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ISSUE 17: Summer 2018

FORAGER

HOME GROWN FEED FOR SUSTAINABLE FARMING



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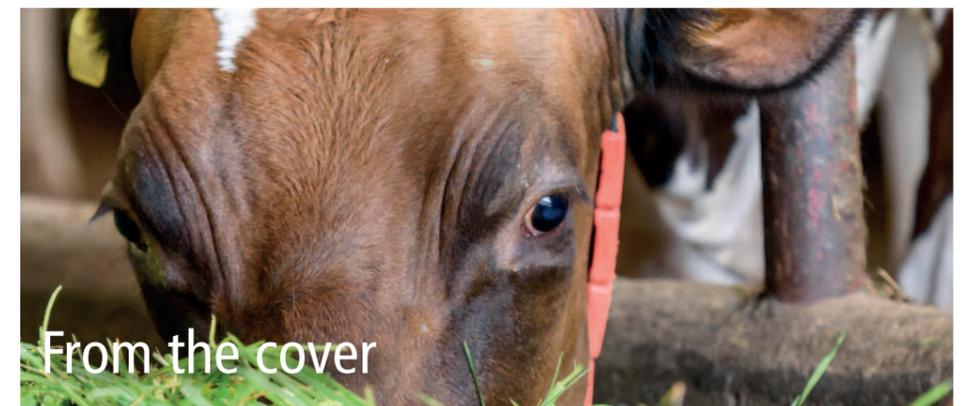
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Editor's

NOTE

Argentina could be of increasing significance post-Brexit and could provide some valuable lessons around grassland management, write Aly Balsom.

CONTACT ME

T 07912 344 219

E aly@alybalsommedia.co.uk

Twitter @AlyBalsom

New Zealand might be famed for its low cost, grass based systems, but Argentina is catching up and could well be one to watch post-Brexit.

I was recently given the great opportunity to travel to Argentina to look at beef farming as part of a Perkins Global Innovation Scholarship - a Guild of Agricultural Journalists Award.

I set off with the pre-conceived idea that production on the grass plains of The Pampas would be fairly low-tech and extensive.

I was right to some degree. However, there

were examples where Argentine farmers were actually streaks ahead of British farmers in terms of grassland management.

I met a commercial beef finisher using satellite mapping to determine grass covers, budget feed and plan rotations - something that, as far as I'm aware - is only in the trial stages in the UK.

Another was using soil and yield mapping to decide where to plant specific crops in specific parts of the same field to get the best response on his mixed enterprise. Again, precision farming is an area embraced by a relatively small number of UK livestock farmers - most of which are likely to be dairy, not beef.

This investment in technology is indicative of a marked political shift in Argentina. Having been governed by a socialist, anti-farming government for 12 years, Argentina largely disappeared from world export markets. The national herd also declined 10 million, whilst farmers that remained limited investment. Now, a new centre right government is actively encouraging farming and exports to the EU.

Some of the technological advances in grassland management I saw, were being embraced by farmers exporting to the EU under the current Hilton Quota - a 29,500t yearly quota for quality beef finished off grass alone, at 20% export duty.

National Argentine beef production is still way behind where they once were, but they're catching up at great pace (beef exports to the EU increased 16% between 2016 and 2017). In May, the EU also reportedly came to an agreement with the Mercosur block (Brazil, Argentina, Uruguay and Paraguay) to import 99,000t of low tariff beef in exchange for greater access to South American markets.

All of this should start ringing alarm bells for British farmers. If we have to pay tariffs after

leaving the EU, British beef will be in direct competition with this cheap South American beef.

Huge general uncertainties about a world post-Brexit are

on the radar of several of the farmers featured in this edition of Forager. Mixed farmer, John Aynsley (page 28) is keen to future-proof his business by "trimming the fat" and putting a greater emphasis on forage. Beef farmer, Andrew Crow (page 26) is also looking at new ways to integrate beef and arable to drive profitability.

Such innovative thinking - together with the adoption of more technology - is vital if we are to compete on a national stage after leaving the EU. Failure to do so, could leave us floundering and unable to compete with countries like Argentina. 

// I met a commercial Argentine beef finisher using satellite mapping to determine grass covers, budget feed and plan rotations - something that, as far as I'm aware - is only in the trial stages in the UK. //



Next generation

As part of our Next Generation series, Aly Balsom visits Tim Phipps who has spearheaded a system overhaul at the family beef farm in Northamptonshire.

Breeding the right cow to maximise efficiencies and long-term sustainability has been the main focus for beef farmer, Tim Phipps, who has now turned his sights to forage.

Having spent time away working as a thatcher in the south west, Tim returned to the family business in 2012, after a new farm came up for sale. This allowed the business to expand to support an additional party. His return heralded the start of a complete system re-shake, which has been enthusiastically embraced by father, Geoff.

The initial farm template had been focused around a Hereford cross Simmental cow put to an Aberdeen Angus terminal to produce store animals. The quality calves produced always attracted a premium at market, but it came at a cost.

Tim recalls: "We were having problems with large calves and a few calving problems. The large cows were also costing us a lot in maintenance - some of our cows were over 800kg. We wanted to reduce costs and labour."

As an "open-minded sceptic" Tim initially trialled breeding Stabiliser heifers to a Stabiliser bull. The results were impressive, with the smaller cow producing a similar weaning weight to the original set-up, but with less problems. Since then, there has been a complete shift to the breed.

Now genetics are correct, Tim has begun focusing on forage production and has recently joined the AHDB Beef from Grass Project to improve his knowledge. Much of the 121ha (300 acres) of grass is low intensity grassland. Recently he has improved around 20ha (50 acres), using a dual purpose Aber High Sugar intermediate and late heading perennial ryegrass and white clover mix.

He adds: "I believe quite strongly in targeting the right forage to the right stock. We make bulky silage on poorer land for dry cows and use the better leys for growing stock."

Including clover in the leys has had a big impact, allowing the protein concentrate usage in the finishing mix for an equivalent ration to be reduced by 30%. Last years bull silage was 18% crude protein.

Tim has also put in fences and water troughs to implement a rotational grazing paddock system, instead of set stocking. As a result, grass quality and yields have improved, which he believes will help him increase stocking rates from 1.6LSU/ha to over 2LSU/ha. It also enables him to see grazing shortfalls or excesses well in advance and plan accordingly.

In the HOT SEAT



Name: Tim Phipps **Age:** 34 **Farm:** Bragborough Hall, Braunston, Daventry, Northamptonshire

Acreage: 332ha (820 acres) - includes arable and 121ha of grass, most of which is low intensity grassland.

System: 170 Stabiliser cows served to Stabiliser bulls. Maiden heifers retained or sold at 14 months and 400kg for breeding. All males kept entire and finished around 12 months old for Morrison's Yearling Beef Scheme.

What's the biggest challenge you've faced to date?

It was probably moving farms in 2012. We had stock and forage at the previous farm, 40 minutes away and stock and no forage at the new farm. Moving animals and feed was a challenge.

What do you think your biggest challenge will be in the future?

Probably reacting to whatever shift in farming policy there will be over the next 5-6 years and Brexit. The way we counteract that is to be as flexible and diverse as possible in what we do and keep production costs low.

What's been your greatest success?

I'll tell you when I have one!...Probably finding a wife that's good enough to put up with me and my obsession with cows.

Where do you see yourself in 10 year's time?

I want a good quality herd with 180-200 pure bred Stabilisers, selling breeding bulls and top notch breeding heifers. The Stabiliser breeding strategy I'm in means - because it's always progressing - there's always 10 years improvement to make.

Name three things in your life which are key to your success

Family - especially my wife Annie, moderate cows with good genetics and data behind them, and living less than a mile away from the best cider maker in the country - The Vale of Welton.

What's the best bit of advice you've ever received?

Don't be afraid to try new things out. If you don't give it a go, how will you know if it works or not?



Advice when forging grass rental agreements

Most farmers will rent grazing as a means of increasing acreage, but there are various rights and responsibilities and areas to consider before taking ground on. Jon Riley speaks to Tenant Farmers Association Chief Executive, George Dunn and David Canty, Associate Partner at Strutt & Parker, to find out more.

Types of rental agreements

There are a myriad of rental agreements to choose from, all of which will have their pros and cons depending on individual requirements.

Profit of Pasturage

This is an ancient agreement that gives the grazier the right to use livestock to consume the edible parts of grass through grazing only. The livestock owner has no rights of occupation and the landowner is responsible for the upkeep and maintenance of the site, including fencing, drainage, seeding and fertiliser application.

Grazing licence

This is a slightly more involved arrangement. Normally the licence is agreed for a limited time period and more operations are allowable such as the use of temporary fencing for strip grazing. The licence does not confer any degree of occupation right to the holder and the owner should still be responsible for maintaining the area. However, frequently it is the licence holder who will carry out works such as fertiliser spreading, hedging and even water provision.

Most graziers are prepared to do this but should leave those tasks to the landowner. This is particularly important because the Basic Payment Scheme rights in England are held by the landowner under this type of agreement. They should, therefore, be farming the land themselves to qualify for the payment. However, under grazing licences in Wales the situation is reversed with the grazier allowed to apply for support payments.

It is vital in these situations that there is clarity between the parties in terms of who is doing what, when, where and how.

Traditionally the agreement period was less than 12 months which, in law, distinguished grazing licences from a tenancy. Some remain short, particularly where ground is unsuitable for grazing through winter months or it is offered within an arable rotation.

However, since the introduction of the Agricultural Tenancies Act 1995, grazing licences have been allowed to extend for a number of years. These arrangements are frequently made without any written contract, instead being agreed by the landowner and grazier on verbal terms and a handshake.

Farm Business Tenancy (FBT)

Tenancies are occupation agreements and drawn up with fixed terms providing a greater degree of security. They provide a framework for the land management aspects - ditching, fencing and pasture improvement which are normally carried out by the tenant. Support payments should be taken over by the tenant.

An FBT is still quite often drawn up for periods of less than two years. This is important because at the end of a two year period FBTs will naturally expire without any notice to quit. Once agreements extend beyond two years either party must then serve a notice to quit to sever ties.

Share farming, joint ventures and other informal agreements

Share farming arrangements mean both landowner and grazier farm the land and take profits. A joint venture is similar, but it is not necessary to have both partners as farmers and one party may not play an active role in the day-to-day farming.

In some circumstances, very short agreements may be reached; for example, on an arable farm with an area to graze off or with pasture included in the rotation. These may be paid on an ad hoc headage per week basis.

Key considerations

When negotiating, it is important to establish factors affecting the value of the land and what will be covered by the agreement, in terms of who is responsible for maintenance and improvement.

1. Glean as much information as possible about previous usage history. For example, previous stocking might suggest a disease carry-over or a worm burden, while a prior short-term grazing agreement may mean that investments in sward, soil structure and fertiliser have been scrimped on.
2. Find out what grass varieties have been used in the leys as this impacts livestock suitability. There is no point in having a fast growing variety like Tornado if it is stocked lightly with a few sheep. Agreeing who will do the mowing when the grass grows beyond the stock's needs could, therefore, be an issue.
3. Establish who is responsible for the fencing and repairing it if it is not stock-proof. Water provision must be tied down too as this is a potential major cost if it means using tankers and troughs on a regular basis.
4. Build an accurate year round picture of the site - flood or drought-prone land or difficulties with access should be accounted for.

Establishing a cost

With so many variables it is extremely difficult to provide a standard cost. It is best to get an insight from any local sources, particularly if the area is a long distance away and unfamiliar territory. Local knowledge can be bolstered with help from organisations like the Tenant Farmers Association, Royal Association of British Dairy Farmers or the National Beef or Sheep Associations.

That said, it is possible to estimate a figure based on a rental rate for an FBT on good, lowland grass.

Using a standard figure of between £150-200/ha (£60-80/acre), additions or subtractions can be made according to locality and the list of questions already set out.

Location will have a major



Tenant Farmers Association Chief Executive, George Dunn (left) and David Canty, Associate Partner at Strutt & Parker.



influence, and a traditional dairy area - where competition for land is high - could attract a price above this standard price in excess of £250/ha (£100/acre).

As a guide, the good, lowland grass that the standard figure is based on should support one dairy cow for each hectare. On poorer ground in a disadvantaged area, the stocking rate would have to be halved, so cut the standard figure by the same proportion i.e. 50% - from £150-200/ha (£60-80/acre) to £75-100/ha (£30-40/acre). Applying this system as the land quality falls will then give a very rough guide to payment levels.

Deciding on which type of agreement

The length of agreement chosen comes down to a number of factors that should be carefully thought through and tailored to the precise need. For example, is the extra land needed for a planned, strategic increase in the herd or flock? If so it would be worth entering a more secure, longer agreement such as an FBT and taking on the responsibilities of improving the land to make it more productive. The caveat to that is to ensure that there is an agreement with the landowner to recompense costs of applying fertiliser - particularly P or K which will have a longer-term benefit than N.

While strategic moves may warrant a long-term tie-in for business security, a tactical change due to a temporary shortage like flood or drought could warrant very short agreements to avoid getting caught with unnecessary longstanding costs.

Choosing a site

Decisions on choosing appropriate sites should be made clinically. A piece of pasture may seem like a good deal even if it is 50 miles away, but journey time, travel costs and haulage may add up to a waste of money. Likewise, land that looks good in the summer may be too heavy for overwintering cattle.

More recently, alternative areas like grazing under solar panels have become increasingly common. These are often offered by the energy company free of charge and appear to be a bargain. That may well be the case, but there are often clauses that hold the grazier responsible if the equipment is damaged by livestock. It can be costly in terms of insurance to protect against the liability and the deal is suddenly less attractive. **1**

Land rental checklist

- Work out whether there is a need for the additional land or whether there is an alternative.
- Establish whether the land fits the business strategy - soil type, location, sward and size.
- Carry out a budget analysis - set out all costs and potential improved returns.
- Walk the land to accurately assess its value.
- Get everything in writing.
- Go over the agreement carefully and resolve all queries before shaking hands.

Forage tips to improve a poor start to the year

The hangover from a less than ideal start to the season means there's some specific areas farmers should be thinking about this year to ensure efficient grass production and utilisation. Here's an overview of just some of them.

1. Assess compaction

Soil compaction could be a big issue this season, so getting out with a spade and assessing the state of the soils is a must, according to soils consultant, Mark Tripney. Early spring grazers in particular are likely to have caused some issues when grazing cattle during less than favourable conditions at the start of the year. This combined with the carryover from grazing during a wet autumn means soils are likely to be in need of attention. "We're seeing a lot of surface compaction this year," says Mark. Surface compaction down to 150mm will require slit aerating, whereas deeper compaction will need sub soiling, he says. Failure to address problems will lead to depressed grassland performance.

2. Rethink weed control

Those farmers that were unable to apply herbicide prior to first cut will need to consider treatment two weeks after first cut when the weed plant has fresh regrowth.

Andy Bailey, principal biologist for Corteva Agriscience says: "Farmers need to be prepared for this; to buy the produce and have it delivered onto the farm and make sure the contractor is booked if using one." Creeping thistle and buttercups are particularly bad this year. For the best results, ideally buttercups should be sprayed before flowering.

3. Maintain covers

Managing grass covers was a challenge at the start of the spring as grass suddenly shot up after the cold, wet start. Moving forward, it's essential that farm covers are managed correctly for the rest of the season to maintain quality. LIC's Piers Badnell advises aiming for average covers of 2,100-2,200kgDM/ha and utilising management methods such as pre-mowing or silage baling to reinstate poor residuals.

4. Maximise silage yields

Those farmers that have experienced lower than ideal first

cut yields, will need to pay particular attention to maximising second and third cuts, according to Mole Valley Farmers Senior Agronomist and Product Manager, Graham Ragg. He advises prompt application of fertiliser immediately after silaging. He also suggests including sulphur in any bagged product as this could bring potential yield benefits of up to 30%. Graham adds: "You lose 2% a day in yields for every day you delay putting on fertiliser after cutting. So if you wait a week, you lose 14%."

5. Plan winter feeding

Planning ahead to ensure silage is utilised as effectively as possible this winter is a must and could save farmers considerable money, according to Piers.

He says the average UK farmer includes under 50% grass in the diet. However, for every 10% point increase above this, there's the potential to save 4p/litre in costs of production. Those farmers that took first cut at the start of May should have good quality stocks in the clamp and could benefit from taking a fresh approach to winter feeding.

Piers explains: "It's about utilising the quality grass silage you've made. If it's an 11.5ME silage, it's about challenging management's perception of what an animal can eat, and challenging the cow and making sure they can eat it." He believes producers should push themselves to feed up towards 15kgDM of grass in the winter if they have good quantities of 11-11.5ME silage. At the same time, it's important to assess feed space and access to ensure every cow can achieve maximum intakes. This is where looking at buildings and tweaking set-ups can help whilst cows are at grass. 



With some first cuts on the light side, prompt application of fertiliser after silaging will be vital to maximise second and subsequent cuts.

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Robot system hits milk from forage highs

One Lancashire farm is proving that exceptional milk from forage figures are achievable on robot milking systems, as Aly Balsom reports.

A careful balance between quality zero grazed grass, silage and grazing, ensures Derek Haworth is top of the list of robot milking farmers when it comes to milk from forage per cow.

Add to the picture the fact his farm is located on the wet, west coast of Lancashire, on heavy ground, and the fact he's ranked highest on Kingshay costings for production from forage is even more impressive (see box).

Derek has always viewed 4,000 litres of milk from forage from total yields of 8,500-9,000 litres as the "sweet spot" for profitability on his 70-cow herd. So when he decided to install robots in 2009 as a means of easing labour and creating an easier life for both him and the cows, he challenged himself to continue to do the same.

Since then, his target has generally been hit at Rose Farm, Hambleton, where he runs the herd of red Holsteins and Ayrshires with wife Kirsty and son Robert. Even last year, when 50 inches of rain fell, he still achieved 3,982 litres. He believes a grass focused route makes sense from every angle.

He explains: "In this part of the country, grass is the cheapest and best quality feed I can feed. Dairy cows are genetically designed as grass eating animals so my philosophy is to produce milk as efficiently as I can with high quality feed and make the most of the cow's natural ability.

"Everything we do on farm has to come back to margin. It has to be sustainable and profitable and a system that doesn't compromise the welfare of the animal or the person looking after the animal."

Motivation

Motivation to be milked is one of the biggest challenges on a robot system. Feeding high quality forage adds to the headache as Derek believes cows are less likely to go to the robot if they have "nice, rich grass in front of them."

As a result, he has opted for a DeLaval Feed First, guided system, rather than a free access operation. This means cows are guided to the feed area when they get up from the cubicles. When she is finished, selection gates will either take her back to the cubicles or direct her to the robot if she is within two hours of needing to be milked.

Derek recognises that this type of system

isn't for everyone and says it isn't essential when looking to maximise milk from forage. However, in his experience, it improves efficiencies as extra concentrate doesn't need to be fed in the robot to tempt them in. It also removes the need to go and fetch cows to the robot. Targeting feeding at cow level through the robot and out of parlour feeders also helps further with efficiencies.

Having struggled to grow maize consistently on the farm's 130 acres of marginal ground, grass is the mainstay of the system. With just 30 acres easily accessible for grazing around the buildings, Derek has adopted a zero grazed system to cart fresh grass direct to the cows from further afield and make the most of the land available. He also believes the machinery makes less damage on the heavy, wet ground than cows would, enabling him to cut grass at the shoulders of the season.

Zero grazing is generally cut and fed from March to November, with grazing beginning in April and running through until October. During the main grass growing season, cows will receive zero grazed grass, grazed grass and silage. The proportion of zero grazed grass and silage will be



reduced as grazing kicks into gear. However, silage is always buffer fed as a means of maintaining butterfat. In the winter, cows just receive silage and concentrates.

Derek adds: "As the grazing ground is permanent pasture, grass quality drops at the end of June, that's when zero grazing becomes more prominent."

Grassland improvement

Derek's landlord prefers this 30 acre grazing block to be left as permanent grassland. However, Derek has "stitched in" some grass and clover mixes as a means of boosting production.

"It's the clover we try and get in there and we add in some Timothy and use high energy type grasses," he explains. "The clover helps with

production and nitrogen fixing as we try and use limited fertiliser. We're not organic, but we try and get as much as possible from farmyard manure and slurry."

The main grassland improvement works have been focused on the zero grazing block of around 80 acres, which is also used for silaging. Mixes have been sourced from Agscope and include the Aber High Sugar varieties AberGain, AberGreen, AberAvon, AberBite, as well as Twymax and Timothy, plus medium and large leaved white clovers.

The overseeding mix has also included AberGreen and AberChoice along with other intermediate ryegrasses, white clover, plus a fescue and Timothy to aid compaction.

Zero grazing

Zero grazed grass will be cut and fed in the afternoon to maximise sugars and to tempt cows back in for milking. This is cut to leave a residual of 1,200-1,500kgDM/ha. Derek believes this provides the optimum balance between stem and leaf, which helps with butterfats.

Silage is also produced with quality and fibre in mind in order to produce milk to fit their constituents focused contract. Derek adds: "We use a forage wagon for silaging. It's a slightly longer chop so it's a higher fibre crop. And it means my son and I can do all the silaging ourselves."

We have no issues with clamp management (with the longer chop). As we do it ourselves, we have plenty of time to consolidate. That's the biggest thing with a forage wagon."

All-in-all he believes this type of close management is even more vital on such a forage focused system. He says: "Any forage system has to be closely managed as you're working with forage that's variable, weather that's variable and animals that are variable. Your management skills on a forage system have to be better." 

Grazing on a robot system

Grazing at Rose Farm is a balancing act to ensure cows have enough grass in front of them, but are still motivated to come back to the shed to be milked. "We found that giving cows access to grazing 24/7 compromised visits to the robot so now they have permission to go out at 4am and then we withdraw permission around midnight. That means I don't have to collect them in the morning," explains Derek.

Although just feeding zero grazed grass would make things easier, Derek is keen to have cows outside grazing as he believes it benefits the cow and is also the cheapest feed available.

Grazing management includes:

- If a cow is within two hours of milking, she won't be let out.
- Cows can come back for zero grazed grass and silage when they want.
- Night and day paddocks are operated - a cow goes into the day paddock if she's got permission to graze after 4am. Cows go into the night paddock after 4pm.
- When the cows in the day paddock see cows going to a fresh bite in the night paddock, it tempts them to come to the gate and work their way through the system again - either to be milked, feed or go to the new grazing.
- This year he is planning on splitting up fields into one acre paddocks to provide a fresh bite and improve grazing efficiencies.

Forage figures - Rose Farm

Kingshay Dairy Manager Costings for 12 months rolling to the end of January 2018 (As part of 38 farms in the milking robots special interest group SIG).

- 8,900 litres a cow a year at 4.51% fat and 3.47% protein.
- 3,982 litres a cow milk from forage (highest in SIG).
- Feed rate of 0.29kg/litre.
- 6.74ppl total purchased feed costs (joint third in SIG).
- £1,900 margin over purchased feed per cow.
- Up to 14kg forage DMI/cow/day (3kg grass silage, 3.5kg zero grazed grass, 7kg grazing).
- Zero grazed grass - averages 20% protein, 11.5ME.
- Grass silage - 15.6% protein, 11ME, 70 D value.

Zero grazed grass will be cut in the afternoon to maximise sugars.



Multi-cut boosts performance

Better silage quality as a result of moving to a multi-cut system has resulted in a 1,000 litre a cow increase in milk from forage in a year, leading to lower costs and improved profits on one Welsh dairy, as Aly Balsom finds out.

John Corfield believes high quality grass silage provides the key to unlock the full production potential of his 250-cow herd, with the added bonus of reducing costs.

Last year he decided to put his theory to the test by upping the frequency of silage cutting from 2-3 cuts to four cuts a year, under the guidance of Sam Evans of Kite Consulting. The gap between cuts was also reduced from 8-9 weeks, to 5-6 weeks.

The impact on silage quality was marked (see table 1), with a 2.2% increase in average crude protein levels enabling protein levels in purchased blend and concentrates to be reduced.

Improved quality has enabled forage dry matter intakes to be increased by 0.9kg DM/cow/day, allowing purchased feed rates to be reduced. This - along with changing purchased feed sourcing - has helped realise a £333 increase in

margin over purchased feed per cow (see table 2).

John believes the incorporation of higher levels of a leafier, more palatable silage has also benefitted rumen health, which has aided a 750 litre a cow a year increase in yields at Ackley Farm, Welshpool.

"I feel the cows are in a better place and I think rumen health has a big part to play in that," John says. "Plus they are achieving bigger intakes and what they eat is more palatable. They look more content, more vibrant and have more natural milk production. They have the ability to express their potential better."

Forage goals

Before 2017, John admits to "not paying much attention to forage" but the results seen have highlighted how much his previous silage strategy of producing bulky, higher fibre, lower quality silage,

was holding back performance.

"We always did what we always did. Things stayed the same as we didn't change. The trouble was, the cows were trying to break down the fibre, there was a lot of fibre in the dung and we couldn't get enough energy into them. You don't get the maximum milk out of them if they're trying to digest fibre," he explains.

With the herd currently heading towards 9,000 litres a cow a year of milk sold - and 10-11,000 litres in his sights - John believes forage will help raise production, whilst also maintaining milk fat and protein at the current level of 4.3% fat and 3.3% protein - or even raising it.

Having decided to house cows all year round, the importance of making quality silage has also become more important. The fact maize creates costly ration balance issues - together with the farm's location in a marginal maize

growing area - also emphasises the need to make grass a priority and maximise quality.

The multi-cut process

To get the multi-cut system off to a good start, last year's first cut was taken at the end of April - three weeks ahead of normal. This was thanks, in part, to a good start to the grass growing year. However, going early is also important in order to create quality grass and to fit in more cuts through the season.

John has sheep on tack until mid-January, but he believes it's still possible to produce four good silage cuts if fertiliser is applied at the right time. In fact, he says fertiliser is one of the most important factors to consider on a multi-cut system.

"Historically the grass came off and then we rung the fertiliser man. Last year we bought all our fertiliser in one go. The advantage of that was that as soon as the grass came off, the fertiliser went on," he explains.

The importance of timing was also underlined at third cut when the weather was extremely hot. Previously, John may have waited for rain for it to bulk up, but he says it's important to take it before the seed head emerged to maintain quality. Paying attention to wilt times is also especially important on leafier multi-cuts that dry fast.

"At third cut, it was so baking hot we cut it and almost brought it in straight away as it was light," he says.

The better protein in the grass silage has also helped the business to further drive down feed costs. John cites a £60/t reduction in feed costs since adopting the new silage system, together with changing feed supplier and being part of a buying group.

Forage drive

Moving forward, John is keen to continue on a forage improvement drive. This year, the whole farm has been soil sampled with the aim of using this information to better target P and K. Compaction is next on the hit list, with John considering slit aeration and the application of gypsum to help address high magnesium in the soils.

This will be combined with using a calcium lime instead of a manganese lime when addressing soil pH levels.

He also remains committed to a five-yearly reseeding policy using a dual purpose mix from Powys Leys. This includes a mix of intermediate and late heading diploid and tetraploid Aber High Sugar perennial

regrasses, together with medium and large white clovers and Timothy. This includes AberGreen, AberAvon, AberGain and AberBite.

"We're getting hotter on our reseeding," John says. "Trying to get quality silage off old pasture is a waste of time." 

TABLE 1: Improvements in silage quality since moving to multi-cut

Average forage analysis	Historic	Multi-cut	Difference
Dry matter (%)	29.8	38.2	+8.4
ME (MJ/kg DM)	10.9	11.3	+0.4
D Value (%)	68.3	70.1	+1.8
Crude protein (%)	15.6	17.8	+2.2
NDF (% DM)	52.3	49.2	-3.1

John Corfield's tips when making multi-cut

1. Make sure you have your fertiliser on farm and ready to go.
2. Apply fertiliser immediately after cutting (as soon as weather permits).
3. Maintain a good relationship with your contractor.
4. Cut at the right stage - if it's really dry weather, don't wait for it to bulk up.
5. Have the BBC weather app on your phone.

Multi-cut system at Ackley Farm (2017)

- 60-70 units of N applied per acre of a 25:5:5 or 20:10:10 fertiliser depending on soil indices at the end of March and then immediately after each cut.
- 5-6 weeks between cuts
- First cut - end April
- Second cut - June
- Third cut - start of August
- Fourth cut - September (10 days later than ideal due to John's wedding which meant he "took his eye off the ball")

TABLE 2: Herd performance gains since adopting multi-cut

	12m Rolling Dec 2016	12m Rolling Dec 2017	Difference
Herd size	261	236	-25
Milk yield per cow (litres)	7,665	8,419	+ 754
Annual yield per cow from forage (litres)	1,433	2,513	+1,080
Butterfat (%)	4.23	4.26	+0.03
Protein (%)	3.32	3.32	0
Concentrates fed per litre (kg)	0.41	0.35	-0.06
Purchased feed cost (p/litre)	9.39	7.16	-2.23
Margin over purchased feeds per cow	£1,452	£1,783	+333

Source: Kite Consulting



Getting ewes fit for breeding

Achieving optimum ovulation rates in ewes is a critical step towards a successful lambing and requires careful management of Body Condition Score (BCS). Sheep specialist Kate Philips offers some timely tips on how to hit the important targets.

It's important to understand that egg development in the ovary of the ewe begins four to six months before ovulation, so management is an ongoing process and not something we can rush a few weeks before mating. In particular, we want to avoid significant shifts in BCS, so to achieve a target of 3.5 in lowland ewes at tugging we should ideally be weaning at a BCS of 2.5 and certainly no lower than 2. It will typically take six to eight weeks on good grazing for ewes to increase BCS by 1, so above all else it's important to allow sufficient time to achieve the target by mating time.

1. Wean at the right time

Don't have a fixed date for weaning, but instead take account of ewe BCS, the availability of grazing and lamb growth rates. Lambs will not be taking a lot of

milk from their mothers by 12 weeks of age and will probably do better if weaned onto quality pasture. Knowing lamb growth rates will really help you to get decisions on weaning date right. I'd recommend doing weight checks at eight weeks and 12 weeks, which is far easier to do if using EID. If growth rates are not above 200g/day then lambs should be weaned. Growth rate will also be an indicator of other potential issues, such as gut worms, trace element deficiency or poor quality grazing.

2. Group ewes by BCS

There will inevitably be variation in BCS throughout the flock and weaning is an opportunity to group ewes to allow alternative management strategies. I would suggest at least three groups – thin, fit and fat – but assess groups periodically and re-assign ewes as required. Leaner ewes can eat up to 30%



more dry matter, so grouping the ewes in this way will allow those with the lowest BCS to go onto the best grazing and vice versa. Ultimately, you want to give all the ewes the right nutrition to achieve the target BCS by mating time. If groups are to be reorganised for mating, it's better to do this at least 10 days before the rams are introduced.



Ewe body condition, lamb growth rates and availability of grazing should all be factored in to decisions on optimum weaning date.

3. Calculate nutritional requirements and monitor

It's important to know what grazing is available and how much the different groups require to achieve the target BCS in the time available. The summary table provides information for lowland and hill ewes, assuming an ideal scenario of gaining 1 BCS from weaning to mating over a 70 day period.

Having a good understanding of how much nutritional value is available from grazing, and managing it accordingly, is an important aspect to hitting target BCS. Where ewes on good grazing are failing to gain condition in three to four weeks, this may be indicative of an underlying health issue and should be investigated.

4. Only flush as a last resort

Ensuring ewes are at the target BCS at mating is the priority, with flushing being a secondary tool for those that are below the optimum. Where ewes are weaned at BCS 2.5 and have been allowed sufficient time to hit 3.5, flushing should not be necessary.

5. Avoid grazing legumes around tugging

Phytoestrogens found in legumes are known to impair ovarian function. Red clover generally has a high level of phytoestrogens and should therefore not be grazed by ewes for 45 days before or after mating.

Body condition score targets and weight gains	Lowland ewe (70kg)	Hill ewe (50kg)
Weaning BCS	2.5	2.0
Mating BCS	3.5	2.5
Body condition gain required	1.0	0.5
Weight gain required (kg); assumes 1 BCS = 10% ewe liveweight	7.0	2.5
Daily requirement for ME to gain required condition in 70 days (MJ/day)	18.4	9.5
Grass (or other forage) intake requirements (kg DM/ewe/day; assumes grass quality of 10MJ/kg DM)	1.84	0.95

AHDB Better Returns Programme; Feeding the Ewe

Key ewe breeding considerations

- Target mating BCS for prolific breeds at mating (e.g. Aberdale, Lley, Belclare) should be lower (BCS 3).
- Avoid worming ewes pre-mating (lean or young ewes may be an exception, or where Haemonchus is a problem).
- Address any lameness issues in good time (adopt the Five Point Plan).
- Blood test a cross-section of 8-10 ewes to check selenium and cobalt; supplement only where necessary.
- Don't forget the rams; aim for BCS 3.5-4 and check feet, teeth, joints and testicles 10 weeks before mating.

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Six tips to dairy success

Organic dairy farmer, Ted Brown, meets Laura Mushrush to share his experience of introducing dairy cattle onto his farm four years ago.

Winding through the coastline of south west Scotland on the A75, one thing becomes very clear – agriculture and tourism are the two main driving forces behind the local economy.

After passing by countless beef, dairy and sheep farms, salmon smoke shops, distilleries and holiday cottages, the destination ends at an organic dairy farm near Newton Stewart in Wigtownshire.

Out steps Ted Brown, a character weathered and wised from 30 years of farming, who's low cost system maximises milk production from homegrown forage to target local restaurants with a selection of artisan cheeses made from cow, goat, and sheep milk.

Historically, the 104 ha (257 acre) organic grassland farm milked 230 Friesland ewes and bought in the cow and goat milk required for the farm's Galloway Farmhouse Cheese production. However, just four short years ago,

the farm kickstarted its dairy cow enterprise with a purchase of 90 Friesian heifers from Ireland to make room for the farm's next generation. Since then, the herd has expanded to 130 head, split across a spring and summer calving block. The flock has subsequently reduced to 100 sheep. While the farm is quickly approaching its optimum herd size, improvements haven't slowed, with a strong focus on maximising milk from forage to reduce costs of bought-in feed.

"We're aiming to produce 4,000 litres of a 7,000 to 8,000 litre average from forage," Ted says. "At the moment, our yield is 6,000 litres due to milking young cows – but we'll get to where we want to be in the next couple of years."

Having made the shift from sheep to dairy cows, Ted shares his tips for fellow producers looking to start their own dairy enterprise.

1. Source cattle from one farm

Buy as many cattle as possible from one source to help maintain uniformity in size and health. Ted believes the other benefit of sourcing cattle from one source is the ability to look at their mothers' "in their working clothes". "It's worth the time to get a good look at their mothers'," he explains. "Pay special attention to their udder condition and feet."

2. Buy cattle that suit your system

Have a clear idea of what your homegrown feed resource and end market will be, and then buy cows that will help get the job done. "Since we are farming on a forage based system and putting some of the milk into cheese production, we wanted smaller framed cattle that would milk well, but also give us the milk quality we are after," he says.

3. Focus on fertility

"It cannot be stressed enough on how important this is for the overall profitability of a farm. It is a huge investment to get a heifer to

puberty and to feed her or a cow that are not in production for a year – make them hold up their end of the deal," stresses Ted. Since the farm has two calving blocks, open females may receive a second chance if they are top milkers and have never had any health or fertility issues before. "But if she misses again, she's gone," he adds.

4. Stick to a health programme

If producers expect cattle to perform to their genetic potential, they must be fit to do the job, says Ted. Since he operates on an organic system, disease prevention through vaccination is a crucial element to his herd health programme. "We are BVD free and use tags to send in tissue samples to maintain our status. Due to a huge increase in lungworm in our area, we've started vaccinating all our cattle prior to turnout. Because we have such a young herd, Johne's Disease hasn't been an issue, however, we are monitoring for it," he explains.

"We've put a lot of emphasis on our health programme for not only improved animal welfare, but its tie to animal performance. Once an animal becomes ill with something like pneumonia, they never catch back up to the rest of the herd."

5. Maximise forage to control costs

Because the farm is organic, bought-in concentrates must be limited due to high costs. "Not only did we want to limit costs of feed resources, but we had to do so with more livestock on the same amount of land," adds Ted. "It became very clear that we had to become better grassland managers to increase the intensity of our forage production." The first thing Ted did was join a local grazing group to learn from his fellow producers, which led the farm to transition from estimating grass height to measuring it with a plate meter. Silage production became an integral part of the forage system, which currently consists of 32 ha (79 acres) split between red and white clover leys



sown with Bio Red 5 and Bio Pasture organic mixtures with Aber High Sugar grasses from Germinal. In the past, the farm has only taken two cuts of silage a year, but is aiming to take three this year with some different management strategies. An additional 10 ha (24 acres) is reseeded each year and undersown with spring oats to be taken as a wholecrop. The farm also consists of 40 ha (99 acres) of Aber HSG perennial ryegrasses, which are grazed on a 25 to 30 day rotation with fencing moved daily.

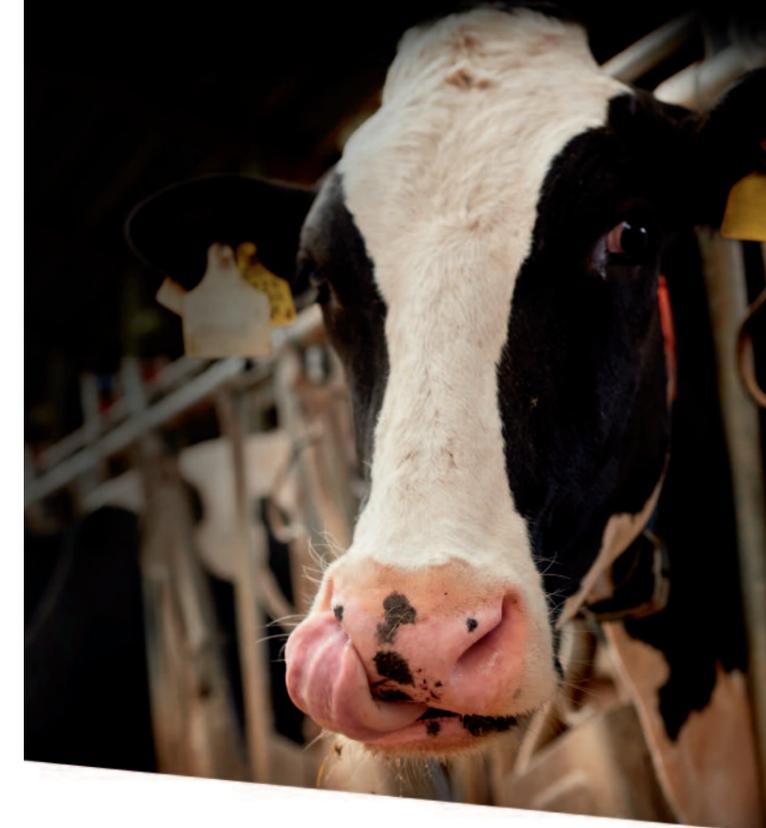
6. Take care of your soil

According to Ted, soils must take priority to hit desirable forage yields. "To achieve forage yields of 13-14 tonnes DM/ha, your soils must come first. Importance is then followed by quality seed and management – but soils always come first." Along with spreading organic fertiliser to get soil ratios to where they need to be, the farm also spreads muck on fields since cows are bedded on straw. Slurry storage has proved to be a challenge with a 10,000 gallon capacity, resulting in it being spread regularly. To combat the limited slurry storage, the farm applied for a grant to dig a 700,000 gallon slurry lagoon, which will be installed later this year. 

Farm facts:

- 104 ha (257 acres)
- 30 ha of silage (74 acres)
- 40 ha (99 acres) rotational grazing
- 10 ha (25 acres) reseeded annually and undersown to spring oats for wholecropping
- 10 ha (25 acres) Redstart hybrid brassica for youngstock and cows if weather allows
- 100 Friesland milking ewes lambing mid-February
- 130 Friesian dairy cows calving in spring and summer
- Averaging 6,000 litres, 3,800 litres from forage

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Consider ROI before taking on 2nd unit

Succession planning and taking on a second grass-based unit were some of the topics discussed at the Positive Farmers Conference in Cork, as Aly Balsom reports in our second instalment from the event.

Careful consideration of return on investment (ROI) and scale is essential before investing in a second unit, according to grass-based farmer Chris Procter.

Chris and his father were among the first to undertake dairy conversions on the Canterbury Plains in New Zealand's South Island in the nineties - an area which is now highly populated with irrigated dairy systems. Today, he owns four units in New Zealand and Australia.

Having gone through the process of expanding his dairy empire across two countries, his advice to farmers considering taking on another unit centres around business planning.

Speaking to *Forager* he said: "It comes down to the business model. What sort of returns is it going to give? It needs a hurdle rate. So if you're aiming for a 10% cash return - it's got to be able to deliver that return to justify your investment."

Although Chris set his ROI at 10%, others may target 5%. Whatever the ROI in sight, ensuring the business is able to achieve it is a must.

"You also need to get the scale right. For example, if you're getting 20 acres and you need another member of staff, you may not be able to justify it," he added.

He stressed that farm location is down to personal preference. However, he said farmers shouldn't be restricted to their own country. For example, English farmers could think about investing in Wales or Ireland.

For Chris, the grass-based dairy system, predominately focused around the New Zealand System 3 template, has proved right across all of his farms. This is pasture based with 10-20% of total feed imported.

With few 'true' grass-based system in Australia, Chris viewed the unit in Mount Gambia as providing the perfect opportunity to set-up a grazing centric system. The Oz farm had a similar grass growth curve to Canterbury, with the additional capability of growing grass in the winter.

Chris said: "It was a proven template for me. I'd been doing it in New Zealand and it was providing good returns."

With decades of experience of



Figuring return on investment before investing in an additional unit is essential, according to grass-based farmer Chris Procter.

managing grass under his belt, he sights grass measurement and matching stocking rate with grass growth rate as key to success.

"The difference between a good and bad farmer is a week. That's where measuring comes in," he said. "I know if I've got a good set up farm, under irrigation I need 2,300kg liveweight per hectare for maximise utilisation of grass. I'm stocked at the max. We make no silage or hay on farm and just use grain to top up. 4.2 cows/ha is generally needed to stock right to utilise the grass."

Taste and quality of pasture-based dairy products stands out

The taste and quality of pasture-based dairy products were highlighted as part of a Teagasc study which looked at dairy products produced from pasture-based systems and TMR systems.

The study found:

- Milk from pasture-based systems had higher fat and protein content and improved protein quality compared with milk from the TMR system.
- The fatty acid composition of milk, butter and cheddar cheese produced from the pasture-based systems was nutritionally superior - CLA and omega 3 fatty acids.
- Sensory analysis revealed a preference for the dairy products served from the pasture-based system compared with the TMR-based system, based on a combination of appearances such as flavour and colour.
- The study highlighted the possibility of using milk fats acid profiling to distinguish between milk derived from a pasture diet and milk derived from TMR-based diet.



Succession - ignore it at your peril

Not having a succession plan is one of the biggest risks to a family business, according to consultant, Sian Bushell.

She said, all too often, a failure to tackle the issue head-on left family members feeling "frustrated and insecure" whilst also leaving the business open to issues further down the line.

"A lot of people don't do anything at all," she said. "They do nothing and they stick their heads in the sand and hope it will go away. It won't. Succession will happen. None of us get out of this alive. So it's crazy we don't make any plans for it, and often people don't. The earlier you start planning the more options you have."

Lack of communication from the older generation was often a big part of the problem. Often they would make a decision about the farm's future on their own and assume what the rest of the family wanted.

Ms Bushell added: "Sadly in the last two years, I've come across a lot of mental health issues and it's usually mental health issues in young people who are feeling insecure because they don't know what's happening in the future." 

Sian Bushell's do's and don'ts of succession planning:

1. Don't half do a succession plan

Often, people start with the easy stuff and they stop there. You need to address everything, and particularly "the 3 D's": Death, Divorce and Dementia.

2. Do a Will

Everyone has to have a will. "I've heard every excuse under the sun about not doing a will. None of them are valid," said Sian. You also need to decide power of attorney.

3. Do start early

Start planning as soon as you have children. Sian added: "You will need to grow your business to the size of your family, which is good birth control."

4. Do have a succession meeting at least once a year

Talk about what's changed in the last year and what needs to be included in the succession plan. Include everyone in the discussion, including any children that don't want to farm. Then they become part of the solution, not part of the problem.

5. Do put in a timeline for the plan

Put a date in the diary for when responsibility passes to the next generation. That gives the older generation something to work towards and the younger generation can ensure they have the experience and knowledge to take on the farm.

Green maize offers high energy forage option

As interest grows in harvesting maize while it's still green, one Cornish farmer has been seeing the benefits of taking it this way, and harvesting earlier, for years. Forager finds out more.

For Cornish producer, Alan Hembrow, feeding early-cut, green maize silage, has not only improved dairy cow health compared with a homegrown wheat feed, but has also proved more convenient and less risky than cutting maize later.

Maize silage at Babbington Farm, Braddock, Plymouth, is cut before it contains high levels of starch and at less than 30% dry matter and fed to the 240 cow flying dairy herd.

The farm runs a total of 600 cattle, with all of the dairy cows put to Charolais beef bulls. Progeny are then sold as 24

month store cattle. Maximising milk from homegrown forage is a key focus of the business.

Along with regularly reseeded grass leys on the 227ha (560 acre) mixed farm, cropping includes 45ha (110 acres) of forage maize plus 73ha (180 acres) of cereals – mainly winter wheat.

Historically, the wheat was fed as crimped grain, but cow health problems prompted a search for an alternative. Maize was introduced about 15 years ago, along with the decision to cut it early.

Alan explains: "We used to crimp the wheat and feed it to the

cows, but were having problems with acidosis and acetonemia. We wanted energy, because energy makes milk, so decided to grow maize alongside it. Talking to my nutritionist, he said you don't need starch, you need energy, and you can cut maize earlier to get higher energy and not so much starch.

"We harvest the maize while it's still green and as soon as the cob is hard enough to put your thumbnail into it, but get no milk out. We want the plant while the sugars are still there. Even though the starch might not be so high, the ME is better."

Compared with a typical maize harvest of mid-October onwards - which Alan reckons runs the risk of the plant starting to die off and potential difficulties if the weather closes in - he calls his contractor to start cutting the green maize around the third week of September. Analysis shows it averages 23-28% dry matter, with 11-11.8 ME and a starch content of 27-30%.

Alan comments: "Because it's still green, we also feel we can ensile it better. If the plant gets too dry it's difficult to get pressure on it in the clamp, which leads to problems with heating. But this goes in the clamp like grass cut for silage. We use a normal chop length, we don't cut any longer, and we use an Ecosyl additive. We add a layer of salt, a layer of cling film and finish with 1,000-gauge silage sheet. That's all we do. After four or five days, we know it's ensiling. We never have problems with silage heating. There's no waste whatsoever."

Alan says heating at the face is never an issue once the clamp is opened, with the maize staying cool even in the August the following year,

"We mix it 50/50 with grass silage and a 38% protein blend in the wagon. There's no acetonemia, no scours. The cows love it," he adds.

About 1.5kg/cow of fodder beet may also be added to the mix to help with butterfats. The herd averages 8,000 litres/cow/year, but about 4,000 litres of that comes from forage. This means Alan believes his margin over concentrates is in the upper percentage of Kingshay costings.

"We've always gone for milk from forage. We reseed silage ground every three years with High Sugar Grass, and take three to four cuts a year at about 29% dry matter to go for protein. We use an Ecosyl additive on the grass as well," he says.

Different grass cuts are ensiled in the same clamp so cows are provided with consistent silage from start to finish.

When choosing maize varieties, Alan doesn't select earlier maturing varieties, but favours bulk.

Logistically, early-harvested maize fits well into the farm's system. Cutting in the third week of September also made it easier for his contractor, Alan says.

"If you harvest maize later you've got weather concerns, and can even end up having to plough maize crops in. The system works and we're happy with it," he says. 

Match maize management to greenness and DM

The level of greenness and dry matter of a maize crop can influence the emphasis needed on aiding fermentation and protecting against aerobic spoilage.

Volac silage specialist, Colin Callender - who advises Alan Hembrow - says spoilage occurs when silage heats up due to yeast and mould growth.

"All maize silage can be prone to losses from both these issues, but greener maize could need extra help with fermentation," he explains. "Later harvested, drier maize, on the other hand, is more difficult to consolidate in the clamp and remove air from, so the risks of heating from aerobic spoilage increase.

"For an additive, unless you can absolutely guarantee you will only get one of these issues, consider one that covers both problems."

For example, one that combines bacteria proven to improve fermentation with a second type of bacteria targeted against yeasts and moulds, such as Ecocool, or that combines bacteria proven to improve fermentation with a chemical preservative, such as DA Ecocorn.

"When it comes to choice of additive, many farmers are unaware or fail to remember the financial benefits from improved milk yield some better inoculants have been proven to give," he adds.

Green maize

- Harvested when the cob is hard enough to put a thumbnail into it, but not get milk out
- 23-28% dry matter
- 11-11.8 ME
- 27-30% starch
- Yields of 20t/acre plus



Maize is harvested whilst it's still green and as soon as the cob is hard enough to put your thumbnail into it, but get no milk out.

As well as having fewer cow health problems, Alan Hembrow finds early-cut, green maize ensiles better, with no wastage or heating and no fermentation issues after using a few simple precautions.

The 12-year journey from seed to field

Plant breeder Sarah Palmer gives Laura Mushrush a glimpse into the 12 year process of developing a new grass variety.

“Being a plant breeder is a lot like a game of cards,” Sarah Palmer says as she steers the car down a bumpy dirt track alongside plots of diploid ryegrasses which represent the last four years of her work. “The skill is in stacking the deck to where odds are in favour of success.” From start to finish, it takes 12 years to develop a variety worthy of entering the marketplace, with stringent selection criteria sometimes resulting in years of trials being scrapped so the cycle can start over again with applied findings. “In the first year, we sow 10,000

seedlings which are whittled down over the years to one commercial variety based on an elite combination of specific traits. This includes yield, persistency, quality, disease resistance, distinctness, uniformity, stability and seed production,” says Sarah, a plant breeder for the Institute of Biology, Environmental and Rural Sciences at Aberystwyth University (IBERS). “It’s a very long process and requires a bit of luck mixed with a lot of science.” Below, she walks us through the multi-year process of breeding a diploid perennial ryegrass.



TIMELINE

Year 1 – 10K Progeny Sown

The process of developing a single variety starts by hand sowing 10,000 progeny seed from 10 families to be narrowed down to the best four. “Only one seedling can be raised in each well of a tray. It’s fiddly, time consuming work, but essential,” explains Sarah.



Year 1 to 2 – 4K Progeny Selected

In late summer, 4,000 of the original 10,000 seedlings are transplanted into a field nursery. Rows are comprised of plants belonging to the same family. Field conditions give the most reliable heading and flowering, which are the next key criterion for selection at this stage. “Transplanting is again done by hand and is the most back breaking part of the breeding process – it’s a job we save for a warm, sunny day and everyone chips in to help. The next challenge is keeping the birds, rabbits and deer off – they know quality and home in on the most digestible plants for a snack!” says Sarah.



Year 2 – 400 Individual Plants Selected

Mid-summer, 400 plants are transferred from the field into pots and polycrossed in isolation chambers. Once the seed heads have filled – a month or so later – the seed is harvested from each plant separately. Grasses are wind-pollinated, so the filtration and positive air pressure of the isolation chambers mitigates the risk of cross contamination from wild pollen. This insurance of variety purity is a unique point to IBERS’ breeding programme. Sarah adds: “This is the busiest time of year for me as there is time pressure to get the seed threshed, cleaned and ready for sowing again – and the seed is too precious to me to trust this job to anyone else.”



Year 2 to 5 – 100 Half-Sib Plot Evaluation

Progeny of the 100 highest seed yielding plants are sown in replicated ‘mini-sward’ plots and assessed for yield, quality and persistency over three and a half years. “I spend many hours poring over this data to ensure I choose the very best lines from which to make a new variety,” comments Sarah.



Meanwhile, the corresponding ‘mother plants’ from the breeding population are cloned, trimmed by hand and combined to make a new variety. It takes an additional year in isolation chambers to produce seed.



Year 4 to 9 – Four Variety Composition and Evaluation

Candidate varieties are evaluated in test plots at IBERS for the following three and a half years to decide which, if any, are worthy of being entered into national list trials conducted by the National Institute of Agricultural Botany (NIAB).



“Our population improvement method of breeding is like managing a pedigree herd. By continually selecting families which better their predecessors, we are able to keep pushing through the ceiling for quality and yield in our varieties. This sets the bar for ourselves and also the rest of the industry.”

Year 7 to 12 – 1 Commercial Variety

Any grass variety developed by IBERS must make it on the England and Wales Grass and Clover Recommended List before it is made available to the market. To make the cut, a variety is independently trialled by the NIAB for four years to test

disease resistance, feed quality, persistence, seasonal growth patterns and yield. The process is competitive and only new varieties offering significant improvement will be added to this list. 1

Disease resistance

The best defence against ryegrass diseases such as crown rust and drechslera is by breeding resistance into a variety. In recent years, disease incidences across the industry have been on the rise, further increasing the need for disease resistant varieties to be selected. “Disease pressure can restrict a sward’s ability to grow, as well as affecting its digestibility and palatability. During the peak of the season, even a one unit decrease in D-value lost to disease can mean a reduction of feed value of 600 MJ/ha,” explains Sarah.

Lucerne adds value in organic system

One Cotswold organic farm has been trialling lucerne as an alternative to red clover. Georgina Gater-Moore reports on progress as the crop goes into a second harvest season.

Lucerne is being used as a soil fertility builder in an organic arable rotation, whilst providing numerous feeding options for cattle and sheep at Broadfield Farm, Gloucestershire.

Farm manager, Dick Roper, first introduced the crop two years ago as an alternative to red clover.

His experiment with lucerne has proved worthwhile - creating varied feeding options including silage for fattening cattle and grazing for fat lambs. The hope is the legume crop will also help build soil fertility in the organic rotation, ready for two years of arable cropping.

Lucerne is a forage legume that can average around 14t of dry matter per hectare. Capable of surviving on very dry land and with an exceptionally deep rooting system, it would be of benefit to both the organic and conventional farming system for improving soil structure and reducing the need for nitrogen fertilisers.

There is a perception that lucerne is difficult to establish. However, if the guidelines are followed, and it is not grazed too hard in the first year of growth, it can be an exceptionally productive

crop with a high protein content (see box).

Dick says the crop suits the 1,416ha (3,500acre) farm's soil type. "The farm is based on dry Cotswold brash. It's traditionally very good lucerne ground, with an average pH of 7.8 and soil organic matter levels between six and eight percent," he explains. "We currently work on a rotation that allows us to get the most we can out of the soil, whilst also putting the most back in. It's all a balancing act.

"We have fields down to a red clover for three years, cutting it once each spring and then weaning lambs onto it. After the third year of grazing we plough the field and it goes into spring barley. The residual nitrogen in the soil helps us to produce a high-grade malting crop which we send to Germany for brewing."

Undersowing

The barley has been traditionally followed by oats. However, on a 9ha area, the oats have been replaced with lucerne. The lucerne will be down for three years, followed by

spring barley, oats and then perennial ryegrass and red clover.

Dick establishes most of his leys by undersowing, and was keen to do the same with lucerne.

He adds: "I was advised not to undersow the lucerne, but with the cost of direct drilling being at least £50-60 per acre, just on cultivations, I decided against that. It therefore didn't cost us any more to sow the lucerne than a grass ley, apart from seed costs. The lucerne was undersown at a rate of 22 kg/ha, with spring barley drilled at a reduced rate of 150kg/ha."

Every field on the farm is ploughed, power harrowed and then the contractor goes over it all with 12m weeder tines and a seedbox. Occasionally crops are rolled as well to help establishment.

"I was fairly hard on the lucerne crop, we went over it twice with the weeder tines and rolled it, but the establishment was actually fantastic," adds Dick. "It was grazed in the first autumn after it had started to die back and was then cut twice in the following season and then grazed.

The centre pivot design of the Kuhn mower reduces turning on the headlands and improves overall mowing efficiency whether cutting lucerne or other forage crops.

It makes wonderful grazing for fat lambs and we offer the silage along with grass silage and oat straw to fattening cattle. The lucerne is always the first bale they go to eat. It's obviously exceptionally palatable."

Mower choice

Dick attributes some of the success the farm has had with silaging the lucerne to a mower conditioner bought with his legume crops in mind. The Kuhn FC 3160 TCR is a trailed centre pivot machine fitted with a rubber roller conditioner.

The farm was due to replace their current mower anyway, and having been happy with their Kuhn ploughs and balers, Dick was keen to see what the company could offer to handle the delicate lucerne crop.

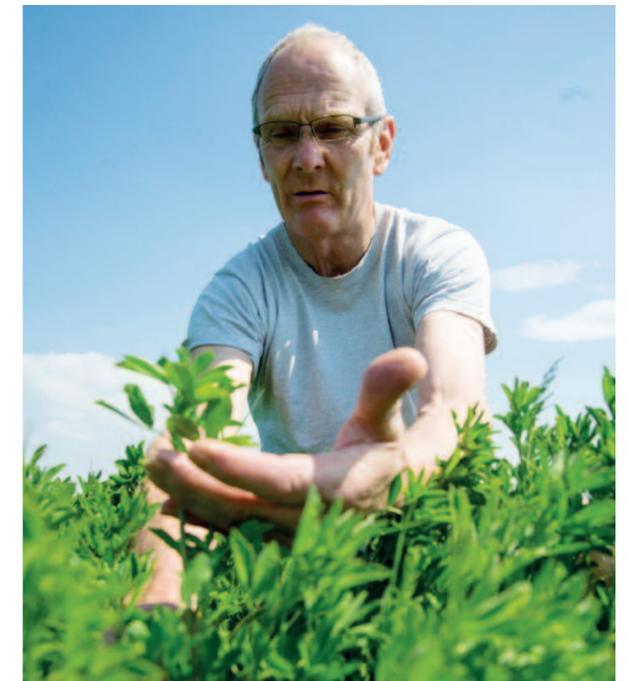
He says: "We've not been disappointed. Lucerne shatters very quickly and a conventional mower would be too aggressive. You would lose the leaves and end up with a stalky silage with little nutritional value. The rubber roller in the Kuhn machine kinks the stems without damaging the leaves. Organic crops tend to dry quicker than conventional crops, and we quickly realised we only need to leave the lucerne down for 24 hours before bailing it, otherwise it's too dry for wrapping.

"The other benefit of this particular mower is that it is a centre pivot as opposed to the more common side-pull mowers. You mow the headland and then drive up and down the field, so there's no time taken figuring out how best to navigate the field, and you're not driving over swaths in the headlands. It's really improved productivity."

Going into his second season with lucerne, Dick is optimistic about it as an alternative to red clover, provided it can compete with the grass and grass weeds that create a challenge as it's died back over winter. **F**

Lucerne facts

- Yield potential of 10–15tDM/ha/annum
- 19–28% protein, high in fibre, rich in minerals
- Fixes nitrogen, so no N fertilisers required
- 30 million hectares grown worldwide
- UK acreage <0.5% or temporary grassland area



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Cattle thrive whilst aiding arable revival

Integration of a forage based beef system into an arable rotation is creating multiple benefits for one Shropshire family farm, which is achieving an output of over 1,400kg of beef per hectare. Luke James reports.

Disillusioned with a beef enterprise that was losing money and increasingly concerned about soil health across his over cropped arable acres, Shropshire farmer Andrew Crow has taken a radical course of action.

In effect, he has re-instigated a form of mixed farming that was once the mainstay of British agriculture, bringing livestock back into his arable rotation and adding some important modern twists to minimise costs and maximise efficiency of production.

Five years on from that moment of inspiration, he has turned a £200/head deficit into a £200/head profit from his beef enterprise, increasing cow numbers concurrently, and has – in his own words – brought his arable land “back to life”.

Previously, the business had kept a herd of around 90 Limousin and

Simmental suckler cows, grazed away over the summer at another farm and housed during the winter months back on the home farm. This ran alongside the arable business, which included potatoes, plus cereals and oilseed rape.

Now, the second farm is rented out and all of the suckler cows and their progeny are kept at the home farm. They are then rotationally grazed on three year multi-species leys and outwintered on fodder beet.

During this process, Stabiliser genetics have been introduced and the farm is currently up to 163 cows. The aim is to build numbers up to 300 and split them into tight spring and late summer calving blocks.

Andrew explains: “Our arable operation is benefiting greatly from the introduction of grass and clover leys into the rotation. We no longer

grow potatoes and produce low input cereals and oilseed rape under a Higher Level Stewardship scheme. We’ve seen a transformation in our land, with significant improvements in soil structure and earthworm populations. We’ve adopted a minimum tillage approach, now hardly ploughing at all, and have cut our cultivation costs dramatically.”

Andrew farms at 334 ha (825 acres) Cherrington Manor, near Newport, in partnership with his parents, his wife Steph and sons Nick and George. In addition, the farm employs full-time stockman Dave Smith and, multi-tasking Jo Hockenhull who runs the farm office and includes the important task of grass measurement and recording amongst her routine duties.

The farm has benefitted from being one of eight units participating in the AHDB’s Beef from Grass project. Through the project, Andrew has worked with mentor Marc Jones on improving grassland management and utilisation, and the progress made is reflected in a current recorded output of over 1,400kg of beef per hectare – almost three times the national average.

“We’re achieving these outputs by routinely reseeding quality herbal leys and sticking to the discipline of rotational grazing, but it’s also down to having smaller and more fertile cows that thrive on a forage-based diet,” Andrew says.

“Effective grazing management is all about knowing the grass growth rates and understanding how much dry matter is available. To this end, Jo is walking every

paddock weekly and taking measurements with a plate meter. This information is recorded through the AgriNet grassland management programme and is the basis for a routine Monday morning meeting between myself, Jo and Dave.”

The aim is to go into paddocks at covers of 2,800kgDM/ha and out at 1,500kgDM/ha, taking paddocks out to make silage where there is a surplus of grass.

Grazing leys supplied by Field Options contain Aber High Sugar perennial ryegrasses, white clover, perennial chicory and plantain, giving a very high quality, multi-species sward with nitrogen-fixing capability.

Andrew says: “We’re looking to minimise the amount of artificial fertiliser required, so limit applications to 80kgN/ha in the early spring and then only top dress as required later on. We’re creating our own composted manure – mixing farmyard manure that we obtain through a ‘muck-for-straw’ arrangement, chicken muck and green waste – with this being applied immediately after cattle come off the paddocks or in the spring. With the significant clover content in the leys and the composted manure,

we can keep bought-in fertiliser to a minimum.”

Outwintering is another important part of the system at Cherrington Manor, with cows (dry spring calvers and late summer calvers with calves at foot) strip grazed on old leys destined to be replaced and supplemented with round bale grass silage.

Spring-born calves, which will have been weaned during the autumn using a fence line system, are strip grazed on fodder beet grown on lighter land outside the main rotation and supplemented with red clover silage.

“Sheds we once used for housing cattle now accommodate a wood chip business run by George,” says Andrew. “The only cattle that are housed are the spring calvers, who come in for a few days to calve. Our late summer calvers calve outside.”

Looking ahead, Andrew sees organic conversion as a viable option for the business, as he’s already a long way along this road with the current system. He’ll continue to seek new ideas to fine tune his operation and ultimately create a sustainable business for future generations. **1**

Cherrington Manor main rotation

- 3-year multi-species grassland leys
- Winter wheat
- Oilseed rape (or spring barley)



Andrew Crow has invested in paddock grazing infrastructure that has been designed to facilitate fence line weaning, now established as an effective low-stress method.



The aim is to have cows with a mature weight of less than 600kg, effectively increasing output per hectare by as much as 20%.



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Forage helps profit drive

Future-proofing the business for a world post-Brexit is a key aim for one of the hosts of this year's British Grassland Society's (BGS) summer meeting on 1-4 July, Laura Mushrush finds out more.

Seven years ago, when John Aynsley took on the farm manager position at Skelton Estates near Saltburn-by-the-Sea, he had one main goal for the 1,282 ha (3,170 acre) mixed arable and livestock operation: to get it operating above the break even line, without subsidies.

Fast forward to present and the mission has been intensified after the majority vote was cast to leave the European Union.

"As Brexit approaches, we face a lot of uncertainty. However, one thing is for definite – things are going to change," says John. "We're continuously evaluating the farm and trimming the fat where we can to try and get a firm handle on costs, so we can have hard data to make the hard decisions."

Homegrown feed

Skelton Estates, which will be one of seven farms toured during the British Grassland Society's (BGS) summer meeting, runs a flock of 1,300 Llyn breeding ewes and a herd of 500 Stabiliser suckler cows. The operation is split between 566 ha (1,400 acres) of arable and 554 ha (1,370 acres) grazing and silage pasture. The remaining 161 ha (400 acres) is out of production as part of a moorland conservation scheme

Farm facts:

- 1,282 ha (3,170 acres) spread out across 6 holdings.
- 566 ha (1,400 acres) arable.
- 484 (1,198 acres) reseeded permanent pasture.
- 70 ha (172 acres) silage leys on a multi-cut system.
- 1,300 Llyn breeding ewes.
- 500 Stabiliser suckler cows.
- 40 to 80 ha (99-198 acres) reseeded each year.
- 7 full-time employees.



John Aynsley is future proofing Skelton Estates by transitioning the farm's livestock to efficient genetics.

where the farm sits 700 feet (213m) above sea level, just five miles as the crow flies from the North Sea.

Silage is a main component to the farm's forage plan, to be used as winter cow and sheep feed with 70 ha (172 acres) in silage ley mixtures of intermediate and late perennial ryegrasses. Traditionally, two cuts are taken each year, however, the farm is planning to take a third this season. The remaining 484 ha (1,198 acres) is classified as permanent pasture in long-term ryegrass and white clover mixtures, which is reseeded every six to seven years.

The min-till arable enterprise, which consists of winter barley, oilseed rape and wheat, ties closely to the forage system to provide homegrown feedstuffs to the farm's livestock.

"Sheep and cows are fed straw with silage throughout the winter," explains John. "We crossed the ewes with a New Zealand Suffolk and Suftex to improve finishing ability of lambs with an aim to fatten them only on grass."

Transitioning the suckler herd's genetics has also been done to maximise forage utilisation through feed efficiency. In 2012, the first Stabiliser bull was brought in to the then 150 head of commercial cows. Since then, the herd has expanded to 500 sucklers. Heifers good enough for breeding are either sold or kept as replacements, calving at two years old. Bulls and heifers not suitable for breeding are finished on a ration of homegrown barley, protein concentrate and silage, with bulls finishing at 12-15 months and heifers at 20-22 months. 

British Grassland Society Summer Meeting 2018: 1-4 July

To learn more about the farms on the BGS summer meeting tour and to register for the event, go to:

www.britishgrassland.com/event/summer-meeting-2018-county-durham.

Forage focus for dairy open day

A grassland management and reseed demonstration day taking place in July at Hendre Dairy in north Wales promises much for those seeking to maximise production from forage.

Hendre Dairy is a share farming collaboration involving landowner Robin Crossley and two neighbouring farmers, Iwan Roberts and Gwydion Jones. The operation now extends to 440 spring block calved cows on a 145 ha (358 acres) grazing platform that is made up of routinely reseeding lower land pastures and improved upland areas.

What to see at Hendre Dairy

- An innovative share farming arrangement that is allowing two neighbouring farms to expand their family businesses.
- Increasing the productivity of land through care of the soil.
- Methods of improving grassland from overseeding uplands to full reseeds of pastures.
- The role of brassicas as a valuable forage source and as a break crop in reseed.



Different methods of grassland reseed will be demonstrated and discussed at the Hendre Dairy open day in July.

- Rotational grazing management.
- Using the Recommended Grass and Clover List to select the best performing leys.

The day will be structured to allow groups to hear presentations from expert speakers as part of a farm tour. Further details such as timings and directions will be

available to those who register their interest in the event.

Where: Hendre Dairy, Llanfair Talhaiarn, Abergele, LL22 8RY

When: Tuesday 10th July 2018

To register your place: Contact Chloe Green at Germinal GB on 01522 868714 or Chloe.green@germinal.com or follow [#germinalreseed18](https://twitter.com/germinalreseed18) on social media 

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CHEWING THE CUD

On the morning of April 30, the UK awoke to details about a potential supermarket merger between Sainsbury's and Asda. While promising to safeguard jobs and to continue to operate the two brands independently, Sainsbury's chief executive Mike Coupe said the merger would result in a 10% price cut for shoppers on popular food items.

Laura Mushrush sits down with agricultural supply chain analyst Cedric Porter, of Supply Intelligence, to find out how the potential merger could impact UK farmers.

LM: According to global retail market analysis firm Kantar Worldpanel, Asda and Sainsbury's are the second and third highest market shareholders in the UK with 15.5% and 15.9% market shares from the 12 week period ending on the 22nd of April. Number one is Tesco at 27.6%. From a supply chain competition point of view, is this concerning?

CP: Any time buyers begin to consolidate it becomes a concern because it reduces the options of sellers and strengthens the hand of the buyers. However, we must not forget about the competition aspect between the different grocery store retailers. For years, Tesco has been the dominate player, but with the merger company slightly overtaking it, Tesco now has strong competition in securing food products. They are also not the only buyers in the market and we will see other retailers trying to differentiate themselves with premium programmes which reward farmers for meeting specific requirements.

Another important thing to remember is that this merger is being investigated by the Competition and Markets Authority, a government agency which ensures fair market competition within the UK. If the CMA sees the merging company to be too strong, Sainsbury's might have to break off stores and sell them to other retailers in the supply chain for the deal to go through.

LM: So, when a grocery retailer says there will be price cuts, where do the margins shrink?

CP: The promised 10% price cut from Mike Coupe was a very bold statement and will most likely be for just a few items in store – but it is concerning for him to say something that defined. However, in terms of a supermarket being the customer, any margin shrinking will most likely happen from the processors they are buying from. From a supply company point of view - such as a meat processor - having a larger customer with more volume and economy of scale will allow for an element of margin shrink. But, I will be surprised if they can deliver on that 10% reduction.

LM: How do farmers protect themselves from any price cuts having a knock-on effect on their businesses?

CP: The threat is how much pushback on prices will be dealt to farmers – something lobby groups like the National Farmers Union are working on preventing.

While it is important farmers seek supply chain fairness, they also need to accept what they cannot change and work on what they can.

There are a couple of different things farmers can do to safeguard their market. First off, they need to decide if they are going to be price takers or price makers. There is a growing premium market for food produced by animal welfare and quality specifications. Morrisons, M&S, Waitrose, Tescos and Sainsbury's all have premium schemes for farmers who meet their standards.

Even if they are not producing for a premium market, they need to ensure they are producing quality products that are attractive to processors. Now, less than two thirds of livestock are meeting quality meat standards for abattoirs and meat processors, which devalues the remaining volume.

Farmers also need to ramp up their productivity by increasing yields and or quality, while maximising the value of their inputs – regardless of this merger happening or not (see box).

LM: From conversations I've had with farmers, and statements released by industry spokespeople, the huge fear is that supermarkets with strengthened buying power will turn to cheap imports if they can't buy British for their named price. How big of a risk is this?

CP: The Sainsbury's/Asda merger is just one more uncertainty alongside others - most importantly Brexit - and farmers need to be examining how their businesses fit into a new British and global market. The UK is only 60% self-sufficient in food production, so there will always be an element of imported food – especially if UK consumers want to purchase foods that can't be grown in our climate. However, on a global scale, UK supermarkets are just a tiny fraction of the supply chain trying to feed an expanding world population.

UK farmers have two main advantages on their side. First, the UK has one of the best forage producing climates in the world, which means they can reduce production costs where global competitors can't because they are relying on bought-in feed concentrates. With that, farmers need to switch to the mindset of competing on a global production level instead of just benchmarking against their neighbours.

The other component is that there is, and will continue to be, a British demand to buy British food as long as it is produced with high standards. **i**

Cedric Porter is a supply chain consultant and journalist and publishes Brexit Food & Farming, a monthly briefing, tracking and analysing the impact of Brexit on the agri-food industry.

See www.brexitfoodandfarming.com



Cedric's tips to challenge your business

- Look at the entire production picture to assess the value of output and value of costs:
- How much money did it take to get that animal to market?
- What could you do differently to reduce the time it takes to get it to optimum market condition?
- How old were heifers when they calved down?
- Are you holding on to cows that aren't giving you a calf?
- Are you maximising your homegrown feed capacity or buying-in concentrates?
- What is the quality of forage you are producing?
- Do you have a disease prevention programme?

These are just a few questions farmers need to be asking themselves. From a farmer point of view – be concerned about what is happening in other segments of the supply chain and make your voice heard, but focus on what you can change and secure within your business.

Supply chain start to finish

