



Hill, Upland and Crofting Group

March 2021



**A blueprint for sustainable and integrated
farming and crofting activity in the hills and
uplands of Scotland**

Prepared by the

Hill, Upland and Crofting Group

Initial findings

March 2021

Co-Chair's foreword

By Joyce Campbell and Martin Kennedy



The Hill, Upland and Crofting Group was tasked with coming up with recommendations which would not only result in reducing harmful GHG emissions and enhance biodiversity in our environment, but also continue to deliver the high quality food we have been accustomed to in Scotland. The members of our group represented a wide range of interests not only from a farming and crofting background but also from an environmental and academic one.

With such a variety of topics to cover, for example peatland restoration, deer management, woodland creation and wildlife corridors, through to efficiency improvements involving soil health, animal health and precision agriculture, it became apparent that the group had quite a challenging remit ahead of it, especially given the very tight timescale of only ten weeks. That said, everyone embraced that challenge and fully recognised the importance of coming up with practical meaningful solutions that the whole industry could get behind.

All the subjects that were covered were discussed at length to allow us all to understand the pros and cons of many options. The group members were extremely mindful of the possible unintended consequences of decisions being made, especially around things like offshoring emissions and issues around land use change for the tenanted and crofting sectors.

What became abundantly clear was the fact that people should be at the centre of all decisions as it is people, particularly in the more challenging areas, that are vital to not only maintaining the socio-economic fabric in our rural communities, but who we will also rely on to deliver the targets we have set in front of us.

This led the group to decide on a key principle very early on which was to ensure that any future funding through an agricultural budget must be targeted at activity, and that activity must involve measures that both address climate change and environmental enhancement.

We are very optimistic about the future if we choose the correct path. Scotland in global terms is already starting from a good position, however if we follow the recommendations of this and other farmer-led groups, we have the potential to lead the world and showcase Scotland as the place that sets the bar in terms of sustainable food production.

We would like to thank all the group members for their commitment to what has been a very intensive process and also for their input and feedback which has been of huge value in delivering the recommendations that form this report. We would also like to thank Claire Simonetta for her fantastic efforts in collating all the feedback and putting it together which has allowed us to finalise our findings in the short timescale we were given.

We sincerely hope the recommendations within this report will be taken fully on board and implemented at the earliest opportunity to allow the Hill, Upland and Crofting sector to play its part in meeting our ambitious targets both for food production and the environment.

Thank you,

Joyce Campbell and Martin Kennedy,

Joint Chairs of the Hill, Upland and Crofting Group

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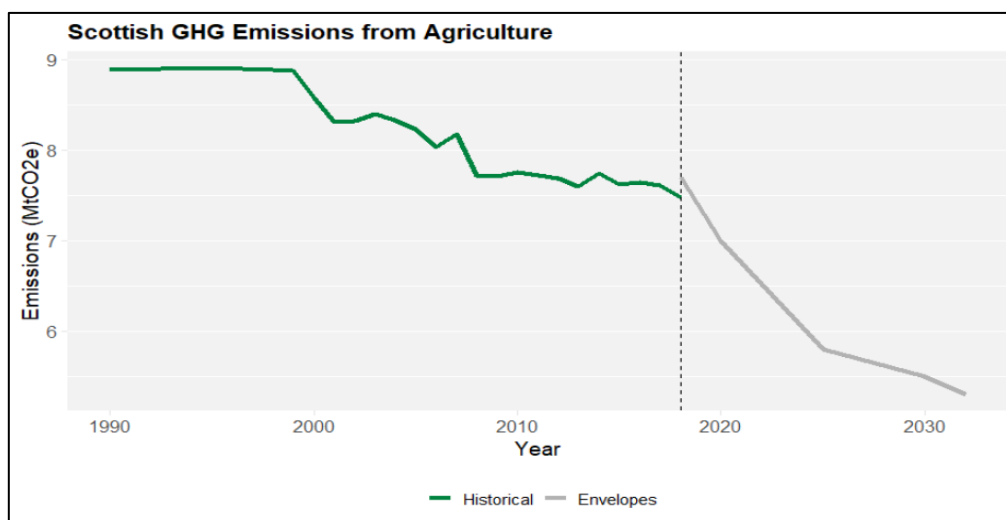


1. Introduction and background

Climate change and a looming biodiversity crisis have come to represent two of the most significant modern challenges we face. Recognising that there is a need to improve society’s green credentials, the Scottish Government has committed to meeting ambitious climate targets by reducing its greenhouse gas emissions by 75% between 1990 and 2030 and aims to become a net-zero nation by 2045.

This is an ambitious target and will require significant commitment and a restructuring in many industries so that appropriate changes can be implemented through the adoption of best practice and technology to reflect constantly emerging scientific findings.

Agriculture has been put under an increasing amount of pressure in recent years following on from significant emissions reductions that have been achieved in other sectors. The agricultural sector carried 18% of Scotland’s total emissions in 2018. As part of Scottish Government’s recently updated Climate Change Plan¹, agriculture needs to achieve emissions reductions of 31% by 2032 which will require for reductions to occur at a significantly faster rate than has been achieved to date and as is illustrated below.



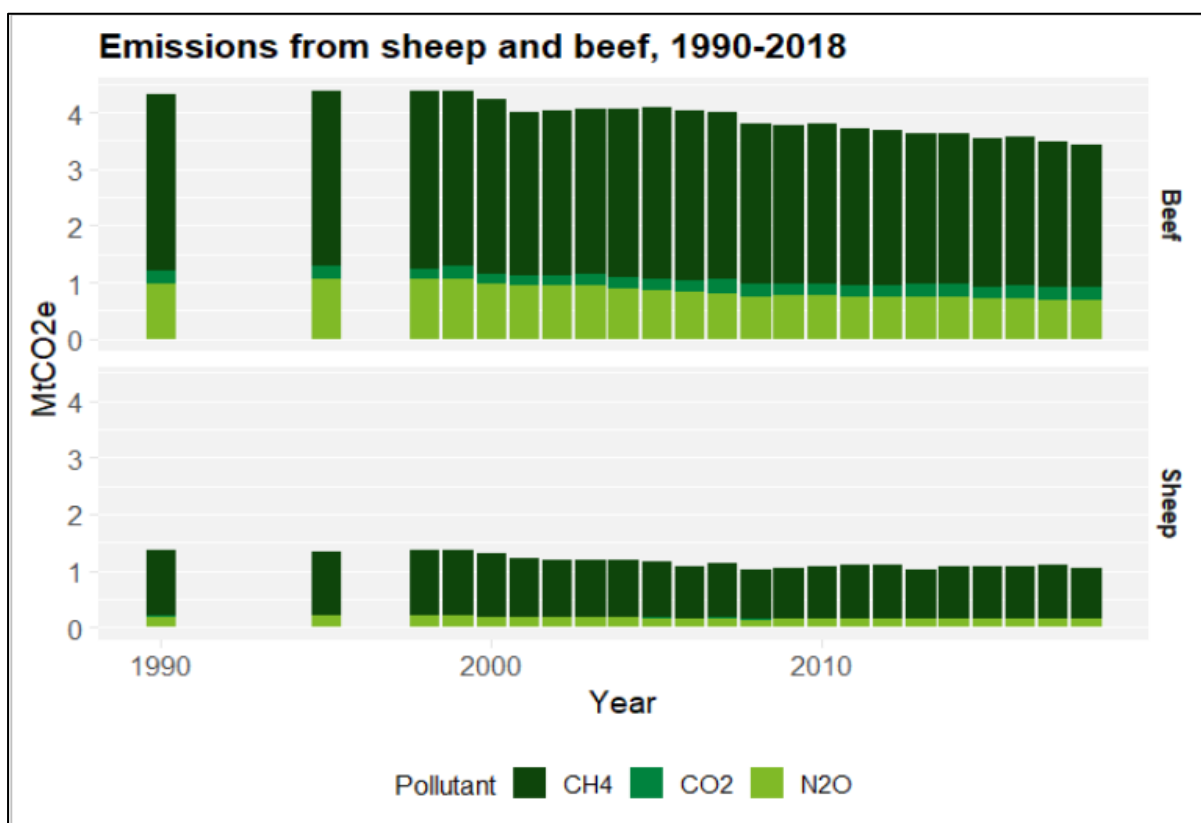
(Source: RESAS²)

¹ Available via following link: <https://www.gov.scot/publications/securing-green-recovery-path-net-zero-update-climate-change-plan-20182032/> (last accessed 23rd March 2021)

² RESAS (2021). *Evidence for the Hill, Upland & Crofting Farmer-Led Climate Change Group.*

Livestock carries the largest share of Scottish agricultural emissions and make up the single most significant agricultural activity across hill, upland and crofting systems which are typically situated within Scotland’s Less Favoured Areas (LFAs). Based on estimations by the RESAS institute that 72% and 88% of the national herd and flock respectively can be found on farms with at least some LFA land, LFA businesses contribute approximately 45% to total Scottish agricultural emissions.

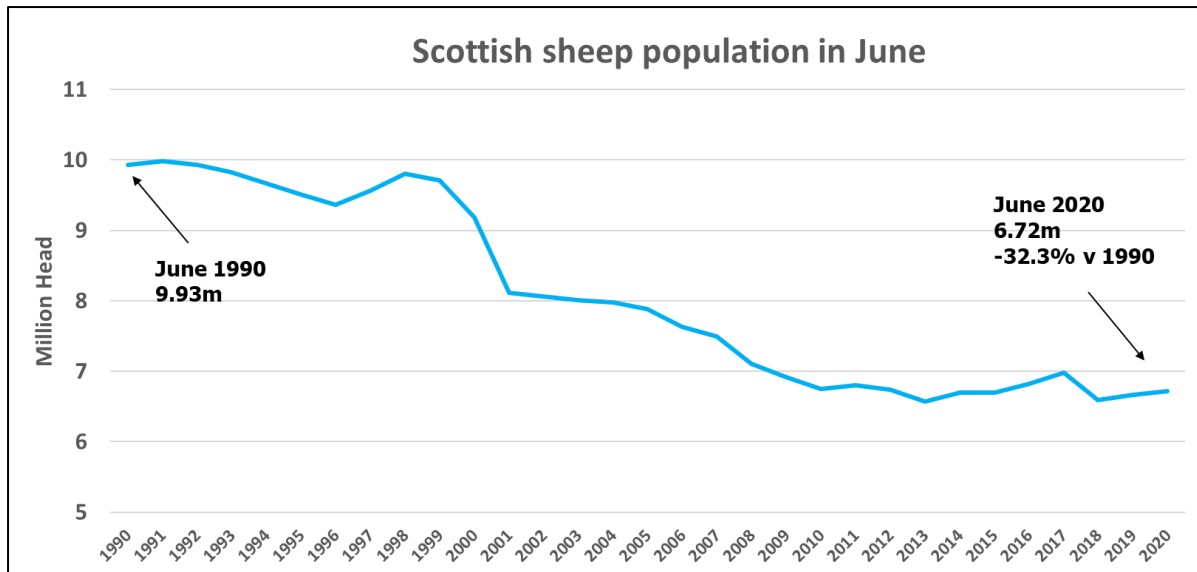
The following overview summarises how total emissions arising from the beef and sheep sector have changed since 1990, highlighting that the emissions from the national beef herd have been on a steady decline since 1990 which is largely caused by a reduction in total cattle numbers. The largest proportion of livestock emissions is carried by methane which is represented as dark green colour and which is typically the main contributor to livestock-related emissions as a result of enteric fermentation and manure.



(Source: RESAS³)

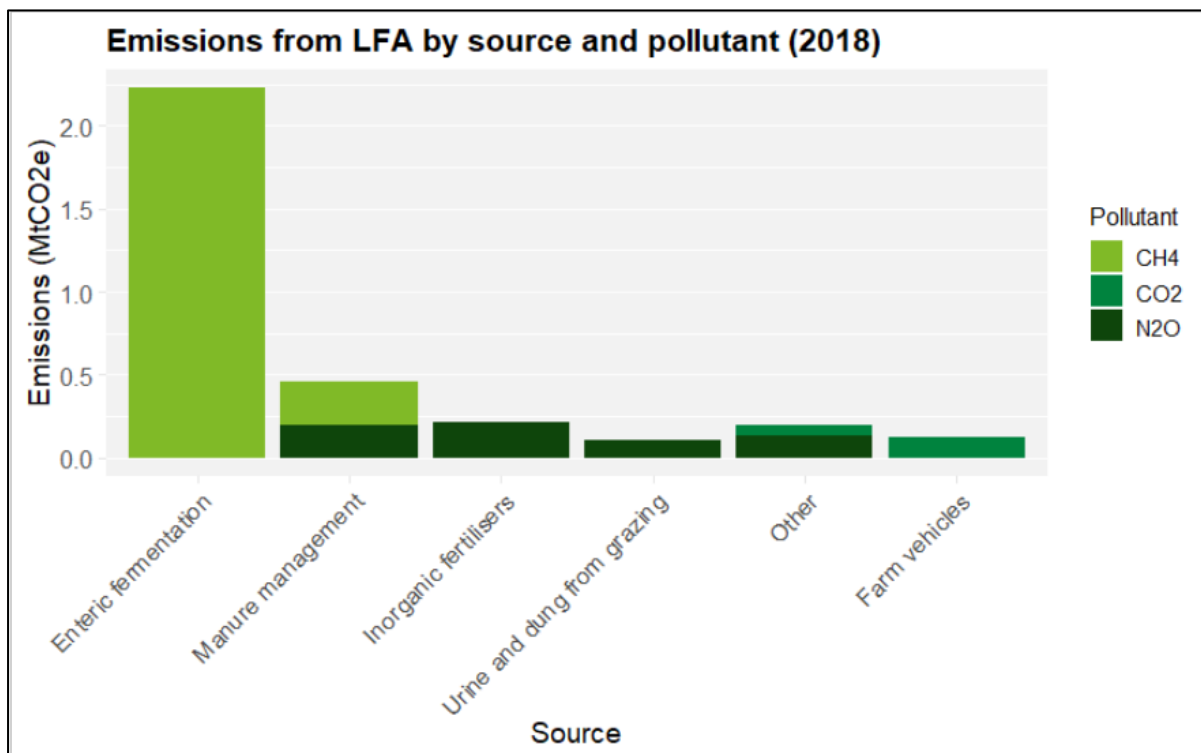
Sheep emissions have also declined somewhat which again is predominantly caused by falling sheep numbers as is illustrated below.

³ RESAS (2021). *Evidence for the Hill, Upland & Crofting Farmer-Led Climate Change Group.*



(Source: QMS using Defra data)

In terms of the emissions type, methane emissions from enteric fermentation, represented as light green colour, contributes by far the greatest share of emissions from LFA businesses as can be seen below and as would be expected given the fact that ruminant livestock dominates as the main agricultural activity amongst LFA holdings.



(Source: RESAS⁴)

Within an LFA livestock context, any production-based efficiency improvements that can be made by reducing the number of unproductive animals in the system and achieving greater enterprise input and resource utilisation will therefore be key to driving down livestock-related emissions.

⁴ RESAS (2021). Evidence for the Hill, Upland & Crofting Farmer-Led Climate Change Group.

In addition, important emissions reductions will also be achievable through better farmland and permanent habitat management, and this offers a key opportunity for upland and hill areas which contain a large proportion of permanent habitats and often less disturbed soils which hold vast amounts of carbon. The preservation of these existing carbon stocks along with sympathetic soil and soil health management to support additional atmospheric carbon drawdown will therefore be a second key area for reducing land-based emissions.

It is important to note at this stage that whilst Scottish Government has committed to meeting legally binding emissions reductions targets, which has led to the establishment of several farmer-led groups including the Hill, Upland and Crofting Group (HUCG), there is an equal need to address wider environmental issues including, in particular the loss of biodiversity. This has been recognised through the Scottish Biodiversity Strategy⁵ and heavily relies on suitable farm land and farm environment management, particularly on more extensive upland and hill farming and crofting units where a typically lower input system and greater reliance on natural processes can support a diverse range of key animal and plant species.

The measures and management strategies which are included within this paper, and which form part of the HUCG's recommendations based on initial findings, have been identified because of their potential to reduce net greenhouse gas emissions from the hill, upland and crofting sector, in this context being represented as LFA beef cattle and sheep.

Meeting Scotland's climate change and biodiversity targets will be achieved by focusing on the following three key outcomes as already discussed further above:

- ***To reduce the emissions intensity of LFA livestock systems by improving on-farm production and greenhouse gas efficiencies through better input and resource utilisation and a reduction in the number of unproductive animals within the system***
- ***To maintain and, where possible, enhance soil carbon storage, and reduce greenhouse gas emissions from farmland through better soil and grassland management both on cultivated soils and on permanent (grazed) habitats***
- ***To continue existing and, where possible, encourage further practices that deliver wider environmental outcomes including, in particular, biodiversity benefits***

This report represents the initial findings from a review carried out by the HUCG over the past 10 weeks which not only considered opportunities to drive down livestock-related emissions but reviewed agricultural land use within the context of wider land use systems and land use changes including peatland restoration and management, woodland creation and management, and deer management. These three areas were identified as key areas for consideration alongside agriculture due to the fact that they make up the most common land uses across hill and upland areas, and because there are distinct issues and opportunities associated with the relationship between these different land uses.

⁵ Further information available via following link: <https://www.gov.scot/publications/scottish-biodiversity-strategy-report-scottish-parliament-2014-2016/pages/0/> (last accessed 23rd March 2021)

Due to an extremely tight timescale and a large remit, this report does not include a literature review or discussion of the policy context relevant to the HUCG's recommendations. A shortage of time also meant that the HUCG was unable to quantify likely uptake of various emissions abatement measures or the actual emissions abatement potential of said measures.

Furthermore, the recommendations contained within this report only represent early findings from the work carried out to date, and does therefore not form a final set of proposals.

The HUCG therefore recommends that this report is used as a starting point to consider and outline the desired direction of travel with regards to the development of future agricultural policy.

The HUCG also recommends for Scottish Government to consider that the group may reconvene after the Scottish election period in order to continue its work and prepare a full and detailed set of recommendations in line with the remit it was given.





2. Terms of reference

Purpose

The Scottish Government has committed to take action on climate change with legally binding targets to reduce greenhouse gas emissions. It also has committed to contributing towards biodiversity targets. It is important that agricultural businesses are committed to, and supported where necessary, to improve their environmental performance, whilst continuing to produce quality food for the Scottish Food and Drink sector for domestic consumption as well as for export.

This Group will consider practical measures which will help the hill, upland and crofting sectors reduce greenhouse gas emissions through:

- improving efficiency, productivity and profitability of livestock and crops produced
- enhancing environmental benefits delivered by the sectors through identification of practical ways in which net greenhouse gas emissions can be reduced and biodiversity enhanced
- enhancing the sectors' contributions to wider sustainable land use, including the consideration of other productive or environmental opportunities (e.g. woodland expansion, peatland restoration, deer management, sporting management or considering approaches to creating more sustainable, localised/regionalised supply chains).

The group should consider the financial implications and deliverability of its proposals and consider the timespan over which any proposals should be implemented. In particular the Group should consider future arrangements for support for the Less Favoured Area. The Group may also consider how best to link future support to activity to ensure agricultural support in future is accessible to owner occupiers, tenants and landless keepers.

The group should consult widely taking advice from specialists and academics where necessary, as well as consulting with SG policy teams in relation to deliverability and complexity of measures proposed.

The group will focus on practical measures which can be implemented at croft, common grazing, farm and estate levels to reduce emissions. These should build on existing regulatory requirements and accepted good industry practice, and be compatible with profitability and biodiversity targets.

Remit

The Group will develop proposals for the sector taking account of improvements focussed on:

- sustainable livestock management
- carbon audits and actions
- impacts on running costs
- biodiversity
- soil improvement and health, especially peatland management
- woodland expansion
- energy use
- interaction with deer and sporting management
- potential for capital investment improvements
- deliverability and monitoring of measures
- supply chain improvements encouraging producer groups with the potential to improve market development
- Farm Assurance

The Group may also offer advice regards the costs of the necessary actions and how these might be met, with an estimate of the budgetary implications of any measures that might be introduced.

Group will provide a report to Scottish Ministers in Spring 2021 setting out its conclusions to feed into the Scottish Government's Climate Change Plan 2018-30 Update. The report should focus on how to reduce greenhouse gas emissions within the sector and recommendations on what will be required to deliver that.

Chair, Secretariat, Membership and Ways of Working

Group will be chaired by Martin Kennedy and Joyce Campbell and the Group's Secretariat will be provided by SASA/Scottish Government and potentially SEFARI.

The Group will include female and male representatives from across the sector.

All members of the Group will be required to register their interests at the first meeting.

The group members are:

- Andrew Barbour
- Eion Brown
- Iona Cameron
- Jen Craig
- Jamie Leslie
- Ross Lilley
- Lorraine Luescher
- Anson MacAuslan
- Mairi Mackenzie
- Donald Mackinnon
- Anne Maclellan
- Angus McFadyen
- Finlay McIntyre
- Pamela Nicol
- Kelvin Pate
- Kate Rowell
- Steven Sandison
- Claire Simonetta
- Steven Thomson
- Fergus Wood

Secretariat:

- Kirsten Beddows
- Michael O'Neill
- Julie Brown

The Group will take an evidence-based approach to its work; can co-opt the support of academics, industry bodies or others to aid its deliberations and will acknowledge the work of others, where appropriate.

While members are drawn from a range of interests and expertise from across the sector, their involvement is based on their experiences and views rather than representing the views of their organisations. Members will share relevant industry and/or skills related knowledge/expertise as appropriate and be expected to lead on specific actions where appropriate. In order to be transparent in taking forward work, membership and declared interests will be a matter of public record.

The Scottish Government will provide a secretariat to the meetings. While the group's discussions will be summarised and publicly available to ensure transparency, specific content will not be attributed to individual participants.

If a member has any conflict of interest on any matter and is present at a meeting at which the matter is the subject of consideration, the member should prior to any consideration of the matter, disclose the interest and the general nature thereof.



3. Vision for a future agricultural support system

The HUCG envisages a future income support framework which enables, encourages and recognises farming or crofting business that carry out good agricultural activity in such a way that delivers a wide range of public benefits, including:

- **The continued but efficient production of high quality, sustainable, healthy and nutritious food**
- **A thriving agricultural sector which provides employment opportunities for new entrants and the next generation, supports rural communities, and helps to sustain a wide range of (rural) subsidiary industries by maintaining critical mass**
- **Climate-friendly farming thanks to optimum production efficiencies, the use of low-carbon technology, and regenerative farmland management**
- **Enhanced biodiversity as a result of sustainable farm land and farm environment management to support key animal and plant species both at local farm level and at landscape scale by connecting habitats within and across farms and crofts where possible**
- **Wider environment benefits including improved water quality and flood management**
- **An attractive, diverse and well-maintained mosaic landscape to provide a range of public benefits including for amenity and wellbeing along with opportunities for tourism**
- **Integration with other important land uses so that multiple benefits may be generated by forming important synergies within Scottish land management**



4. Key messages

The following points outline some general comments that the HUCG wishes to put forward:

- Agricultural support payments going forward must be linked to the delivery of adequate agricultural activity.
- Previous and current support systems have distorted land values and artificially inflated or restricted the financial viability and competitiveness of different types of land uses and production systems. This has not only caused a competitive disadvantage for certain land-based industries, including upland and hill farming, but it is also creating significant barriers for new entrants to agriculture whilst creating challenges for existing tenant farmers and crofters wishing to remain within the industry. This has a direct impact on rural employment opportunities and rural communities and is already affecting the critical mass required to sustain many upstream and downstream subsidiary industries. The HUCG notes that agricultural support payments will likely have to continue on an area basis in order to be deemed an environmental rather than production payment, but it is absolutely crucial to link these payments to adequate agricultural activity carried out by the claimant.
- Regulation should always be preceded by a period of voluntary uptake. There are many excellent examples of Estates, farms and crofts that are willing and ready to improve their land management in line with environmental interests and best practice, and in many cases they have already taken the lead. These businesses must be given an opportunity to adjust their management system which can often be a multi-annual transition, and this needs to be recognised and reflected within any changes to policy. Thereafter, regulation provides an important tool to ensure that beneficial land management and land use systems are adopted more widely to deliver climate and environmental benefits and to ensure that potential impacts on neighbours and tenants from insufficient management or engagement are minimised.
- A focus on meeting climate targets should not come at a cost to management which specifically targets biodiversity. Many opportunities to benefit one also deliver outcomes for the other, but beyond that, care must be taken to carefully balance trade-offs between these equally important priorities.

- The HUCG stresses that whatever policy will be designed as basis for future agricultural support, that it must not be aimed at artificially restricting or culling livestock numbers in an attempt to gain quick wins with regards to emissions reductions on paper. A reduction in (ruminant) livestock would have far-reaching consequences that cannot yet be adequately captured on paper and within any inventories and modelling, and such a drastic move must therefore not happen. It should also be noted that ruminant livestock per se does not add to the total emissions, it merely forms part of the natural carbon cycle. Additional emissions do arise from livestock systems where added inputs are being supplied which rely on fossil fuel for instance. Methane emissions arising from natural ruminant livestock activities should therefore be considered within the context of the wider carbon cycle by taking a whole-systems approach rather than looking at different sources of emissions in isolation.
- Within the chapter on agriculture, the most recent Climate Change Plan Update for Scotland makes the following statements:

The trees planted in the years since 2011 will have matured and be sequestering carbon at scale. Productive timber harvesting will be followed by restocking to begin repeating the process, where appropriate. Farmers and crofters will have facilitated peatland restoration and management along with the growth of crops for biomass at scale.

As outlined in the LULUCF chapter, land use will provide green economic and employment opportunities, offer public health benefits, help to address rural depopulation and provide social benefits to communities across Scotland. We will have ensured that farmers and crofters are benefitting from these opportunities with new, additional sources of income and investment in these land use changes.

Whilst the HUCG does not object to or disagree with the above statements, it is important to note that within the national emissions inventory, these proposed achievements would not be recognised as an emissions reduction achieved by agriculture and their benefits would instead be attributed to other sectors including LULUCF and energy. The HUCG disagrees with the way in which different sectors within the emissions inventory are considered within silos when in reality they are all interlinked and interdependent. A management or land use change that is carried out by an agricultural business, including carbon sequestration opportunities, should be reflected within the agricultural emissions envelope, or else the emissions reductions achieved by agriculture are lost to the industry and the sector appears to not be sufficiently engaged and committed.

In addition, the HUCG is also concerned about the structure of carbon markets because the private sector assumes offset credits to sit with a third party, i.e. the financier, even though any issues that may arise would have to be rectified through remedial actions having to be taken by the risk taker, i.e. the farmer or land manager, at their own cost. There needs to be a better way of allocating some of the carbon credits back to the risk taker.

- Although the HUCG appreciates that carbon credit trading offers an attractive means to generate an additional income stream for landowners, it questions the concept and meaningfulness of cross-sector carbon credit trading given that the purchasing sector uses financial capital as a means to appear more climate friendly on paper without actually having to take action to reduce its own

emissions. As long as the agriculture and LULUCF sectors are deemed to be net emitter, any carbon credits generated from works and management changes within these sectors should be retained within and be used to offset their net emissions.

- Consideration should be given to front-loading payments across all support scheme to recognise the distinct socio-economic benefits associated with and challenges such as proportionately higher transaction costs faced by smaller units.
- The HUCG would like to see the current emissions modelling tool GWP100 replaced with the recently developed GWP* so that the atmospheric half-life of methane is captured more accurately. The HUCG notes that the decision to replace GWP100 with GWP* does not lie with Scottish Government but stresses the importance of industry feedback so that government can take this request to the appropriate bodies.
- In order to provide opportunities for crofters to adopt best practice with regards to improved livestock efficiencies and sustainable land management, and enable participation in future agricultural support schemes which will likely feature some form of baseline conditionality element, it is imperative that the challenges and limitations associated with decision making and management on common grazings are addressed and resolved, or else many active crofters that are genuinely trying to achieve outcomes may be put at a disadvantage and unable to access full levels of funding going forward.
- The HUCG proposes that budgets for different funding streams and schemes are reviewed in conjunction with each other on a regular basis to identify whether monies are being prioritised towards areas that show the greatest potential to deliver public benefits. This could, for example, include a review of the annual emissions from peatlands and the annual sequestration rates from new forestry projects, followed by a comparison and review of the budgets made available to both activities and the outcomes achieved. This approach should be used as basis for budgetary adjustments to ensure that budgets reflect priority areas requiring immediate focus.
- Farm carbon auditing tools must become more accurate to reflect the true climate efficiency of a business. This is of particular relevance for extensive upland and hill systems which usually appear to have a greater emissions intensity than their lowland counterparts because the latter are able to better target inputs and resources within a more controlled environment using machinery and infrastructure including housing facilities. Because the carbon cost of that infrastructure is not captured within carbon auditing tools, they typically tend to generate superior efficiency results to extensive systems. If presented without the aforementioned crucial context, carbon auditing results for different types of production systems could therefore potentially bear significant risks, especially where these results are wrongly used to argue for lesser support levels for hill and upland systems. There is also an issue in that businesses delivering a significant level of biodiversity benefits may not be able to be as 'efficient' in terms of input utilisation as a similar business focusing solely on production maximisation with little or no biodiversity enhancement management. Biodiversity outcomes should therefore be considered as an actual output that is generated by the business, or else these businesses look poorly both from a production performance and climate efficiency point of view.



5. Production-based efficiencies

Suckler beef and sheep enterprises form the most dominant types of agriculture amongst hill, upland and crofting businesses. A review on suckler beef emissions reductions has already been carried out by the farmer-led Suckler Beef Climate Group (SBCG) and is currently being taken forward by the SBCG Programme Board to develop and implement a meaningful scheme. For the purpose of its initial findings, the HUCG review therefore focused predominantly on the sheep sector although some recommendations are relevant to cattle as well. It should be noted that although a large proportion of the HUCG's remit covers upland and hill areas, the recommendations contained within this chapter are outlined within the context of the whole sheep sector and therefore apply to all types of sheep production systems including lowland, upland and hill farms and crofts that may be managed intensively, semi-intensively or extensively.

It should be noted that due to the wide remit that the group had to consider within a relatively short timescale, this section does not include a literature review of existing research, nor does it analyse or discuss current emission levels associated with different aspects of livestock / sheep production, or the likely emissions abatement potential of different recommendations. The literature was reviewed and discussed by group members to develop relevant recommendations, and an analysis of the extent to which different options may be adopted by the industry and the resulting potential to reduce overall and individual business emissions will be outlined at a later stage using the initial findings of this report.

Improving production-based efficiencies can be achieved by maintaining high animal health and welfare standards and by better targeting inputs and resources in order to match these to the specific requirements of an animal or crop. This can deliver climate and environmental outcomes by reducing the emissions intensity of a production system as a result of improved livestock performance that is not limited by underlying health issues and through reduced input wastage which can typically arise from an untimely or over-supply. Combined, these factors can also help to (significantly) reduce use of and reliance on agro-chemicals and antibiotics. Improving performance efficiencies through better animal health and input management can therefore not only deliver climate benefits by reducing enterprise net emissions and the emissions intensity of outputs, but it can also have distinct environmental benefits by driving down the use of and reliance on a range of animal health products which can have a negative impact on ecosystems and the wider biodiversity found within, not to mention issues associated with antibiotic resistance which is of particular concern with regards to the future effectiveness of antibiotics used in human medicine.

Sheep are an efficient converter of grass and have a fairly short breeding cycle which means that they respond well to any strategies that target breeding and grazing management in addition to maintaining good flock health.

Any future outcome-based support scheme should therefore endeavour to capture the following key areas of sheep production, making sure that they reflect different types of production systems across Scotland:

- Improve lambing and rearing percentages (by reducing mortality and barren ewe rates)
- Improve sheep health through disease prevention and targeted use of agro-chemicals
- Improve grassland and/or grazing management to optimise the quality and availability of grazing
- Improve overwintering systems and/or homegrown feed and fodder production to reduce reliance on purchased supplementary feed

The above focus areas should form the pathway to achieving production-based scheme outcomes and will enable businesses

- To improve production efficiencies and animal health by aiming for increased returns on inputs provided and a better utilisation of resources available, and to ultimately reduce input and resource wastage as a result
- To optimise production outputs by producing more and heavier lambs from a given resource base where this is feasible; this may include more kilogram of lamb reared per kilogram of breeding ewe, per hectare, and/or per unit of input
- To optimise the quality and quantity and improve overall management of homegrown grazed and conserved feeds in order to reduce the reliance on purchased supplementary feed where this is feasible

The HUCG recommends that any performance-based efficiency outcomes must be based on production optimisation and not maximisation so as not to encourage environmentally unsustainable management practices and increased use of inputs simply to increase outputs.

5.1. Breeding management

There are many different tools that are available to sheep farmers to improve the reproductive performance of their flock through general flock management and good animal husbandry, as well as through more targeted precision performance recording and genetic evaluation. Whatever outcome-based structure will be developed as part of an agricultural support scheme going forward, it is important to ensure that the outcomes are closely aligned with the concept of good breeding management and stockmanship. A multi-trait selection approach for performance optimisation will be key to achieving the desirable outcomes given that a singular focus on individual traits for output maximisation will risk unintended consequences in the form of a loss of desirable traits or subconscious selection for undesirable traits.

Primary breeding goals

At a basic level, a ewe should be able to successfully rear a lamb on an annual basis to the point where that lamb can be either sold or transferred into the breeding flock as replacement stock. This means that the primary aim of good flock management is not necessarily to increase the lambing and rearing percentage but to decrease the barren percentage in a first instance. This may sound very simple and obvious, but unless the basics of good flock management are in order, there is little justification to devote attention to specific management tools such as genomic profiling.

Therefore, primary focus should be on two basic key performance indicators:

- Low mortality rate
- Low barren rate

Because both these indexes can be heavily influenced by the weather and wider environmental challenges including predation, scheme design would have to be developed in such a way that can capture these challenges. Within the context of breeding management, the mortality rate is being discussed on the basis of underlying genetic issues rather than animal health.

Lowering the mortality rate is difficult where blackloss⁶ occurs due to the unknown factors at play in such typically extensive systems. This should however not detract from focusing on the culling of problem animals where this is possible, i.e. in semi-intensive and intensive systems and on extensive units where ewes are lambed inside or in fields. Targeted culling should include any ewe with lambing or mothering issues not caused by external factors along with sires causing problems such as heavy birth weights any bloodlines with recurring problems. Besides the obvious animal welfare benefits achieved by removing problem animals from the breeding flock, a strict culling regime can help to increase ewe longevity and improve production efficiencies by reducing the extent to which inputs and resources have to be devoted to dealing with preventable incidents.

The HUCG therefore recommends that the reduction of breeding-related mortalities through the adoption of a strict culling regime of problem animals should form a key focus of a future support scheme, albeit that this will not be practical for the most extensive systems.

⁶ Blackloss refers to the unexplained disappearance of livestock and is a particular issue within the context of predators

With regards to a low barren rate, a practical way to avoid issues associated with system-specific production limitations would be to cull any ewes and gimmers identified as barren at scanning to ensure that inputs and resources are not unnecessarily wasted on unproductive breeding stock.

Anecdotal evidence suggests that scanning is common practice within semi-intensive and intensive (lowland) enterprises but not necessarily carried out by every extensive (hill) unit, and this is therefore a distinct area of opportunity to encourage every sheep farmer to cull barren females on the basis of scanning results.

However, the HUCG notes that there are sometimes practical and logistical issues associated with scanning hill ewes, especially where sheep gathering can take several days or weeks and/or the farm does not have sufficient infrastructure to be able to hold all the ewes. In remote areas in particular, access to a scanning contractor can be challenging at best and the ability to arrange several visits to scan different management groups as they are being gathered off the hill may therefore not be possible.

In addition, it is also important to consider weather as often being the key factor impacting on ewe production in hill systems.

The HUCG therefore recommends that scanning is considered as a simple but very effective and cost-efficient tool to improve production efficiencies, but stresses that consideration will need to be given to supporting or recognising businesses that struggle to scan all their ewes due to logistical and/or remoteness issues.

Secondary breeding goals

Moving on from the primary focus of producing live animals, secondary focus should be on the production of offspring in line with traits that are of economic importance and which are typically closely linked to a lower emissions intensity. This is achieved by optimising the weight of lamb produced per ewe, i.e. the wean weight ratio, but has to be considered within the context of a given input and resource base to ensure that superior performance is achieved from superior genetics and not simply by increasing inputs or ewe size. In extensive hill systems where a ewe may not be able to rear more than one lamb per crop, this will typically involve the rearing of a heavier lamb in relation to the dam's liveweight where as in semi-intensive and intensive systems, this can also be achieved via increased prolificacy to produce more lambs per ewe per season.

It is however important to note that weight-based performance metrics should not be used as an absolute tool to determine production performances as this does not take into account any environmental production limitations and/or the level of inputs supplied to achieve a certain performance. It is therefore important to consider weigh-based KPIs within the context of input levels and the availability of infrastructure to better target inputs and reduce the influence of external environmental impacts.

The HUCG recommends that weight-based performance metrics, possibly including those relating to prolificacy, should be included as part of a wider selection of KPIs to identify performance efficiencies and better target breeding management via multi-trait selection strategy, but that any such tools and indicators should be considered within the context of environmental limitations, input levels and resource availabilities.

Higher-level breeding goals

At a higher level, there are many opportunities to take advantage of detailed performance recording and data capture using precision livestock technology. This includes DNA-based genetic evaluation which can in itself provide useful information on the likely breeding potential of individual animals, or can be used together with phenotype data to more accurately identify the likely performance of different animals within the context of a given environment.

The HUCG recommends that genetic profiling should be considered to be more widely used for the identification of superior and inferior animals in order to accelerate genetic improvements across the flock. This needs to be considered within the context of different production systems, and (initial) focus may therefore need to be put on genetic evaluation of (purchased) breeding males. Within more intensive systems, this could be extended to complement existing parentage/progeny recording with genetic data to better identify superior bloodlines.

Whilst the use of such genetic information can prove to be extremely valuable to businesses in terms of financial enterprise performance and improved production outputs, it can also deliver potentially significant environmental benefits by accelerating genetic improvement of individual animals and the flock as a whole. Furthermore, specific traits that can be evaluated have a direct beneficial environmental impact and this specifically includes the feed conversion rate which expresses the extent to which an animal can utilise inputs efficiently to produce outputs.

Overall, there is increasing evidence to suggest that the genetic makeup of an individual animal can potentially significantly influence the level of methane output produced by that animal, and genetically superior animals appear to have lower levels of methane output than genetically inferior animals.

The HUCG recommends that more research should be undertaken into the concept of naturally low methane emitters. This should be investigated within the context of wider traits of environmental and economic importance to avoid unintended consequence of focusing on one specific trait, and such a review should also explore whether there is a potential positive or negative correlation with other traits that can be identified more easily via phenotype data so that the selection of animals with a naturally lower level of methane output can be considered within a practical farm and croft environment and form part of the general breeding and culling strategy.

Regardless of the chosen approach to defining breeding-based scheme outcomes, the HUCG stresses that production and output-driven performance indexes must not be prioritised over, or directly compromise or disregard the genetic stayability and survivability (or hardiness) of upland and hill breeds. These are crucial traits and are often undervalued because many genetic breeding programmes are much more applicable to more intensive systems where the focus is on increasing outputs within a relatively controlled environment.

In a hill environment, ewes have to first and foremost be able to survive in a challenging environment and cope with extreme weather events and harsh conditions. This means that her ability to produce offspring can be severely constrained compared to her more intensively managed counterpart, and sometimes this leads to a wrong conclusion that she is 'less efficient' or 'less productive'. Attempting to change her productive performance through singular focus on those ewes with higher outputs can have far-reaching unintended consequences by subconsciously selecting for ewes that mobilise a greater amount of their energy and reserves for production. This can eventually lead to a deterioration of the ewe's genetic ability to retain sufficient reserves for herself which reduces her resilience and can increase the risk of metabolic disorders and other nutritional imbalances.

The HUCG therefore recommends that stayability and survivability are considered as part of any scheme outcomes relating to breeding management.



5.2. Health and welfare management

Animal health is closely correlated to the ability of an animal to thrive and be productive, and therefore significantly influences the emissions intensity and overall net emissions of a production system, the latter being affected because unthrifty and poorly animals generally require a proportionately higher level of inputs to sustain themselves and achieve some level of production.

Climate and wider environmental benefits can be delivered from targeting different aspects of general animal health management, including the following key areas which are typically discussed within an animal health and welfare plan:

- Animal health and welfare planning
- Preventative measures including biosecurity and livestock isolation
- (Routine) treatments and disease control
- Monitoring and record keeping

Regular animal health and welfare planning forms a key aspect of good livestock husbandry and should form the basis of any health management and decision-making by outlining enterprise and location specific preventative and control strategies and identify priority actions that need to be taken by a business to address any existing issues or manage risks.

The HUCG therefore supports the proposal of the SBCG to introduce animal health and welfare planning as a baseline requirement of a future scheme but stresses that this should not be a simple form-filling exercise but instead a meaningful aspect of general business and enterprise planning which is implemented.

In addition to the prevention and control of potential or actual health issues, there is an opportunity to further reduce the environmental impact associated with health management by better targeting animal health products including, in particular, anthelmintics and antibiotics.

Anthelmintics are typically used as part of a routine treatment regime forming part of an annual health plan and should ideally consist of different active ingredients being used at different times throughout the year to target parasites at different stages of their lifecycle. Anthelmintics can negatively impact on the local biodiversity, particularly on beetles and insects that rely on dung as (one of) their food source, and it is therefore imperative that they are properly targeted and only used when necessary.

Administration rates depend on the liveweight of the animal and anthelmintics are therefore usually administered using a rate that is sufficient to treat the estimated heaviest animal within the treatment group. There are some issues associated with this strategy which can have animal health and wider environmental implications.

Firstly, estimating the liveweight of different animals can be challenging and anecdotal evidence suggests that the weight of livestock is often underestimated when based solely on visual appraisal. Administering an insufficient dosage rate can be problematic as this can accelerate the development of parasitic resistance to the active ingredient contained within the product.

Secondly, administering health products on the basis of the estimated heaviest naturally leads to input wastage across lighter animals.

Thirdly, a set routine treatment strategy does not consider any weather-related fluctuations to parasitic population levels and activity. This means that some routine treatments being administered may not be necessary and vice versa.

Better targeted use of anthelmintics including a potential overall reduction in anthelmintic usage can be achieved by:

- Carrying out faecal egg count (FEC) analysis before a routine treatment is due in order to identify whether the parasitic burden is sufficiently significant to require treatment
- Using weighing equipment, potentially along with an automatically calibrated drench gun, to administer health products at the correct dose on the basis of individual liveweights for each animal

Antibiotic use has also been identified as an area where potential gains can be made. Antibiotic use can result in significantly increased methane emissions from the dung of the animal that is undergoing treatment and can negatively impact on dung beetles. Good animal health management helps to maintain a low reliance on antibiotics and should always be given priority, but where antibiotics are needed to address an issue, it is important to ensure that they are properly used and targeted. The animal health and welfare plan should to a certain extent help to guide farmers and crofters on different types of antibiotics and when they should be used. In addition, it is crucial to ensure that antibiotics are administered at the correct rate and, as already discussed above, regular weighing can help to ensure that the correct administration rate is chosen.

The HUCG also notes that the above best practice methods could be further complemented by the adoption of the 'targeted selective treatment' (TST) strategy which uses an algorithm to predict expected performance levels. Any animals that have failed to reach a minimum performance level are treated as their performance may be held back by parasitic presence. Various trials have shown significant reductions in the use of anthelmintics and improved overall animal performance. TST is still in the early stages of development and is not currently available commercially. It is also likely that training along with some (initial) support will be required once a TST tool becomes commercially available in order to ensure that it is being used correctly.

The HUCG recommends that a future support scheme should include an animal health option on responsible use of anthelmintics and antibiotics to encourage large-scale uptake of best practice methods including FEC analysis prior to routine treatments and the use of weighing and precision application equipment to administer accurate dosage rates.

The HUCG also recommends that further research is carried out to accelerate the development of a commercially available TST tool, and that uptake of this tool is encouraged through the provision of training and support.

Sheep diseases and health schemes

The HUCG recognises that there is a likely need for a future support scheme to include management options or actions to address the issue of various sheep diseases as these can significantly impact on animal health and welfare and cause poor performance efficiencies.

The following diseases should be considered for individual/specific management, but further discussion is required to determine how significant their impact is on productivity, efficiency and GHG emissions of sheep systems, and how feasible detection, control/treatment, and prevention is:

- Parasitic gastroenteritis (PGE)
- Maedi Visna (MV)
- Enzootic Abortion of Ewes (EAE) – this may potentially include accreditation through the Highlands and Islands Sheep Health Scheme (HISHA)
- Scrapie
- Caseous Lymphadenitis (CLA)
- Johne's Disease
- Ovine pulmonary adenocarcinoma (OPA), also known as Jaagsiekte
- Sheep scab

The HUCG notes that there are distinct challenges associated with the prevention, detection and control of some diseases, and that any disease control is very difficult to achieve in extensive flocks that graze on hills with open marches and where they can mix with neighbouring sheep. It is nonetheless imperative that every step is taken to try and bring diseases under control as much as is realistically feasible.

The HUCG therefore recommends that greater focus is put towards the prevention, detection and control of livestock diseases as part of a future support scheme or government-run health scheme. In order to ensure that such an undertaking is effective, a possible approach may involve the provision of suitable incentives for early participation before the required actions as part of such a health scheme become regulated.

Other health-related comments

Cattle health features strongly within the SBCG's proposals and the HUCG supports any efforts being made as part of a future scheme to dedicate a greater focus on livestock health in general as this can potentially generate the greatest improvements to production efficiencies where underlying health and welfare issues are limiting an animal's ability to thrive and utilise inputs for production. Scottish Government's BVD Eradication Scheme is an excellent example to demonstrate that national health programmes are achievable and can deliver benefits, and the group therefore supports any introduction of wider health schemes where these can be implemented in a practical manner.

5.3. Sheep nutrition and grazing management

The vast majority of Scottish sheep enterprises rely heavily and sometimes entirely on grass and other grazed forages although some systems may have a proportionately greater use of supplementary feeding. Good grassland and grazing management therefore forms a core aspect of efficient sheep production and should be captured as part of an outcome-based scheme. The resulting improved production efficiencies not only benefit the climate through a reduced emissions intensity but also because grazing management can provide a key tool to maintain particularly permanent habitats in good condition for wider biodiversity benefits.

The key focus areas to use grazing as a means for improved production efficiencies include:

- Improved in-by grazing management to optimise sward productivity through rotational grazing systems which include temporary grazing breaks
- Outwintering systems incl. deferred grazing or in-situ grazing of alternative fodder and forage crops to reduce reliance on supplementary feeding
- Homegrown feed and forage production to reduce reliance on purchased feed

The HUCG notes that grazing systems across Scotland are very diverse and influenced by a wide range of enterprise-specific and environmental factors. It will therefore be extremely challenging for a future support scheme to define an outcome which is capable of combining these different systems into one overarching aim because there is no one grazing strategy that is superior to others in terms of its likely benefits for the climate and wider environment.

Attempting to design any scheme outcomes concerning grazing management in such a way that requires a general action to be carried out would have also been deemed problematic by the HUCG. For example, a requirement to maintain a grazing diary, observe regular resting periods at certain intervals throughout the year or maintain swards at a minimum height could prove difficult to implement effectively, especially within the context of extensive systems where the weather can significantly impact the ability of businesses to adhere to specific grazing requirements, and because wild herbivores can potentially significantly impact on a grazing strategy.

Within the context of production-based efficiencies and based on the above, the HUCG has been unable to finalise its review within the given timescale and is therefore unable to provide a recommendation at this stage. However, the group stresses that grazing management arguably provides the most important tool for delivering environmental and biodiversity benefits across permanent habitats and cultivated fields. Such benefits can be achieved by observing optimum stocking densities to maintain the vegetation in good condition, alongside temporary stock reductions or exclusions during the flowering season or bird breeding and nesting season, as well as during the winter season when fragile habitats are more susceptible to overgrazing and/or poaching damage.

The HUCG therefore supports the proposal of the SBCG to introduce a biodiversity audit and environmental enhancement plan as a baseline requirement of a future scheme to ensure that simple but targeted grazing strategies are put in place to deliver a wide range of environmental outcomes for the benefit of the local biodiversity in particular but also a wide range of habitats, field margins, soil health and water quality.

The HUCG stresses that the use of grazed livestock as a biodiversity and environmental management tool is a particularly important aspect of continued sustainable land use going forward because many ecosystems rely on the integration of grazing animals. Sheep offer an extremely valuable means to carry out targeted grazing for environmental purposes on sites that are difficult to access by larger herbivores or on habitats that may be unable to support heavier animals (at certain times of the year). Cattle on the other hand are equally as important for conservation grazing aimed at environmental enhancement due to their less selective foraging habit.

The HUCG therefore strongly recommends that livestock grazing both through sheep and cattle is recognised for the important environmental benefits it delivers, and that this is reflected both within a future agricultural support scheme but also across wider environmental and climate schemes where the integration of targeted livestock activity with other land uses can enhance the benefits and outcomes that can be gained from such schemes.

Feed rationing

In addition to grassland and grazing management, it is important to note that accurate feed rationing for housed sheep and other systems relying on supplementary feeding is crucial to ensure that production demands are met and can therefore help to reduce the enterprise emissions intensity. Overall net reductions may also be achieved where better targeted feed rationing can minimise input wastage. Accurate feed budgeting relies on the use of known parameters where possible and although the proportionate level of supplementary feed including conserved forages typically is typically much lower in sheep systems than is the case in cattle enterprises, basing rations on feed values available from the feed supplier and from forage analysis can help to ensure that livestock performance is supported and optimised.

The HUCG therefore supports the proposal of the SBCG to introduce forage analysis as a baseline requirement of a future scheme to better target feed inputs on the basis of known values but stresses that this requirement should not apply to businesses with a relatively low reliance on conserved forages and smallholders who purchase small quantities of forages at a time due to storage limitations as the benefits from analysing such small batches would not justify the expense of the analysis.

Mineral supplementation and feed additives

Mineral and trace element supplementation forms an important part of many systems to make up the shortfall in key nutrients from grazed and conserved forages. This is a vital management tool to ensure that livestock does not suffer from any deficiencies which can not only limit the productive ability of an animal by affecting reproductive, growth and/or development performance but can also severely compromise the health and welfare of livestock. Often such supplementation is provided on the basis of a routine management

program and may not necessarily reflect a deficiency that has been identified through testing. This can result in an actual deficiency remaining unresolved whilst an oversupply of a trace element that is already readily available within the diet for instance may cause (further) production limitations. In both cases, this leads to an increased emissions intensity through poorer performance and input wastage, and can negatively impact on animal welfare.

The HUCG therefore proposes that consideration should be given as part of a future support scheme to encourage better targeted use of mineral and trace element supplementations where there is an actual deficiency.

With regards to supplementation, it is worth mentioning methane inhibiting feed additives which, according to various studies and trials, show promising results with regards to their ability to reduce methane outputs from ruminant livestock systems, and they may therefore offer the most significant solution to achieve immediate methane reductions from enteric fermentation. It should be noted that they are a relatively recent development and are not currently captured within the national emissions inventory. Unfortunately methane inhibitors are not yet available in a form that can be used within extensive systems and this has been identified as a major challenge for widespread uptake across Scottish livestock systems.

The HUCG recommends that further studies are carried out to provide the evidence base that is necessary to update the emissions inventory so that the benefits of methane inhibitors may be captured at national level and reflected within emissions reductions achieved within the agricultural sector. The group also recommends that further research is needed to develop a means by which methane inhibitors can be supplied to livestock in extensive systems and to consider in particular the feasibility, safety and effectiveness of a methane inhibiting rumen bolus as boluses form the most practical way in which supplements can be provided to livestock in extensive systems.

5.4. Soil health and nutrient management

Soil health and nutrient management are not sector-specific and have, within the context of cultivated soils, been covered in detail as part of the SBCG's final report that was submitted to Scottish Government in late 2020. The proposals within the report largely reflect many of the discussions that the HUCG has had over the recent weeks in terms of cultivated farmland management, and the HUCG therefore does not deem it necessary to submit a separate review to cover the same subjects.

With regards to the baseline requirements of a future scheme, the HUCG supports the proposal of the SBCG to introduce conditional soil and manure analysis which has to be used to better target nutrients as part of a nutrient management plan, but stresses that this requirement should not apply to businesses with relatively low levels of manure produced as the benefits from analysing such small quantities would not justify the expense of the analysis.

With regards to any management options or outcomes forming part of a future scheme, the HUCG supports the inclusion or consideration of the following key aspects of soil health preservation and good nutrient management as part of farmland management typically taking place on cultivated soils:

- Correcting soil acidity
- Increasing soil organic matter
- Minimising soil disturbance
- Maintaining a ground cover
- Maintaining a living root system
- Establishing and supporting sward diversity
- Utilising alternative sources of nutrients including manure and legumes to reduce the reliance on synthetic fertilisers where this is possible
- Improving organic and inorganic N use efficiency through better (storage, handling and) application methods

In addition to the above recommendations for maintaining and/or enhancing soil health on cultivated soils, it is important to note that soil health management varies somewhat within permanent habitats including permanent pasture, where the focus should be on adopting low input, and therefore low impact, management measures to restore natural soil and vegetation ecology. This ultimately helps to reduce emissions, can capture additional carbon, and delivers wider biodiversity benefits.

5.5. Other management options

It is apparent from the above discussion and the wider review of opportunities to improve production-based flock efficiencies that the options available to a sheep enterprise are typically heavily dependent on there being some in-bye land or housing available at key stages of production. This is dictated by the fact that it is more difficult to monitor sheep to the same extent within an open hill environment, and it is therefore important to consider options that are applicable to hill units where there is no in-bye ground available so that they are not dismissed or restricted in their ability to participate in a future support scheme and be recognised for the outcomes they (could) deliver. There is an opportunity to consider the provision of support for enhanced shepherding in more extensive systems, not only to identify individual animal performance within a hill flock but also to help manage hill grazing more sensitively around biodiversity and climate objectives, namely by recognising and rewarding agricultural activity that delivers environmental benefits. Support for extra shepherding is already being trialled as part of the Sea Eagle Management Scheme monitor farms which are facilitated by NatureScot, and the inclusion of enhanced shepherding as part of a future agricultural support scheme could deliver a wide range of public outcomes including crucial socio-economic benefits by creating employment opportunities for new and young entrants wishing to enter the industry. This in turn contributes to rural communities and can also help to ensure that the important shepherding skills that are specifically required for upland and hill flocks can be passed on to the next generation.

5.6. Further considerations

Depending on the type of quantitative data that will be required to measure business progress, it is important to note that absolute figures with regards to livestock numbers may not be a practical means by which to identify outputs and efficiencies given that there is a wide range in animal size between different livestock breeds and production systems. Any area-based performance metrics deemed necessary as part of the scheme, e.g. in relation to optimum stocking densities on fragile habitats, should therefore use the total liveweight per hectare rather than livestock units or animal numbers per hectare.

When attempting to design an outcome-based scheme, a lot of consideration will need to be given to carefully designing such outcomes to ensure that they are achievable by different production systems, and to avoid unintended consequences that can arise from focusing on individual traits at the cost of other important characteristics. For example, focusing on absolute weaning weights or growth rates may favour more intensive systems and encourage a heavier reliance on inputs in order to achieve these targets, and the latter would not necessarily lead to a reduced emissions intensity. Single-trait focus, particularly on weight outputs, can also be dangerous when not considered within the context of ease of lambing for instance as the resulting welfare, survivability and stayability of the ewe may be severely compromised as a result of a difficult lambing.

It therefore follows that:

- Scheme outcomes must not be outlined by single-trait indicators but should instead be based on multi-trait selection indexes and, where possible, attempt to capture the whole-life performance of an animal rather than different production and performance aspects in isolation

- Any outcome-based approach to assessing flock production efficiencies should be based on performance metrics which can consider and capture the inherent differences and challenges between different (types of) production systems as a result of the impact of environmental factors. Production-based outcomes for sheep enterprises may therefore need to be designed to specifically target different production categories, for example
 - Non-LFA
 - LFA Standard
 - LFA Fragile
 - LFA Very Fragile

It should be noted that any sheep-related outcome-based payment approach for improved production efficiencies will be difficult to implement with sufficient opportunity for verification by RPID due to the absence of a sufficiently robust central dataset for sheep numbers across Scotland and within individual businesses. The sheep inventory on ScotEID along with data submitted via Agricultural Census and Single Application Form (SAF) provides an important starting point to capturing sheep numbers at key stages and changes arising from movements, but numbers fluctuate significantly throughout the year and many extensive hill enterprises may not have a full lamb count in time for the Census survey. There is however a notable delay in obtaining lambing and rearing data given that legal requirements allow for individual animal identification to occur when lambs are already several months old.

There are opportunities to align continuous flock records which have to be maintained by farming businesses for cross-compliance purposes more closely with the ScotEID holding register, especially because the ScotEID database offers an option to enter blackloss numbers. Some farm and livestock recording software can already be linked to ScotEID to submit birth, death and movement records, and ongoing uptake of precision sheep recording equipment to move from a flock-based recording system to individual animal-based record keeping may offer additional opportunities to better track up-to-date livestock numbers.

This not only makes verification of animal numbers present on the farm at key points of the year extremely difficult without an inspection involving a full sheep count, but it also means that any changes in sheep numbers and to patterns of animals moving through the system cannot be immediately reflected within the national emissions inventory.



6. Peatland restoration and management

Peatlands undoubtedly form one of Scotland's most precious and fragile habitats and cover a significant proportion of Scotland's total landmass⁷. They host a wide range of important wildlife and can play a key role for water quality and flood management. Most importantly, they are of particular relevance in a climate context because the peaty soil contains a high proportion of carbon and therefore forms the most significant terrestrial habitat type for the capture and long-term storage of carbon.

Although peatlands provide an opportunity to capture and hold vast amounts of carbon, large areas of peatland across Scotland are degraded as a result of historical land management practices and land uses. This has resulted in Scotland's peatlands currently being a net source of carbon emissions. An estimated 6 to 10Mt of carbon being released on an annual basis from peatlands is due to be added to the LULUCF sector within Scotland's national emissions inventory next year.

The HUCG notes that ongoing initiatives such as NatureScot's Peatland Action have already helped to promote the importance of restoring degraded peatlands and facilitate the provision of public funding to carry out restoration works. The group also notes that Scottish Government committed to making available £250m for peatland restoration projects across Scotland over the next ten years up to 2030 in recognition of the need to stop significant emissions occurring from degraded peatlands.

The HUCG recognises that upland and hill farming and crofting systems have an important role to play when it comes to protecting peatlands and believes that peatland protection and integration with agricultural land use can offer a mutually beneficial opportunity going forward.

The following points outline the group's position and recommendations with regards to ongoing and future peatland restoration and management within the context of climate, environment and wider land use interests:

- The restoration of degraded peatlands should remain key in an attempt to reduce the significant soil carbon losses that are currently occurring. The group notes that current progress is partly limited due to a shortfall in contractor availability which is an area of great concern. The 10-year funding commitment from Scottish Government is therefore welcome as this should provide the necessary reassurance to potential contractors that

⁷ Further information available via: <https://soils.environment.gov.scot/resources/peatland-restoration/> (last accessed 19th March 2021)

they can invest in machinery, equipment and training to set up a viable and longer-term enterprise. Going forward, the group stresses that it is important that depending on budget availability and the need for the continued provision of public funding for peatland restoration beyond 2030, government should announce any further (multi-annual) funding commitments as early as possible to enable existing and potential contractors to plan ahead and (continue to) invest with confidence.

- The HUCG notes that some concerns have been raised amongst group members and within the industry with regards to the current ability for smaller Estates and/or peatland restoration projects to be able to access public funding, and whether preference is initially being given to larger-scale applications that are submitted by larger Estates and landowners. The HUCG has not been able to conduct an in-depth review to identify whether this is the case, but whilst the group recognises that there is a clear need to restore as much of our degraded peatlands as possible and as quickly as possible, it wishes to highlight that it is absolutely crucial to ensure that smaller projects are not put at a competitive disadvantage due to their lesser scale as this could have severe unintended consequences going forward if policy is to be introduced that will provide support to land managers on the basis of achieving actual outcomes. The group notes that the peatland restoration scheme is not competitive per se but because annual budgets are limited, this means that some projects could potentially be lined up but not yet able to take place. In a worst case scenario, any smaller Estates and farming or crofting units could therefore be unable to (initially) access monies through a future outcome-based support scheme because their ability to achieve the necessary outcomes has been held back. Although it is likely that funding will increasingly be provided from the private sector over the coming years, consideration should therefore be given, depending on spending abilities of Scottish Government within annual budget commitments and restrictions, to bringing some of the £250m budget allocated to peatland restoration forward where the total value of applications in any one year exceeds the current annual budget of £25m spend for restoration projects. This will need to be closely aligned with a strategy, as previously mentioned, which gives individuals the confidence to set up a contracting business to carry out peatland restoration works
- In order to protect the integrity of and vast carbon stocks within peatlands and ensure that they remain unchanged as a wetland habitat, the establishment of forestry through planting on peatlands of any depth (including shallow peatland) should not be permitted. Although native natural regeneration on shallow peat is not deemed an issue, consideration should be given to putting a mechanism in place whereby land owners and managers should have to take active steps to prevent natural regeneration of scrub as a result of under-grazing on certain depths of peatlands. Natural regeneration can pose a particular issue where this occurs from a nearby non-native planted woodland due to its potential impact on local biodiversity interests and should therefore be controlled.
- Consideration should also be given to extending peatland restoration schemes and initiatives to include the provision of adequate levels of funding to remove woodland plantations that are sited on peatland.

- The HUCG notes that there is an increasing interest in using private sector intervention towards peatland restoration projects in return for carbon credits arising from such projects. In addition to public funding being made available by government, this provides a distinct opportunity to increase the rate at which peatland restoration could take place over the coming years, but some concerns have been voiced over the benefits of carbon credits being lost to the LULUCF (and agricultural) sectors even though these sectors are still classed as net emitters. Whilst the HUCG recognises the importance of attracting private investment for public goods projects and supports the continuation of such investment, it is important to recognise that there is an argument for using carbon credits within the land-based sectors where they are generated to reflect the true net emissions from a given source, or else there is a risk that these land-based sectors fail to meet their targets on paper even though the emissions reductions are in reality achieved by the sectors and not the purchaser of the carbon credits. In a worst case scenario, the LULUCF and agriculture sectors could become a focus point for government intervention through regulation in an attempt to ensure that targets are met on paper, and this would be both counterproductive and ineffective when these sectors may in actual fact already have contributed significantly towards an overall reduction in national net emissions

- The HUCG notes that carbon is traded on the basis of estimated 'new' carbon being sequestered through the establishment of woodland or restoration of peatland rather than being based on existing stock. However, there has been some general mention about possibly introducing a mechanism to enable land owners (and land managers?) to trigger carbon credits for existing (soil) carbon stocks in peatlands and woodlands. This is unlikely to happen but raises distinct concerns about the practicalities associated with allocating the payment and liabilities between a landowner and any previous or current tenant as it is realistically impossible to establish to what extent any involvement from the landowner and historic activity from the land manager (farmer or crofter) may have enhanced, reduced or maintained carbon stocks. Although a detailed review would be required, it can be assumed that historic allocation of carbon credits would not be possible without extensive use of and reliance on pure estimates, and without risking significant friction and distrust within the tenanted sector which could (further) stifle existing and potential relationships. Whilst the group does not have a final opinion on this matter as it has not been able to reflect on this topic in detail, the following questions highlight that a historic carbon credit allocation would be highly difficult and probably legally challenging:
 - How would carbon and any resulting credits be treated within the context of mineral rights, and how would a positive, negative or indifferent impact from a tenant's activity be captured and reflected?
 - Would the payment be split between both parties, and if so, how would it be allocated?
 - If carbon credits were to be awarded for historic carbon capture and accumulation, would this have to trigger a carbon tax for cases where poor soil management led to carbon losses? If so, how would this be allocated between a landowner and tenant?
 - Would carbon accumulation have to be counted as a tenant improvement where it is deemed that this is a direct result from the tenant's land management activity?
 - The above questions are also relevant within the context of current and future carbon trading with regards to how the benefits are fairly distributed to those responsible for delivering the necessary management

- Greater recognition needs to be given to the importance of continued grazed animal activity (including wild herbivores as well as livestock) on peatlands at appropriate stocking densities to prevent a build-up of roughage and/or rank growth along with potential natural regeneration occurring, as this can help to reduce issues associated with a deteriorating bog vegetation and the impact on wildlife relying on this habitat, and the drying out of the peatlands. There are examples where environmental bodies have intentionally reintroduced livestock onto peatlands to ensure that the vegetation is maintained in a suitable condition both for peatland health and for the biodiversity supported by the habitat, and the benefits of integrating targeted agricultural activity as a peatland management tool should be better promoted and reflected in policy and funding programmes going forward. The HUCG notes the promising work that is ongoing through NatureScot's POBAS (Piloting an Outcomes Based Approach in Scotland) project where outcome score cards are currently being piloted specifically for peatlands. In addition, the biodiversity audit approach being proposed as a baseline requirement for future agricultural support would also offer a distinct opportunity to facilitate the requirement to assess the condition and management of permanent habitats on the farm (peatlands potentially being one such habitat).
- Where there is an existing agricultural land use which is adjusted to facilitate peatland improvements, or where agriculture is (re)introduced to help maintain peatlands in suitable condition, the direct benefits arising from targeted agricultural land use as the pathway to achieve LULUCF-related benefits need to be recognised in some form within the agricultural emissions inventory both at individual farm level carbon accounting but also within the national inventory
- The HUCG recommends that a review should be carried out of peatland management guidance, especially in relation to grazing pressures, to better reflect the true grazing and poaching impacts and benefits from different groups of farmed animals. This includes the guidance on peatland grazing available through NatureScot's 'Peatland Action' initiative⁸. The proposed changes include:
 - Consideration should be given to approaching and defining optimum peatland grazing pressures on the basis of habitat condition using a tool such as the previously mentioned peatland outcome score cards. This gives more flexibility to the land manager to decide how an optimum habitat condition can be achieved.
 - In the unlikely case where a flexible and outcome based approach to habitat management using score cards is insufficient or unpractical, stocking densities should be defined using 'total liveweight per hectare' instead of 'livestock units per hectare'. Given that the current system counts a cow as one livestock unit, and considering that adult liveweights of different breeds can range from 450kg to 750kg and beyond, there are distinct limitations and disadvantages associated with the use of such a rudimentary tool that treats the environmental impact of two cows as equal even though one animal may be fifty to seventy per cent heavier than the other. Although typical upland and hill cows are likely to be of medium and smaller size, their weights can still vary quite significantly.
The above is an important change from a business viability point of view as restricted stocking densities on the basis of livestock units per hectare causes a distinct disadvantage for enterprises that use smaller cows because the lesser total

⁸ Accessible via following link: <https://www.nature.scot/sites/default/files/2017-11/Guidance-Peatland-Action-guidance-on-peatland-grazing-A1268255.pdf> (last accessed 21st March 2021)

weight they are allowed to carry per hectare means that they are restricted to much lower levels of outputs in terms of total kilogram of calves produced per hectare. Crucially, this approach does not encourage the keeping of smaller cows despite many studies finding a smaller cow to have a better environmental and climate impact.

It should also be noted that whilst guidance on optimum overall stocking densities per year is both useful and helpful, it may be beneficial to also include upper annual and seasonal limits, within the bounds of acceptable grazing density fluctuations throughout the year, to ensure that there is no risk of temporary over-stocking occurring

- As previously stated, the HUCG recognises the importance of prioritising the restoration of degraded peatlands so net carbon losses can be halted or at the very least significantly reduced. Having said that, the group wishes to stress that there is also a need to put in place a meaningful peatland management scheme or programme to ensure that the peatland vegetation is maintained in a healthy condition and actively growing state to enable further atmospheric carbon drawdown. Such a scheme would need to be made available, preferably on a non-competitive basis, both on (previously) degraded but also on healthy peatlands. Current initiatives including the Peatland Action and Peatland Code include a multi-annual requirement to carry out suitable peatland management and maintenance, but there is little financial incentive available for managing peatlands out with the context of a restoration project. In order to encourage uptake of best practice peatland management across all peatland areas in Scotland, funding should be made available as income support on the basis that there is a direct cost to the business from peatland management actions along with the transaction costs involved in the planning and application process including ongoing liabilities, inspections etc.. Careful consideration would need to be given to outlining payment levels in such a way that they cover any income shortfall arising from targeted peatland management and encourage widespread uptake but without providing an attractive additional source of net income. The latter is necessary to ensure that there is no incentive for landowners to remove a tenant
- Consideration should be given to introducing a peatland management scheme on a voluntary basis initially before embedding the requirements of such a scheme within regulations to ensure that all peatlands are eventually protected. Such a regulated approach would need to ensure that it can capture different types of land managers and land management requirements including businesses farming or crofting without claiming agricultural support payments, as well as a requirement to maintain deer at appropriate levels to prevent (further) damage to fragile peatlands. Those businesses enrolling on a voluntary basis would benefit from funding in return for early participation to deliver public benefits. Such an approach would have to be carefully designed in order to ensure that it does not negatively impact on the tenanted and wider agricultural sector.
- The HUCG proposes that future public spending towards peatlands could be channeled through both an agricultural and a non-agricultural peatland management scheme. These schemes could be designed to encapsule the following:
 - Where an applicant wishes to integrate peatland management with agricultural activity, they could access a support programme which is bolted onto an agricultural main support scheme. Given that future agricultural policy is likely going to require

recipients to fulfil various requirements with regards to minimum agricultural activity alongside the delivery of environmental and climate outcomes, this would ensure that any applicant to a peatland management scheme is already fulfilling these wider public benefits. For situations where there is no agricultural activity taking place (on the peatland), land managers would be able to access a separate peatland management scheme.

- Peatland management should form the main aspect of the scheme but participation should trigger access to capital grant funding towards peatland restoration works; this would require peatland restoration initiatives to become embedded within the main management scheme which may be challenging within the context of private investment, but it should nonetheless be considered in order to ensure that adequate management is being carried out through a long-term commitment, thereby increasing the public benefit return on initial capital spend
- Ongoing management and maintenance requirements need to focus on environmental outcomes but need to be designed in such a way that can embed peatland management within wider deer and sporting interests where this is feasible. Having said that, deer management would undoubtedly have to feature strongly within both the agricultural and non-agricultural scheme to ensure that there is no (further) damage caused as a result of their presence. This should include a specific requirement to manage deer populations at a level that can be sustained on fragile peatland habitats during the winter months without causing overgrazing, trampling or poaching damage. Maintaining deer populations at a 'winter level' means that there is surplus grazing available during the summer months when many peatlands are capable of supporting some livestock grazing, in some instances by cattle. This is where agricultural activity should play an important role. Further recommendations relating to deer management are listed in a separate dedicated chapter within this report
- Better targeting grazing pressures will undoubtedly form a key element of any peatland management scheme and, where possible, the outlining of a suitable grazing strategy should be based on the previously mentioned outcome-based peatland score card system that are currently being trialed as part of NatureScot's POBAS pilot. If for whatever reason this is not practical or feasible, then a management scheme should be designed in such a way that required a herbivore impact assessment to identify whether current grazing pressures are appropriate to maintain the upland vegetation and soils in good condition for climate and biodiversity benefits. The HUCG notes that such an assessment template already exists but that it requires some training and support to ensure accuracy of the assessment and validity of the results.
- Consideration would need to be given to designing any management scheme in such a way that enables active crofters to participate and be able to adequately target management on common grazings



7. Woodland creation and management

The HUCG recognises that soils are our largest carbon store but are currently a net source of carbon. Peatlands and peaty soils comprise over fifty per cent of agricultural soils and are associated with current net emissions of approximately 9Mt of carbon per year.

Consequently, the restoration and maintenance of (degraded) soils and peatlands is a priority for the hill, upland and crofting sector given that this is where the majority of peatlands are found. However, we cannot achieve net-zero emissions targets through emission reduction practices alone and carbon capture is therefore an essential part of the solution, particularly through increasing biomass in a way that does not prevent soils from becoming a net carbon sink.

The group also recognises that the right tree in the right place can offer a wide range of environmental benefits including biodiversity enhancement, improved water quality, flood management and an alternative source of income and employment. Within an agricultural management context, trees can offer important shelter for livestock grazing on exposed upland and hill areas, provide shade during hot spells and shelter from poorer weather conditions, break winds to reduce topsoil erosion and crop damage, and trees and hedges along field margins can act as a natural barrier to prevent physical contact between different livestock groups, thereby improving biosecurity.

The group therefore supports the general concept of integrating trees into current land uses across Scotland but only where this is done with due consideration of wider land use integration, landscape function, ecosystem and natural capital services, rural communities and industries, and the critical mass required to sustain rural economies and their upstream and downstream subsidiary industries.

The HUCG would like to see more integrated agro-forestry initiatives being made available to land managers to enable farmers and crofters to integrate forestry within their existing business, and therefore recommends that a review of all future support for the hill, upland and crofting sector be carried out to better recognise the role that this sector can play to help increase total woodland cover without compromising agricultural activity, sustainability and production levels, soil carbon stores (particularly on peaty soils), and the biodiversity benefits that this sector supports.

The review should consider the following aspects in particular:

- Silvo-arable and silvo-pastoral woodland can typically involve much smaller coupes of trees than standard forestry or woodland practice where silviculture is the primary purpose. Woodland blocks smaller than the 10 to 50 hectare limits used in current farm woodland schemes should be considered. If the lower limit could be reduced, this may make schemes more attractive to businesses seeking to establish small areas of woodland. For example, this may refer to woodlands being integrated with grazed pasture to provide important shelter and to increase diversity of habitats for wildlife. The cumulative effect of many such smaller projects may contribute significantly not only to the success of initiatives such as the 'Sheep and Trees' initiative, but it would help to support and positively engage more farmers and crofters whilst contributing towards Scottish Government's woodland targets.
- The 'Sheep and Trees' scheme eligibility appears to currently be restricted to productive conifer only, presumably as the initiative intends to provide support for a forestry crop which has a commercial value in timber. Spruce shelter belts in particular can be difficult to manage, have a limited lifespan as useful shelter for livestock, do not enhance wildlife habitats and can be poor for connectivity purposes. The HUCG would therefore like to see opportunities whereby funding for integrated forestry can be obtained for native mixed/broadleaf planting and/or natural regeneration not intended for the commercial market, i.e. for longer-term carbon sequestration, livestock and arable shelter, and soil enhancement purposes with added biodiversity benefits arising from the use of native diverse and/or broadleaf type woodland.

The HUCG notes that the Forestry Grant Scheme includes the already mentioned 'Sheep and Trees Initiative' which provides access to government funding for hill and upland sheep farmers and crofters to introduce trees as a new crop alongside a sheep enterprise without the need to reduce the flock size. This initiative offers an important first step towards the delivery of multiple beneficial outcomes from integrated land use where forestry and agriculture can be managed symbiotically. Anecdotal evidence suggests however that uptake to date has been rather poor which may be a result of the initiative not being well known and because of difficulties to access relevant advice, support and information.

The HUCG would like to highlight that whilst the 'Sheep and Trees' initiative is a move in the right direction, the concept of agro-forestry type initiatives and smaller schemes should not be reviewed and continued as separate programmes. Instead, publicly funded woodland and forestry schemes must be reviewed as a whole and be opened up more broadly to facilitate greater land use integration across different types of Estates, farms and crofts by offering opportunities for a diverse range of sustainably and sensitively planned woodlands. If this is not done, Scottish Government's ambitious woodland targets simply cannot be achieved without sacrificing many upland and hill farms. The current perceived conflict between trees and sheep (or livestock in general) must be resolved given that there are already excellent examples in Scotland where integrated agro-forestry is managed in a mutually beneficial manner.

The HUCG therefore recommends that consideration be given to the following proposals in an attempt to ensure that the multiple potential benefits from forestry and woodland can be realised without the risk of unintended socio-economic consequences or other negative impacts on the climate and wider environment:

- The issue surrounding the agricultural tenanted sector must be given more attention within wider policy considerations but particularly within the context of Scotland's ambitious woodland targets to ensure that government grant schemes do not (further) stifle trust and opportunities within the tenanted sector. Current policy surrounding woodland schemes along with the ability to access significant government grant funding for woodland projects makes it very attractive for landowners to take land back in hand which is severely impacting on an already struggling tenanted sector and any new entrants wishing to enter the industry. There is a perception within the industry that a strong focus on meeting forestry creation targets in particular is being prioritised over other land uses as well as integration of multiple land uses to the extent that the implications for the agricultural sector in terms of sector viability and opportunities for new entrants and tenant farmers appear to be either disregarded or accepted as justifiable collateral damage. The group stresses that this is a perception and not necessarily a fact, but the (unintended) consequences are already significant and will only increase as the longer-term impacts are beginning to emerge over the coming years. There is great concern that the full extent of any damage being caused by such absolute policy approaches will only be fully recognised when it may be too late to reverse it. The HUCG stresses that it is not opposed to woodland creation, but it does not support one-dimensional approaches to land use and land use changes where this is to the detriment of existing land uses, particularly when these are already delivering important public benefits. A solution will likely only be achieved by outlining collaborative options that are mutually beneficial for both parties in terms of both payments received and liabilities held, but it is crucial that schemes are designed in such a way that encourages collaboration and active engagement with a tenant farmer or crofter. This requires some form of commitment to follow-up management of a publicly funded asset. The HUCG therefore recommends that a wider review of the implications of different policy targets, scheme structures and funding levels for a range of different land uses on the agricultural tenanted sector is carried out to identify ways in which any negative implications and potential unintended consequences can be minimised whilst attempting to reinstate and maintain a vibrant tenanted sector.
- The HUCG notes that there is already a process in place via the local authority's indicative forestry strategies which form part of local statutory development plans, and which provides an opportunity to provide inputs within the context of other land uses. The HUCG also notes that the Scottish Government has recently set up the first of several Regional Land Use Partnerships (RLUPs), and that it is the intention of these RLUP proposals to pilot ways of broadening the way in which land use decisions are made at regional scale. The HUCG broadly supports the intended direction of travel and stresses that forestry planning should form part of a wider sustainable farmland and natural capital review to ensure that different local and landscape priorities and interests are adequately balanced.
- Primary policy focus ought to be on properly managing, maintaining and, where possible and suitable, enhancing existing woodlands in order to ensure that they are healthy and functioning ecosystems capable not only of sequestering and storing adequate quantities of atmospheric carbon, but also of delivering a much wider range of distinct biodiversity, amenity and public wellbeing benefits. Within this context, priority should be given to native woodlands over commercial plantations. The HUCG appreciates that there are economic interests attached to commercial plantations and stresses that it is not opposed to the creation of forestry for timber production purposes, but it strongly

believes that what is already there, including many native woodlands, natural regeneration and pockets of woodland and scrub of conservation value, must first be managed properly before resources can be dedicated to the creation of new woodlands.

- Where natural regeneration is likely to succeed, greater emphasis should be put on encouraging natural regeneration of native woodland over non-native planted woodland as a means to minimise soil disturbance and protect soil carbon stocks whilst also maintaining a field layer which would otherwise be lost as a result of conventional plantation models. The additional benefits that can be delivered via natural regeneration should always be reflected in grant payment rates.
- Given the ambitious woodland creation targets outlined by Scottish Government, agro-forestry and other integrated forestry approaches should be better promoted, incentivised and prioritised to ensure that the national targets can be met without having to undergo major land use restructuration at the cost of other industries when a symbiotic approach can facilitate woodland creation without compromising existing land uses and services. In order to achieve this, the concept of and requirements for agro-forestry projects should be reviewed to ensure that they are relevant and practical to Scottish systems, and can be easily integrated on tenanted farms and crofts.
- The HUCG recognises that market price difference plays a fundamental role in the bottom-line profitability of a specific enterprise or land use but stresses that public funding as a means of providing investment and income support should be set at a level that reflects the likely profitability of a venture or shortfall of income. Although there are obvious challenges associated with the fact that market prices can fluctuate quite significantly, the likely market value has to be captured and considered when setting payment rates for public funding as a means to provide investment and support income. If support payments in addition to market income cause significant differences in the likely profitability (per hectare) that can be generated from different land uses, this can severely distort and artificially inflate land values which can have a detrimental impact for agriculture, particularly the tenanted sector and new entrants, as well as for forestry projects aimed at ecosystem services. Woodland grants should therefore not be pitched at a higher level than agricultural support payments unless such woodland support is made conditional on the woodland design delivering a greater range of public benefits which can for instance be delivered by silvo-agricultural systems over monocultural systems. Within this context, the HUCG recommends that payment rates for forestry and woodland grants, particularly for large-scale commercial woodland plantations, should be reviewed and that regular reviews of forestry grants more generally should be aligned with those taking place within the agricultural sector to ensure that support payments for forestry creation do not generate notably higher profitability than can be obtained through farming activity and agricultural income support, especially within the context of good agricultural activity delivering wider ecosystem benefits. Otherwise, this enables commercial woodland investors to outcompete the financial viability of alternative land uses that are being put at a competitive disadvantage as a result.
- Consideration should be given to offering higher payment rates for woodland schemes which propose the integration of diverse native species with agricultural land use through natural regeneration and where the main objectives are environmental and biodiversity enhancement without commercial use, whilst lower grant payments should be offered for commercial plantations where the applicant intends to manage the

woodland for economic reasons with the ability to derive an income from timber. Having said that, there are also clear benefits of using native woodland for commercial purposes and this should also be reflected within payment rates to encourage the use of suitable species such as Birch.

- The establishment of forestry through plantation on peatlands of any depth (including shallow peatland) should not be permitted in order to protect the one soil type and terrestrial habitat that holds the largest soil carbon stocks and has the greatest below-ground potential to sequester additional soil carbon longer-term.
- The establishment of forestry on peaty and otherwise carbon-rich soils (other than peatlands, although very shallow peatlands could be considered) should only be permitted where this is done through natural regeneration in order to leave the soil undisturbed and preserve soil carbon stocks. Consideration should be given to restricting this option to non-commercial woodlands where the intention is to deliver ecosystem benefits rather than to harvest timber so as not to disturb carbon-rich soils during harvest and replanting.
- Where a commercial conifer woodland has been planted in the past and the owner wishes to replace it with native, broad-leaf and/or a mixed species for long-term retention in order to enhance its biodiversity value, consideration may need to be given to offering some funding to encourage such projects. This should also apply to situations where the responsible party may wish to cut down an older woodland which was planted on peatland before the negative implications of doing so became fully understood, although the latter may possibly need to be funded as part of a peatland restoration and management budget.
- The establishment of forestry in such a way that it alters an existing (permanent) habitat on a site to the detriment of existing key animal and plant species or sensitive local habitats should not be permitted. The HUCG notes that forestry and woodland grant schemes already impose a rigorous environmental impact assessment process on the applicant before a grant is awarded, and that this assessment includes the collation of data of priority species and habitat coverage. However, this can currently only be done at individual land holding scale as biodiversity data is not (yet) collected at this scale on a national basis. The HUCG stresses that habitats and biodiversity require protection and management not only at local but also at landscape scale as the concept of ecological connectivity can play an important role in supporting key populations. A Scottish Biodiversity Priority Map should therefore be established using data from the Scottish Biodiversity Strategy on the occurrence of vulnerable / endangered species and/or their habitats in conjunction with data collated from farm-level biodiversity auditing which, as previously discussed, has been proposed as a baseline requirement for future agricultural support schemes. This data should be used to better determine the likely impact that a proposed woodland or forestry project may have on existing habitats, and is of particular importance within regions which support wader and other ground-nesting bird populations as wooded areas can create ideal conditions for predators of these birds.

- The application process to obtain funding for smaller and integrated forestry projects including smaller scale on-farm woodlands, wildlife corridors, shelter belts, field margin tree lines and agroforestry needs to be simplified for all applicants and be made more accessible for tenants. This could potentially be achieved by making a non-competitive grant pot available for each unit for such smaller-scale woodland (similarly to the concept of the old Land Manager's Options – LMO). If this were to be considered as a viable option, then siting of such woodlands would likely need to be subject to an audit to identify the opportunities for such projects, and in order to achieve the necessary scale and impact at a national level this may require the inclusion of some compulsory elements. The HUCG recommends that consideration be given to using the previously mentioned baseline biodiversity audit as basis for the above approach if this is deemed a worthwhile recommendation. In order to support tenant farmers and crofters, it may also be worth considering to put the onus on the landowner to block an application for a small woodland project rather than on the tenant by having to seek approval from the landowner.
- If a woodland that has been established with public funding has failed during establishment or at any point thereafter, including at the point when it is being replanted after harvest, or shows signs of being in poor condition as a result of inadequate or absent maintenance and management, there should be an obligation on the recipient of the grant (or the individual/business that has since taken over the liability) to have to resolve these issues at their own cost or else repay the grant money. This obligation should be extended to situations where the recipient of carbon credits may have to pay a carbon tax if they have failed to prevent or resolve issues other than those caused through force majeure. The HUCG notes that this recommendation already forms a condition of grant as part of the forestry grant scheme, and that woodland developers that sell carbon credits via the woodland carbon code have to adhere to strict regulatory conditions to safeguard the carbon investor's investment. However, the HUCG wishes to highlight that there appears to be some anecdotal evidence to suggest that a breach of the conditions that are attached to such funding streams is perhaps not always followed through where there is a case of a failed woodland. The HUCG therefore strongly recommends that the current process of monitoring longer-term compliance with funding requirements should be reviewed to ensure that investments are monitored properly and that action is taken where needed in order to generate the necessary public benefits.
- The approval of grant for a commercial woodland should have to be considered within the context of wider and regularly updated land use strategies that are already embedded within local authority plans but which are in many cases outdated with regards to recent emphasis that is being increasingly put on climate change and land use change. There is a need for such land use strategies to be developed at appropriate scale so that competing land use priorities can be rationalised. The previously mentioned Regional Land Use Partnership pilots may offer an ideal opportunity to facilitate a more holistic approach to different and integrated land uses where different interests and industries including the farming sector can engage. This is not only relevant within the context of climate change and environmental enhancement but must also consider the socio-economic profile of local rural communities and industries and the critical mass required to sustain these. It will be important to identify and highlight areas of Scotland where the critical mass of farmers and crofters or rural communities more generally is at risk of being compromised by woodland plantations and where integrated land uses should be pursued instead. Therefore, consideration may also

need to be given to potentially introducing an upper limit on the size of woodland that can be planted in one place, i.e. as one forestry unit (regardless of whether established at the same time or in several stages), as well as an upper limit on the proportion of the total area of a farm and possibly a county and parish that can be planted.

- Recognising the distinct benefits of patchwork landscapes and landscape-scale ecological connectivity, consideration should be given to introducing a requirement that every land owner or manager (claiming some form of government support) has to establish wildlife corridors using, where appropriate and not detrimental to key species, agro-forestry, silvo-pasture, small-scale native on-farm woodlands, tree lines or hedges along field margins on a certain proportion of their total land area. This should be done using diverse native species that are sympathetic to the local biodiversity and ecosystem and, where possible, the focus should be on natural regeneration rather than via plantation so as to minimise soil disturbance and the associated soil carbon losses. Such engagement at scale could deliver quite significant outcomes even if the individual contribution consists of predominantly small-scale projects, and should be planned for and prioritised through the biodiversity audit approach mentioned earlier on.
- Site surveys in support of applications for planted woodland projects must be done with greater accuracy than is currently the case and on the basis of newly emerging evidence in order to minimise the risk of attempting woodland plantation on sites which naturally are not able to support woodland, thereby resulting in a failed woodland scheme along with significant soil carbon losses from site preparation. The HUCG notes that such surveys already form an important part of the process involved in woodland planning, but there appears to be some anecdotal evidence which suggests that these surveys are perhaps not always carried out to reach the correct conclusions.
- The HUCG believes that the integration of woodland onto an agricultural holding should be recognised within the agricultural emissions envelope as an effort undertaken by said holding to reduce its own net emissions.



8. Deer management

Deer populations of varying sizes can be found across the vast majority of Scotland's landscape and therefore need to be given strong consideration for the role they may be playing in terms of their potential impact on the wider ecosystem.

The HUCG understands that national deer numbers particularly across open hill areas have increased quite substantially since the middle of the twentieth century⁹ and this has been identified as a particular area of concern by members of this group within the context of climate change abatement and habitat enhancement opportunities and limitations.

Where deer populations are too high, they can be detrimental to a range of sensitive and key upland habitats and can significantly compromise the success of any afforestation and regeneration projects. Damage caused by deer is typically associated with poaching and trampling as well as overgrazing, and this is a particular issue on peat hags where the natural herding behaviour of deer can exacerbate trampling damage within an already deteriorated habitat.

Although there are options to erect deer fences around woodland projects and fragile habitats, the cost of fencing can be very expensive and the carbon cost associated with the fencing materials should not be underestimated. Logistically, fencing off fragile and important upland habitats can often be impractical due to the large expanse of many of these habitats and the often challenging upland terrain which may not lend itself to fencing, for example due to shallow soils or particularly wet ground conditions. Displacement of large numbers of deer through fencing can furthermore lead to unintended consequences by concentrating populations onto other areas where a resulting higher density can also lead to habitat deterioration arising from trampling and overgrazing damage whilst impacting on other land uses including agriculture.

It can therefore be concluded that whilst there is a place for deer fencing in some situations, the control of deer numbers and a requirement to manage and maintain deer populations at a level that can be sustained and supported by the environment without any negative impacts on fragile habitats and other land uses is the only practical solution to address

⁹ ALBON S. D., McLEOD J., POTTS J., IRVINE J., FRASER D., NEWAY S. (2019). *Updating the estimates of national trends and regional differences in red deer densities on open-hill ground in Scotland*. Scottish Natural Heritage Research Report No. 1149. [Online] Accessible from: <https://www.nature.scot/sites/default/files/2019-11/A3115490.pdf> (last accessed 19th March 2021)

environmental and climate challenges in the longer-term. Outlining suitable policy to reflect this objective must be prioritised.

The HUCG notes that an extensive report on the management of wild deer in Scotland was submitted to Scottish Government by the Deer Working Group¹⁰ in late 2019 and is still under review. The report contains a detailed set of recommendations, some of which are highly relevant to the review being undertaken by the HUCG group.

Based on the above comments, the HUCG wishes to put the following recommendations forward:

- On the basis of the potential negative impact of high deer numbers on different key and fragile habitats, appropriate guidance needs to be outlined by the relevant authorities with regards to an acceptable upper limit to deer densities for different regions across Scotland and for different types of habitats (in line with recommendations presented to Scottish Government by the Deer Working Group). Such upper limits should be based on the deer numbers which can be sustained during the winter period when the risk of any damage arising from trampling and/or overgrazing is highest. It will be crucially important to ensure that optimum stocking densities are set at the right level, and some consideration will need to be given to facilitating some variances in stocking pressures (within reason) given the challenges associated with deer moving freely between and across vast areas.
- Any future policy concerning deer management will need to be designed in such a way that it aids and encourages collaborative approaches between neighbours where important and fragile habitats such as (degraded) peatlands span across different Estates and require targeted and careful management to maintain deer numbers at sustainable levels
- The HUCG notes that the movement of deer across different Estates, farms and crofts can be very challenging where different management objectives including environmental or sporting interests exist across deer management groups. Although equally legitimate, such interests can be in conflict with each other, especially where deer culling for environmental purposes causes friction with a neighbouring sporting Estate. It is important that future policy tries to address this issue where it is feasible to ensure that deer populations are maintained at environmentally sustainable levels without unnecessarily compromising the longer-term viability of sporting Estates
- Any outcomes of a potential future policy aimed at reducing deer numbers to sustainable levels and maintaining these will likely take many years to be achieved on the ground and reflected in the condition of many (currently deteriorated or otherwise impacted) habitats. This can cause distinct issues and challenges in situations where tenant farmers and crofters have no rights to carry out deer control and where the landowner has not been managing deer numbers in a way that is sensitive to the needs of the habitats within the range. Given that future agricultural policy is looking to become more outcome-driven and results-based, and considering that sustainable upland and hill grazing management to protect upland habitats will likely feature in some form or another within future agricultural support schemes, it will be absolutely crucial to ensure that measures are put in place to recognise such situations where tenant farmers and

¹⁰ Accessible via following link: <https://www.gov.scot/publications/management-wild-deer-scotland/pages/38/> (last accessed 18th March 2021)

crofters are or may be constrained in their ability to achieve meaningful scheme outcomes. This will also be of particular importance when considering liabilities, for instance where a farmland inspection is undertaken and the officer finds signs of overgrazing and/or trampling caused by deer. Who is liable if the farmer does not hold any rights to control deer but has applied for agricultural support payments, and how can a payment to the farmer be justified when the outcomes of upland habitat preservation have not been achieved even though the farmer has taken every possible steps within the bounds of his/her business?

- It is important to note that where co-grazing occurs between wild deer and livestock and there are signs of negative impact on upland habitats, this cannot be simply resolved through a policy-driven requirement to reduce livestock numbers in an attempt to protect these habitats.
- Whatever policy outcome is sought to address any issues surrounding deer management, it must ensure that it does not cause divisiveness between landowners and tenants.
- Some attention will be required to consider how effective deer management can be achieved on common grazings.
- Based on the above issues and concerns, the HUCG strongly recommends that options must be explored to encourage better deer management, for example through private sector involvement via delegation of greater powers to deer groups and through better and simplified wider community engagement. If such a voluntary approach can be made sufficiently attractive, this can deliver significant outcomes at a negligible cost to the public purse compared to the introduction of (further) statutory control which likely comes at a significant cost and can be ineffective and difficult to administer. However, where such voluntary approaches remain unsuccessful, then deer management as a whole needs to become more regulated to safeguard wider (public) interests that go far beyond those of individual landowners. This will partly recognise the work that is already being carried out by many well run and well managed Estates and should include the introduction of an obligation on the landowner to have to carry out deer management in order to maintain local populations at sustainable levels that do not have a detrimental impact on sensitive and important habitats including (degraded) peatlands and any afforestation and regeneration projects. Consideration should be given to the following:
 - The landowner should be given the choice to carry out deer management in-hand, lease the stalking rights to a contractor, or come to an agreement with a tenant farmer if the tenant wishes to take on the deer management himself/herself or via use of contracted stalker
 - The default responsibility to control deer numbers should remain with the landowner unless an agreement has been found with a tenant farmer or crofter to transfer the deer management rights to the tenancing party
 - The person(s) carrying out deer control must be suitably qualified



9. Changes to existing support schemes

The HUCG submitted a paper to Scottish Government in early March 2021 which outlines several proposals for consideration and, where possible, for immediate action by government. The group believes that addressing the issues identified within that paper will be an important step towards paving the way for a future support structure that is both fair towards genuinely active producers and ensures high value for public money.

The proposals capture current support payment issues that have been discussed during HUCG meetings and in some occasions been highlighted by the industry for several years, and the suggested changes have been deemed 'easy win' options to achieve immediate improvements within the agricultural support system by better targeting support payments at those businesses that are delivering desirable outcomes.

The group recognises that some of the above changes may require legislative changes but believes that it is imperative that any issues associated with the delivery of current agricultural support are resolved as soon as possible so that the introduction of a new support system can build on a robust, working and fair (legislative) delivery framework without underlying problems.

A recap of these initial findings and proposals is provided below as they form part of the HUCG's wider review and recommendations for consideration by Scottish Government.

9.1. Linking agricultural support payments to agricultural activity

The HUCG notes that various aspects of the past and current agricultural support schemes have resulted in payments being delivered on the basis of what businesses 'have' or 'had' rather than what they 'do'. This has caused issues with support payments not always being targeted at agricultural activity, thereby resulting in poor value and limited public benefit for taxpayer's money.

The following initial observations in particular should be addressed where possible but at the very least considered when designing the future agricultural support system as these have been deemed simple but effective changes. This must be done with due consideration to

what constitutes agricultural activity across different types of production systems and within different areas of Scotland where production outputs and productivity as a whole can vary significantly and be enhanced or restricted as a result of environmental factors that are typically out with the control of farming and crofting businesses.

- The concept of entitlements to trigger access to direct or any other agricultural payments should be discontinued
- The concept of delivering payments on the basis of the total area farmed should be discontinued in its current form and adjusted to deliver support payments on achieving appropriate productive activity, environmental and climate benefits; future support will likely have to be calculated and delivered as environmental payments on a 'per hectare' basis so that it is not deemed a 'production payment', but the calculation must be linked to the delivery of quantifiable activity, environmental and climate outcomes
- The ability for landowners to receive agricultural support payments on land that is not being farmed or crofted in their own right, and the resulting inability of a grazier to access LFASS, should be stopped; support payments should only be paid to individuals or businesses taking the production risk and carrying out appropriate agricultural activity
 - In order to recognise that collaboration between landowners and tenants can deliver benefits for both, consideration should be given to designing a payment structure which offers separate access to
 - Support payments for the tenant for delivering outcomes resulting from production-based activities and management efficiencies
 - Capital grant funding for the landowner for carrying out capital works aimed at environmental/biodiversity enhancement, provided appropriate agricultural activity is taking place by a tenant
- Agricultural support payments should be targeting agricultural activity aimed at food production, and should therefore not be accessible for alternative land uses or towards the production of crops not intended for the food chain. Crops and land uses that should be deemed ineligible for the purpose of receiving agricultural support payments could, for instance, include
 - Commercial forestry and woodland such as tree nurseries, commercial plantations and Christmas trees
 - Flowers and other ornamental plants
 - Crops grown for use as bio-fuels
 - Land where there is agricultural use but the main purpose is not food production, e.g. green areas on construction and development sites, amenity parks, military and airport areas, and around public roads and public transport areas

- The concept of using historic reference years to calculate agricultural payments as happened with LFASS and the Beef Efficiency Scheme should be discontinued and not repeated in future schemes; payment calculations must be based on the most recent activity carried out by a business
- The ability for businesses to access agricultural support payments by leasing somebody else's livestock should be stopped
- Any individual or business should be eligible to receive agricultural support payments provided they
 - Submit the relevant forms to declare their agricultural activity and comply with cross-compliance and other scheme requirements
 - Own or rent land, and have the necessary documentation to provide evidence of ownership or a tenure or lease contract if needed
 - Carry out meaningful agricultural activity which is aimed at food production whilst fulfilling environmental, climate and wider benefits in line with cross-compliance, baseline conditionality elements and future scheme outcomes

9.2. Less Favoured Area Support Scheme (LFASS)

Pillar 2 support via the LFASS is a vital mechanism to support those farming and crofting businesses operating in the most challenging environments and areas of Scotland in order to ensure that they can run viable production systems and contribute towards domestic food production whilst delivering a range of wider socio-economic and environmental benefits.

LFASS attempts to capture farm-specific activity levels to a certain degree by basing payments in parts on livestock numbers and enterprise mixes for different businesses. However, LFASS is still largely based on historic livestock and enterprise data going as far back as 2001 when grazing categories were first approved.

Many farming and crofting businesses have grown or reduced their operations since then through a change of the enterprises they manage or via drop or increase in livestock numbers, in some cases as a result of the initial LFASS distribution along with decoupling payments.

This has resulted in many businesses which historically managed higher livestock numbers getting overcompensated whilst other units that have since grown are not receiving full support payment levels to reflect their higher production and activity levels.

Public funding provided to businesses that are no longer sufficiently active are unlikely to be (fully) reinvested into the business and may be lost to the agricultural industry, along with the wider benefits provided to rural communities and subsidiary industries which depend on the movement of monies into and through the farming sector.

On the other hand, underfunding of businesses that have since grown means that these businesses are immediately at a competitive disadvantage to other farming businesses as their ability to invest in their operation is more limited compared to their fully supported

counterparts. This means that their ability to progress and improve their performance in order to achieve climate and environmental efficiencies can be (severely) restricted.

The HUCG recognises that although LFASS will be replaced or updated during the agricultural transition period, its concept of providing a 'disadvantage payment' is likely to continue being the main mechanism for delivering payments to disadvantaged businesses over the next 3 to 4 years.

In order to target LFASS more fairly by linking payments to actual and recent livestock activity over the next four years to cover the transition period, the group proposes that the following points be considered:

- The delivery mechanism of LFASS over the next four years to cover the agricultural transition period should be re-based using the 2018 payment structure to ensure that fragility markers and enterprise mixes for cattle multiplier purposes are honoured and fully reinstated for LFASS payments going forward. Cattle grazing delivers distinct environmental benefits due to their less selective browsing habit which helps to maintain vegetation in suitable condition. From an environmental habitat maintenance point of view, it is therefore important to provide adequate support in recognition of the environmental importance of cattle across Scotland's landscape, and the retention of the cattle multiplier helps to provide this essential support
- Payment levels should no longer be based on a historic reference year. Instead, they should be calculated annually using a rolling 3-year average and starting with the most recent historic average of 3 years up to and including 2020 for the scheme year 2021. This will ensure that businesses receive support that reflects their most recent level of activity. Anomaly cases such as new entrants need to be captured from year one of their business activity so that they have the same comparative access to support payments. Where activity/productivity suddenly increases or drops by significant percentage as a result of a business scaling back or growing operations, a rolling 3-year average may not fairly target adequate support and may therefore have to be temporarily replaced by annual assessment
- Linking LFASS payment levels more closely to recent business activity will ensure that support is better and more fairly targeted at those farmers and crofters carrying out actual production activities. This is a vital first step in transitioning from a historic and area-based agricultural support system towards an outcome- and activity-based future delivery mechanism for agricultural support payments. Such an approach will require for outcomes to be clearly defined and, where possible, quantifiable with regards to meeting emissions reductions and biodiversity enhancement targets which will likely need to sit alongside yet to be determined baseline scheme conditionality elements. This will ensure that only those who actively engage with and deliver as part of a scheme will be able to access future support payments
- The HUCG expects a sizeable amount of LFASS monies to be freed up as a result of the re-basing and stresses that this sum must remain part of the LFASS budget. Consideration should be given to possibly recycle the freed up monies or at least a large proportion of these to smaller and otherwise more disadvantaged businesses

- The HUCG has discussed the concept of capping total LFASS payments per business. Whilst the group does not yet have a final position with regards to absolute capping, it supports and recommends the concept of front-loading to better target the most disadvantaged producers such as smaller and peripheral units
- Further consideration should be given to opening up access to LFASS to graziers that are currently unable to access LFASS funding because the landowner claims area-based direct support payments

9.3. Scottish Upland Sheep Support Scheme (SUSSS)

The SUSSS was introduced with the intention to better target support towards maintaining sheep flocks on some of the most disadvantaged and environmentally challenging farmland in Scotland.

The current SUSSS provides voluntary coupled support for up to one homebred ewe hogg per four hectares of Region 3 ground so long as businesses have at least 80 per cent Region 3 and no more than 200 hectares of Region 1 land.

This concept of linking eligible hogg numbers to land area rather than flock size has meant that payment levels in relation to the actual flock size of an eligible business and its relative productive activity can be somewhat skewed by the total land area at the disposal of eligible businesses, higher or lower lambing percentages which are often significantly influenced by environmental and predation factors out with the farmer's or crofter's control, and by eligible businesses being able to retain a much larger proportion of their homebred ewe hogs as part of the scheme than would otherwise be the case for replacement purposes.

This has resulted in farmers and crofters on some of the poorest Region 3 areas of Scotland and those businesses typically facing greater production limitations as a result of difficult environmental conditions and higher predation levels receiving comparatively lower SUSSS payments regardless of their flock size, sheep husbandry and general flock management.

The HUCG therefore proposes that eligible ewe hogg numbers for SUSSS should be restricted to 20 per cent of the total number of breeding ewes that eligible businesses own. This will ensure that support is targeted fairly across all types and sizes of Region 3 farms and crofts by linking the SUSSS to the activity level determined by the size of the flock and not production advantages resulting from business size and location.

Restricting SUSSS eligible ewe hogg numbers will reduce the number of any surplus ewe hogs which are currently retained by many Region 3 businesses in addition to their usual replacement hogs in an attempt to simply maximise SUSSS payments. This will free up a large number of surplus ewe hogs that can be sold in autumn after weaning as breeding or store animals without affecting SUSSS payment rates, thereby enabling Region 3 farmers and crofters to reduce the level of stock carried throughout the year which in turn will drive down overall enterprise emissions for these businesses.

Whilst this would help to reduce enterprise emissions of eligible businesses, the proposed changes would also help to reduce lifetime emissions of ewe hogs that are eligible under SUSSS but are not required as replacement hogs due to being a surplus to the business. Surplus hogs sold store are transferred onto finishing units where the key driver is to finish these animals as efficiently as possible in order to reduce input wastage and the associated

costs. In many cases this means that these hoggs will be finished and ready to enter the food chain much earlier than would otherwise be the case if they were to be retained by the breeder until the end of the SUSSS retention period (1st April) before being sold to a finisher. Allowing these surplus animals to move through the system and into the food chain without retention period restrictions ultimately reduces their lifetime emissions which in turn helps to reduce total emissions from the Scottish hill sheep sector.

Consideration should also be given to front-loading SUSSS payments for the first 20 ewe hoggs in order to support smaller producers who deliver important socio-economic benefits for rural communities.

9.4. Continuation of the Scottish Suckler Beef Support Scheme (SSBSS)

The SSBSS, or beef calf scheme, delivers annual voluntary coupled support for every declared beef calf born onto a Scottish holding with at least 75% beef genetics and retained on that same holding for at least 30 days. A higher payment rate per head is paid on calves born onto holdings that are located on islands in recognition of the higher costs associated with inputs and transportation.

The HUCG appreciates that the future continuation of the SSBSS is already being considered and discussed by the Suckler Beef Climate Scheme Programme Board, and although no final decisions have been made at this stage, the HUCG supports plans to retain this scheme or at least its support payment mechanism and concept.

The SSBSS is currently the only direct support mechanism that provides an incentive to improve productive efficiencies by encouraging eligible businesses to maximise the reproductive performance of their suckler beef herd without offering payment levels that might encourage production increases. The latter is evident by the continuously decrease in the national suckler cow herd size.

Improved production efficiencies deliver clear climate benefits by generating better outputs from given resources and inputs such as a live calf from a suckler beef cow, and the SSBSS should therefore be continued, ideally as a 'bolt-on' to the future main delivery mechanism for direct income support in order to ensure that there is a common base of minimum requirements that must be met for claiming any type of agricultural support payments.

9.5. Future scheme context

The HUCG notes that the Suckler Beef Climate Scheme provides the first step in rolling out a future support structure which targets good agricultural activity within the context of climate and environmental outcomes and which will be developed and opened up to eventually encompass all of Scottish agriculture.

The HUCG also notes that that the SBCG Programme Board proposes a transition period during which the current support system consisting of several different support mechanisms will be gradually replaced with one common agricultural scheme structure going forward.

Such a gradual transition from the existing policy environment to a Scotland-specific future support framework offers an elegant means of providing stability to the industry through the continuation of existing support income whilst the gradual introduction of a new scheme will offer the opportunity for producers to familiarise themselves with the concept and requirements of the scheme before it will become the main mechanism of agricultural support.

The HUCG supports this general direction and wishes to put the following recommendations forward to ensure that LFA businesses are given the opportunity to participate and that

- The main scheme being proposed by the SBCG Programme Board should be open to all producers across non-LFA and LFA regions without differentiating between these areas
- The overarching outcomes of a future main scheme must be designed in such a way that is not discriminatory towards specific (more extensive) production systems or producers facing more environmental and climatic challenges
- A possible payment structure could involve a maximum payment that could be claimed per hectare and which consists of an agricultural activity payment and an environmental payment. The scheme should include a basic requirement to carry out appropriate agricultural activity to trigger an activity-based income support payment as a proportion of the total direct payment that businesses can claim per hectare. The activity requirement could be triggered through active crop production or via productive livestock. Thereafter, the remainder of the potential total payment that can be claimed is conditional on the claimant achieving environmental outcomes. If some outcomes are achieved but not to the required extent deemed satisfactory to trigger the full environmental payment, then the environmental payment proportion should be scaled back rather than cancelled in recognition of there being some delivery of environmental benefits. The environmental outcomes will likely need to be designed in such a way that they offer flexibility to businesses with different production system. This is important to reflect and recognise that different production systems naturally have different opportunities to improve their environmental footprint. Businesses should be given the opportunity to choose to what extent they can deliver green credentials for each of the following broad categories. The total level of commitment or achievement of outcomes arising from all of the below categories (possibly evaluated via scoring system) should then be reflected via payment received up to a maximum payment per hectare:
 - Climate benefits arising from improved production-based efficiencies
 - Climate benefits arising from improved farmland and permanent habitat management
 - Biodiversity benefits from improved farmland and permanent habitat management
 - (Wider environmental, ecosystem and natural capital benefits including water quality and flood management)
- In addition to a main scheme, continued income support for producers in disadvantaged areas of Scotland will still be needed to ensure that good agricultural activity and the many wider and public benefits from sustainable upland and hill farming remain viable
- LFASS should therefore be continued during the agricultural transition period but should be updated to include basic changes to payment calculation and allocation in order to better target activity

- After the end of the transition period, LFASS should be replaced by a successor scheme to continue a delivery mechanism of disadvantage payments for genuinely disadvantaged businesses but in such a way that these payments are delivered in recognition of the significant additional environmental and biodiversity opportunities that can be realised by such businesses. Consideration should therefore be given to designing a new scheme as an HNV support mechanism, but care must be taken to ensure that the scheme continues to target disadvantaged businesses

9.6. LFASS transition uplift

The HUCG aims to align its proposals as closely as possible with the approach currently being considered by the Suckler Beef Climate Scheme (SBCS) Programme Board so as to ensure commonality and standardisation of a future agricultural support scheme. The group supports the concept of a multi-annual phased scheme roll-out using the 'Just' Transition Period and proposes that a similar or identical approach should be taken with regards to implementing a future LFASS successor scheme.

In principle, LFASS as a support mechanism for farming and crofting businesses in disadvantaged regions of Scotland should be continued throughout the agricultural transition period so as to maintain stability over the next four years.

The transition from the current LFASS to a successor scheme should however be initiated at an early stage by re-basing LFASS using up-to-date livestock numbers and reinstating the fragility marker and cattle multiplier as per separate paper submitted by the HUCG on interim proposals for immediate action and as summarised further above. This will ensure that the scheme targets active food production from climate and environmentally friendly and sustainable farming and crofting practices and delivers payments to active businesses to enable them to invest in the adoption of best practice and carry out management changes to (further) improve their green credentials.

As part of the transition period, it is proposed that LFASS recipients will also have to adhere to newly introduced scheme conditionality elements which are aimed at the delivery of climate change mitigation and environmental enhancement outcomes from and alongside continued agricultural activity aimed at food production. These requirements could or should be ramped up over time throughout the transition period to progress to a more results-based and outcome-focused successor scheme.

Recognising that increased scheme conditionality will come at a direct and indirect cost to participating businesses, it is proposed that an uplift payment should be offered to businesses in 2022 and 2023 to help cover the initial cost of the added scheme requirements and to incentivise participation in the updated scheme.

Any LFA businesses are eligible for the enhanced payment provided they fulfill all scheme requirements and carry out any stipulated activities.

The uplift payment should be delivered as degressive LFASS top-up by offering a larger proportion of the annual payment to the smallest producers and a proportionately smaller uplift to larger recipients. A total cap should be put on the uplift. Such a degressive approach ensures that the uplift can be delivered fairly and in such a way that it is sufficiently attractive to smaller farms and crofts whilst avoiding overcompensation to larger businesses.

The delivery of such an uplift payment over and above the existing LFASS support payments for the first two years will require additional funding. Re-basing LFASS will free up some of the budget that is currently being delivered on inactivity. It is proposed that this money should be used towards the uplift payment, together with the LFA share of the Bew budget.

It is worth noting that although some additional pump-priming will be needed during the agricultural transition period by using some extra monies from Bew and the Agricultural Transformation Fund to aid with the transition to low carbon and low biodiversity impact farming, the longer-term aim is not to obtain more public funding but to have to deliver more outcomes and activities for existing budget and payments. The farming and crofting industry is keen to contribute towards environment and climate benefits and recognises that public funding streams will be a key defining factor in achieving public benefits on a voluntary basis by giving businesses the choice as to whether they wish to participate.

Having said that, the HUCG also recognises that Scottish Government has committed to binding targets. Therefore, depending on scheme uptake and (insufficient) progress made within the industry to meet climate change and biodiversity targets, regulation should be considered as a means to capture every business including those not participating within an agricultural support scheme if targets cannot be met through voluntary options. This would mean that everybody is ultimately doing the same but those that have chosen to enrol in a scheme early on benefit from early participation through the ability to access funding to aid with any management changes and the adoption of best practice.

9.7. Further comments

The HUCG stresses that it has not been able to finalise a detailed set of recommendations with regards to the proposed baseline requirements and specific management options and outcomes that could be introduced as part of LFASS during the transition period and thereafter through its successor scheme.

It is also yet to finish its review of how a future agricultural support structure could be designed, and whether the LFASS successor scheme should sit alongside a main scheme or form a non-competitive but conditional bolt-on element sitting above the main scheme.

The above comments on a potential scheme context and LFASS transition ideally require further discussion within the HUCG so that all avenues and potential unintended consequences can be considered within the context of policy and scheme administration opportunities and limitations.

The HUCG therefore recommends that consideration is given by a new post-election administration to continuing the HUCG's work so that the group can finalise a full and detailed review of the topics covered within its remit.



10. Closing comments

This report provides a set of initial recommendations that have been prepared by the Hill, Upland and Crofting Group following ten weeks of detailed discussions and presentations alongside an initial review of relevant scientific data and an evidence gathering exercise.

The group has worked to an extremely tight timescale during which it has had to review a wide range of land use related issues and opportunities within the context of hill and upland farming and crofting systems. The group has not been able to conduct a full and detailed review and this report therefore only captures the group's initial findings and recommendations.

Many members are now entering the busiest time of their year as the lambing season commences, and this offers an opportunity for Scottish Government to review and consider the initial findings that have been submitted by the HUCG.

The HUCG is however conscious that there is still some further work required in order to fulfil its original remit and is therefore keen to reconvene again after the lambing season and election period have come to an end.

The group believes that this continuation of its own work should form a part of a wider ongoing collaboration between Scottish Government and the industry by setting up a programme consisting of an implementation board which has representation from all sectors of agriculture and which receives sector-specific input from the various farmer-led groups which should sit out with the main board to provide the expertise and practical knowledge necessary to help design a meaningful and workable future agricultural support scheme.

The members of the HUCG represent an extremely diverse background and have actively engaged in trying to outline meaningful recommendations. They represent an industry that recognises the importance of producing sustainable, health and nutritious food from climate and environmentally friendly production system whilst supporting rural communities and the wider industry.

Farmers and crofters across the hills and uplands of Scotland are willing to do their bit for the environment so that they can become part of the solution.