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Stewart Tower family farm walks

While the south of the UK basked in an October heat wave, Stewart Tower near Stanley, Perthshire was shrouded in low cloud and drizzle, with the occasional burst of heavy rain. Not an ideal day for a farm walk, but as the original event back in August was cancelled in light of a severe weather warning, we were quietly crossing our fingers that we could dodge the showers to carry on with the three farm walks planned for the day.



The walks aimed to introduce visitors to Stewart Tower ice cream parlour and farm shop to some of the challenges and opportunities that farmers face when it comes to reducing greenhouse gas emissions. As we are all being asked to reconsider our activities to help to tackle climate change, there were tips for non-farming visitors to take and use at home too, based on some of the things farmers already have to consider.

After an overview of Stewart Tower Dairy by host Neil Butler, SAC's Sinclair Simpson explained how important it was to maintain soil health on the farm. Clover in grass swards was also not to be underestimated as clover provided a key source of organic nitrogen; visitors garden lawns could also benefit from this approach. Sinclair also looked at the relationship between plants (who would have thought that a potato and tomato were so closely related?).

Derek Robeson, SAC Conservation Adviser was on hand to highlight steps farmers are taking to support farm wildlife. Derek suggested which practices would be suitable to adapt and use at home to help wildlife cope with a changing climate. For example, wildflowers could help to provide food for bees and habitat for other garden visitors such as hedgehogs, encouraging a natural method of slug control.

As the majority of participants were not from a farming background, farmer Neil Butler explained how they manage the dairy herd at Stewart Tower and use some of the milk to make their ice cream. Visitors were able to take a look at winter rations, 'meet' one of his dairy cows and

enter a competition to guess the daily milk yield of one of his herd.



Neil Butler explains the dairy cow's daily routine

Despite the weather, visitors really enjoyed the opportunity to get out and about on the farm and hear about some of the challenges and measures farmers are taking to help to reduce greenhouse gas emissions. One lady said alongside giving a space in her garden for wild flowers she was now going to change her husband's diet in the hope she could further contribute to greenhouse gas reduction!

There are plans for a follow up event in 2012; keep an eye on the FFBC events pages for more details.

Focus Farm Update: Torr

Along with a high profile visit recently (see next item), Ross and Lee Paton at Torr have been taking steps to make better use of nutrients on the farm and further increase energy efficiency.

As an organic dairy farm, Torr relies on clover to fix nitrogen for grass uptake, along with additions from slurry and manures. Installation of an additional slurry store has extended storage capacity giving Ross and Lee more flexibility in terms of when to apply slurry, matching nutrient additions in line with the demands of the growing crop.

A recent discussion group meeting at Torr focused on soil structure, with a visit to Culnaightrie, a neighboring farm to look at soils under a minimum tillage (min-till) regime.

SAC soil specialist Bruce Ball highlighted the importance of soil structure, illustrating problems such as compaction and poaching, what effects this was having on farm soils and how these issues could be remedied. The meeting invited farmers to bring in a slice of soil from the farm for assessment.

There were a range of soils brought in, from compacted, wet soils that would need some remediation work to good healthy soils.



SACs Bruce Ball examines a soil sample

To really get a handle on what is happening at soil level, you need to take a look underneath. In a nearby field containing a rotationally grazed short term grass mix Ross and Bruce did just that. By digging a soil pit potential reasons why the field was not performing as well as expected were investigated. The main issue was the shallow rooting depth. Ploughing in manures, planting deeper rooting crops and even agro-forestry were all discussed as potential remediation options.

The afternoon saw a visit to neighbouring Culnaightrie by kind permission of William Lindsay. William favoured a min-till

approach on his beef and sheep farm. William discussed choice of livestock and crop varieties at Culnaightrie along with other techniques and rotations used to promote soil health and maximise yields.



William Lindsay and Bruce Ball (right) discuss soil structure at Culnaightrie

A look at the soil profile confirmed that William's approach was the right one for his farm, with a nice friable soil, good rooting depth and plenty of worms. Along with maintaining soil health there were financial benefits too; William estimated that it would cost half as much in fuel per hectare using min till when compared with conventional ploughing.

Future events are planned to explore livestock efficiencies in more detail and a site visit to look at a nearby on-farm micro hydro installation; farmers can be added to a distribution list to be informed of future meeting dates and topics. For more information contact David Keiley in the SAC Dumfries Office on 01387 261172 or email david.keiley@sac.co.uk.

Torr hosts Ministerial visit

Steps Scottish farmers can take to improve efficiency and reduce agriculture's impact on climate change were under the spotlight when Stewart Stevenson, Minister for Environment and Climate Change visited Torr farm.

The Minister toured Torr with Ross and Lee Paton, and saw some of the measures they had introduced which, while helping to reduce the farm's

emissions, have also saved the business money.

During the Minister's visit, nitrous oxide monitoring chambers were being installed at Torr by Dr Bob Rees, Head of SAC's Carbon Management Centre. These will enable the farm to measure how much nitrous oxide is being released from soils on different parts of the farm.

Stewart Stevenson MSP said: "Torr Farm clearly demonstrates that farmers are part of the solution to tackling climate change. Emissions from agriculture and related land use are estimated at 20% of Scotland's total. The agriculture sector recognises it has an important role to play to tackle emissions, and that is why we are working in collaboration with the industry through the voluntary Farming for a Better Climate initiative." "Farming for a Better Climate has had a great response from those involved, and results will inform future policy decisions. Practical steps can be taken, such as making efficiency savings when using energy and fuels, which not only helps the environment, but makes financial sense too."



Farmer Ross Paton with Stewart Stephenson MSP discussing energy use at Torr

Ross said: "We were pleased to welcome the Minister onto Torr and to have discussed the various measures we have put into practice. We have learned many things from our first year and are looking forwards to exploring further measures that will continue to improve our efficiency and reduce emissions."

Fuel from farm woodlands

Wood fuel harvested on the farm is increasingly being seen as a sustainable and cheaper alternative to heat provided by kerosene or LPG. Two events, hosted by kind permission of Arniston Estate, Midlothian and Douglas and Angus Estates, Lanark explored these issues along with growing, managing and harvesting high value broadleaf trees on the farm.

The meetings run by SAC, Forestry Commission Scotland, the Association of Scottish Hardwood Sawmillers and the SRPBA (Scottish Rural Property and Business Association and supported by Farming for a Better Climate, highlighted how the recent introduction of the renewable heat incentive (RHI) will also help the numbers to stack up.

SAC's Neil Harrison explained how co-operative working can offer opportunities for wood fuel operations. Neil said "Many farmers haven't considered the potential value of the woodlands on their farms. Very often simple management can make a tremendous difference"

If you would be interested in attending a similar event in your area, let us know by emailing climatechange@sac.co.uk

Focus Farm Update: Glenkilrie

The programme of autumn/winter meetings is already underway with the first event looking at making the best use of nutrients to maximise output.

SAC speakers Alex Sinclair and Peter Shipway highlighted the importance of clover not only in fixing nitrogen thereby saving on nitrogenous fertilisers, but also in sustaining grazing quality and the benefit that has on animal performance at grass. At Glenkilrie, the farm's own manures and slurries proved a valuable source of phosphate and more especially potash for grass and clover growth.

Maintaining good soil physical conditions such as soil structure, aeration, drainage and freedom from compaction were also highlighted as important pre-requisites to good grass growth and good nutrient management.



Healthy soil profile with plenty of worms and deep rooting grass seen at Glenkilrie

Part of the meeting considered if GPS soil analysis to establish soil nutrient status could pay off for an upland hill farm, targeting expensive N P and K inputs to the areas which require it most? With the results from two test fields in hand, the meeting illustrated that for Glenkilrie, it wasn't viable to go down the GPS road to establish soil nutrient status but was an interesting exercise to have carried out as part of the Focus Farm investigations.

Future events under development include a meeting to explore opportunities under the Renewable Heat Incentive and managing farm woodlands for wood fuel. More details are available from Peter Lindsay in the SAC Perth Office on 01738 636611 or email peter.lindsay@sac.co.uk

Improving efficiencies with Fertbench

Fertbench is a new online Suckler Herd Fertility Benchmarking Service. It's the first service of its type for beef farmers and the first to allow farmers, vets and consultants to work together to solve problems and improve productive performance.

How could Fertbench help tackle climate change? Fertbench helps farmers identify how they currently perform against targets and other herds which in turn identifies areas for improvement. Taking steps to improve efficiency also reduces methane emissions, producing more kg of beef from the same number of cows, or the same amount of beef from fewer cows as well as improving the farmers bottom line. To quote one simple example, taking steps to tighten the calving pattern and having more calves born in the first 3 weeks of calving leads to heavier calves at weaning. This adds value for store sellers and potentially reduces days to finish and cuts methane emissions.



Fertbench has been designed to provide beef farmers with suckler herds with the kind of management information that those in the pig and dairy sectors have been using for several years. It provides a consistent method of comparing herd performance with industry standards and other herds through a variety of filters including calving year, country, region plus options for groups of farmers.

Fertbench measures physical performance from mating to weaning and has been designed to be practical and easy to operate. It uses readily available data that every farmer can provide such as bulling period, cows not in calf, calving dates and deaths and it is surprising how much information can be generated from this information. It then highlights areas for improvement and provides a diagnostic section to help identify reasons for poor

performance, identifying practical steps for improvement.

Recent QMS data for LFA suckler herds identifies that herds with average performance could increase calf weight sold by almost £70 per cow if they can achieve top third performance and much of this improvement arises from improving rearing percentage from 88% to 94% and tightening the calving pattern.

Interested? Visit www.fertbench.com or contact Iain Riddell, SAC Consulting iain.riddell@sac.co.uk.

Focus Farm Update: Upper Nisbet

Upper Nisbet is a mixed beef and arable farm extending to 433 ha plus 76 ha of seasonal land. Farmers Robert and Jac Neill grow 60 ha of winter wheat, 60 ha winter barley, 110 ha spring barley, 13 ha field beans and 12 ha potatoes (on contract). Crops are grown both for home use and for malting.

Robert & Jac were already taking steps to improve business efficiency and mitigate greenhouse gas emissions from routine practices, for example taking account of nutrients in farmyard manure applications and making better use of inorganic fertiliser. They are also considering how energy from renewable sources can benefit their business and local environment.

Following an energy audit, carbon footprint and GPS soil analyses, Robert and Jac along with SAC Farm Facilitator Moira Gallagher are all set for the first farm open day on 20th October 2011. The event will provide an overview of practices at the farm and introduce some of the forthcoming farmer discussion group meeting topics which include energy use and renewables, the Renewable Heat Incentive, precision fertiliser application using GIS technology and future supply chain requirements.



All are welcome to attend this introductory event at Upper Nisbet; so as we can estimate numbers for lunch, please book a place with the SAC St Boswells office on 01835 823322 or email frsstboswells@sac.co.uk

Easter Howgate Technology Showcase

SAC's new "GreenCow" research facility outside Edinburgh hosted an event highlighting some of the latest technology and ideas linked to the science of livestock production.

Visitors to the SAC GreenCow facility had a tour of the 'big shed' which included a look at the methane monitoring hoods and respiration chambers and hear talks from industry specialists on ongoing research work.



'Hoods' (opened for photo) used to measure methane emissions whilst livestock are feeding

It's a popular misconception that the majority of methane comes from the back

end of the cow. Studies have shown that in excess of 90% of methane from cows can be released as burps from the front end.

The specifically designed 'respiration chambers' which collected and measured methane from cows certainly got people talking. From climate control to cushioned flooring, all the cows' needs were catered for during its 'luxury mini break' in the chamber. These strictly controlled conditions allow scientists to identify which factors are key to lowering methane emissions from livestock.

Following the success of this event, a second meeting specifically for livestock farmers to take a look round the facility, hear about some of the practical ideas for use on the farm and highlight potential opportunities and future developments under the climate change agenda is planned for later in February 2012. Email climatechange@sac.co.uk if you would like to be kept informed of the date and final programme.

Could a carbon footprint benefit your farm?

What is your carbon footprint and why should you consider one for your farm?

A carbon footprint highlights all the greenhouse gas emissions associated with your business. Some carbon footprints will highlight how much greenhouse gases in terms of a kg or litre of produce leaving the farm, allowing you to compare the performance of your business with like enterprises. A large carbon footprint could indicate higher than averages losses from the business i.e. that you are not making best use of inputs.

Knowing what your carbon footprint is will provide a good starting point to consider what you can do to reduce business losses; reducing greenhouse gases has been shown to strongly correlate with lower production costs and improved profitability.

For livestock units, looking at forage quality and the use of livestock manures are two key areas that could increase farm profitability and lower the carbon footprint.



Ensuring suckler cow fertility is not unduly compromised is an essential part in maximising live calf numbers. This includes good husbandry practices such as selecting replacements from fertile stock, use of EBV's, bull fertility checks, condition scoring cows, good grassland management, biosecurity measures, health planning and many other small but cumulatively significant practices.

Calculations have shown that achieving 5% greater calf numbers (reducing barren cows and calf mortality by 5 in 100 cows bred) could improve finisher cattle sales by over 3t liveweight/100 cows and reduce greenhouse gas emissions by 10% per kg carcass weight.

Unimpaired field drainage, modern grass varieties and timely field operations presents an opportunity to increase forage quality without necessarily compromising yield. Improved forage quality will encourage intakes and promote youngstock growth-rates or off-set purchased feed use.

Improving grass silage energy content by 1MJ/kg DM over six month feeding period is equivalent to around 90kg barley in a growing beef ration or 35kg liveweight. Assuming the same total dry matter intake, in this scenario, 2.5% additional carcass weight sold, beef finishing greenhouse gas emissions can be

expected to reduce by around 6% per kg carcass weight.

There are many other actions you can take to benefit the farm business which also reduce greenhouse gas emissions from your farm.

The Farming for a Better Climate website at www.farmingforabetterclimate.org could help you take one step at a time towards a more efficient, lower cost system with a reduced carbon footprint.

Farming for a Better Climate five key action areas

- Optimising energy and fuel use
- Use of on-farm renewables
- How we can 'lock in' carbon to soils, trees and plants
- Better use of nutrients
- Optimising livestock management

For more information on how a carbon footprint could help your farm or how to establish a step by step plan, contact Robert.logan@sac.co.uk or telephone 0131 535 3440.

Alternatively, take a look at some of the DIY web based DIY tools, for example www2.cplan.org.uk/ and [www.cla.org.uk/Policy Work/CALM Calculator/](http://www.cla.org.uk/Policy_Work/CALM_Calculator/) both offer farm carbon footprinting tools.

Focus Farm Update: Stewart Tower

Despite a mixed season, the grass/clover swards at Stewart Tower continue to perform well. An application of 20 units/acre (25kg/ha.) of nitrogen produced a very respectable second cut silage yield of 7.0t/acre (17.0t/ha.). This kind of yield would be difficult for some high nitrogen input timothy/ryegrass swards to match.

Not only has this strategy been a good one for the farm business by making better use of on farm slurry and manures

and cutting spend on N fertilisers, it's also another step towards a smaller carbon footprint at Stewart Tower.



SAC Consultant Sinclair Simpson and Farmer Neil Butler discuss grass and clover at Stewart Tower

What do you think about Climate Change?

PhD student Diana Feliciano from The James Hutton Institute and Aberdeen University is undertaking a survey on greenhouse gas mitigation measures proposed for agriculture in Scotland.

If you are a farmer and you are interested in how agriculture can contribute to reducing the risk of climate change please spare 5 minutes of your time to complete the online questionnaire at <http://surveys.hutton.ac.uk/index.php?sid=54931&lang=en>

Diana has promised to update us with her findings via a newsletter later in the year; your response will be an important contribution for this study. For further information you can contact Diana directly at diana.feliciano@hutton.ac.uk.

Forthcoming events

Dates for the diary include:

- **Upper Nisbet – Arable Climate Change Focus Farm open day**
Thursday 20th October 11am at Upper Nisbet Farm, Jedburgh.

As already highlighted in the newsletter, this is the first event at Upper Nisbet and the meeting will highlight some of the key actions that Robert and Jac Neill will be considering over the next two years.

With speakers from both SAC and industry, this will be an informative meeting, covering topics ranging from the Renewable Heat Incentive to precision fertiliser applications using GIS technology.

So as we can estimate numbers for catering, please book a place with the SAC St Boswells office on 01835 823322 or email frbstboswells@sac.co.uk

- **Future proofing Scotlands Farming: Trees a valuable resource, Woodland Management and Biomass**

Tuesday 1st November, Forfar

The Soil Association are holding a practical day looking at trees from planting, pruning to processing, funding available, how to best manage existing woodland, opportunities for selling wood, wood fuel, what you need to know to commission a boiler and RHI. Speakers include Neil Harrison, SAC, Mike Strachan & David Bruce, Forestry Commission. The day will also include a visit to Inshewan Estate courtesy of the Gibb family. Where there will be a demo of small scale harvesting machinery. The event is free of charge to primary producers & £60.00 plus VAT to others. Booking is essential so lunch and resources packs can be provided. With support from SRDP's Skills Development Scheme & QMS

Call Lyn Matheson on 0131 666 0847 or email LMatheson@soilassociation.org for details

- **On-Farm Energy Generation Scotland**

The Royal Highland Centre, near Edinburgh, 24 November 2011

Richard Lothead, cabinet secretary for rural affairs and the



environment, has declared his ambition to see every farm in Scotland benefitting from renewable energy in some shape or form. Join industry experts at the Royal Highland Centre and learn how you can harness the power of your land, diversify your revenue streams and do your bit for Scotland's future.

On-Farm Energy Generation will enable farmers and landowners to gain valuable information on the range of technologies available for on-farm energy generation, as well as covering other issues that will influence investment decisions.

Farmers and members of the Scottish Agricultural College are entitled to a 20% discount off the standard delegate rates at time of booking when mentioning this newsletter.

For more information and bookings please call 01722 717031/033 email events@markallengroup.co.uk or visit www.recyclingwasteworld.co.uk/conferences

Need more info on events?

Get in touch if you would like more information about any of these events or to be contacted when additional farm meetings have been confirmed (Renewables and livestock efficiencies meetings are currently being planned).

Alternatively, keep an eye on the Farming for a Better Climate events pages at www.sac.ac.uk/climatechange/farmingforabetterclimate/newsandevents/events/ as FFBC and other climate change related events with an agricultural focus will be posted there.

FFBC - Farming for a Better Climate

We are all going to have to take a second look at previously accepted practices if Scotland is going to meet its greenhouse gas reduction targets of 42% by 2020 (based on 1990 levels).

With Scottish Government funding and support from NFUS, SAC are running the FFBC initiative to help the agricultural sector demonstrate it is also helping to reduce Scotland's emissions.

Alongside web-based information including practical guides and case studies highlighting what other farmers are doing, SAC are working with four 'climate change focus farmers' and farmer discussion groups to look at practical ways to improve the farm business whilst also cutting greenhouse gas emissions.

The key to reducing greenhouse gas emissions is **improved efficiency**, which is also vital for a sustainable and profitable business.

Improving farm efficiencies is the approach taken by the project with plenty of practical information and ideas from working farmers and industry specialists.

Who are the 'Climate Change Focus Farmers'?

- David and Morag Houstoun – Glenkilrie upland beef and sheep farm near Blairgowrie
- Ross and Lee Paton – Torr Farm near Castle Douglas. Brother and sister team with an organic dairy farm in Dumfries and Galloway
- Neil and Linsey Butler – Stewart Tower, Stanley Nr Perth. Dairy farm with some arable cropping alongside a farm shop and award winning ice cream parlour
- Robert and Jac Neill – Upper Nisbet, Nr Jedburgh. Recently welcomed to the project to represent arable interests amongst the climate change focus farms.

For more information on the project, the focus farmers and key action areas, take a look at www.farmingforabetterclimate.org

Getting in touch

What would you like to see covered in future newsletters? Do you want to be part of a farmer discussion group? Would you like to attend an event in your area? Are

you already taking steps to mitigate or adapt to climate change? We would love to hear from you. You can send a general enquiry to climatechange@sac.co.uk

notified when the next newsletter is out, email climatechange@sac.co.uk

Alternatively, you can contact one of the team:

- **Project Coordinator** — Rebecca Audsley, SAC Auchincruive Office. Tel 01292 525089 or email rebecca.audsley@sac.co.uk
- **Glenkilrie Focus Farm SAC Facilitator**—Peter Lindsay, SAC Perth Office. Tel 01738 636611 or email peter.lindsay@sac.co.uk
- **Stewart Tower Focus Farm SAC Facilitator**— Sinclair Simpson, SAC Perth Office. Email Sinclair.simpson@sac.co.uk Tel 01738 636611
- **Torr Focus Farm SAC Facilitator** — David Keiley/Gillian Reid, SAC Dumfries Office. Tel 01387 261172 or email Gillian.reid@sac.co.uk or david.keiley@sac.co.uk
- **Upper Nisbet Focus Farm SAC Facilitator** – Moira Gallagher, SAC St Boswells Office. Tel 01835 823 322 or email moira.gallagher@sac.co.uk



In the next edition of FFBC news...

We will hear more about the launch event at Upper Nisbet and their plans for future farmer discussion group meetings.

We will also include examples of practical steps from the discussion group meetings and measures other farmers are putting in place to make better use of inputs, benefit the business and reduce greenhouse gas emissions. Let us know if there are other topics that you would like to hear about.

If you are not already on our email distribution list and would like to be