

Nether Aden farm walk Including new Livestock and Arable Technologies

Nether Aden, Mintlaw,
Aberdeenshire
Climate Change Focus Farm

Notes from the meeting on
24th July 2017

The latest meeting in the series of Climate Change Focus Farm events at Nether Aden took the form of a farm walk - looking at green manures, winter barley and several grassland fields. This was followed by an update on arable and livestock technologies.

Farm walk; crops and green manures

The meeting started at Turfhill of Auchtylair where host David Barron had sown a field of green manures. There were two main reasons for this decision - FYM was 4 miles away so this was an opportunity to put some biomass back into the soil and build organic matter and also the business had successfully applied to the Agri-Environment Climate Scheme - with Retained Winter Stubble followed by Green Manures selected as one of the options. This would see the business paid to establish an area of Green Manures on the farm over the next 5 years. See the [AECS scheme guidelines](#) for further details.

As these crops had only recently come to the fore (driven by the current environmental schemes) there was a feeling amongst the group from farmers to advisors alike that it was still early days in the learning process for successfully growing these crops.

The crop itself was sown in early May 2017 and while slugs had caused damage in part of the field, the area had recovered with a significant amount of growth during July to the point that there were concerns from SAC Specialist David Lawson about how to chop it and incorporate it effectively in the autumn.

David Lawson discussed the roles of cover crops - how it was important to consider what you want from the green manure and how there was much more to it than an environmental payment.

Crops such as mustards and phacelia could help increase organic matter due to their high levels of biomass. Fodder Radish, as well as having a good level of biomass also had a good tap root, ideal to help open up heavier and compacted soils. Oats could help harvest/scavenge Nitrogen, preventing it from leaching. Nitrogen fixing crops such as clovers and vetches could also help build nitrogen and fertility for a following crop. There was also the undoubted boost to biodiversity from introducing these crops.

The mix at Turfhill clearly served a multitude of roles although David Lawson was quick to point out that the amount of organic matter returning to the soil may be smaller than thought based on experiences of maize growers in England. The group agreed that a measurement of the biomass should be taken for reference and comparison with other mixes grown elsewhere to help build knowledge.

A grass and clover based mix may be better suited to Aberdeenshire. Many of the same benefits could be achievable without the same level of above ground biomass, therefore making incorporation far easier. This mix would be winter hardy allowing benefits for both spring and winter sown crops.

There was also the potential that leaving some of these crops to grow through the winter so that they flowered and set seed could leave a legacy of volunteers and weeds for future crops. Stuart Milne (farm agronomist) felt that most should be handled by a standard spring weed spray programme, particularly given the seed mix that had been established on Nether Aden. As things stood David Barron's preferred cropping option following the green manure was Winter Wheat which will result in the green manure being ploughed in during the month of August, although he was also open to other cropping options.

Seed mixture sown at Turfhill	
Phacelia	2%
Berseem Clover	4%
Fodder Radish	24%
Black oats	12%
Vetch	20%
Winter Oats	38%



Green manure mix at Turfhill showing plenty of biomass



CCFF group discussing green manures in the field

Winter barley

The group took the opportunity to look at a field of Winter Barley at Turfhill. The field of Escadre was almost ripe and in common with most crops was looking well. David Barron was interested to hear the groups opinions on whether he should look to another variety? Escadre had done him well and produced a good sample of barley in terms of bushel weight which can be a problem in wetter summers in Aberdeenshire. Suggestions included looking the some of the hybrid barleys which would see increases in yield, however David would be unable to home-save seed. Alternatively there were a number of conventional varieties that he could choose from, however there was some concern regarding their specific weights. David also highlighted that a good crop of spring barley was far more profitable with winter barley being much more expensive to grow although it did allow earlier access to feed barley for his cattle - something he has had to buy in this summer.



Field of promising Escadre winter barley at Nether Aden 2017

Grass fields - the “Gym” field

This field had been sown to a mix of Italian and Perennial Ryegrasses. The cattle had access to this field most of the year and David Lawson commented on how fresh it still looked with plenty of Ryegrass still present judging by the easily visible shininess of the leaves. It had clearly managed to recover well as it had taken a lot of punishment with the suckler cows having access to it through the winter – it was essentially what David Barron referred to as the “gym”. His own feeling was that the savings in straw and the benefits to herd health from allowing the cows outdoors, far outweighed the costs of any damage to the sward over the winter.

Silage fields

The group look at a field which had been silaged recently; sown with a mix of Perennial Ryegrasses and clover in July 2016. Normal practice is to apply 100 units/acre (125kg N/Ha) of Urea to silage fields, however this year only 50 units had been applied (62.5kg N/Ha) and the pit had still been filled. This was seen as a terrific saving both financially and for the environment and was a lesson learned from being involved with the project, as an early Carbon Audit revealed that Nether Aden inorganic fertiliser usage was high relative to its peers. Reseeding the field had allowed the use of newer grass varieties which were showing a significant increase in production when compared to the old sward.

The seed mix contained modern high sugar varieties of ryegrasses resulting in the grass produced being higher in energy for stock. The 30% clover content in a sward (like this) would typically fix 60 – 80 units of Nitrogen, helping maintain grass growth and being less reliant on fertiliser from a bag.

34 acre field

This field had been sown with a dual purpose mix of perennial ryegrass (high sugar varieties), clover and also some Timothy in May 2016. This mix should be longer lasting than the previous two fields and according to David Lawson should be capable of maintaining productivity for 4 or 5 years.

This field was soon to be split to allow the farm to operate a 21 day paddock grazing system to try and optimise grass growth and usage. David Lawson was impressed at how well the grass was looking and took this back to the farms lime policy which, by keeping pHs in the optimum range, had ensured adequate availability of nutrients (especially Phosphorus) which helped ensure successful establishment of grasses and clover. David clearly felt that this was an area which could be neglected by grassland farmers, however was very easily remedied by sampling and liming. He felt that the current farm practice towards fertilisers and lime would help boost productivity and get the best from the high output mixes being sown.

David Lawson then discussed some of grassland variety trial work he was involved in. Since records began in 1975 significant progress had been made with productivity increasing by 0.5% year on year.



David Barron discussing Nether Aden's current grassland management with the group

Arable technologies; Lewis McKerrow (Agrovista)

Precision farming allows producers to gather data and manage their crops for optimal performance.

Currently sensors/ drones, soil sampling, plant breeding and GM crops were available and while it was still early days in some cases offered a glimpse to their future potential. Measurements below ground, of crop growth and environmental factors can be undertaken.

Typical uses of these technologies include soil mapping, crop sensors for biomass, drones and climate and disease monitoring. These can result in time savings- both in machinery and record keeping, fertiliser and lime, savings in natural resources (water and fuel) and also help manage soil organic matter.

Precision farming also allowed better management of the soil with different areas of fields capable of being managed appropriately as opposed to being treated at a flat rate. Zoning provides a management tool with one development now being a Nitrogen risk map highlighting areas where leaching and volatilisation are more likely. Other technologies such as crop sensors allow N uptake and rate to be calculated, with drones also capable of this plus additional tasks such as measuring EFA areas, plant counts in higher value crops etc.

In the future this will extend into telemetry on machinery providing more data which will become more user friendly. It is not however a magic wand and the basics of good farming practice will still remain- rotations, cover crops etc. however these technologies will ultimately assist producers to optimise their crops.

Livestock technologies - Ross Williams (Norvite)

Ross looked at 3 main areas where new technology could be applied in the livestock sector.

- Heat detection
- Calving devices
- Cameras

Heat detection

Heat detection can play a vital role in identifying the correct time for serving particularly when using AI. This can help to speed up genetic progress, with the use of better bulls, sexed semen etc. to target the production of a specific type of animal. Timeous insemination also ensures a greater chance of success and the offers scope for real savings, especially in cases where expensive semen is being used.

Calving devices

Ross looked at two types already on the market:

The Media- Vel'phone involved inserting a thermometer into the cow which on reacting to changes in the cows body temperature would send a message to a radio base unit which would alert the farmer by text if the temperature changes were suggestive of calving.

Moo-call was a sensor on the cows tail which monitored tail activity pre-calving. When this was suggestive of calving a text would be sent to the farm.

Cameras

Cameras had been available for a number of years however were becoming much cheaper to install as competition has increased. Advances had seen the ability to zoom in (even capable of reading tags), wi-fi, sound and colour. The ability to record footage also enabled stockmen to check if calves had suckled or a bull was working. David has recently installed a calving camera and has been very pleased with the performance, alerting him to a number of occasions where his intervention was required.

In term of the future, Ross could see more automated weighing and recoding of stock, plus technologies coming across from the pig sector, particularly in combination with EID technology to improve recording systems. Having immediate access to animal data can help with numerous management decisions.

Key take Home Message

New practices such as green manure and the selection of newer grassland varieties are paying off in terms of both financial return and resource efficiency. Technology also has a role to play going forward in agriculture in terms of optimising the potential of both livestock and arable enterprises by targeting inputs and aiding management.

There are nine climate change focus farms in Scotland. Keep up to date with their activities at



www.farmingforabetterclimate.org

Meetings are free to attend and all farmers are welcome.

Contact farm facilitator
alan.bruce@sac.co.uk or telephone
01888 563 333 for more information on
the Nether Aden discussion group.

Farming for a Better Climate is funded by the Scottish Government as part of the Farm Advisory Service (FAS). The Climate Change Focus Farm programme is supported as part of its Veterinary and Advisory Services (VAS) legacy activities

