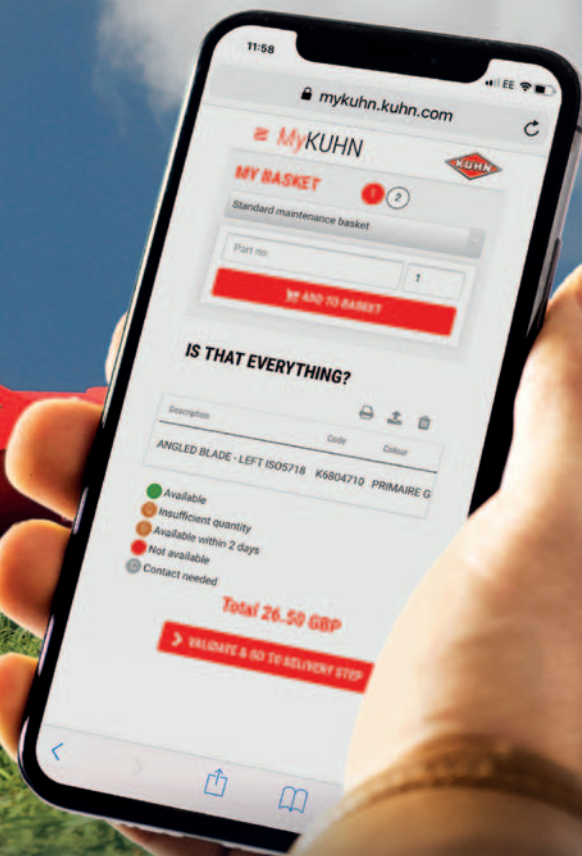


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ISSUE 23: Summer 2020

# FORAGER

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# FORAGER

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**Page 6:** Pushing feed efficiencies: The benefits of pushing rations up.



**Page 8:** Reseeding solutions: A guide to overcoming the most common reseeding challenges.



**Page 12:** Data driven: Steps taken by a Cumbria dairy farm to increase forage production by 61% in the last four years.



**Page 14:** Achieving optimum wilt: How to master the art of good tedding.

From the cover  
**TACKLING MOTHER  
NATURE'S CHALLENGES**



**Page 16-19:** Industry experts and farmers offer practical advice and lessons learnt after a wet winter followed by a dry spring.



**Page 30:** Chewing the Cud: How an integrated farm, farm shop and café has adapted its business model to keep going through COVID-19.

We welcome feedback, suggestions for articles and contributions. **Editor:** Aly Balsom T: 07912 344 219 E: [aly@alybalsommedia.co.uk](mailto:aly@alybalsommedia.co.uk) **Advertising:** Sarah Allin T: 01694 731777 E: [sarah@abccommms.co.uk](mailto:sarah@abccommms.co.uk) **FORAGER** is available free of charge to farmers and industry specialists. To be added or removed from the magazine mailing list please contact: [abc@abccommms.co.uk](mailto:abc@abccommms.co.uk) T: 01694 731777. **FORAGER** is published periodically. **FORAGER** Magazine is registered with the British Library ISSN: 2052-0816 (print) ISSN: 2052-0824 (online) **FORAGER** is a Registered Trademark of Germinal Holdings Limited



# Editor's NOTE

Coronavirus has wreaked havoc across the world, but there are some positives to come out of it for farming, writes Aly Balsom.

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Drought, the Brexit palaver, flooding, aggressive veganism and now a global pandemic – the last few years has had it all.

Coronavirus has had a catastrophic impact on a global scale, but it's also brought out some positives; pulling communities together and highlighting what's really important in our day-to-day lives. It's also had a profound effect on shoppers and their view of British farming.

Having been subjected to months of abuse from vegan activists and negative media attention around farming and the environment – the rhetoric has changed. Farmers are now seen as 'key workers,' working hard to produce food for the nation.

Panic buying at the start of the outbreak highlighted the fragility of the supply chain with consumers suddenly recognising the importance of British produced food. Local farm shops, butchers and growers were inundated with requests for produce; their shorter supply chains making them less susceptible to shortages (see page 30).

Over a quarter of 2,000 adults surveyed by Censuswide at the end of April on behalf of the NFU, said their view of British farming had become more favourable in the past three months. 51% said they felt Britain's ability to produce its own food has become more important.

My hope is that a change in consumer buying habits will stick, long after coronavirus – although the British shopper is undoubtedly fickle. As an industry we need to make the most of this wave of positivity and work to ensure it continues.

The government should also sit up and think about future food security – although sadly they appear to be doing the opposite. MPs voted not to safeguard against trade deals


undermining the UK's high welfare production standards when the Agriculture Bill went through the House of Commons in May. And International Trade Secretary, Liz Truss looks set on a trade deal with the US, which could see cheap imports of chlorine washed chicken and beef fed with antibiotics entering the UK market. When *Forager* went to press, a row had erupted between Truss and Environment Secretary, George Eustice about a future deal. Time will tell as to how things pan out, but I fear the industry's concerns may go unnoticed up against a wider trade deal with Trump.

Against this backdrop, business resilience becomes even more vital. Plummeting returns in light of coronavirus have also highlighted the need to justify spend. Any investment should yield a good return on investment (ROI);

whether that's from machinery to push up feed more regularly (see page 6) or improving pasture. However, if there's

one investment that's a no brainer, it's reseeded – the combination of extra dry matter and higher quality forage means that a reseed will easily pay for itself in its first year, whilst the benefits will continue (see page 8). It's also worthwhile addressing any compaction issues resulting from the wet autumn and spring in order to optimise grassland production (see page 16).

With a summer drought looking likely, 2020 could still have more in store for us.

At least be heartened by the fact the British consumer is behind you – and let's hope the government is too (doesn't hold her breath). 

/// *My hope is that a change in consumer buying habits will stick, long after coronavirus - although the British shopper is undoubtedly fickle.* ///



## Next generation

As part of our Next Generation series, Aly Balsom meets brothers, Mark and Paul Glanvill who are maximising milk from forage on a high output, robotic milking system.

The extra time available to think and strategise following the move to robot milking has enabled the Glanvill brothers to fine-tune their system, up yields and increase milk from forage.

The installation of four Lely robots three years ago immediately freed up 11 hours of milking time a day, allowing them the thinking space to refresh their forage strategy. Since then, they have put greater emphasis on reseeding and harvesting at the optimum time to produce quality silage. This, combined with plenty of feed space and availability in the new state-of-the-art shed has helped boost milk from forage from 3,500 litres a cow a year to 5,000 litres; 42% of total production.

"I think if forage is right everything falls into place. I'm a big believer in getting the forage right," says Mark, who specifically links quality forage with good cow fertility. He also strongly believes in having a good team with a vested interest in the farm – from his team on the ground to contractors, vets and nutritionists.

Mark heads up the cow side of the operation, whilst Paul focuses on the agronomy. Paul opts for 3-4 year perennial ryegrass leys including a mix of diploid and tetraploid, intermediate and late heading varieties. These are generally followed by maize, then a cereal and back to grass.

Paul believes "getting the basics right, every time" is the key to producing quality grass silage. Last year, first cut averaged 12ME and 74.9 D-value. That means reseeding regularly, cutting early and when the grass is ready. "We've invested in second-hand triple mowers, which means we can cut faster so we can start later in the day when the sugars are up," he adds.

The pair pay equal attention to maize silage

## IN THE HOT SEAT

**Name:** Mark and Paul Glanvill. **Age:** 32 and 34.

**Farm System:** Rydon Farm, Exeter. Total of 344ha (850 acres) including arable. 290 cows milked through four robots. 12,000 litres a cow a year with 5,000 litres from forage. Finishing beef from the dairy.

**Sum up your farming ethos in three words**  
Energetic, progressive, heeding.

**What's been your greatest business achievement?**

Our greatest achievement has undoubtedly been building the new robotic dairy and making it work for us both financially and personally.


**What's the next thing on your list for improvement?**

We are in the process of building a modern building for calf rearing.

**If you had one piece of advice for a new entrant, what would it be?**

Follow your instincts, but always listen to advice and take it on board, even if you then choose to ignore it.

production. Their ideal coastal location, 150ft above sea level, makes them a prime location for growing 61ha (150 acres) of the crop. Paul views cob maturity as the most important selection criteria for maize. Applying plenty of slow release FYM also ensures delivery of nitrogen just as the cobs need it. In 2019 they hit yields of 19.5t fresh weight per acre at 35% dry matter.

To maximise performance and reduce environmental risk, Paul also chooses to drill Italian ryegrass into maize stubbles. "We're double cropping so it's very efficient," he explains. "Our production per acre is very good because of that. And it acts as a double whammy as it's stopping soil erosion." The Italian ryegrass is cut with a forage wagon and layered at the bottom of the silage clamp. 





The Lely Juno robot feed pusher will automatically push up feed before returning to a charge point.

Pushing feed efficiencies

What are the benefits of pushing up feed? What options are available to do it and how do you work out whether an automated system is worth the spend? Aly Balsom finds out.

Time and hassle factor often mean that pushing up feed gets dropped down the list of priorities, but taking the time to build it into routines can aid efficiencies and reduce bullying at the feed fence. We all know that cows naturally push feed away from them and sort it throughout the day. With that in mind, mechanically pushing the ration back towards the feed fence can help:

- Remix the diet, ensuring every cow receives a consistent ration.
  - Reduce bullying as feed is always available.
  - Stimulate visits, encouraging small, frequent meals throughout the day. This helps rumen balance and thus feed efficiencies. This is particularly valuable on farms that only feed once a day.
- The University of Arizona looked at the effect of pushing up every half an hour or every hour in the first two hours after feeding. They found that dry matter intakes were similar in both groups. However, those cows that had feed pushed up more regularly produced 4lbs

more milk a day (1.76 litres) and were 10% more efficient – possibly due to better rumen function. Farmers typically report a 0.5-2 litres a cow a day response when introducing automated technology to push up feed, depending on existing feeding practices.

When to push up

Kite Consultant, Sam Evans believes the research not only highlights the benefit of pushing up, but also when to push up. “The best return on investment is likely to be seen when we focus on pushing up feed in the first 2-3 hours after feeding as that’s when you see the most amount of competition at the feed fence,” he says. Although most farmers would agree that the more push ups throughout the day, the better, Sam believes a realistic target for pushing up is around six times, with the focus on the period around feeding. However, this can be difficult to achieve on non-automated systems when labour and time is short, often meaning that farmers struggle to push up enough.



Farmers typically report a 0.5-2 litres a day response when introducing automated technology for pushing up feed says consultant, Sam Evans.

How to do it

There are various ways to push up – not all of which cost the earth. Manually forking the diet may be an option on smaller farms. Some farmers scrape a teleporter bucket along the ground or mount a bale on the front of the forks and drive down the passageway using this as a make-shift scraper. More mechanically minded farmers might be able to make their own “metal framed tyre pusher” to mount on the front of the tractor. Many of the

pushers available use tyres as a means of pushing up feed. Plastic scrapers can also be used (see table). The next step up is investing in an automated, robotic system. These robots take the hassle factor out of pushing up, undertaking the task automatically at a pre-programmed interval. The decision as to whether to invest in a robotic system will depend on individual farms, herd size and labour. For example, farms that are struggling to push up frequently enough due to labour availability may want to consider automated systems (see ROI box).

The Numbers

+0.5 - 2 litres a cow a day	potential daily yield increases from pushing up feed more.
x6	the optimum number of times to push up feed.
4 - 6 hours a day	how long a cow typically spends feeding a day.
9 - 14 meals	how many meals a cow will take to consume 23kgDM/day.



Front tractor mounted, tyre based feed pushers offer a relatively cheap method of pushing up feed.

Things to consider before investing in an automated feed pusher

- 1 Labour** - is a lack of labour or time preventing you from pushing up?
- 2 Shed layout** - if sheds are far apart or you have sloping ground then a robot might not be appropriate.
- 3 Can you keep machinery clean?** Think about biosecurity. If the robot needs to go across a dirty yard, you may risk introducing contamination to the diet. Some robots have systems where their ‘skirt’ can be lifted up to avoid this risk.
- 4 Future proofing** - if you’re going to expand over the next five years, how would you integrate this automated system?

Return on Investment:

Example calculations for a 200 cow herd with 173 cows in milk. An existing cost of 20 minutes per day in labour from pushing up 1-2 times/day using non-automated system = £5/day x 365 days = £1,825/year. Predicted yield increase of 0.5 litres a cow a day from pushing up regularly using a robotic system. (0.5 litres x 173 cows in milk x 28ppl) = £24.22/day or £8,840/year. Total benefit - £1,825 saving plus £8,840 return = £10,665 annual benefit. Therefore, a £15,000 automated machine gives a capital payback after 1.4 years (16.8 months), excluding any finance interest costs and running costs. There are often grants available that part fund these items (often at 40%) resulting in even quicker returns.

Example feed pushers (inclusion does not imply recommendation. Examples only. Other products are available)

Name (Manufacturer)	What is it?	Key attributes	Cost	Contact details
<b>Pushover</b> (Browns Agricultural)	Tractor mounted, tyre based feed pusher.	<ul style="list-style-type: none"><li>• Twin or single arm options.</li><li>• Tyres are angled to encourage correct delivery of feed.</li><li>• Sliding beam action allows pusher to be extended for different passage widths.</li></ul>	£1,175 +VAT for single arm pusher £1,340+VAT for twin arm. Linkage brackets are extra	<a href="http://brownsagricultural.co.uk">brownsagricultural.co.uk</a> Tel: 01525 375157
<b>Mensch M905 Feed Alley Scraper Bucket Mount</b> (Mensch Manufacturing)	Bucket mounted, blade scraper.	<ul style="list-style-type: none"><li>• Plastic blade attaches to bucket.</li><li>• Left or right mounted.</li><li>• Adjustable height.</li></ul>	£1,167.00 + VAT	<a href="http://kitt.eu.com">kitt.eu.com</a> Tel: 01278 727755
<b>Mensch M915 Feed Alley Scraper Hydraulic Angled</b> (Mensch Manufacturing)	Conventionally mounted feed scraper blade.	<ul style="list-style-type: none"><li>• Plastic blade.</li><li>• Hydraulic blade so angle can be adjusted.</li><li>• Left or right mounted.</li></ul>	£2,882.00 + VAT	
<b>Lely Juno</b> (Lely)	Automatic robot feed pusher.	<ul style="list-style-type: none"><li>• Moves automatically along predefined routes along the feed fence.</li><li>• Rotating mechanism pushes feed towards fence.</li><li>• Can be controlled with app.</li><li>• Returns to bay for charging.</li></ul>	Around £15,000	<a href="http://lely.com">lely.com</a>
<b>DeLaval Optiduo</b> (DeLaval)	Automatic robot feed pusher and mixer.	<ul style="list-style-type: none"><li>• Robot moves along feed fence and remixes feed before pushing it back towards the cows. The aim is to refresh feed to encourage intakes.</li><li>• Option to add a concentrate dispenser to robot to further entice cows.</li></ul>	£17,500 guide price (subject to installation variables)	<a href="http://delaval.com">delaval.com</a> Tel: 029 2077 5800



# Solutions to your reseeding challenges

*Responses to a Forager survey highlighted three common challenges farmers face when reseeding. Laura Wise finds out how to overcome these issues and how to maximise the potential of a new ley.*

Reducing feed costs by improving grassland performance is one of the best ways to build resilience and long-term sustainability into a livestock business.

Regular reseeding is essential to achieve this, says Germinal GB National Agricultural Sales Manager Ben Wixey. However, 300 farmers surveyed in the 2019-2020 winter issue of *Forager*

highlighted challenges surrounding implementation of a routine reseeding plan. Here, Ben shares some solutions for overcoming some of the hurdles:

## Challenge: Taking land out of production

### Solution: Utilising brassicas

Drilling a rapid growing brassica between grass crops is a cost-effective way to fill forage gaps in as little as eight weeks. Brassicas are also a great break crop option by breaking the pest cycle of frit fly and leatherjackets, along will disrupting slug activity.

Different brassica forage crops can provide quality strip grazing from June right through to February or March. This allows them to be used to supplement summer grazing, extend autumn grazing, or support out-wintering systems.

If the field has no compaction issues, direct drilling is an option to keep a firm soil foundation for grazing livestock.

#### Ideal field conditions for brassicas:

- A minimum of five years since the last brassica crop to minimise clubroot.
- Avoid heavier soil types for out-wintering.
- No threat to water courses.
- Avoid steeply sloping sites.
- Clear of wind blocks, like woods, for good airflow for rapid drying.
- Suitable shelter for livestock.

#### Did you know?

Feeding brassicas can cost just 20p per head per day.



Livestock grazing brassicas must have access to straw or haylage, sufficient to provide at least 30% of the daily dry matter ration.

### Matching the crop to your requirements

Crop type	Seed rate kg/ha	Sowing period	Sowing to utilisation interval	Utilisation period	Out-wintering potential
Kale	5 - 7.5	May to late June	20 weeks	November to February	High
Swede, natural Swede, graded	2.5 0.5	Mid-May to late June	20 weeks	December to March	High
Hybrid brassica, single graze	5 - 7.5	Mid-June to late August	10 weeks	September to January	High
Forage rape, single graze	5 - 7.5	May to late August	8 weeks	August to November	Limited
Multigraze brassicas, hybrid brassica/grazing turnip	5 - 7.5	May to mid-June	8 weeks	Mid-July to January	Moderate
Stubble turnip	5	March to August	12 weeks	August to December	Low

Source: Germinal GB's Brassica Growers Guide. To download the guide, go to [germinal.co.uk/catalogues/#](http://germinal.co.uk/catalogues/#)

See page 10 for some top tips on establishing brassicas

### How to make the most of your reseed

- Plan your reseeding strategy well in advance to ensure timeliness of critical management practices.
- Test and address soil indices at least six months before reseeding to allow time to rectify soil pH issues.
- Address any soil compaction before reseeding.
- Identify weeds in new swards and control early by spraying or grazing.
- Increase stocking density and utilisation with rotational grazing practices.

## Challenge: Justifying the cost of reseeding

### Solution: Look at the return on investment

Using contractor figures from the John Nix Pocketbook and local contractors, the average reseed costs £200 per acre when following best practice. This is easily recovered when the impact of the additional feed value created is considered.

As a conservative estimate, a new sward comprising of the best performing perennial ryegrass varieties from the Recommended Grass and Clover Lists (RGCL) will yield at least 3,500kgDM/acre, with an average 11.5 ME for 40,250MJ ME/acre. An older pasture, around 8-10 years old, can be expected to yield 2,800kgDM/acre, with an average ME of 10.5 for 29,400MJ ME/acre. The difference is an extra 10,850MJ ME/acre (see chart).

The combination of extra dry matter and higher quality forage will easily pay for the reseed in the first year, and the benefits should then continue with a medium-term ley for 5-7 years under the right management – but without the costs to set against them.

#### Net profit contributions from an extra 10,850 MJ ME/acre

Enterprise	Energy	Factored price	Extra production	Extra income	Net profit
Dairy	5.3 MJ ME for 1 litre of milk	0.28p/l	2047 litres	£573	£373
Beef	47 MJ ME for 1kg lwg	£1.78/kg	231 kgs/lwg	£411	£211
Sheep	43 MJ ME for 1kg lwg	1.6/kg	252 kgs/lwg	£404	£204

\*Based on a reseeding cost of £200/acre

#### Did you know?

The typical grass yield increase seen in year one following a reseed is 25-30%.

To get the highest return on investment, choose high performing varieties for yield and quality off the RGCL.

25-30%



## Challenge: Risk of a failed reseed

### Solution: Ensure best practice

Minimising the risk of a failed reseed largely comes down to following best practice.

#### To give your seed the best chance of germination:

- Work the ground to a fine tilth while preserving moisture if there is a shortage.
- Sow when soil is moist and warm (minimum 5°C).
- Use the correct seed rate (15kg/acre or 35kg/ha) to establish a dense sward.
- Optimum seed depth is 15mm (½ inch).
- Roll before and after drilling for optimum consolidation – you should be able to walk on the field and leave no footmarks.

To consolidate roots and promote tillering, graze new leys lightly with sheep or youngstock when grass reaches 7.5-10cm high.

## BUILDING RESILIENCE FOR THE FUTURE

Market reactions to COVID-19 disruptions have forced many farms to be scrupulous about management decisions. To build financial resilience for now and the future, investing in homegrown forage production through the use of reseeding programmes and best management practices will allow producers to reduce overall feed costs while optimising animal production. When it comes to implementing these practices, whether it be rotational grazing, improving silage quality or establishing a brassica crop, you don't have to figure it out on your own. Germinal GB is here to provide you with the tools and expertise you need to build a resilient future.

*Ben Wixey, Germinal GB*

### SURVEY AUDIENCE:

#### Enterprises of those surveyed:



60%  
Dairy



44%  
Beef



44%  
Sheep



15%  
Arable



45%  
Spring



48%  
Summer



58%  
Late  
Summer/Early  
Autumn

Farmers surveyed reseeded an average of 14% of grassland/year.

#### Reseeding seasons:





# How to establish brassicas

*Brassicas are a hugely versatile crop, providing grazing options from June to March, depending on the crop used. Germinal GB's Ben Wixey provides some tips for farmers looking to establish them in the next few weeks.*

## 1 Test soils and address any imbalances

Ideally soil tests should have been carried out last winter and any imbalances in pH, potash and phosphate addressed prior to drilling. Brassicas do not like acidic soils. Target a pH of 5.8-6.5 and P and K indexes of 2.

## 2 Choose the right brassicas to meet your needs

Which brassica you choose will depend on when you want to graze the crop. For example, forage rape can be established in May to late August for August to November grazing. Swedes take longer to grow, but are suitable for December to March grazing when established in May to June.

*See the table on page 8 to find out more about the key attributes of different brassica crops.*

## 3 Choose the right site

Not every field is right for brassicas. For example, heavy land and steeply sloping sites should be avoided for out-wintering. To avoid issues with clubroot, avoid planting brassicas in a field that's been drilled with brassicas in the last five years.

## 4 Prepare a fine, firm seed bed

Prepare a fine, firm, clean seed bed. Good seed to soil contact is critical for good establishment. Burn off the old ley, graze hard and apply fertiliser on the basis of soil test results. When broadcast seeding; plough, power harrow and roll to get good seed to soil contact. If compaction is not an issue, seed can be direct drilled and rolled. Never sow seed more than 1cm deep.

## 5 Aim to drill at the optimum time

Drill when soil temperatures are 10C and rising. For hybrid brassicas and kale, a seed rate of 5-7.5kg/ha is advisable, 2.5kg/ha for swedes and 5kg/ha for turnips. If it's been difficult to achieve a fine seed bed, use the upper end of the scale when broadcast seeding hybrids and kale. If conditions are right, use the lower end.

## 6 Monitor the crop for pests

Monitor the crop for pests, disease and weeds; particularly in the critical first six weeks of establishment. The removal of certain chemicals from the market means that flea beetle control is difficult. With that in mind, ensuring the seedling has the best possible chance of growing away from any flea beetle attack is a must. This emphasises the need to get soil indices correct before establishment. When using flea beetle treatments, application timing is key to getting the best results.

Getting the seedling off to a good start will also help it outcompete any weeds. Apply slug pellets if problems occur post-emergence.

## 7 Apply fertiliser at the right time

P and K should be applied at sowing. Nitrogen applications may be split between sowing and post establishment. Speak to an agronomist to establish the current fertiliser regime for your crop.

For more information, see Germinal GB's Brassica Grower's Guide at [germinal.co.uk](http://germinal.co.uk)



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*Gordon, Margaret and James Tweedie of South Dyke Farm have increased grass production by 61% in the last four years.*

# In the business of converting grass to milk

*Investing in its grazing platform has helped one GrassCheck GB dairy farm in Cumbria maximise milk from grazed forage, as Laura Wise reports.*

South Dyke Farm has one simple aim – to convert grazed grass into milk as cost-effectively as possible. And to be fair, they are doing a pretty good job of it.

The 200ha (494 acres) multi-generational farm is achieving 4,700 litres of its 5,400 litre average from forage. Set on a quality contract, the spring block calving, New Zealand Friesian and Jersey cows are averaging milk with 4.76% fat and 3.7% protein.

“We have the cows to efficiently convert grazed grass to milk, and the more grass we can grow the more we can produce without increasing supplements fed,” explains James Tweedie, who operates the farm with his parents, Margaret and Gordon.

## Driven by data

Located in the Eden valley near Penrith, South Dyke Farm is dry by regional standards, only receiving 90cm of rainfall each year. This, combined with its free draining soils has allowed the farm to consistently graze at least 270 days out of the year.

To make the most of its forage production potential, the farm has refined its grassland management

and is continually upgrading grassland quality and rotational grazing infrastructure. According to James, these decisions are primarily being driven by data to help the farm maximise its return on investment. This has allowed the farm to increase production from 9t DM/ha to 14.5t DM/ha in the last four years.

“Although we have always been grazing cows, to understand where we were at, we started collecting weekly grass measurements about five years ago. This grass growth data has been vital, particularly in the shoulders of the season, to help us hit our grass cover targets and extend our grazing season for as long as possible,” explains James. “This allows us to ration spring grass correctly and to carry the appropriate amount of grass over the winter into the next spring.”

To optimise grass utilisation, cows are introduced to paddocks at 2,800-3,200kgDM/ha and removed at 1,500kgDM/ha. Any fields over 3,200kgDM/ha or about to go to seed are cut for silage. Weekly measurements are used to plan grass allocation and stocking rates.

## Investing into inputs

Two years ago, the business became

a GrassCheck GB monitor farm, feeding weekly grass growth data and fortnightly grass quality samples into the programme. This provides real-time growth and quality measurements to producers throughout the UK, while helping researchers to develop future production prediction models.

One of the biggest surprises to come from the data has been the variation in forage production between different paddocks. According to James, this data has been pivotal in improving yields by allowing the farm to effectively address soil fertility and reseed.

“The opportunity cost of our best performing paddocks growing 17t DM/ha plus, compared to others only yielding 10t DM/ha, is massive. Addressing the growth variation between different paddocks is the biggest opportunity for our business,” explains James.

In the last three years, the farm has made moves to close those production gaps by structuring its reseeding programme to improve poorer performing paddocks and older leys, which made up approximately 70% of the grazing platform. To optimise the reseeding return on investment, varieties were

chosen using the Pasture Profit Index from Teagasc.

“We pay particular attention to seasonal growth, selecting intermediate heading varieties with very similar heading dates to have a short heading season. Our mixtures contain a maximum of two varieties, almost exclusively being a combination of AberClyde – a tetraploid perennial ryegrass – and AberMagic, a diploid perennial ryegrass,” says James.

“We tend to sow a 75:25 ratio in favour of tetraploids, however, we will do a 50:50 mix on wet fields. We have sown a couple of paddocks with monoculture tetraploids and will be doing more in future. Anecdotally we think they may perform slightly better on dry ground and are more palatable.”

Last year, 10% of the new leys were overseeded with 6kg/ha of white clover. Plans are in place to overseed the remaining leys to add extra palatability, increase forage protein and to ease back fertiliser usage.

A religious nutrient management programme has also helped the farm increase grass production by 61% in the last four years. As a minimum, every field is soil sampled every other year. Detailed records are also kept about what nutrients have been applied and removed so indexes can be maintained.

## The Tweedie's tips on improving grassland management

- 1 Make weekly plans following measurement on how much grass to allocate and where.
- 2 Keep field records of grass performance to make reseeding and soil fertility decisions.
- 3 Early decision making is good decision making as far as grass is concerned – e.g. on rotation length, supplement feeding etc.
- 4 Look at the impact soil temperatures and soil moisture content has on growth rates to stay ahead of grass production changes.
- 5 Use dry matter from lab samples to allocate the correct amount of grass, particularly in the shoulders of the season when DM% can be quite variable.
- 6 Ensure pH, P and K are correct. Without this it will be impossible to achieve high grass yields.
- 7 Choose grass varieties with high early and late season growth to extend the grazing season.
- 8 Invest time into learning quality, up to date knowledge, and to meet positive, engaged people who are willing to share their ideas.



*Weekly grass growth data and fortnightly grass quality samples collected for GrassCheck GB are utilised to make soil fertility and reseed management decisions.*

“We have found the opportunity cost of having pH, P and K indexes wrong is significant,” says James. “We have applied some capital P and K to lift indexes where necessary, which has been a brilliant investment that has allowed us to get more return on the nitrogen spread.”

## Continuing progress

For South Dyke Farm, investing time and resources into the right inputs has yielded a huge return on investment that will have a long-term impact on the business' bottom line. As more meaningful data from GrassCheck GB is fed back and the farm continues to understand its impact on their

production system, the Tweedie family will continue to progress their goal of producing as much milk from forage as possible.

“We have, and continue, to see the huge benefits of grazed grass to our business and lifestyle,” concludes James. “We're also more than keen to help with research in this area to open up opportunities for fellow farmers to utilise and grow grazed grass more efficiently.”

*GrassCheck GB is a collaboration between the Centre for Innovation Excellence in Livestock, Agri-Food and Biosciences Institute, Rothamsted Research, AHDB Beef & Lamb, Quality Meat Scotland, Hybu Cig Cymru, Germinal GB, Handley Enterprises, Scianteq Analytical, Waitrose and Partners and Datamars Livestock.*

## GrassCheck GB 2019 Highlights

### 11.012t DM/ha

Average on-farm grassland productivity from March-October 2019.

### 13.94t DM/ha

Average yield for dairy farms.

### 9.663t DM/ha

Average yield for beef and sheep farms.

## 79% utilisation across all farms

To learn more about GrassCheck GB and to view weekly grass production figures, go to [grasscheckgb.co.uk](http://grasscheckgb.co.uk)



# Achieving the optimum wilt

*Kuhn Farm Machinery's Katie Calcutt delves into the art of good tedding and reports on a grassland specialist who knows his machines.*

Setting up the tedding machine correctly and avoiding rushing the job in the field will pay dividends when it comes to overall forage quality.

The purpose of tedding is to spread and turn the crop sufficiently to assist drying, avoiding soil contamination in the process. Some degree of crop conditioning can also be achieved with the extent determined by the way the machine is set up.

Optimum tedding performance means all the grass is handled equally and spread into an even and airy layer, avoiding lumps or wet spots, whilst ensuring as gentle an operation as possible. Consider the following:

## 1. Match the tedder with the mower

The first thing is to make sure that the tedder is compatible with the working width of the mower. Ideally, this should mean that you avoid running the tractor wheels on the mown swath and that the centre of the swath is in-line with the axis of the rotor. The wettest and most compact part of any swath is at its centre, nearest the ground, so it is important that the tines are set to ensure that the whole crop is lifted and that no trails are left behind.

## 2. Tine height setting

Tines should pass just above the ground at the lowest point when the machine is in work, and the best way of getting this right is to set the tines at stubble height when

stationary. If the field is uneven and there is a concern over soil contamination, set tine height marginally higher. Height adjustment will be achieved on most machines through a combination of wheel and top-link settings.

Top link setting will also determine the angle of the rotor. This, together with the speed of rotation relative to tractor forward speed, is crucial to tedding performance.

## 3. Rotor angle

Rotor pitch angle and rotor speed should be set in order to lift the crop into the air and turn it once. If the angle is too low, lumps will form, and if speed is too great, the crop will be flattened due to excessive projection speed. Set up should be done in an area of the field most representative of the average crop density, assuming that it is reasonably even across the field. Where density varies – for example on the headlands – adjustment should be


made to tractor forward speed and rotor speed. As a rule, a higher crop density needs a higher rotor speed and slower forward speed.

## 4. Machine selection

Points to bear in mind when comparing machines relate to rotor configuration, rotor drive system,

ease of adjustment, tine safety and transport width.

In general terms, smaller rotors with greater numbers of tines will perform better, and drive systems are relevant from the point of view of ensuring consistent rotor speed across the full working width.

Ideally, adjustments should be possible without the need for tools, and tine safety straps are recommended if you want to avoid the risk of metal going through the forage harvester. When it comes to transport, height – as well as width – should be a consideration. 

## CASE STUDY: Tedder versatility suits contractor's needs

Gloucestershire farmer and contractor Nick Keyser views tedding as a crucial component to his forage making operation.

Nick makes close to 10,000 large square and round bales a season as silage, haylage or hay. Operating within a 30 mile radius of Cirencester, he's dealing with a variety of situations for a range of customers, but all require a quality forage product made to a specification.

Prior to his recent machine upgrade, Nick did a thorough review of the tedder market, testing several machines before opting for his Kuhn GF 10812 Gyrotedder. A mounted machine with a working width of close to 11 metres, it's one of the larger machines in the latest generation of tedders from Kuhn.

With the capacity for medium to large-scale operations, this Gyrotedder is also suited to working in tight, awkward shaped fields, so ideal for someone like Nick, who runs his on a 165hp tractor.

"I wanted a mounted machine with a good working width," he says, "and this machine offers that as well as being relatively light and compact for transport."

Its compact transport position, made possible by a patented stabilisation system between the headstock and the frame, also enhances the machine's stability

during work. This is a factor in its field performance, alongside features like the hydraulic top link, adjustable rotor speed and Kuhn's unique Headland Lift Control feature.

"We tend to tweak the top link as we go and vary rotor speeds quite a lot in order to achieve the best results that we can," adds Nick. "Headland Lift Control is another stand-out feature that contributes significantly to the machine's overall performance."

Headland Lift Control, standard on the GF 10812, lifts all rotors to a height of 50cm in less than 5 seconds, making it easier to manoeuvre and operate the tedder, especially on tight headland turns. The fast-acting rotor-lift system also helps to reduce the risk of impurities being introduced into the forage.

As with all Kuhn Gyrotedders, the GF 10812 is equipped with the Digidrive multiple finger coupling rotor drive system that allows transmission of power at constant speed at angles of up to 180 degrees. In addition, pivoting small diameter rotors and asymmetrical tines improve ground contact and reduce soil contamination, while wheels which are placed close to the tines improve ground following. Hydraulic adjustment for border tedding is also available as an option.

*Headland Lift Control is a stand-out feature on Kuhn's latest generation of tedders.*



# Tackling the heavy rain hangover

*A rainy autumn followed by a wet spring has created numerous challenges for farmers. Aly Balsom finds out what needs to be done to address residual problems and what can be learnt.*

The wet winter and New Year may seem like a distant memory, but they could still be having an impact below ground.

For farmers that travelled on wet fields in the autumn and were then pushed to do the same when spreading slurry this spring, soil compaction could be a particular issue. Add to that numerous trailers travelling over the same ground at silage making and the issue could be greatly exacerbated.

So what can be done to address the issue and are there ways to improve how soils and pasture cope with extreme periods of wet in the future? Consultants from around the country share their thoughts:

## 1. Check for compaction and address any issues

The first thing to do is take a spade for a walk around the farm and look for compaction, says William

Waterfield of The Farm Consultancy group.

"Dig a pit with a spade about 8 inches cubed and look at the profile. A well structured soil should split vertically. A poorly structured soil will split horizontally."

**//** *A lot of maize growers will need to do more work than usual this autumn.*  
**Simon Draper, MGA.**

Assess for signs of compaction. Compaction to 3-4 inches is likely caused by livestock, whilst deeper compaction is likely linked to machinery. For compaction at 8-10 inches, consider sward lifting in the autumn. Surface compaction caused by livestock can be addressed by slit aeration. Both practices should be avoided in very wet or dry ground conditions.

Agronomist for the Maize

Growers Association, Simon Draper also suggests checking to see if there are any areas in a maize crop that aren't growing as well. Even after ploughing, there could still be problems with compaction at depth, he says.

**//** "Get a spade out in those areas and dig down. The soil will tend to be black and smelling caused by anaerobic conditions where compaction is a problem," he explains.

If compaction is a problem, maize ground should be sub-soiled no more than 5cm below the compacted layer when soils are dry, immediately after harvest. "A lot of maize growers will need to do more work than usual this autumn," he stresses.

## 2. Carry out in-depth soil analysis

It's well worth carrying out in-depth soil analysis to check if there's any underlying imbalances that could be



*"If you've got bare soil patches, it's worth stitching in grass-seed," says Piers Badnell, LIC Pasture to Profit Consultant.*

impacting on soil structure and drainage, says Gareth Davies from Gareth's Grassland Advisory Service.

"The calcium magnesium balance has a big impact," he says. "If you've got a high magnesium to calcium ratio, ground is more likely to get water logged. Magnesium tightens soils up and reduces water infiltration. Calcium loosens soils up and creates an environment soil biology can thrive in. That helps release nutrients to the plant and aids organic matter."

If soil analysis shows that magnesium is high relative to calcium, but pH is on target, Gypsum can be applied to raise calcium levels, whilst maintaining pH. If pH is low, calcium lime can be used.

## 3. Assess the sward and establish if a reseed is needed

Are certain fields performing below par? Could they benefit from an autumn reseed? Compaction will lead to poor growth from sown species and more ingress of weeds and weed grass. Any compaction issues should be addressed prior to a reseed.

"If you've got bare soil patches, it's worth stitching in grass-seed," says Piers Badnell, LIC Pasture to Profit Consultant. This will prevent weed ingress and boost grassland performance. For the best 'take', ensure ground is moist, there's good seed to soil contact and consolidation.

William also suggests that brassicas could help break up lightly compacted soils through their strong rooting structure. This will also create a valuable winter feed.

## 4. How can you improve soil organic matter?

Soils with high organic matters will be more resilient to weather extremes. Gareth explains: "The better the structure of your soils and the organic matter, the more water it can absorb and the less susceptible it is to compaction."

William suggests introducing diverse swards that contain species such as chicory, plantain and strong rooting red clovers. This will raise

root structure diversity which will help organic matter and drainage.

Mob grazing cattle in the autumn can also boost soil organic matters. This involves grazing high covers at high stocking densities and leaving cattle to trample in a proportion of the grass. This will then be incorporated into soils over the winter.

## 5. Take steps to minimise maize run-off

Already compacted soils will increase the risk of run-off at maize harvest this year. Simon suggests broadcast seeding perennial ryegrass into maize at the six leaf stage, on a wet day to provide extra cover. At harvest he also advises exiting at the top of a field and keeping trailer wheelings to the headland rather than driving all across the field. "On the same day as harvest, use a sub-soiler or chisel plough to address compaction on those wheelings," he adds.

## 6. Think about field drainage

Did certain parts of the field stay wet longer than others? asks Piers. This could be a sign that drains need to be cleared. If you don't know where your drains are, locate them and clear them, he says. Then clear out any ditches to below the level of the drain. Ultimately it's about making sure water can drain away effectively. After all, waterlogged ground will be colder, which will reduce grass growth. **1**



*Assessing for signs of compaction is a must since many farmers were forced to travel on wet ground.*

*Diversifying sward species with things like chicory and strong rooting clovers will help build organic matter and improve drainage.*





# Views from the farm

*Aly Balsom speaks to three farmers to find out whether the wet autumn and spring followed by a dry spell has affected them, and what they've learnt.*

## James Drummond, Lemmington Hillhead, Alnwick, Northumberland

1,150 Aberfield x Abertex ewes, 420 Aberfield, Abertex and Aberdale ewe lambs and 110 ram lambs. 60 mostly Limousin suckler cows plus heifers – moving to Aberdeen Angus.

“Despite all of the rain, we had a very successful winter out-wintering cattle and sheep. The fact we direct drilled helped as the soil structure was already there. We did get poaching around the bales of arable silage we fed on the beets. This year, instead of bales, I’m going to have half the field down to winter hardy westerwolds and half to beets so the more and more we graze, the more lie back becomes available on the grazed westerwold area. That will hopefully reduce how much they plunge.

We’ve also learnt not to be afraid to move stock quicker when rotationally grazing grass in wet conditions. You can leave a higher residual so you don’t plunge it as much and then come back and tidy it up. ”



## Ian Norbury, Dairy Farm, Mobberley, Cheshire

120 sucklers: Half are pedigree Aberdeen Angus under the Mobberley prefix, the rest are Simmental cross Aberdeen Angus or Sussex cross Aberdeen Angus.

“Because of the wet, I weaned a group of heifers 2-3 weeks earlier in mid-October and brought them in. That meant I saved the grass and could keep a larger group of cows out longer. It also helped me take extra care of the heifers so they kept growing.

It’s gone from one extreme to the other. We’ve gone so dry (start of May), it’s baked the ground. It’s stunted grass growth. I’ve not tipped cattle out as soon as I’ve had no grass. I’m getting more and more stock out now so it emphasises the need to be up on management. By monitoring grass, I know when to get cattle out and when I’ll run short of grass.

I’ve done some reseeds where I’ve out-wintered on kale. Because it’s been baked, it’s cost more to break the soil up and make the ground decent enough for a reseed. ”



## William Holmes, Dorchester, Dorset

Two autumn calving herds (300 and 420 head) and one spring block calving herd (330 head).

“In the autumn, we did run into problems on some of our maize ground so we couldn’t get the cover crop in (after harvest). We did have problems with run-off. Now we’re adapting an old drill so we can inter-row drill and put a cover crop of westerwolds and Italian ryegrass into maize once it’s about knee high. We know from previous years that this mix works well.

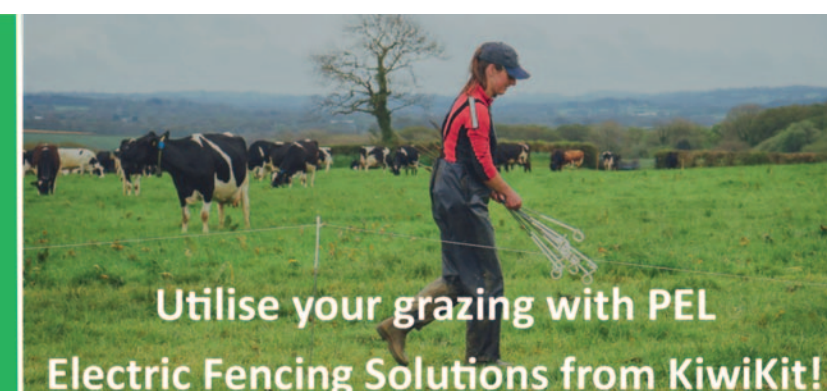
We’ve done a lot of mitigation work around out-wintering the spring herd on westerwolds and Italian ryegrass leys and bales. We put fenced off, cultivated strips in the centre of the valley, which helps capture any run-off and we dig bales partly into the ground to act as an extra trap. For a number of reasons, including weather, we’ve chosen to stop out-wintering R2 heifers on one of our autumn herds. We’ve adapted our heifer out-wintering strategy on the other autumn herd to limit poaching risk by integrating mob grazing of cover crops. ”



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# Technology aiding forage performance

*Yield monitoring technology on the forage harvester is helping one large scale, high yielding Shropshire dairy herd drive milk from homegrown feed. Luke James reports.*

Taking the forage making process in house and utilising in-built yield monitoring technology in the forage harvester is all part of Bubney Farms' plan to boost forage quality.

Quality forage forms the backbone to high level performance across the business' 2,150 dairy cows, which yield an average 12,900 litres a cow a year on three times a day milking. Around 30% of milk is produced from forage.

As such, in 2018 they made the decision to invest in a fleet of forage machinery to replace contractors. This also made the move to a multi-cut silage system more feasible, allowing 929 acres (376ha) of quality leys to be cut up to five times a season. It also brought greater levels of control to over 2,224 acres (900ha) of maize harvesting.

Central to the plan is a Claas Jaguar 970 self-propelled forage harvester. Fitted with either a three

metre grass pick-up or a 12-row maize header, the forager brings significant harvesting capacity. As important, however, is the on-board technology being used to monitor dry matter yields and produce valuable data that is influencing important management decisions.

## Monitoring system

"The yield monitoring and Telematics data recording facilities are one of the reasons we bought this particular machine," says Bubney Farms owner Andrew Evans. "This technology is giving us a far better idea of harvesting output and production costs, but also shows us how crops are performing and helps identify what we need to look at to fully maximise production.

"It's so much easier having all that data automatically recorded, stored and immediately available so that we can come back to it later in

the year. A comparable level of management is impossible to achieve with a paper-based system."

Yield data is used by Andrew with his agronomist, to help maintain productivity, as the poorest performing fields are quickly identified and ear-marked for reseeding, for example. It's also of value in grass mixture selection, as performance is monitored on a field-by-field basis allowing comparisons to be made that allow decision making to be fine-tuned. In the case of the maize, having accurate records of the tonnage in the clamp is particularly useful for the 280ha that is grown on contract.

Bubney machinery manager Simon Hankey operates the forager. He calibrates the Quantimeter throughput monitoring equipment twice daily against the farm's weighbridge when harvesting. He sees additional advantages from

using the equipment.

"The technology is surprisingly accurate," says Simon, "and this allows us to apply additive at a tonnage rather than an hourly rate. Having the confidence that we are consistently applying the additive at the recommended 1 litre per tonne rate is another key point in maximising forage quality and far better than applying by the hour, which was somewhat vague."

Alongside the forage harvester, the farm now has two mower conditioner combination units – one triple gang and one front and rear mounted – plus a Kuhn Merge Maxx belt merger. This is the fleet that has allowed more frequent and timely grass harvesting – a multi-cut system – which would have been challenging if relying on contractors.

## Silage quality

"We're aiming to make grass silage that is around 11.5 ME and 16% crude protein," explains Andrew, "so we're growing specialist high

quality leys and aiming to cut on a 35 day cycle to maximise quality.

"It's a challenge for any contractor to manage the acreage we have and that's been a big part of our decision to run our own equipment. Maintaining grass silage quality is integral to our drive to maximise milk from forage."

In recent years, milk from forage has increased from around 2,500 litres a cow a year to closer to 4,000 litres. Improvements in the quality of leys has been an important part of that, alongside the adoption of a multi-cut system and the greater control and precision made possible by monitoring technology.

Silage leys have moved away from predominantly tetraploid perennial ryegrasses to a mixture that is designed specifically for the multi-cut system. It is exclusively made up of Aber High Sugar Grass varieties. The majority are intermediate heading with a 50:50 balance of diploid and tetraploids. These leys are designed for 3-4 year duration and are delivering the quality required alongside seasonal yields of 15-17tDM/ha.

## Silage making

With the aim being to maximise quality and achieve dry matters in

the 25-30% bracket, grass is cut and conditioned and left to wilt for a target 24 hours. There is no tedding, so the grass is then grouped using a Kuhn Merge Maxx. This machine is preferred to a grass rake as it functions with a pick-up reel and uses bi-directional belts to create swaths in a variety of permutations.

"We like the merger because it does not pick up stones and soil in the way that grass rakes tend to," says Simon. "This reduces the ash content of the silage and minimises the risk of damaging stones going through the forager. With a lot of relatively newly reseeded leys the amount of stones can be problematic, so the merger is a definite improvement."

Grass reseeded are usually drilled in the autumn, following winter wheat that is grown for crimping. These are established following ploughing and power harrowing, with an air-seeder mounted on the power harrow. Maize drilling is also carried out with the farm's own equipment and additional efficiencies have been made in this area with investment in a six metre tine cultivator to follow the plough, seeding straight after this with an 8-row precision drill. 



*Bubney Farms owner Andrew Evans (left) and machinery manager Simon Hankey (right) are using crop yield monitoring technology as a key part of their drive to improve milk production from forage.*



# Finding the mature cow weight sweet spot



*Beef producers feeding primarily homegrown feedstuffs may be able to make more profit with larger cows if it isn't detrimental to other economically relevant traits.*

Just how heavy is too heavy for a mature beef cow? Laura Wise reports on results from a recent study to answer the age-old debate.

The mature weight of breeding cows has a huge impact on productivity and thus herd profitability, but just what is the sweet spot?

To answer that question, AbacusBio International conducted a study funded by AHDB Beef & Lamb, Hybu Cig Cymru and Quality Meat Scotland. The aim was to analyse the impact of different mature cow weights on other traits, and to see how those traits affected costs and revenue.

Data from industry bodies like AHDB and SRUC, together with published literature, was used to create a model of UK beef production systems. The UK average for cow weight of 651kg was used as the base. A 100kg increase was then modelled to assess its impact.

## Looking at the trade-offs

Heavier cows directly benefited the modelled farm with higher cull cow revenue. Indirectly, their offspring also yielded increased carcass revenue and quality.

However, there were several negative correlations that outweighed the benefits, says Dr John Crowley, AbacusBio

International consultant. This included a direct increase in maintenance feed costs and replacement costs, and an indirect decrease in fertility and increase in feed costs for progeny.

"The reduction in fertility from an increase of mature cow weight manifests itself in progeny on the ground. So, while those progenies may have increased slaughter weight and carcass quality, there is actually fewer of them," explains John.

**680-685kg - the target mature body weight for breeding cows.**

According to Tom Kirk, AbacusBio International consultant, maintenance feed costs are a key driver behind profitability, due to increasing energy needs. A larger body condition score requires higher quality or more energy dense feed.

"Once cows start to drift over 700kg, the cost of the diet you need to give them will increase per MJ or kg of protein," explains Tom. "Bigger cows need a higher plane of nutrition – that is more energy dense – that will cost more because

they physically cannot ingest the same amount of roughage that smaller cows can get by on."

## Optimising mature cow weight

Findings from the study suggest the sweet spot for the mature weight of beef breeding cows to be between 680kg and 685kg. According to John and Tom, beef producers feeding primarily homegrown feedstuffs may be able to tip the scales up to 700kg to optimise profits.

"The offspring from heavier cows will yield a heavier carcass weight and take longer to finish, which increases quality scores for premiums," Tom explains. "The financial trade-off, however, is the increase in feed costs for the breeding and finished units. Producers cost-effectively growing their own feed may be able to offset this to a point."

Tom stresses that producers must monitor fertility and the cost of meeting cow nutritional requirements to protect profitability. It's also important to factor in costs that may be indirectly affected, such as the number of days on feeds' impact on infrastructure costs.

John recommends recording cow weights regularly and culling any offspring that are above target. EBVs and selection indexes that penalise mature weight should be used to select the best genetics for

a farmer. However, this must be balanced with other economically important traits. For example, if a farmer only bred for small cows, growth would be greatly offset. John adds: "It will take time to

optimise the mature cow weight for a herd, however, it is one of the most effective ways to improve profitability in a beef suckler system and will pay off significantly in the long run."

## Herd margin over feed for different mature cow weights

Animal	Mature Weight			
	651kg		751kg	
	Cost	Revenue	Cost	Revenue
Maintenance Feed	£11,771		£21,655	
Cull Cow		£10,924		£13,144
Replacement Growth	£10,620		£16,588	
Heifer Carcass Value	£15,834	£28,906	£18,278	£34,292
Steer Carcass Value	£24,522	£42,920	£29,296	£46,175
Bull Carcass Value	£5,465	£8,120	£6,602	£9,948
Total	£68,213	£90,872	£92,420	£103,561
Margin Over Feed	£22,658		£11,140	

Note: Your margin over feed is the net revenue when feed is the only varying cost. In this model, every other cost remains the same.

## Optimising mature cow weight for commercial farms

1. Buy sires where it is possible to assess the size/weight of the breeding females and gather more intelligence about the genetic merit of the males for growth, mature weight and other genetic merit estimates.
2. Build a relationship and communicate with breeders producing the types of sires you need.
3. Where possible, use an index to select sires.
4. Make use of maternal and terminal genetics in combination to capture the benefits of hybrid vigour, while controlling breeding female weight.
5. Engage breeders and breed societies about the need for selection tools, which account for the non-linear nature of value from increases in carcass weight and the cost associated with breeding female mature weight.
6. Weigh breeding females regularly and be informed about the right mature weight for the farming system.

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# Breaking the habit of bad bales

*Baled silage represents a huge untapped resource for dairy farmers. Forager looks to Ireland to find out how producers can optimise bale potential.*

Volac business manager Ken Stroud admits to being amazed at the quality potential of baled silage, having experienced how Irish farms make it.

A lot more Irish dairy farms rely entirely on bales than British farms, he says, possibly due to smaller herds, but some produce up to 10,000 litres per cow per year.

Accordingly, he believes there are valuable lessons to be learned from the mindset of Irish producers making baled silage – even for farmers only making bales once clamps are full.

“A big reason baled silage is so popular in Ireland is its lower labour requirement compared with making clamped silage,” says Ken. “That in itself is a benefit. But also, because these farmers are able to carry out the whole process themselves, they are more in control. They can be organised, take things slower and cut fields based on grass growth stage, rather than contractor availability – focusing on making quality silage rather than simply getting the job done.”

A notable difference in Ireland is that bales are made at 25-35% dry matter (DM), rather than the usual 35-45% DM or higher. This makes



*Using an additive can safeguard bales from spoilage caused by longer air exposure at feed-out says Volac's Ken Stroud.*

them heavier – weighing about 850-900kg compared with 600-650kg – but cuts wilting time. This reduces in-field nutrient losses and is a boon during catchy weather.

More importantly, baling at 25-35% DM provides an opportunity to improve the fermentation for a better preservation and makes them less susceptible to heating and spoilage problems that affect drier silage.

“As well as making lower percent DM bales, Irish farmers also cut the

grass at the same stage as if making clamp silage – rather than later as is traditional for bales. So they capture the nutrients of younger grass,” says Ken. “I’m not suggesting a wholesale change to baled silage for dairy farms, but there are certainly learning points.”

Ken suggests the following:

## 1. Be guided by the grass

Don’t make bales from older grass just because you’ve always done it that way. Bales are “mini clamps” so why not cut grass younger? Obviously, chop length needs to be longer for bales.

## 2. Consider wilting to 30-35% DM for dairy

Although the optimum percent DM for bales may vary for dairy, beef and sheep, avoiding over-wilting is important for any livestock in order to capture maximum nutrient value.

Irish producers can often achieve these lower % DMs within 24 hours. If you’re making silage drier you have to wilt for longer, but you can’t guarantee the weather, especially later in the year.

## 3. Utilise modern baling technology

Improved baling technology has vastly improved bale quality and is a

key reason why Irish farmers do such a good job.

Modern balers that produce finished, tightly-wrapped bales in one machine, rather than requiring separate machines for netting and wrapping, reduce the opportunity for air to get into the bale. Remember, round bales have a large surface area for air to penetrate: the three inches around their circumference equates to a third of the bale’s total volume. Modern balers also produce denser bales.

## 4. Use the appropriate additive


There is a big shortfall in the number of bales preserved with an additive in Great Britain. Irish farmers are highly focused on bale quality and treat more routinely.

Bales above 45% DM are more difficult to ferment and at greater risk of spoilage and heating. Therefore, look at an additive such as Double Action Ecobale that includes a bacterium effective at fermenting drier material, but which also includes a preservative against heating and spoilage.

For bales at 33-45% DM, there can be more scope to tackle both heating and fermentation with an entirely bacterial inoculant. For example, Ecocool contains two types of beneficial bacteria, one for each job.

For bales below 33% DM with less risk of spoilage, consider straight Ecosyl. At this sort of lower percent DM and by treating this way, you maximise the chance of a good fermentation.

## 5. Respect bales

Although stronger, denser bales aid stacking, it is still important not to stack bales too high in order to avoid damage. This is especially important if bales are low DM. Also, make sure bales are stacked in a stable manner, and on level ground. Consider stacking round bales on their ends to minimise ‘squashing.’ 

## Bales for beef and sheep

Beef and sheep farms that tend to get through high % DM bales slower than dairy farms could benefit from investing in a silage additive as standard.

Slower consumption means bales are exposed to air for longer at feed-out making them more susceptible to spoilage and heating. As such an additive could safeguard against these issues, whilst also improving fermentation.

“The other issue is listeria,” adds Ken Stroud of Volac. “You need a pH below 4.8 to kill listeria, but that is difficult with drier bales. Also, the activity of spoilage organisms once exposed to air will result in the pH rising – again allowing listeria to grow. This all underlines the importance of a combined bacterial and preservative additive such as Double Action Ecobale in higher percent DM bales.”



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# Red clover delivers dual benefits

*Growing long lasting red clover has slashed requirement for bought-in soya and halved the amount of bagged nitrogen used on one Shetland sheep farm, as Luke James reports.*

Key to business viability for any livestock farm is minimising reliance on bought-in feeds and fertiliser, and that's even more important on a remote island where freight charges add to the cost.

With that in mind, Shetland sheep farmer Kevin Tait places forage management high up on his list of priorities and has been working hard to reduce bought-in protein costs by growing red clover leys. Although sheep farming might be a part-time job, his ultimate aim is to keep the business sustainable and make it as profitable as possible for the longer term.

Since taking on a 70ha (170 acre) holding from his grandparents, Kevin runs 120 Lley x Texel breeding ewes at Fairy Knowe on Shetland, alongside a regular maintenance job on a North Sea oil rig.

"Of our 70 hectares, about half is common land that we cannot improve, so we focus on making the most of the remaining ground by growing the best quality forage that we can for grazing and making baled silage," says Kevin.

"Some of our better ground is heavier and lies wet and some is freer draining, so we're choosing

diploid perennial ryegrasses and a high inclusion of timothy and white clover. Timothy provides a boost to spring growth and copes better with the wet land, whilst a big white clover component increases protein and reduces the need for artificial fertilisers.

## Red clover

The same principles apply on the lighter land, which tends to provide two cuts of silage before being grazed later in the season. Here, instead of white clover, Kevin has been trying red clover.

"We're into a fourth year with a mixture comprised of intermediate perennials and hybrid ryegrass and the long lasting red clover AberClaret," he says. "It's been something of an experiment, but the red clover component, which is 25-30% of the mixture, has

remained constant and delivered some significant savings in nitrogen fertiliser and bought-in protein.

"We'll change the composition of the ley somewhat when we renew it, replacing some of the hybrids with later heading perennial ryegrasses to give greater overall longevity and improve the quality of first cuts, but we'll certainly continue with the red clover."

Typically cut in late June and early August, and then rotationally grazed into the autumn, the red clover leys have been producing around 11tDM/ha of utilisable forage. The benefits of the red clover's nitrogen fixation have been seen in reduced fertiliser applications, with the standard rate of 140 units/acre (175kg/ha) being halved with no detriment to output. There's also been a boost in homegrown protein, with this allowing a reduction in the levels of soya being fed.

"I've used the wet chemistry method to gain an accurate analysis

of the red clover silage, as we've found that NIR undervalues the crude protein and the intake potential," says Kevin. "We're feeding bales that are 12ME and 19% crude protein, which has allowed us to reduce concentrate feeding levels to the ewes. In the case of the twin-bearing ewes, we've reduced the total soya fed from 7kg/head to 4.5kg/head, though that's due to a combination of better silage and a more compressed lambing period."

## Arable silage & brassicas

In addition to quality grass and clover leys, Kevin is also growing arable silage, which is made into bales for winter feed, as well as either forage rape or a hybrid brassica for grazing. The spring-drilled arable silage, which this year will be an oats and peas mixture, is often under-sown to efficiently establish a following grass and clover ley.


The brassica forage crop is usually drilled in July and will then provide quality forage for ewes in the period before tupping. This helps to add body condition to the ewes, giving them extra protection from the harsh autumn and winter conditions that can prevail on Shetland. The brassica is also valuable as a break crop, with a grass and clover reseed being established the following summer.

For Kevin and his wife Yvonne,



*AberClaret red clover is performing into a fourth year.*

combining farming operations with a job on an oil rig is made possible by regular shift patterns of two weeks on and three weeks off, known well in advance. This allows critical periods like lambing to be scheduled to coincide with Kevin's shore leave.

The aim is always to be turning newborn lambs out onto a flush of grass, which on Shetland is never earlier than April, though it's notable that the new leys are producing grass earlier. The flock is typically recording a lambing percentage of around 180%, with all lambs apart from those kept as replacements being sold on the mainland as stores in September. 



*Reduced reliance on bought-in resources is essential for Shetland sheep farmer Kevin Tait.*





# Sealing the deal

*Efficient silage sheeting is an important part of the jigsaw when it comes to making quality silage. Aly Balsom provides a refresher in how to do it.*

No-one looks forward to sheeting up at the end of a long day harvesting, but taking the time to get it right can make all the difference when it comes to silage quality and minimising forage losses.

The ultimate aim is to seal the clamp and prevent any ingress of air; after all, oxygen is the number one enemy of silage. Ingress under a poorly weighted or baggy silage sheet can lead to heating and the proliferation of moulds, resulting in wastage, reduced feed value and intakes.

Peter Smith of Volac offers a quick reminder of the key things to think about when sheeting up:

## 1. Always use side sheets

You can't underestimate the value

of side sheets in preventing oxygen from entering the clamp. Air can easily find its way into the clamp through bare concrete walls so not using a sheet is a false economy. The sheet should be at least 1m longer than the top of the clamp so it can be folded over to form an envelope.

## 2. Use a cling film sheet

It's well worth using a cling film type sheet on the top of the clamp. These cling films are 5-20 times less porous to oxygen than a black silage sheet, depending on the product used. The advantage is their flexibility; as the crop is drawing oxygen into the clamp, the film is sucked down, creating a 'seal.' If you usually use two quality

black sheets, consider swapping one for a cling film instead.

## 3. Select your black plastic sheet carefully

When it comes to black plastic sheets, thicker doesn't necessarily mean better. Thick sheets tend to be less flexible, which means they don't follow the contours of the clamp as well, creating pockets that air can get into. This can be overcome if heavy bales are used to weigh the sheet down.

A good quality, flexible thin sheet can work well. It ultimately comes down to how many 'layers' of plastic are within each sheet – the more layers, the more flexible it is and the better seal you're likely to achieve. Ask your silage sheet rep



*Remember – oxygen is the number one enemy of silage, says Volac's Peter Smith.*

how many layers each product has and opt for one with multiple layers. Two, thin, flexible sheets are better than one, stiff, thick sheet.


## 4. Cover with a heavy woven sheet

A heavy woven sheet will help

protect the clamp from bird and vermin damage, however they must be sufficiently weighted down when used on flat clamps; they are not heavy enough on their own. These sheets were primarily designed for use on domed clamps

in the USA where they would be weighted at the bottom and tensioned every day in the first week of ensiling. This tension isn't possible on a flat clamp. They must be covered entirely with your chosen weight. Arranging sand bags around the edge and in spaced rows across the top will not provide a good enough seal, especially when ensiling dry crops, which are more prone to heating.

## 5. Apply even weight across the top

To prevent air ingress, the more weight across the clamp, the better. This is particularly important as heating is always more likely on the top of the pit. On inside clamps - where safe and practical to do so - heavy straw bales work well. These are particularly worthwhile when ensiling dry crops. On outdoor clamps, rubber mats or lorry tyre sidewalls placed close together across the entire clamp are the best option. Silage bales also work well. Avoid using tyres because of the risk of wires ending up in the clamp. 

## TIPS FOR SHEETING UP

### Best practice:

- Lay a cling film over the top of the clamp.
- Fold side sheets over the cling film.
- Use a black silage sheet over the cling film.
- Cover with a heavy woven sheet to protect from damage.
- Place sand bags around the wall of the clamp.
- Cover the whole clamp with weights – the heavier the better, with no gaps.



### Top tips:

- The top of the clamp should be slightly dipped in the middle and flat at the sides – this allows you to consolidate right to the edge.
- Always sheet down to the floor – the sheet should extend about 0.5m over the edge of the slope and plenty of weight applied to seal it. Carbon dioxide is heavier than oxygen so if it is allowed to seep out of the clamp, a vacuum is created which will draw oxygen in.
- Ideally, sheet the clamp over night if you are continuing with silaging the next day – It's not a huge deal if you leave it open for one night, but it should definitely be sheeted up if it's open for more than one night.



# CHEWING THE CUD

*As consumer behaviour changed during the COVID-19 pandemic and the typical in-shop experience was restricted, Harry Hodgson of Piercebridge Organics near Darlington has been quick to adapt his family's integrated farm, farm shop and café business model to meet the needs of both existing and new customers. Harry shares his story with Laura Wise.*

**LW:** How long have you been selling direct to consumers?

**HH:** We started by selling bags of spuds from our porch while we were on a contract to supply local fish and chip shops with potatoes. And then I got into chickens as a kid, so we started selling eggs.

After deciding to stop growing potatoes due to high investment costs, we converted our livestock farm to organic in 1999 with plans to open a farm shop. Just as the farm shop was getting started, we got foot-and-mouth in 2001. That completely wiped out our beef and sheep system. Luckily, we had expanded our

chicken flock at that point, which was able to see us through that period until we could build our beef and sheep numbers back up.

Today we sell homegrown pork, poultry, eggs, beef and lamb. We also work alongside several local suppliers to provide fresh produce, dairy and home goods in our shop. In addition, we serve as an egg supplier for other local businesses. We also have a kitchen that makes ready meals and baked goods and a full-service café.

**LW:** Things have really expanded from the days of selling goods from the porch. How did you scale it?

**HH:** We are always trying to sell people something and to then figure out how to sell them something else, which has led to a very integrated business model.

The business growth has been a gradual and strategic process. We aren't the farm shop that ploughs a lot of money in all at once and opens up on day one with a huge offering and a huge team. We are the farm shop that makes additions when we've recognised that it is financially and operationally sustainable.

**LW:** How do your farming practices fit in to supply your end market?

**HH:** We are farmers first. Well, I actually like to say we are grass farmers first since that is the foundation of the entire business. Also fundamental to our business is maintaining a very cohesive livestock system. With forage as our base, our sheep and beef genetics are selected to perform well on grass. We run 1,100 crossbred breeding ewes from top performing New Zealand genetics to produce a medium sized ewe that scans well and requires no feed inputs other than forage.

Our ewes must also lamb themselves outdoors, unassisted and look after lambs to weaning, without any creep.

We have a suckler herd of 55 cows, primarily pedigree Longhorn, but also crossbreds and pedigree Aberdeen Angus. Again, we want a beef cow that is hardy and can look after herself and her calf purely on forage, but also offspring that will go on to have excellent meat quality.

To control parasites, cows and sheep don't graze the same land year-on-year and will swap back and forth on rotation. We've joined a producer group to finish pigs from sows in Scotland and have the pigs on a four year rotation around a block of land. Behind them, we put in winter forage rape or stubble turnip before going into a three to four year ley for sheep and cattle before coming back to pigs again. Our poultry are also a huge asset to the farm by providing nutrition for the soil – it's actually so high in nutrients that we don't have to buy in any fertiliser. All of this works together to provide cost efficient, quality products.

**LW:** Can you explain how the farm feeds into the shop?

**HH:** Our beef breeds are balanced to give us access to finished cattle year-round due to different finishing times between the breeds and a split calving season. This is the same with our sheep flock. Typically, 10-20% of the lambs will end up in our shop, and due to the smaller size, we have

more flexibility in how long we hold on to them and can still maintain a lovely carcass. Meat cuts that aren't purchased in the farm shop go on to be processed into ready meals in the kitchen or end up on the menu for the café. All of the other fresh produce in the farm shop is also repurposed into these divisions of the business as they get close to the end of their shelf life. It has been a great way to have zero food waste while opening up new income opportunities.

**LW:** Let's get into your most recent challenges. With the government lockdown due to COVID-19 have you seen a customer/business increase?

**HH:** Definitely. There was an initial huge increase when people were panic buying everything they could. Because we are a small business and use small suppliers, we have a shorter supply chain that allowed us to keep everything in stock. While that has calmed down, our demand has increased. However, we had to shut the café down, so we've had to push other elements of the business harder to make up that loss in income.

**LW:** How have you done this?

**HH:** All of our café employees have filled in to help the kitchen produce more ready meals and baked goods, which have seen a significant increase in demand. By doing this, we haven't had to furlough any of the café staff.

We've also started doing call and collect grocery orders and deliveries to the local area to safeguard members of the community from any kind of exposure. Traditionally, we've only sold out of the shop, so this has been a big step that has allowed us to service our community during this time.

**LW:** How has your service been received by new customers?

**HH:** A lot of people who knew we were here – but never called in because they're creatures of habit when it comes to grocery shopping – have been surprised by how much we have to offer and the quality of our products.

**LW:** Do you think this has grown your customer base for the future?

**HH:** You hope that people remember the effort you went through to ensure they had food on the table and maintain some kind of loyalty. My wife and mum have been spending their days delivering groceries, often with our kids in tow – it hasn't been easy.

But that aside, it has been worth it. Just the other day, we delivered to an elderly lady in Darlington that had not been able to find anyone to deliver groceries to her and was out of milk, bread and veg. When we arrived at her door, she burst into tears because she was so thankful for our service and willingness to make sure she was provided for. It really made us feel like what we are doing is important and that we're helping people get through this. 

*To meet existing and new customer needs and to offset losses from his café due to COVID-19, Harry Hodgson of Piercebridge Organics has had to adapt his integrated farm and farm shop business model.*