

Grass & Forage Manager

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The benefits of virtual fencing

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Sussex Grassland Societies

BGS Research Conference



Editorial



Drew McConnell
BGS President

Firstly can I wish all our members a happy, prosperous and healthy New Year. It is great to see the back of 2020, but it is looking like 2021 will bring its own challenges for farming and society alike.

The turn of the year brought the realities of Brexit. Whilst it was great to see a trade deal being agreed before the deadline, the devil is in the detail. There is still much to be worked out to allow our agri-food industries to operate successfully going forward.

This detail will be particularly important for us here in Northern Ireland. In truth there is much head-scratching going on, as our producers and processors get to grips with the new arrangement.

We have remained in the EU Single Market for goods, which helps facilitate movement of our produce across the Irish border, but our country-of-origin status is UK. This will affect how our produce is viewed in the global marketplace. Furthermore, certain products are requiring additional testing and veterinary certificates, which all come at a cost. This inevitably will put pressure on farm gate prices.

Next month sees the return of the BGS Research Conference, this year focussing on the potential role of multi-species swards in UK grasslands. The conference will provide an opportunity to learn more about the management of these swards and the role they may play in providing key ecosystem services. I hope many of you will join us on 2 March.

On our own farm, cows are milking well on first cut silage which was harvested mid-May in good conditions. A weather delay meant second cut silage is of poorer quality and this is being fed to youngstock and beef animals.

As with the turn of each year, we look how to progress the farm business and we are actively searching to bring someone new into the business, either through a milking contract or share farming arrangement. I am hoping this provides a pathway for an enthusiastic young person to enter our industry because, despite the current challenges, it is a very rewarding profession, which has given me a lot of satisfaction over the years.

BGS News

Welcome to the first edition of *Grass & Forage Manager* of 2021. BGS is continuing to adapt to the various restrictions in place due to Covid-19 and is planning to move activity online for at least the first half of this year.

Presidential team

Following the significant disruption to BGS activities and events since last March, the BGS Council unanimously agreed at the November 2020 meeting that the current Presidential Team of Drew McConnell (President), Richard Simpson (Immediate Past President) and Elizabeth Stockdale (President Elect), should be nominated to continue for a second term from July 2021. The nominations by the BGS Council will be proposed at the 2021 AGM.

Summer Meeting

With the continued uncertainty around possible travel restrictions the decision has also been taken by the Summer Meeting Committee to postpone the tour of Northern Ireland until the summer of 2022.

An alternative virtual event will be held on the evenings of the 29 and 30 June 2021. This will include virtual farm tours with a Q&A discussion with each of the host farmers. Details of the 2021 virtual tour visits will be placed on the BGS website as they are confirmed.

The 2021 BGS AGM will also be carried out online. This will be held as a separate session to the evening virtual farm tours, on the morning of 29 June 2021.

Research conference

Plans are now progressing well for the 13th BGS Research Conference, investigating the pros and cons of growing and feeding multi-species leys, and will take place between the 2 and 4 March online. Further details of the conference can be found on page 15. BGS is extremely grateful to the Stapledon Memorial Trust for the support given to enable this event to take place.

Grassland Farmer of the Year

The BGS Grassland Farmer of the Year competition sponsored by Germinal, Nufarm and Yara will run this year. Details are being finalised on a protocol to enable the competition to take place in a safe manner. The details of the judging process will be communicated as soon as they are confirmed. We are delighted that Hugh McClymont, Farm Manager at SRUC's Crichton Royal Farm will be Head Judge this year.



Top: The Summer Meeting in Northern Ireland will now take place in 2022.

Above: Multi-species leys under the spotlight in the virtual Research Conference in March.

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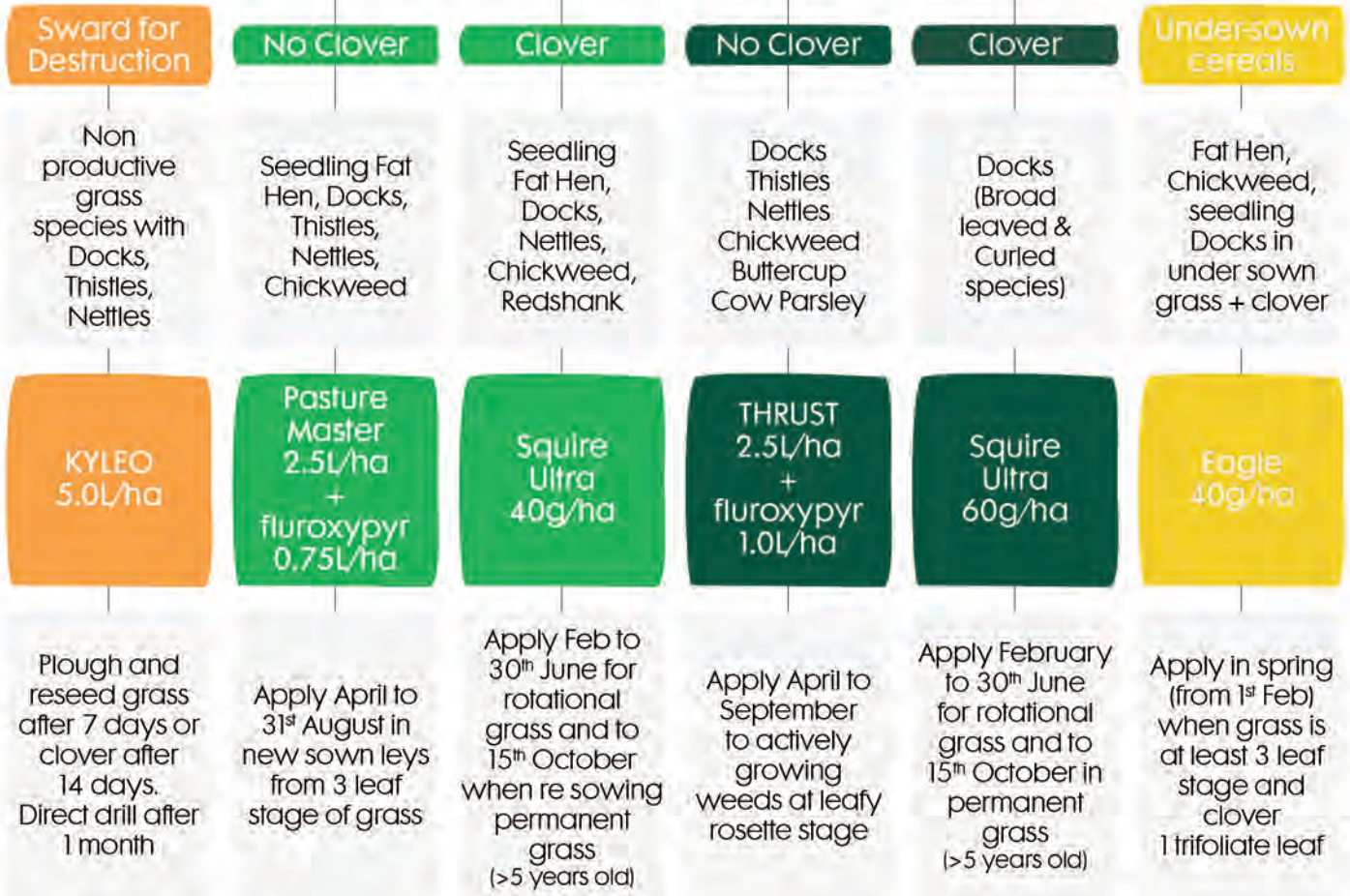
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Grow a better tomorrow

Talking to... Sarah Byford

In the third of our 'Talking to' series, *Grass and Forage Manager* editor Sara Gregson talks to influential BGS member Sarah Byford. Sarah received an MBE for her voluntary services to grassland societies and rural communities in June 2016.

Q: What is your involvement with grassland and ruminant livestock?

My involvement has been lifelong, initially on my family dairy farm and subsequently at the two Colleges I attended. I studied dairy farming at Sparsholt College and worked with the College's two dairy herds, and at Usk College where I studied and ended up teaching animal husbandry for more than 30 years. I was involved with the management of the College farm, primarily the dairy herd, but also the beef cattle and sheep flock, and consequently the grassland, which made such a vital contribution to the production from all three enterprises.

Through my work as Secretary of Monmouthshire Grassland Society for almost 50 years, I have been exposed first hand to the excellent management of the very best grassland farmers in the county. My involvement with the Federation of Welsh Grassland Societies has extended this experience across the whole of Wales, visiting the very best grassland farmers, and listening to and learning from high profile speakers at grassland meetings and conferences.

Q: Tell me about your association with BGS. What have you derived most from being a member?

My association began in 1983, when I attended my very first BGS Summer Meeting, hosted by Devon and Cornwall Grassland Societies. The following year BGS came to South East Wales, the Summer Meeting hosted by Brecon, Glamorgan and Monmouthshire Grassland Societies, for which I was the Organising Secretary. In this role I shall be ever grateful for the help and advice I received from Cyril Davies – my guiding light and mentor over many years.

In 2007 it was the turn of Brecon, Glamorgan and Monmouthshire to host the Summer Meeting again. Having vowed at the conclusion of the 1984 meeting 'never again', I was persuaded by Eddie Phillips, Chairman



Sarah Byford at the BGS Summer Meeting based in Edinburgh in 2009.

of the Organising Committee to take on the role of Secretary again. The meeting was very successful, and the pleasure of showing off the very best farms in South Wales was both enjoyable and rewarding.

In 2008 I was privileged and extremely humbled to be elected President of the British Grassland Society – the first female in the post. I thoroughly enjoyed my time on Council and was fortunate to be involved with the various initiatives developed by BGS, in particular the grazing mentor scheme inspired by Sara Gregson.

During my time as a BGS member I have enjoyed and benefited from over 30 Summer Meetings, as well as a number of Winter Meetings and Spring Farm Walks too. Once the current Covid restrictions are lifted I look forward to resuming the comradeship, knowledge and sharing of experiences that membership of BGS brings.

Q: What do you think the most exciting opportunities are for grassland managers today?

There has never been a greater need for the efficient production of quality meat and milk produced from grass-fed ruminants, producing food that is globally competitive, whilst simultaneously managing and caring for the environment, reducing carbon footprint and mitigating climate change. When the payments for the number of acres farmed cease and are replaced by payments for how the land is farmed, opportunities for better

soil and nutrient management, retaining existing environmentally-friendly features, while exploiting new environmental schemes will be there for the taking.

Q: What would you encourage grassland managers to do today to make the world a better place?

I would encourage grassland managers to recognise and act upon the reality and threats to the environment posed by climate change, together with over-intensification, resulting in pollution of land, waterways and the atmosphere. They each have responsibility to farm in a way which will regenerate rather than degenerate our planet.

Q: Who would you most like to chat to over dinner (dead or alive)?

Princess Anne, reputedly the hardest working Royal with a love of the countryside. I admire her commitment and common-sense approach to all aspects of her challenging lifestyle. Nigel Owens – I would so enjoy chatting with him about two of the loves of my life, rugby and farming! Aled Jones – music is another of my passions and I would love to hear first-hand of Aled's experiences as a boy treble turned tenor. And finally, Jan Crichton – whose time at the helm of BGS was cut so tragically short. She was a much-cherished friend who I would dearly love to share dinner with once more.

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Enriching British Farming



Soils update

State of knowledge of soil biodiversity

There is increasing attention to the importance of biodiversity for food security and nutrition, especially above-ground such as plants and animals. However, less attention is being paid to the biodiversity beneath our feet, which drives many processes that produce food or purify soil and water.

A new report published by The Food and Agriculture Organisation of the United Nations (FAO), addresses this and is the result of an inclusive process involving more than 300 scientists from around the world.

It presents concisely the state of knowledge on soil biodiversity, the threats to it, and the solutions that soil biodiversity can provide to problems in different fields. It also represents a valuable contribution to raising awareness of the importance of soil biodiversity and highlights its role in finding solutions to today's global threats.

At nearly 600 pages long, it is filled with incredible imagery of many of the organisms that live in soil.

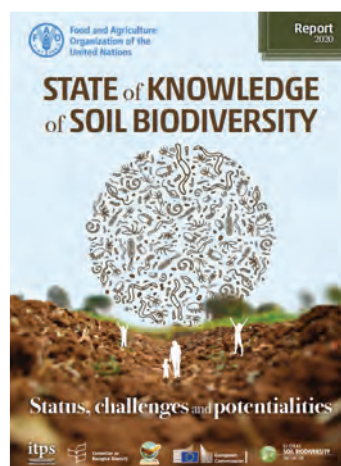
Soil organisms can be divided into different groups: microbes, micro, meso, macro and mega-fauna. They include a wide range of living

things, from unicellular and microscopic forms, to invertebrates such as nematodes, insect larvae and earthworms, arthropods and their larval stages, to mammals, reptiles and amphibians that spend considerable parts of their lives below ground.

There is also a great diversity of algae and fungi, as well as a wide variety of symbiotic associations between soil microorganisms and algae, fungi, mosses, lichens, plant roots and invertebrates.

What soil organisms do

Bacteria, fungi, protozoa and nematodes transform organic and inorganic compounds into accessible forms as part of their metabolism through extraordinarily complex biochemical processes. These transformations are critical for ecosystem services such as nutrient availability for the growth of



The recently published report on soil biodiversity.

plants, soil organic matter recycling and the filtration, degradation and immobilisation of contaminants in water and soil.

Soil organisms are part of a vast food web that cycles energy and nutrients. An important part of this web is represented by meso-fauna such as springtails and mites, which accelerate litter decomposition and enhance nutrient cycling and availability, especially nitrogen.

Finally, soil macro-fauna and mega-fauna such as earthworms, ants and some mammals, act as ecosystem engineers that modify soil porosity, water and gas transport, and also bind together soil particles into stable aggregates that hold the soil in place, reducing soil erosion.

To see a copy of the report 'State of Knowledge of Soil Biodiversity' visit www.fao.org/documents/card/en/c/CB1928EN/

Soil analysis 2020

Between 1 June 2019 and 31 May, 125,000 soils samples were analysed by the Professional Agricultural Analysis Group (PAAG). Grassland formed 58% of all samples.

Conclusions should be drawn cautiously as the data were not necessarily representative of all UK fields. However, some general points can be made:

- Soil pH was less than 5.5 in 16% of grassland samples. There seems to be a need to address liming on a significant proportion of grassland areas
- For grassland, around 30% of samples were at target Phosphate (P) Index 2 and 26% were at target Potassium (K) Index 2-. Just 9% of all samples, both arable and grassland, were at the target indices for both P and K. Some 90% of samples indicated the need for adjustment of P and K Index, indicating the need for farmers to base fertiliser use on regular soil analysis
- Soil P Index was lower than target in 34%



of grassland samples. K Index was lower than target in 42% of grassland targets. Use of potash for grassland especially seems in need of attention

- Soil P Index was higher than target in 40% of grassland samples
- 3% of grassland samples were in Magnesium (Mg) 0 or 1



Left: 58% of the soil samples were taken from grassland. Above: Soil P Index was higher than target in 40% of grassland samples.

The full 2019/20 PAAG soil report can be found on the Tried and Tested website at www.nutrientmanagement.org/latest-information/news



FEED MORE OF THE SILAGE YOU MAKE WITH MAGNIVA

Magniva crop and condition specific inoculants are proven to have a big impact on reducing waste, improving forage quality and helping farmers take control of forage costs, according to Lallemand Animal Nutrition's Lientjie Colahan.

Silage waste is a major cause of reduced efficiency as the crop is grown but not fed. If we reduce waste, we can feed more silage and reduce purchased feed use. What is more, total forage costs will not increase significantly as you have already paid the contractor per acre, applied fertiliser per acre etc. Increasing forage efficiency gives you a better return on investment.

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This means you can open clamps safely after only 15 days. Once the clamp is opened, you will see lower levels of the moulds responsible for heating, which in turn leads to better feed values and improved palatability. The result is more silage to feed with better nutritional quality.

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When a clamp is unstable it begins to heat up. Heating is a big issue as it is produced by burning energy, reducing the feed value of the silage and its production potential. It also can reduce palatability and intakes.

Magniva Platinum grass inoculants significantly reduce heating which means more energy is available to feed. Compared to untreated silage and silage treated with *L. buchneri* alone, Magniva Platinum Grass Dry reduced energy loss by at least 110MJ per tonne of dry matter. In a clamp of 1000 tonnes at 30%DM, this can add up to enough energy to produce 6000 more litres from forage, allowing a potential saving of 2.7 tonnes of concentrates.

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Lientjie Colahan: 07884 312382

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Virtual fencing

The concept of virtual fencing has recently been receiving attention in online webinars, conferences and newspaper reports. Dr Tony Waterhouse of SRUC and Sandra Pattinson from BGS review the situation so far...

A virtual fence serves the same purpose as a traditional fence but has added features and no physical barrier. A Global Positioning System (GPS) allows farmers to 'draw' the boundary using an app on their mobile phone. The animals wear a solar-powered collar which gives off an audio cue as it approaches the virtual fence. If the animal continues to move towards the fence it will receive an electric pulse from the collar. If the animal stops or turns away from the fence it does not receive a pulse.

There are four main virtual fencing systems commercially available, or likely to be shortly. The only system currently available in the UK is Nofence from Norway, with 25 UK customers using around 400 collars. Their use is not permitted in Wales where legislation for training collars covers all animals.

Unlike traditional fences, the software system is strictly one-way only. Once breached the return trip gives off no sound or electric pulses. This means if an animal passes through the boundary deliberately or by accident, it can return easily to the herd.

Other systems include eShepherd (Agersens/Gallagher, NZ), Halter (New Zealand) and Vence (USA), although there appear to be no plans for a European roll-out for these companies.

Out in the field

The National Trust has been trialling the use of Nofence collars, under veterinary supervision, as part of their Dynamic Dunescapes project at Studland and Godlingston Heath in Dorset.

SRUC also has a project where they have helped farmers to acquire and set up the Nofence system, observing and sharing experiences of the early adoption phase. Seven farm users cover such diverse interests as a crofter keeping his two cows out of nearby Forestry Commission plantations, to a land manager restricting cattle to large virtual paddocks over thousands of hectares with few fenced divisions. In Epping Forest, The City of London Corporation has been using a wire-based system for a number of years. This relies on a buried cable as a virtual fence, but they



Luining cattle wearing virtual fencing collars on a hill farm in North West Sutherland. Photo credit: Pieter Bakker

are now looking to change over completely to the more flexible Nofence system.

Virtual fences can be quickly set up where standard fences are impractical, too costly or need to be flexible. For example, in extensive systems, topography and poor access can make fencing difficult and the costs prohibitive. These areas are often those that would benefit from conservation grazing.

They can also keep stock away from dangerous locations such as gorges, bogs, open moorland roads or access routes for walkers and their dogs. There is the potential to remove a lot of wire, both plain and barbed from the environment, reducing risks to stock, dogs and wildlife.

Within intensive farming systems, the use of virtual fencing could reduce labour requirements compared to the use of temporary electric fences. Being able to 'move' the fences via an app is simpler, quicker and extremely flexible, making it easy to control the quantity and quality of herbage on offer to livestock.

For a large herd, the initial cost for a virtual fencing system may seem high. For example, the Nofence system is made up of an initial cost of around £300 per collar, and an annual subscription fee of around £50 per collar. Whilst there is some evidence that cattle can learn from others in the group, each animal still needs a collar if the aim is 100% exclusion from an area.

As with any neck collar, checks should be made to see that it is fitted correctly and does not cause chafing. The correct collar must

be used for the size and class of animal and should be checked as the animal grows or loses/gains condition.

Welfare

Welfare issues of virtual fencing systems are raising some concerns. Comparisons to standard electric fences are not straightforward, as livestock do not 'feel' electric charges the same way as humans. In simple engineering terms, the Nofence system is specified to use pulses of electricity less than a fifth the strength of standard electric fences.

For virtual fencing to be effective animals must be able to learn from it and the system must be predictable and controllable. If there is always an audio cue before an electrical pulse, then the animal can avoid the electrical pulse by responding to the audio cue and moving away from the virtual fence.

Research published by Dana Campbell, Caroline Lee and the team at CSIRO in Australia, found that cattle received most electrical pulses in the first few days of training. However, more than 70% of the interactions with the fence were audio signals only and cattle remained in their designated area for the vast majority of the time (99%).

Once the fence was deactivated, cattle crossed into the previously restricted area within a couple of hours. These studies indicate that the fence is not 100% stockproof and in some areas, such as alongside major roads and railway lines, traditional physical fences would still be needed.

RSPB Geltsdale

RSPB Geltsdale comprises two large upland farms in the North Pennines with open areas of moorland and acid grassland. They are grazed extensively by hardy native breed cattle for the benefit of wildlife.

Researchers there have been looking to introduce a small group of cattle to 240 hectares of open scrubby woodland, without having to erect conventional livestock fencing, into which birds such as black grouse can fly and perish.

With funding from the North Pennines AONB they have purchased and trialled a Nofence system on a group of 19 Luing heifers. The set-up is easy and the mobile phone app straightforward to use.

The speed at which the cows learn to associate the warning sound with the electric pulse is surprisingly quick. After four days they were trained enough to be moved to the scrub woodland. The cows now turn around in a stress-free manner when the noise is activated.

The flexibility of the system means that grazing compartments can be easily created within the wider area, avoiding sensitive areas such as footpaths, keeping members of the public and cattle apart.

It is a fantastic tool, enabling the user to see where the cattle are at all times. Also, after the four-month grazing period the cattle are in great condition says the RSPB's Ian Ryding.



Cattle grazing scrubby woodland without traditional fencing.
Photo credit: Ian Ryding (RSPB)

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LALLEMAND ANIMAL NUTRITION



Viewpoint – Spring 2021

I am looking for high yields of high-quality silage this year. Is this possible?

Roy Eastlake Lallemand

Yes, it most certainly is. Over the past few years Lallemand Animal Nutrition has been developing the Opticut System of grass silage management. Its key objective is to focus on cutting grass at the optimum growth stage to maximise forage quantity without compromising season long production, and within the farmer's own farming system.



This normally entails cutting at shorter intervals, maximising the amount of metabolisable energy per hectare of land to promote a higher production from forage, reducing purchased concentrate feeds and improving herd margins.

As a starting point, make a plan over the next few months which includes the agronomist, nutritionist and contractor. Then begin with pre-cut grass testing to get the first cut taken when the grass is at its highest quality for ensiling. Cutting every four to five weeks after first cut then allows at least a five-cut season which will, in a typical year, produce higher yields of much higher quality grass than a normal three-cut system.

One Opticut farmer in Shropshire moved to a five-cut system from a four-cut more conventional system in 2019. The average energy levels across all cuts, while very good even on the four-cut system at 11.15 MJ ME/kg DM in 2018, was exceptional on the five-cut system at 11.60 MJ ME/kg DM.

Paul Johnson Berry bpi agriculture

The key to achieving high quality silage and high yields in silage clamps is to take the time to prepare and fill the clamp in the best way.

In the early stages of filling, ensure the clamp and machinery are clean and clear of old silage or manure to reduce contamination. The use of side wall sheets significantly reduces losses at the sides. They should be fitted with 1m across the base on each side and 2m at the top to fold over the filled clamp at the end.



Filling in layers of no more than 15cm deep and compacting as the clamp is being filled,

will significantly reduce the amount of oxygen trapped, and therefore reduce the possibility of mould growth. Filling and compacting should be done evenly across the top of the clamp, right up to the edges.

Once full, an oxygen barrier cling film-like sheet should be applied to the whole of the clamp, tucking it in at the sides and back. When the oxygen barrier film is pulled tight it will reduce the amount of oxygen trapped to avoid spoilage. The side wall sheets should then be folded over the oxygen barrier film. To completely seal the clamp, a top sheet should be added and tucked in at the sides and pulled tightly across the whole surface. Adding weight or pressure on top of these sheets will help even further to compact and reduce air ingress once it is opened.

John Harris Oliver Seeds

The simple answer is yes. It will then depend upon your current yield and aspirations. With UK average grass yields around 7–8t DM/ha and the potential for modern ryegrasses nearer to 20t, there is clearly room to increase.



I suggest the key is to set a target yield for your farm, so you have a clear goal against which to measure performance; quality needs to be maintained as well.

It is important to know your historical yields to plan how to improve; this can come from plate meter data, recording trailer loads of silage produced, or foragers with yield meters.

Having a long-term approach to soil, water and nutrient planning is key. This starts with regular assessments of each field. I advocate splitting the farm into quarters and soil testing every four years. At the same time take your trusty spade and check soil structure and record your findings. Field drains and ditches should be part of this cycle to ensure all are kept in working order.

Supplying the correct nutrients at the appropriate time will ensure grass is well placed to unlock its potential; nutrient planning should start well ahead of the season. Applications of fertiliser immediately following silage or grazing will help to eliminate yield losses, reported to be around 6% for an eight-day delay. Consider tissue analysis to highlight deficiencies.

To realise the true potential of grass we need to treat it with the respect of a high yielding arable crop.

Grazing mentors

Following the success of the Grazing Mentors Project, funded by the Prince's Countryside Fund, BGS has taken the decision to continue with this worthwhile project. It is now looking for grassland farmers who feel they would benefit from some free one-to-one guidance from experienced graziers.

It does not matter what level of grazing experience there is, how big the farm is, what class of livestock is farmed, or what age the farmer is – anyone can take advantage of the mentoring on offer.

Farm visits

The process starts with an initial visit to the farm from the allocated mentor, Covid-19 regulations permitting. This will then be followed up with emails, telephone calls or text messages with the mentor, talking over particular issues or ideas. They will help their mentees implement management practices to help improve the effectiveness of grazing. A second visit will be arranged to see how the plans are progressing.



BGS Grazing Mentor Matthew Ingram (centre) with mentees Sarah and Duncan Howie.

Duncan and Sarah Howie, who farm near Shrewsbury, took advantage of the opportunity for mentoring and built up a very good relationship with their mentor, Matthew Ingram. The Howies found that the guidance from Matthew was invaluable and gave them the confidence to make significant changes to their dairy farm, enabling them to develop a system more suitable to their particular situation.

Positive feedback was also received from other farmers who were recently mentored:

"We had a very good day with our mentor and he gave us some good pointers for how to address a new grazing system, which we have tried to implement on the farm. He has sent follow-up emails with useful data and contacts. All in all it has been a very good experience."

"We had a good discussion about grazing and silage feeding at grass in dry periods. We also discussed herbal leys and grass mixtures. It was useful to be able to talk to someone with knowledge about grazing and ensiling herbal leys"

If you are interested in talking to a BGS mentor contact BGS by email: bgsoffice@britishgrassland.com or call 01270 616464 and they will try to match you with a grazing mentor in your location.



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Grassland management in the uplands

An innovative scheme on the Welsh/English border seeks to recognise the value of its upland grasslands. Dr Louise Moon, project manager for the Black Mountains Land Use Partnership explains...

Many farmers may understand the wider value of grass and grasslands, but further afield its value is inadequately recognised.

Government policies are pushing farming enterprises to stand on their own two feet and limiting farm support largely to the delivery of 'public goods'. This means there is a lot to do to convince policy and decision makers that grassland is multi-functional and provides a basket of goods that people should value but often do not see.

Healthy grasslands lead to improved soil structure, organic matter and soil life and enhanced water holding capacity to help reduce flooding. They create habitats and provide food sources for wildlife, reduce wild-fire risk in upland areas and provide a great place for people to walk and appreciate the green landscape. Their human inedible plants can be converted by ruminants to nutrient-dense, high-quality food, often on land that cannot be used to produce other agricultural foods.

At one end of the spectrum are high input, high output grassland systems, at the other are grasslands where grazing animals are used as a land management tool. At all points, grassland will come under pressure from aspects such as tree planting targets and the lack of evidence about the public goods being delivered already.

Black Mountains Land Use Partnership

The Black Mountains Land Use Partnership (BMLUP) is a pioneering, cross-border landscape-scale initiative between local landowners, graziers, young farmers and regulatory bodies, including the Brecon Beacons National Park Authority, Natural Resources Wales, Welsh Water and Natural England. It is supported by a wider network of local business, tourism and skills providers and volunteers and community groups.

The Partnership promotes the restoration and sustainable management of the Black Mountains' natural resources and seeks to improve the wellbeing and economic resilience of those who work and live in the area.



Located in the east of Brecon Beacons National Park, the Black Mountains spread across Powys, Monmouthshire and the Welsh-English border into Herefordshire. The area covers 24,600 hectares, with about a third of the area being a Site of Special Scientific Interest (SSSI). It is of considerable importance nationally and internationally for its size, altitude and the flora and fauna it supports.

The Partnership has recently delivered a successful £1.1m three-year Sustainable Management Scheme (SMS) Project, funded by the Welsh Government and European Union, as part of its Rural Development Programme 2014–2020. This project covered three key areas:

- Bracken management
- Peatland restoration
- Visitor management

It has delivered sustainable and resilience-boosting actions on the ground and in the community. All actions have been complementary and holistic, aiming to bring about positive social, economic and environmental change through implementation of cooperative and sustainable land management.

Bracken

One example of this is the Partnership's approach to bracken management and control.

Although bracken was once widely harvested and used for animal bedding and as a roofing material, the encroachment of bracken into grazing land has reduced the area of valuable grazing year-on-year, restricting turnout points, preventing stock from ranging, and making animal gathering difficult. Bracken is also a favourite haunt of the sheep tick.



Top: The Black Mountains are internationally renowned for the flora and fauna they support. Above: Bracken control improves the quality and quantity of grazing for sheep.

Grazing is an important tool for continued management of desirable habitats in the Black Mountains, particularly heathland and blanket bog. The spread of bracken can also be damaging to the historic environment, as its dense network of rhizomes can seriously interfere with sub-surface archaeology.

Similarly, bracken often makes footpath navigation difficult and uncertain. Clearing bracken along these areas improves the visitor experience. Bracken and wider heathland management also improves habitat condition, particularly for associated plant species and ground-nesting birds.

Bracken control actions have been implemented to improve the quality and condition of upland grassland habitats, increasing the area and quality of grazing land and improving access. A ten-year bracken management plan produced by the Partnership has indicated where these sites

are most likely to be, what methods are likely to be most useful for control and management on a given site and which sites to prioritise.

The Partnership also commissioned a landscape-wide bracken survey, which has identified where and which differing bracken control approaches would be the most beneficial. It has also assessed the feasibility of bracken being harvested and sustainably used to support the grazing community and farming and local businesses.

The project has delivered a programme of targeted bracken management over 320 hectares. This programme has helped to maintain desirable habitats and species, prevent encroachment of the bracken into its SSSI habitats and offer improvements to hill access for graziers for turning stock on and off. It has also increased grazing capacity in cleared areas, enabling livestock to become part of a sustainable bracken management

Table 1. Summary of indicative effects of different treatment methods on bracken and other plant species

↑ increase; ↓ decrease; ↔ no change; ↓↓ substantial sustained decrease

Treatment method	Bracken density	Bracken height	Litter cover	Litter depth	Plant diversity
Cut	↓	↓↓	↔	↔	↓
Cut, roll, cut & collect	↓	↓	↔	↑	↓
Cut & flail	↓↓	↓↓	↓	↓	↑
Roboflail	↓	↓↓	↔	↔	↑
Roboflail & tractor	↓↓	↓↓	↔	↓	↑
Rolling	↑	↓↓	↑	↑	↔
Aerial spraying	↓↓	↓↓	↑	↑	↔

solution in the longer term.

Trialling differing bracken control methods at different sites across the area has taken place each year over a three-year period in the summer (from July). Two treatments were applied at each site, except for the aerial sprayed site, which had one treatment in 2018. Sites were treated using one of the following methods:

- Rolling
- Cut, roll, cut and collect
- Cut
- Roboflail

- Tractor and flail
- Cut and flail
- Aerial spraying

Surveys were undertaken in 2018, 2019 and 2020 to measure the changes and effects of bracken control. Change in bracken density, height, litter cover, litter depth and a simple measure of plant diversity were monitored compared to untreated areas. The treatments

had differing effects depending on the measured indicator (Table 1).

Most methods, with the exception of rolling, resulted in a decrease in bracken density and height, whereas cut and flail resulted in a decrease in litter cover and litter depth. Plant diversity decreased on sites that were just cut or just rolled. Overall, the most effective method of sustainable bracken control was cut and flail.

For more information about the BMLUP and its work, visit www.blackmountains.wales.



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Focus on Sussex

The next in the series of articles taking a deeper look at local grassland societies affiliated to BGS, puts the two societies in Sussex under the spotlight.

West Sussex Grassland Society

Robert Crawford Clarke
Secretary

The West Sussex Grassland Society has been going for more than 50 years. In November 1968, Dick Powell from ICI came to talk to a group of farmers about setting up a discussion group in Sussex, as he had just set up a similar group in Surrey.

Several local farmers were invited to that meeting, who went on to form the Society. Over the next year or two, its structure was formalised and an annual journal was started.

The Society has now grown to around 100 members, including a number of younger farmers who have joined in the past few years.

As the meetings and discussion groups from other organisations draw to a close in the autumn, it is good to be able to get off the farm through the long months of winter to meetings of interest, and it is one of the aims of the Society to address this.

Each year, there are four evening meetings with a speaker on a topic of interest. These are sometimes technical, outlining new research and thinking, and sometimes of a more general nature. Recent examples include agroforestry, monitoring grass to improve herd performance, how to encourage the next generation into farming, and the rewilding project on the Knepp Castle Estate.

In addition, each year there is a silage competition in the winter and grassland competition in the summer, spring and summer farm walks, and an annual Christmas dinner.

We also offer an annual award and bursary to a young person to undertake a research project of their choice which is relevant to farming. They present their findings to the Society at the Society's AGM.

Like everyone else, Covid-19 has caused a pause in our activities and we have regrettably had to suspend our meetings for this season. We look forward to welcoming members back to meetings as soon as conditions allow.

Members and potential members can keep up to date with the Society on facebook at West Sussex Grassland Society or by emailing the secretary, Robert Crawford Clarke at robert.crawfordclarke@henryadams.co.uk.



Top: Members of the West Sussex Grassland Society pay a farm visit.
Above: The Sussex Grass and Forage Society listen to an outside speaker.

Sussex Grass and Forage Society

Micky Major
Chairman

The Sussex Grass and Forage Society is primarily based in East Sussex, but farmers from West Sussex and Kent have been known to attend.

As a Society, meetings are opened to other groups if relevant and members are encouraged to bring along their employees. This can mean meetings can have a strong fifty or so in attendance.

The programme would normally consist of three farm visits and an indoor meeting during the winter, all followed by a pub lunch for those who have time!

During the winter, the Society holds its annual Winter Forage Competition, which is based on forages and the stock/herd performance for that period. The Competition is judged primarily by either local college students or young employees from local farms with experienced stewards to give a

final of four. The final is then judged by a more experienced but young farmer/herd manager. It is all about getting the next generation out and about and learning. This culminates in an annual dinner and prize-giving. The overall winner's farm provides the Society with a farm visit.

The Society organises a Spring Trip, which is a visit within a two to three hour drive, to see a top dairy herd or farm running something progressive or new that is interesting to members.

Our Summer Grazing Competition is for farms grazing cows and is judged on the grass on the day along with overall performance. Again, this is judged in similar fashion to the Winter Competition and the winner normally provides the Society with an evening meeting.

Although, the Sussex Grass and Forage Society is primarily dairy-based, it is maintaining membership and diversifying its programme to keep a strong and active group.

BGS Research Conference – Multi-species swards

Due to the coronavirus pandemic, BGS is holding its 13th Research Conference online in March. The topic draws on the growing interest in growing multi-species swards.

BGS will be operating its first online conference from Tuesday 2 March through to Thursday 4 March, taking an in-depth look at the latest research on multi-species swards. Each day will have a theme, with theatre presentations starting at 10.00am and finishing at 12.15pm.

Day 1

The conference will begin by looking at 'Establishment'. Ian Wilkinson from Cotswold Seeds/FarmED will explain why a system of farming with diverse leys has survived for 200 years, and how multi-species swards can provide a solution to many of the problems facing livestock and arable farmers today.

The perceptions of UK farmers on the costs and benefits of growing herbal leys can present barriers to their utilisation and Bethan Stagg from Duchy College will discuss this in her presentation. Other papers will highlight the results of research work carried out by Teagasc and the University of Reading addressing biomass yields and sward composition.

Day 2

The theme for Wednesday morning will be 'Sward Management for Conservation and Grazing'.



Full details and booking information are available on the BGS website (www.britishgrassland.com). Tickets for the full event are priced at £25 but BGS members and members of local affiliated grassland societies can receive a £10 discount by using the code BGSMEM2021. Students can register for the event for free. Contact the BGS office (bgsoffice@britishgrassland.com) to receive the discount code.

BGS are grateful to the Stapledon Memorial Trust for their financial support for the conference.

Caroline Brophy from Trinity College, Dublin will present the results of research examining the role of species diversity in swards and how this can promote ecosystem multifunctionality. She will also introduce LegacyNet, an international multi-site experiment that is investigating their yield benefits, as well as their legacy effects on follow-on crops.

The question of the trade-off between forage quality and yield will be addressed by Martin Komanda from Georg-August University, Göttingen, whilst Paul Muto from Natural England will examine the role of multi-species swards in environmental schemes.

We shall also hear about the Toolbox of Multi-Species Swards (TOMS) from Hannah Jones of Duchy College. This mobile phone app is designed to help identify and monitor the species in a multi-species sward and to compare different species' benefits and environmental tolerances. A virtual tour of the CEDAR unit will follow these presentations.

The conference neatly ties in with the fourth BGS/AHDB Herbal Leys webinar on the evening of Wednesday 3 March. This will cover the subject of feeding and grazing management. Registration for this webinar is separate to the conference –

visit the AHDB or BGS websites to sign up.

Day 3

The closing session of the conference on Thursday morning will examine 'Utilisation and Feeding Value' of multi-species swards. Their use in sheep production systems will be examined by Tommy Boland from University College, Dublin.

Findings from research work at Reading University will highlight the performance of cattle on multi-species swards and Christina Marley from IBERS will discuss the micronutrient content of forages with differing root systems.

The conference will end with a panel discussion where the keynote speakers will respond to questions posted by attendees.

Posters

A number of posters have been submitted and will be available to view online. Poster authors will be available to answer questions via an online chat facility.



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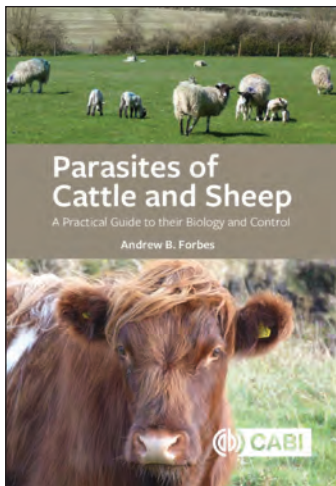
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Grass Bites

New book on parasites

Parasites of Cattle and Sheep: A Practical Guide to their Biology and Control is a new book published by CABI in November 2020. Authored by BGS member Andrew Forbes of the University of Glasgow, the book



is an important resource on farm animal health, with a focus on ruminant parasitology.

Understanding parasite biology and impact is essential for those giving advice on parasite control in farm animals. This book is the first review devoted to parasites of domestic cattle and sheep, and it contains diagrams and photos to aid identification.

It considers the impact of parasites, both as individual species and as co-infections, as well as epidemiological information, monitoring, and diagnostic procedures. It also reviews the

basis for control measures such as the responsible use of parasiticides, adaptive animal husbandry and other management practices.

Parasites of Cattle and Sheep is available at a 25% discount for BGS members. Use the code CCBGS25 on the CABI Bookshop www.cabi.org/bookshop/book/9781789245158

CowManagement under new ownership

UK dairy farmers are well served with technical magazines, including CowManagement.

Now it has new owners – Davis Porter Media, with editor Rachael Porter and Jason Davies of Jason Davies Marketing, forging ahead with plans for the 2021 issues.



CowManagement is always packed full of interesting and useful information that aims to help UK dairy producers manage their herds and run their businesses more efficiently.

The articles are fresh, look at topics from different angles and focus on new ideas and technological developments. It is published eight times a year.

Davies Porter Media works with five UK partners to publish

CowManagement, whose businesses are integral to the UK dairy industry. These include CRV, For Farmers, NMR, Thompsons and Boehringer Ingelheim.

To sign up for a free copy of CowManagement enter this link: <http://bit.ly/cm-subs> into your internet browser and take 30 seconds to complete a short form.

Diary dates – Spring 2021

3–17 February 2021 **Dairy Tech**

Online – www.dairy-tech.uk

23–24 February 2021 **NFU Conference**

www.nfuonline.com

2–4 March 2021 **BGS Multi-species Swards Research Conference**

Online – www.britishgrassland.com

3 March 2021 **BGS/AHDB Herbal Leys Webinar – Feeding and Grazing Management**

Online – www.britishgrassland.com

9–10 March 2021 **Low Carbon Agriculture 2021**

Online – www.lowcarbonagricultureshow.co.uk

12–15 April 2021 **BSAS Conference**

Online – www.bsas.org.uk/conference

6 May 2021 **Grassland UK**

Bath & West Showground

www.bathandwest.com/grassland-uk

13 May 2021 **RWAS Grassland Event**

Llysfas College, Clwyd

17–19 May 2021 **EGF 21st Symposium 'Sensing – New insights into grassland science and practice'**

University of Kassel, Germany

www.uni-kassel.de/tagung-konferenz/egf-2021

22 May 2021 **Beef Expo**

Darlington Farmers Market

www.nationalbeefassociation.com/beef-expo/

25–26 May 2021 **LAMMA**

NEC, Birmingham

www.lammashow.com