The Farming for a Better Climate (FFBC) newsletter keeps you up to date with some of the ideas discussed on the Focus Farms and at events across Scotland to **improve farm efficiency and profitability**, which in turn could result in fewer emissions per unit of production and a **lower farm carbon footprint**.

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**What's been happening?**

Between working with host climate change focus farmers and visiting other farms across Scotland and Northern Ireland, we’ve had a busy start to 2017.

We have heard tips and ideas from lots of farmers about how they are improving efficiency and in turn reducing their farm carbon footprint.

A reoccurring theme is the 'cash value' in terms of nutrients within farm slurry and manures. Depending on when and how you apply it, one 10m³ tanker of dairy slurry could contain the equivalent of £30 to £50 in terms of bagged nutrients. Testing farm slurry and manures could help you to better target nutrients on the farm and get the full value out of bought in fertilisers.

In this edition, you can read about topics explored with the host climate change focus farmers to identify some of these savings and make best use of inputs to improve production and cut the farm carbon footprint. There are other tips and ideas to benefit the farm on our web pages - see the [five key action areas](#).
Here are some of the topics that have been discussed by our focus farm groups recently. Previous newsletters & notes from the discussion group meetings, plus practical guides and farmer case studies, are available at [www.farmingforabetterclimate.org](http://www.farmingforabetterclimate.org).

**‘Tyred’ of soil compaction?**

Neil Redpath of Redpath Tyres showed the impact of both the wrong tyres and how incorrect tyre pressure could affect your soils and fuel consumption at a focus farm meeting at Castlemains, hosted by Bob Simson.

Compaction caused by poor tyre choice or running at the wrong tyre pressure can have a real impact on soil compaction. Choosing the right tyres is crucial for protecting the soil, preventing erosion and maximising tractor performance; soil compaction can be costly to rectify and reduces efficiency. Neil ably demonstrated this by using a flotation tyre and a super single tyre on the same trailer (photo) with very visible results.

There’s a full write up in the discussion group notes on the webpage.

**The leatherjackets battle**

Following strict chemical control on chlorpyrifos in 2016, the population of leatherjackets in Scottish soils is a pressing concern for many farmers. In March, the Woodhead discussion group met with Davy McCracken to discuss the impact of this change and potential ways to combat the leatherjacket without chemical use.

Since June 2016 the leatherjacket population in many of Scotland’s fields have continued to build from low levels observed two years ago to the medium levels seen last year. The average density recorded in a survey in west and central Scotland between November 2016 and February 2017 was 1.6 million grubs/ha. This is cause for concern as there is not only a high risk of damage to spring cereals from leatherjacket grubs but also a real risk that infestation will damage fields remaining in permanent grassland.

The group discussed the importance of carrying out field surveys to establish what densities are present in the soil. With this information spring management decisions can be made to limit the impact on farm. If high levels of grubs are found within particular grassland fields decisions can be made to analyse if it is worth continuing to use that land for spring crop or silage production, knowing that yields will be affected and damage likely to occur. Instead farmers could concentrate efforts on another field with lower grub densities.

As chemical use is no longer an option, farmers need to look to damage limitation. This way time, effort and money wastage can be limited. Identifying grassland fields with high grub numbers, well before they start to cause damage, will be key. This can prevent fertilisers being applied to fields where the forage yields will be much lower or spring crops being planted into a field where they will be subsequently decimated by the grubs still present after ploughing and cultivation.

You can carry out your own leatherjacket survey - see information at [www.sruc.ac.uk/info/120118/crop_clinic/509/sampling_guide/6](http://www.sruc.ac.uk/info/120118/crop_clinic/509/sampling_guide/6)
Don't overlook pH and soil nutrient status

Arable fields should aim to have a pH of 6.2 to try to ensure the best availability of soil nutrients for crops. That was one of the points highlighted at a recent meeting with Bob Simpson and Family at Castlemains, East Lothian.

Soil Quest’s Hamish Knottenbelt discussed the technology available through GPS soil sampling, which can help to get the best out of soil while only feeding what the crop needs in terms of fertiliser requirements and ensuring the long term productivity of the land.

Hamish stated that one in four soils in the UK are deficient in phosphorus; this equated to a £38/ha loss in yield on low soil status or £122/ha on very low soils. By careful management and a detailed understanding of what your land needs, you can move towards much higher yields and healthier crops.

Knowing your soil status would help you to make to more accurate fertiliser applications which can improve nutrient use efficiency and lead to significant savings. Through a nutrient budgeting program Bob found, over the entire farm, if new the recommendations were adopted the farm could save £2,700 in fertiliser costs with no loss of production.

For more information on the work SRUCs GreenCow facility, visit the SRUC website here.

GreenCow

The Rumbletonrig discussion group had an interesting meeting with Dr Jimmy Hyslop in January and a tour of SRUCs ‘GreenCow’ facility at Easter Howgate. Jimmy updated the group on up to the minute thinking on feeding and breeding of cattle and how this can effect greenhouse gas emissions throughout their lifetime.

A tour of the facilities followed where farmers were shown the apparatus used to measure beef cow performance. This included a look at the state of the art “hoka” feed bunkers (photo top right). The feeders weigh the exact amount of feed eaten, alongside cameras that provide information on conformation and weight determination. The group also visited the respiration chambers, used to measure gas emissions from cattle and sheep.

For more information, see the meeting notes on our webpage.

Keeping your cows happy

Are your cows happy and healthy? This question was raised by Jamie Robertson, Livestock Management Systems Ltd with the Woodhead discussion group in February.

Not only should farmers be on top of livestock health, but they should also consider the wellbeing of their livestock as a route to achieving target yields according to Jamie. Key issues to consider were lighting and ventilation, with emphasis on the fact if cows are contented and comfortable they will be more relaxed, therefore, more productive and higher milk yields should follow.

Jamie outlined a number of ideas to consider. With a few small investments, it could lead to big improvements in animal performance.
Improving ventilation in the beef shed

The conditions animals are housed in have a significant impact on their productivity, health and welfare, the farm’s profitability and in turn, the farm carbon footprint.

Inadequate ventilation can increase the risk of respiratory conditions such as pneumonia. With good ventilation, bacteria and viruses do not survive for long once they have been exhaled, but in a poorly ventilated environment, pathogens live longer and provide a significant reservoir of infection in the air - easily spreading disease from animal to animal. Adequate ventilation should ensure sufficient fresh air is coming into the building to replace the warm damp air exhaled by the animals – aim for a minimum of a complete air change every 6 minutes.

The space available for air to get into and out of the building is key. ‘Natural’ ventilation relies on the principle that the wind causes a difference in air pressure inside and outside the building, drawing in fresh air and displacing the stale. The ‘stack effect’ is where heat generated by the animals rises and escapes near the top of the building, e.g. from the ridge, and in turn this draws fresh air in lower down. The best ventilation is achieved by a combination of both ‘natural’ and ‘stack’ effects.

The outlet is probably the most important feature and an unrestricted open ridge of 0.3 – 0.4 m wide is good for ventilation. A protected or cranked ridge should be avoided as this can reduce the air outlet by around 80%. A good air inlet is essential - using space (Yorkshire) boarding, perforated sheets, or plastic mesh are common on modern buildings. The area of ventilated wall will depend on how much total air inlet is required (depending on number/type of stock) and the type of material. It is recommended that the total area of inlet ventilation is twice that of the outlet.

Smoke testing on a muggy day will identify ventilation issues. Aim for smoke to clear completely in 2 – 3 minutes, and it should not linger in corners.

This article was originally published in our column in Farming Scotland Magazine.
How efficient are you?

Maximising farm efficiency was discussed in February at Ardoch of Gallery and again soil testing proved to be key to maximizing yields. Speaker John Middleton from Yara, stated that approx. 57% of soils are found to be low in 2 or more micronutrients essential to plants; it’s likely this will be having an impact on yields. Soil testing and precision farming techniques can help you to identify what areas of the farm need more (or less) nutrients. Understanding your soil will help the longevity of your land and help to support better yields.

Spend some time with your cows

Spending a few hours watching cows in the shed and acting on your findings can have a big impact on herd performance and improve efficiency.

Rest: Lying times will be reduced if cubicles are not up to standard. Check cows knees and hocks for any damage caused by hard beds. Stand on the beds and drop to your knees - if this is sore for you then it’s likely to be sore for the cow and will reduce lying times.

Space: Cows need space to socialise. Shed floors should give a good footing to allow her to show signs of oestrus without fear of falling. Consider constructing a loafing area next to the shed. Each cow needs a minimum of 7m²; below this could depress yields and reduce performance.

Feed: Feed should be easy to reach and pushed up regularly. If cows have rubbed or swollen necks or briskets, the position of the barrier will need to be changed. A poorly placed rail can reduce intake by over 1kg per day. Remove any waste feed before adding fresh; if refusals increase there may be something else affecting intakes or a nutritional factor needing further investigation.

Water: There should be at least 10cm of trough space per cow filled with clean, palatable water. Cows are thirsty after milking so consider fitting a trough filled with the water from the plate cooler just outside the parlour. This warmer water can help to boost intakes.

Light: Cows require 16 hours per day of 200 lux. Melatonin production is increased improving milk yield and fertility. For 8 hours at night, light should be reduced to 50 lux. Lux meters are relatively inexpensive and a good way to assess housing light levels. Making the most of natural light will reduce electricity costs.

Air flow: 0.2m² inlet and 0.1m² outlet is required per cow for good airflow. Good airflow will keep cows cool and remove bacteria and other pathogens. Smoke bombs are a cheap and easy way to assess the airflow in your shed.

This article was originally published in our column in Farming Scotland Magazine.

Hillend on tour

In March this year the Hillend focus farm discussion group travelled to Northern Ireland to have a look at how things are done over the water.

The discussion group were kindly invited to visit three family run farms and CAFRE’s Greenmount College Farm. The visitors were able to view the differences in daily practices and discuss the day to day issues that occur within dairy units in Ireland.

You can read more about Hillend’s Learning Journey via the Hillend focus farm page on www.farmingforabetterclimate.org
Tips and ideas shared at events across Scotland

It’s always good to hear what other people are doing. There have been a number of Farming for a Better Climate meetings in association with the Farm Advisory Service (FAS) looking at practical changes that could make your business more resilient; improving and protecting farm soils featured heavily at the meetings. Here is a round up of some of the topics covered at these additional events held across the country.

Manure was the topic of the day in January with Gavin Elrick and Alan Bruce in the North East. This popular event looked at the actual nutrient requirement of crops and showed how to use this information to assess the quantity of fertiliser you need to apply and where and when to apply it to get maximum value out of slurry and manures.

Mary Jane Lawrie, SAC Consulting discussed choosing and managing greening options to minimize grass weeds in arable fields in January.

West Lothian Nutrient Network farm meeting in March looked at soil and nutrient management with aim of reducing fertiliser costs, improving soil structure and biodiversity and making the best use of organic manures. By getting your soil analysed and having a look at soil structure you can make small changes to your management in order to improve efficiency and improve output.

Grassland establishment and mixes were discussed in Thurso and Inverness in March. Visitors were able to see a selection of fields under noticeably different management and discuss the techniques to get the most out of your grass. Guest speaker Paddy Jack of DLF discussed the importance of soil health to your livestock, making the very true comment that “if you want a heavy cow or a good yield, it all starts in the soil”.

If soil is bare it is not gaining any more nutrients and is at higher risk of erosion through wind and heavy rains. By planting cover crops there are clear improvements in soil organic matter, structure, microbial life and reduced nutrient leaching. The 4 ‘I’s - improve soils; improve nutrient balance; improve weed control; and improve soil structure were discussed in June about the benefits of cover crops in protecting your soil from erosion by wind and water.

Do you know your soil? Download our Visual Evaluation of Soil Structure (VESS) and grab a spade. The soil tests take around 20 minutes and describe how to access topsoil in 3 simple steps. Go on, get outside and see what’s underneath.

Keeping up to date

Our Facebook page and Twitter accounts are gaining in popularity. From photos and information about meetings to findings from others in the Facebook and Twitter community, there’s plenty of useful bits of info. Find us at Farming for a Better Climate on Facebook or follow us on Twitter @SACFarm4Climate
Practical Guides and Case Studies

Our Practical Guides and Case Studies highlight tips and ideas that could help to improve farm profitability. They are a good starting point, with a range of references and additional information. You can read about a variety of activities, from alleviating soil compaction to pre-lambing management and see how other farmers have approached similar issues.

Can your buildings cope with changing a climate?

Several new practical guides have been produced to provide top tips for adapting farm buildings to reduce the impact of climate change, for full selection visit our adapt to climate change pages.

Focus on Field drainage

Currently the majority of drainage schemes in Scotland agriculture land is between 20-50 years old (with some being up to 100). With climate change predictions of increased rainfall, is your farm fully equipped to deal with the increased pressure on the land?

SAC Consultant Gavin Elrick has produced a practical guide, which discusses the steps you could take to improve drainage on your farm.

Find these and other Practical Guides via the front page at www.farmingforabetterclimate.org

Farming for a Better Climate - more profitable than you might think

With Scottish Government funding and support from NFUS, SAC Consulting are running the Farming for a Better Climate (FFBC) initiative. With input from working farmers, FFBC considers straightforward and practical ways we can improve business profitability, which will turn help to reduce farm greenhouse gas emissions linked to climate change and demonstrate that farmers are also taking action to tackle climate change.

There's no one measure, but instead a whole range of ideas suitable for most farms that could benefit the farm business and help to reduce emissions through improved efficiency. Tips and ideas are grouped under five key action areas.

Notes from focus farm meetings and details of upcoming on-farm events are available via our Facebook and Twitter accounts or at www.farmingforabetterclimate.org

Five key action areas:

- Using electricity and fuels efficiently
- Developing renewable energy
- Locking carbon into the farm
- Making the best use of nutrients
- Optimising livestock management
Where are our previous and current focus farmers...

... how can you benefit?

It’s always good to see what others are doing, identify tips and share your ideas about common issues. Each Focus Farm hosts a series of practical, on-farm meetings with farmer speakers, SRUC Consultants and industry specialists to look at practical ways to strengthen and develop the farm business.

The Focus Farms have around 5 meetings or visits each year at times to suit the farming calendar. Meetings are free of charge and all farmers are welcome to attend.

If you farm and would like to come along to the meetings you would be very welcome. You can read notes from previous meetings on the project website at www.farmingforabetterclimate.org via the individual climate change focus farmer pages. Meetings and events are advertised through our Facebook page or on our Twitter account @SACFarm4Climate. You can also discuss the programme in more detail with your local farm facilitator.
Further information and contact details

There is more information about what we are doing, along with dates of our forthcoming meetings on our Facebook and Twitter feeds. You can read more about the farms, download practical guides and case studies at www.farmingforabetterclimate.org

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Thank you for reading the newsletter. If you would like to be notified when the next newsletter is out, email climatechange@sac.co.uk and ask to be included on the mailing list. Your email details won’t be shared with anyone else. You can also keep up to date with the project via Twitter @SACfarm4climate or find us on Facebook

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