says Scott.

Scott is using Germinal's AberMagic and AberGain high sugar grasses

as part of a permanent pasture mix, alongside white clover varieties AberDance and AberNormous. Dense, persistent pasture has been the result, and high digestibility has lifted animal production.

"The pasture seems to really hang on in the dry," says Scott. "We had a clover root weevil problem a few years ago and yet were still able to fatten the lambs on Germinal grass. The pasture also withstands pugging; the grass can be black in winter and come away good as gold."



Scott McKenzie

FARM FACTS

- Scott McKenzie in partnership with parents and brother
- Large sheep, beef and forestry operation
- **800ha** (1,977 acres)
- Region subject to environmental extremes
- **4,000** ewes
- **1,200** hoggets
- **120** cows
- **80** R2 cattle



MAXIMISING THE BEEF SUPPLY CHAIN

Creating a fairer deal for farmers is the basis of Jack Stilwell's successful beef enterprise. Forager finds out more.

When it comes to rearing beef, Jack Stilwell, who runs Green Lanes Farming Ltd, has gone a step further than most. As well as rearing his animals to increasingly high standards, Jack is working with other farmers to create a volume of cattle attractive to processors and retailers – and provide better returns for all involved.

Jack returned to the family farm on the Hampshire/West Sussex border in 2014 and started rearing small numbers of male Holstein calves sourced from local dairy farms. Since then, the business has scaled up dramatically. The core in-hand farm business is now rearing 2,000 calves per year in-house, as well as another 3,000 via affiliated farm partners.

Both ends of the supply chain are managed by Jack, from calf procurement right through to arranging finishing contracts and negotiations with abattoirs. Calves are collected at between 14-21 days old from farms as far away as Cornwall and up into the Midlands.

“ALL OF THIS WAS BORN OUT OF CREATING A FAIRER DEAL FOR THE FARMER. WE’VE WORKED TO CREATE A VERSATILE, FLEXIBLE MODEL WHERE EVERYBODY GAINS STRENGTH FROM THE NUMBERS AND ARE REWARDED FOR WORKING WITH US.”

JACK STILWELL

With a range of continental and native breeds to rear, Jack's use of forage varies by breed, in order to grow each in the most efficient way. "Native breeds such as Aberdeen Angus heifers can't be pushed too hard, so they spend a season out at grass to build frame. On the other hand, the continental animals are fed high-quality grass and maize through a TMR and tend to be finished inside."

Jack works in collaboration with local arable farmers to grow high-quality one- or two-year grass leys and maize as break crops in their rotations. This provides him with the forage he needs for including in his finishing rations and the arable farms make use of his farmyard manure in return. Jack is also trying to reduce his use of compound fertiliser and increase his sustainability by moving to more nitrogen-fixing leys and direct drilling methods.

"We're really keen to establish farming systems that are as integrated as possible," Jack continues. "A good example of this is the system being employed by one of our farm partners in Warwickshire. Here, they have a 2,500-acre arable enterprise growing corn and grass in rotation. The baled silage they produce is fed to the cattle alongside their grain milled onsite. Finished cattle go straight from the farm to the abattoir, so the food miles on this farm are exceptionally low."

"Performance is key right from the outset," explains Jack. "We need a calf to have had the best possible start by



the time it reaches us, as this really influences whether it kills out on time further down the line. Therefore, we incentivise farmers to invest time and effort in ensuring each calf receives adequate colostrum and high standards of hygiene (clean buckets, teats, dipped navel etc.).

"Really, it's just ensuring they work to the same standards as they would if rearing their own black and white heifers. With the numbers coming through our system, and the data we have on performance, we can very quickly identify those farmers who aren't doing the job properly. In turn, as well as paying a fair price, we offer a service where we 'take everything'. No one wants you picking and choosing animals because they are the wrong colour."

Jack works with ForFarmers' youngstock specialist Emily Hayes, who explains; "Jack's philosophy throughout the rearing phase is to mitigate any stress points, such as weaning, moving units or changing diets, to avoid any growth checks. We never do more than one change at any one time and everything is done gradually where possible. For example, when transitioning to the ForFarmers bespoke beef blend, we mix it together for three weeks with the calf cake, gradually reducing the cake and increasing the blend."

Everything is focused on the finished carcass market and for Jack, his ultimate aim is to achieve a 320kg carcass by as near to 15 months as possible: "A Friesian steer may do this in 14 months which

is great, but 15-16 months is the aim," he says. "We now have a network of finishing units in every county from the Midlands south which take our reared calves. On top of that, we work with third-party rearers who sell their finished animals through us and take cull cows from dairy farmers across the country. In effect, we have a syndicate of farmers collaborating and we are the funnel feeding their animals to the buyer."

In this area Jack has worked hard to build contracts with abattoirs and retailers that reward the constant flow of cattle he can supply. Last year he put 11,000 animals through the books: "We can negotiate better prices from the abattoirs because we provide them with accurate forecasting and deliver the numbers and spec they require. In return, we regularly achieve prices 10-15p/kg higher than the market average. We also have access to data we can feed back to farmers and this knowledge transfer is really important. If farmers are told they are sending animals too late, for example, they can adjust their system and make feed savings which benefits their business.

"All of this was born out of creating a fairer deal for the farmer. We've worked to create a versatile, flexible model where everybody gains strength from the numbers and are rewarded for working with us. We are looking to grow further, especially in the South West, and are looking for rearers and calves across the country," Jack concludes.

FARMERS WEEKLY GRASSLAND MANAGER OF THE YEAR 2020

County Down farmer, Sam Chesney, has been named Farmers Weekly Grassland Manager of the Year 2020. Kendra Hall finds out what led to his success.



SAM CHESNEY, Coolbrae Farm, Kircubbin, Northern Ireland

When it comes to raising good quality beef and lamb, Sam Chesney is laser-focused on driving productivity through exceptional grass and forage grown on his 70ha (173 acre) County Down farm. As this year's winner of the *Farmers Weekly* Grassland Manager of the Year Award, he is clearly doing something right.

Sam runs a rotational, spring-calving suckler to beef system on Coolbrae Farm in Kircubbin, Northern Ireland, with 130 Limousin cross cows grazing on 45ha (111 acres) of grassland with a further 25ha (62 acres) dedicated to silage. He also finishes 70 Angus-dairy calves for Blade Farming, a fully integrated beef supply chain within ABP. To keep costs low, concentrates are only fed to finishing cattle, with as much energy and protein as possible coming from homegrown forage.

"At the end of the day I want grass that grows well, so we measure it weekly and take regular soil samples to create a grazing wedge in AgriNet," he explains. "It's a lot of work but it's an invaluable source of information. We are able to run all sorts of grazing scenarios through the

software, and this helps inform decisions about things like rotation schedules or how many sheep we can have."

"Our objective is using as much grass as we can to drive productivity from the land," Sam explains. "We use a 21-day rotation with each field grazed for around three days and reseed only when the data shows performance is down. We rotate fields from perennial ryegrass to brassicas, followed by a multi-species sward or red clover. In 2020, we grew 14.1tDM/ha with an average ME of 12.1 MJ/kg DM. Grass utilisation averaged 92% across all our land, but our top-performing fields achieved 98%."

A spring lambing flock of 100 ewes follow the cattle in the grazing rotation to clean up the fields and reduce wastage. "We can raise a lamb per cow for nothing as we don't feed meal to any of the sheep and keep maintenance low by breeding for traits like easy lambing. We've recently benchmarked and found we gained 2,316kgDW/ha entirely from forage in 2019/2020, which equates to a gross margin of £2,500/ha."

COOLBRAE FARM

- 130 suckler cows
- 70 Blade Angus dairy-bred beef cattle
- 100 ewes
- 92% grass utilisation (2020)
- 14.1tDM/ha grassland production (2020).

With a high stocking rate of 3.2LU/ha, the farm also grows 2.5-3ha of red clover to supply additional protein. This is cut and baled three to four times a year, with last year's crop yielding 25t/ha, with up to 21% protein.

"We add the clover into our finishing diets for the bulls and Blade calves," Sam explains. "As we're finishing them on 10.5% CP, this greatly reduces the need for bought-in feed. With the high cost of meal, we will continue to look closely at other ways, like growing field beans, to keep that expense as low as we can."

Sam outwinters his heifers on Redstart, a hybrid brassica developed for its high energy, rapid growth and hardiness. When October brought poor grass-growing



Sam has found ways to keep carbon output low

conditions, he had to put them onto the Redstart earlier than usual but was impressed with the results. "It wasn't ideal timing, but the Redstart did really well at 13.1tDM/ha and the heifers came in looking better than the bulls!"

With relatively little concentrate use Sam's beef herd performs exceptionally well, with the farm producing 970kgLW/ha of dairy beef calves for Blade and 1,166kgLW/ha of suckler beef. Housed bulls are fed about 1kg/head/day when they arrive at weaning, receiving around 1 tonne of meal in total, with an average daily liveweight gain of 2.4-2.7kg before they are killed out at 12-15 months old at 406kg deadweight.

The decisions at Coolbrae Farm are not only driven by profitability but also the environment. "We may be intensive by producing a lot of beef and lamb per hectare, but much of what we do to benefit the business also helps keep our carbon output low," says Sam. "For example, we grow our hedges to about 10 feet tall and 10 feet wide to provide shelter for our cattle and sheep, which also supports wildlife and captures carbon. Instead of spreading slurry on the grazing platform, we spread composted manure to improve soil structure, using low emission, highly-targeted methods.

"We are always looking for ways to improve and I like to see how we compare against others. I even have a WhatsApp

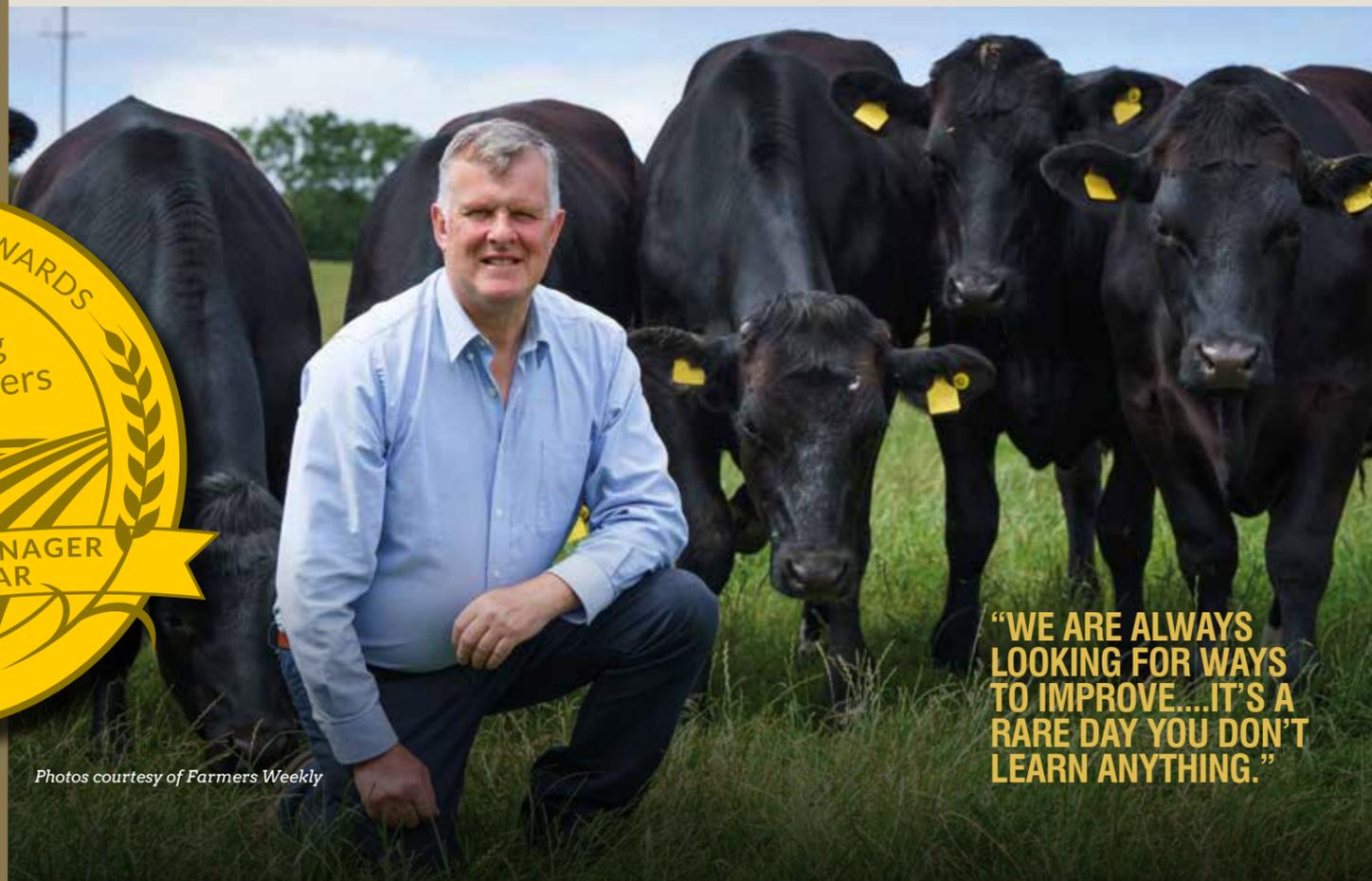
group with other farmers to benchmark, share knowledge and bounce ideas off of each other. It's a rare day you don't learn anything!"

As the 2011 *Farmers Weekly* Beef Farmer of the Year and 2014 Northern Ireland Winner and UK finalist in the British Grassland Society's Grassland Farmer of the Year, winning this year's *Farmers Weekly* Grassland Manager of the Year means a great deal to Sam.

"I don't take this award lightly - it's an immense honour to be recognised from among the top dairy, beef and sheep farmers in the country and a nice way to round out my career."

SUPPORTING EXCELLENCE

Germinal recognises excellence in grassland management and is proud to sponsor the *Farmers Weekly* Grassland Manager of the Year Award. The award celebrates farmers using best practice, striving to gain the most from their farms sustainably. Our sincere congratulations go to Sam Chesney. He continues to excel in grassland management, providing an inspiration to other farmers looking to maximise performance from forage. Applications for the 2021 awards are now open: fwi.co.uk



Photos courtesy of Farmers Weekly

"WE ARE ALWAYS LOOKING FOR WAYS TO IMPROVE...IT'S A RARE DAY YOU DON'T LEARN ANYTHING."

Cattle grazing a field of chicory, planted to break up compaction through its deep tap root

CHEWING THE CUD

FAI is a research and sustainability business with a beef and sheep enterprise near Oxford in its second year of transition to regenerative agricultural practices. James Marshall finds out how Farm Supervisor, Humphrey Wells, first became involved in regenerative agriculture and about the changes taking place.

What sparked your interest in regenerative agriculture?

Five years ago, I went to New Zealand and started to question my conventional approach to farming. I met many people openly challenging the credentials of dairy farming, particularly its sustainability and environmental impact. I was also reading more about holistic farming practices. Before leaving New Zealand, I spent time with regenerative farmers Greg and Rachel Hart, at Mangarara Station on the North Island's east coast, giving me invaluable experience of what regenerative agriculture is like in practice!

So, your time at Mangarara Station had a big influence on you?

It definitely did. Greg and Rachel were mob grazing around 400 beef cattle and 500 ewes on 486 ha (1,200 acres), using an Adaptive Multi Paddock (AMP) grazing system. They were focused on using multiple livestock species to help manage the land - reducing inputs, as well as improving soil quality and biodiversity. Their cattle were only eating around 50% of the available grass. My old mindset would have seen this as waste, but the approach aided grass regeneration and created a protective grass 'mattress' covering the soil. In the summer, this mattress helped the soil stay cooler and

retain more moisture and, in the winter, kept the soil warmer, resulting in earlier spring grass growth. While neighbouring farms were suffering drought with scorched, poor quality grass, Mangarara Station was an island of green. I knew they must be on to a good thing.

Do you think regenerative farming requires a significant mindset change?

I think focusing on *optimising* land production, not *maximising*, is a hard shift. We are producing food, with little or no control over its end price, so it makes sense to focus on the costs we can control, ie. cost of production. The aim is to lower costs and rely on what the farm itself can produce from the livestock it can support. Building the resilience of the land goes hand in hand with this approach and improving soil quality is essential in order to farm without inputs.

What was the 'tipping point' for the transition to regenerative agriculture?

FAI's Regenerative Farming Director, Clare Hill, has been working for some time to improve the farm's sustainability and reduce its carbon footprint. Two years ago, the business was able to remove grain from its cattle and sheep diets. This led the FAI team to think about the 'next step' and felt regenerative farming was the way to go.

The final tipping point came when, despite following best practice, we couldn't control the worm burden in the sheep as there was resistance to orange drenches. This made it very difficult for the sheep enterprise to remain profitable. Clare also tried to better understand the grazing capacity of the farm but couldn't see how to support the proposed livestock numbers without spending a lot of money on new housing,

"THIS METHOD OF FARMING IS SIMPLE AND FOCUSES ON USING ANIMALS AS A TOOL TO RESOLVE ISSUES WITH THE LAND." HUMPHREY WELLS

Now in the second year of transition, what have been the main projects so far?

To start, we pulled together a grazing plan for the whole year, detailing exactly where the cattle and sheep would graze, in what order and for how long. It was key to running a successful AMP grazing system. For it to work, we mobbed our cattle together, as well as the sheep, and used electric fencing and mobile water troughs to provide a paddock system. AMP involves moving large mobs, every day, giving each block of land more time to rest and recover in the long term. We aim for a minimum of 60 days' rest during spring and up to six months during winter.

Cattle and sheep are moved on to fresh pasture even when grass covers look high. The excess grass is shielding the ground, with much of it trampled into the soil, increasing soil biology. We also started outwintering most of our cattle, supplementing grass intakes with bales of hay.

How has the farm changed by taking this approach?

Some visitors are shocked to see sheep grazing in herbal leys and grass above waist height! But this is classic regenerative agriculture. By having sheep in longer grass, we've overcome our worm problem because they aren't grazing it down to the soil where worms are found.

We certainly have more mobile electric fencing, more mobile water troughs and I spend most of my time on a quadbike,

rather than in a tractor. This method of farming is simple and focuses on using animals as a tool to resolve issues with the land - via trampling or dunging - rather than machines and inputs. It's a fun way to farm too and the increase in bird life and insects has been phenomenal.

In terms of production, what are the benefits?

Our cattle are 100% pasture fed and historically, in a set stocking system, finished at 29-32 months. This year, everything will be finished at 24 months, with 50% of the animals gone by 19-20 months, at 620kg liveweight. At their 200-day weight check, our spring-born calves were averaging a daily liveweight gain of 1.5kg/day. Fertility has also improved, with our calving block tightening from 12 weeks to six. The heifers are calving down at two years of age now, as opposed to nearly three, and our in-calf rate was 94% last year. Our lambs are performing well too. Earlier last year we had a group of lambs grazing some of our lucerne, each achieving 500g liveweight gain a day.

2021 should be an exciting year - what are the plans for the next 12 months?

The really exciting thing is we know there is still lots to improve. Transitioning to regenerative farming is a slow process and we are still learning. FAI is keen to share our experiences with fellow farmers so we'll be documenting our progress with regular farm videos on the FAI website and a series of online courses later in the year.



HUMPHREY WELLS
Farm Supervisor

- Worked on dairy farms in the UK before working in New Zealand
- First-hand experience of farming practices in New Zealand contributed to a 'mindset change' and interest in regenerative farming
- Started working for FAI Farms in October 2018
- Farm covers 607ha (1,500 acres) and consists of beef cattle, sheep and laying hens
- The farm's transition to regenerative farming practices began in 2019. The hope is to demonstrate the viability of regenerative farming on larger-scale, UK livestock farms.



Multi-species herbal ley



Outwintered cattle being fed SSSI meadow hay as buffer feed and to introduce more species to the pasture.

PROTECTING YOUR NEW LEYS

Reseeding is an important part of grassland management, but you'll gain the most benefit from your investment with effective weed control. Forager finds out more.

Why is it important to control weeds in new leys?

Reseeding is essential for maintaining productive grassland, but with the cost of a reseed averaging £400 to £700 per hectare, it's a significant investment. Selection of suitable grass varieties, creating a good seedbed and ensuring adequate soil pH and nutrient availability, are all key to establishing a new ley successfully. And once grass is sown, protection from weeds becomes just as important and boosts the long-term success and performance of your investment.



Chickweed

"Problem weeds will inevitably germinate as a result of soil disturbance during the sowing of a new grass ley", says Dave Gurney, Field Technical Manager for grassland crop protection products at Corteva. "These weeds are prolific so germinate and spread rapidly, taking the place of valuable grass, reducing its productivity and quality from the outset."

Even at low populations, weeds such as docks, thistles and nettles pose a significant threat to grassland productivity as they compete directly for light, water and space, as well as smothering out more nutritious grass.

The detrimental effect of weeds, such as docks, is also seen in silage. Trials by SAC Consulting showed a 10% infestation of docks caused a 10% loss of grass yield. Also, the presence of docks in silage not only reduces overall yield, but also brings down its feed value. Docks have around

60% grass feed value, meaning 40% potential feed value is lost. To compensate this nutritional shortfall, you may need to buy additional, supplementary feed.

"An added problem when baling dock-infested silage is the tough stalks which can puncture the plastic wrap," explains Dave. "This lets air in, adversely affecting the fermentation and creating potentially dangerous moulds, eg. listeria, and unnecessary spoilage."

In established grazed pasture, spiky thistles reduce the area livestock will comfortably graze, leading to even more wastage. Thistles can also spread infectious disease, like Orf in sheep.

Address the problem quickly

The control of problem weeds, such as docks, thistles, chickweed, buttercup and

dandelion, is much easier and cheaper when they are small. The roots have not had time to propagate or the chance to grow bigger and deeper. So, the key is to tackle problem weeds early before they damage the performance of a new ley. Even low populations of perennial weeds need to be dealt with before they become a more significant problem.

"While it's tempting to leave small populations, doing so runs the risk of them building up their root reserves and taking over the grass," continues Dave. "Chickweed is particularly good at this. It can easily smother out grass and colonise bare patches caused by poor establishment, poaching and slurry smother."

"Weed seedlings are more susceptible to herbicides than mature plants and are cheaper and easier to control, so tackling grassland weeds through an early application of herbicide is crucial," stresses Dave. "This herbicide application is the most cost-effective spray a farmer will carry out in the life of a new ley."

Protecting new sown leys

Spraying early in the life of a sward ensures a clean start and allows grass to establish quickly, without competition from weeds.

"Delaying that first spray is simply not cost effective," says Dave. "It is more expensive to spray mature, fully-established weeds and by then, the productivity of the grass can already be affected."

Many grassland herbicide products dictate grass should be 'established', ie. over a year old at the time of treatment. But products are available for use in new sown grass leys applicable from as early as the three-leaf growth stage. The decision tree in figure 2 can help determine the best product to use.

FOCUS ON CHICKWEED

Chickweed is the most common weed found in new sown leys. It competes aggressively with grass for space, light, water and, most importantly, nutrients so it needs to be controlled. Figure 1 shows a new untreated young ley (left) and a strip treated with Envy (right) at a rate of 1.0 l/ha. As it shows, eliminating chickweed in young leys allows productive grasses to tiller and re-colonise the bare areas left after the chickweed is killed off.

Figure 1



"Envy and Leystar are both selective herbicides for use in new sown leys," explains Dave. "They kill weeds down to the roots and the best time to apply them is when weeds are small and growing actively. This is six to eight weeks after reseeding when there are three leaves on the grass."

"Clover in a new ley complicates weed management. Leystar and Envy are not safe to clover, so, if used, clover can be stitched in three months after application. For established grassland, Squire Ultra is a clover-friendly option to consider if the weed problem is favourable."

Application

After selecting the right herbicide, making sure you apply the correct amount at the optimum time is critical for success. With most farmers opting to use spray contractors, timing is key.

"Herbicides should be sprayed on actively-growing weeds," emphasises Dave. "Book your contractor as soon as a weed problem is identified to avoid missing a spray opportunity in the important developmental stage of a new ley."

Leystar can be applied on spring-established new sown leys at 1.0 l/ha from 1st February to 31st August. However, its broader spectrum of weed control tends to favour its use later in spring when temperatures are warmer and there's a flush of spring-germinating weeds. Envy can be applied on both autumn and spring-established new sown leys at 1 - 1.5 l/ha from 1st February to 30th November.

"In spring, monitor new reseeds closely to see if they need treating. If they do, act quickly to tackle the problem before it damages the performance of the new leys," concludes Dave.

Figure 2





New sown ley. Don't delay the spray.

Leystar[®]

HERBICIDE

Leystar[®] is a broad spectrum herbicide designed for new sown leys.

Give your leys the start they need by removing unwanted, competitive broad-leaved weeds. Leystar[®] is very safe to your grass and will give you the confidence that your new sown investment will deliver to its full potential.

Don't delay, talk to your advisor or find out more at corteva.co.uk



Chickweed



Mayweeds



Seedling
Docks



Seedling
Thistles



Dandelions