

Feeding cattle for better returns

Nether Aden
Climate Change Focus Farm

Notes from the meeting on
28th October 2015

This meeting was the fifth in a series of Focus Farm events at Nether Aden aiming to increase farm profitability while reducing greenhouse gas emissions. Working with hosts David and Nicola Barron, plus industry specialists, the farmer discussion group will investigate a range of practical and profitable ideas. This meeting looked at feeding cattle for better returns.

Forage quality How good is your silage?

Over a quarter of the silages analysed by SAC Consulting this year have insufficient protein and nearly half have a protein content below 10%, (the historical average would be 13 to 14% protein content). Its likely this is due to the cold and wet spring which resulted in poor uptake of nutrients which also delayed the harvesting time.

Table 1: Average Silage Analysis Results (Across all SAC Area Offices)

Preservation	DM (%)	CP (%)	ME (MJ/Kg DM)	D Value %	pH	Ash (%)
Pit	27.7	10.2	10.8	67.4	4.2	7.5
Bale	35.2	10.1	10.7	66.8	4.5	7.4

SRUC's Karen Stewart emphasised the importance of forward planning in relation to winter feeding. As a consequence of the low protein silage, it is even more important now for all livestock farmers to get a silage sample taken for lab analysis, which will give them get a better picture of feed stocks for the winter period. Karen explained the main points for a farmer to pay attention to in silage sample results - DM, D value, ME and CP. At Nether Aden there were two cuts of grass silage and one cut of arable silage (peas and barley). Table 2 shows David's results from the silage samples taken recently.

Table 2: Nether Aden Silage sample results

Main Points	1 st Cut Silage	2 nd Cut Silage	Arable Silage
DM	31.2%	44.1%	26.2%
ME	11.4%	9.8	9.4
CP	11.3%	9.5%	11.4%
SIP	108	93	

Who gets what?

Once silage analysis results are known, you should then decide what silage to feed to what animals, if they have multiple cuts of silage or arable silage.

Your best silage goes to suckling cows (autumn first then spring), followed by replacement heifers and first calvers, then finishing stock (if there is any), then weaned calves or stores or sheep.

The poorer silage should be allocated to dry spring calvers (especially fat ones) and any other stock on the farm.



Suckler Cow Condition and feeding

Feeding over the winter period and getting the cow in the right condition pre-calving was discussed; this will also help in the next breeding season. Attention should be given to 1st and 2nd calvers, with cows put into groups depending on condition e.g. a group for thin cows, a group for fat cows and a group for cows in the correct condition (Table 3). The amount of feed can be adjusted as required to get cows into the correct condition score for best performance. For a spring calving herd grouping by condition should be done around the end of October/start of November to allow enough time for the cows to get into the right condition score for calving. Delaying this until around Christmas/new year is too late and increases the risk of problems occurring during the calving season.

Table 3 - Feed for cows in different condition, using average silage.

Feed	Fat 650kg cow -0.5kg/day	Normal 650kg cow No loss or gain	Thin 650kg cow To gain 0.5kg/day
Silage	20	25	32
Straw	3	3	3
Barley	-	-	1
Minerals	0.15	0.15	0.15

Energy requirements of a 700kg cow change over time. At 20 weeks before calving she needs 75MJ of energy, at 8 weeks before calving she will need 90MJ and at 2 weeks before calving she will need 113MJ.

In terms of protein, Spring calvers need 9% CP in the dry matter, and Autumn calvers need 12% CP when suckling. These protein requirements can be met by good quality grass or silage based diets; bad quality silage will not be sufficient.



Feeding cows and heifers to be ready for the calving season

At Nether Aden, the cows are put into groups and fed a ration of ammonia treated straw and barley. The quantity of barley fed depends on condition. The average ration at 8 weeks before calving for a 700 kg cow to lose 0.3 kg/day is 12 kg ammonia treated straw. For cows looking to gain 0.5 kg per day, the ration is 12 kg of ammonia treated straw and 2 kg of barley. Heifers and thin cows also get silage.

Once cows are calved on Nether Aden they are put onto a feed of 1st cut silage, straw and barley. It will be important to be careful regarding the straw inclusion rate as this will reduce the energy content of the ration.

Key points

- Get forage analysed
- Use this information to workout a winter feeding regime
- Match the different forages to the different types of animals on your farm
- Condition score cows and put them into groups if possible and feed them according to their condition. This needs to be done around the end of October/start of November and then re-assess the cows half way through the winter period.

Mineral supply

Important for livestock throughout the year

David McClelland, Technical Director of Norvite, highlighted the benefits from making sure livestock were getting the correct amount of minerals. Table 4 shows the results from silage mineral analysis taken on Nether Aden and compared to the UK average.

Table 4 - Mineral supply via silage at Nether Aden compared with UK Average.

Minerals	Nether Aden	UK Average
Magnesium (%)	0.18	0.19
Sodium (%)	0.49	0.31
Copper (%)	7.1	7.45
Iodine (%)	0.45	0.86
Selenium (%)	0.04	0.05
Cobalt (%)	0.67	0.21
Molybdenum (%)	1.46	1.47

Silages at Nether Aden compared well but had a high sodium content compared to the UK average - one possible reason for this could be the inclusion of draff in the silage.

David emphasised the trace elements that are of importance to the Suckler cow throughout the year and especially coming up to the calving season. Table 5 shows the trace elements and the amounts needed to allow for easy calving and provide good colostrum for the calf; Table 6 looks at the mineral and trace element content within silage and straw.

Table 5 - Trace elements

Trace Elements	What the animal needs to get per day
Copper	150-400mg
Selenium	3-5mg
Iodine	12-50mg
Cobalt	5-10mg
Manganese	335-415mg
Zinc	335-750mg

David advised the farmers present on a range of different trace elements and emphasised the need to get the right balance in terms of suckler cow mineral intake. The need to feed the correct rate depending on the liveweight of the cow was also emphasised.

Iodine was highlighted as one element that needs particular attention to strike the right balance as too little, as well as too much, can cause problems. Iodine is not stored in the body and so it must be supplemented in the diet. Low dietary iodine intake can cause problems such as an increased incidence of stillbirths, calving problems such as retained foetal membranes etc. Low iodine can affect the calf too. Small and weak calves may be produced with decreased resistance to hypothermia, a decreased survival rate and low immunity.

However, supplementing too much iodine in the diet will lead to toxicity which could lead to poor colostrum absorption in the new born calf. If in doubt, get a blood test taken for plasma inorganic iodine, this is the most reliable way to confirm low iodine status.

Table 6 - Mineral and trace elements in silage and straw

Mineral/Trace Element	Silage	Straw	(%)
Calcium (g/kg)	4.5	4.0	88
Phosphorus (g/kg)	2.8	0.7	25
Magnesium (g/kg)	1.9	1.0	53
Sodium (g/kg)	2.4	2.2	95
Sulphur (g/kg)	1.6	1.7	105
Cobalt (mg/kg)	0.2	0.1	50
Copper (mg/kg)	5.7	5.0	88
Iodine (mg/kg)	0.63	0.07	11
Manganese (mg/kg)	75	35	47
Selenium (mg/kg)	0.03	0.02	67
Zinc (mg/kg)	30	12.5	42

Profiting from carbon footprinting

Farms with low carbon footprints are often those that are also most efficient. Improved efficiency = cost savings.

Carbon footprinting on farms identifies the quantity and source of Greenhouse Gas (GHG) emissions. It highlights areas where these can be reduced which could lead to a financial saving for the farm business and no loss of production.

SRUCs Gillian Reid outlined three main GHGs produced on livestock farms: **Carbon dioxide** (CO₂) from the burning of fossil fuels which can account for up to 22% of emissions. **Methane** (CH₄), the by-product of enteric fermentation (digestion in the rumen) making up around 50% of emissions. **Nitrous oxide** (N₂O) is released from crop residues and soil disturbance. Nitrous oxide can make up around 28% of emissions from a livestock farm.

Under the Climate Change Act (2009), The Scottish Government is aiming to cut national emissions by 80% from 1990 levels by 2050. Retailers/processors are also keen to promote 'green' messages with their products - having an emphasis on sustainable food production is becoming a good selling point in the global food marketplace. The Irish have taken this approach through the *Bord Bia Origin Green Programme*; farms are audited on sustainability issues, while the food processors are required to reduce waste, emissions and water use on site.

Gillian explained that web based **Agricultural and Resource Efficiency Calculator** (Carbon Calculator) [AgRE Calc](#) can measure whole farm emissions and split these into each enterprise on the farm. Once known, you can look to reduce emissions by tweaking existing practices, which will ultimately save money for the business.

Following the carbon footprint carried out at Glenkilrie, a previous focus farm, a plan was put in place to reduce emissions, which led to a reduction in the carbon footprint of around 10% and a saving of £11,000 in the process. Some of the key measures carried out by David and Morag Houstoun on their upland beef and sheep farm were:

Condition scoring to aid rations	Silage analysis
Calving at 24 rather than 36 months	Maximising herd performance
Reduced straw use – bedding cattle on recycled wood chips	

Its predicted that a carbon audit may be needed under the SRDP Beef Efficiency Scheme. Gillian finished her talk by outlining that through the Nether Aden discussion group, farmers could receive help this year in compiling their own carbon footprint and action plan.

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.

For Nether Aden, contact farm facilitator Alan Bruce on 01888 563 333 or via email at alan.bruce@sac.co.uk for more information.

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