Nutrition Planning at Auchernack, the Strathspey Monitor Farm
Monitor Farm Scotland Innovation Project

SAC
CONSULTING

Part of Scotland's Rural College (SRUC)

MONITOR FARM Scotland

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Instruction

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Introduction

At the start of the monitor farms programme, the business undertook an Integrated Land Management Plan (ILMP). This allowed for a review of the current business, by an independent advisor who identified potential opportunities for the business in the future. One of the opportunities, was to fine tune the cattle rationing to maximise the performance of the suckler cows and the growing stock, while making best use of home-grown feed and forages. The business used one of their two Farm Advisory Service specialist plans to take this forward, for this they were assisted by Karen Stewart, SAC ruminant nutritionist.

The project included,

- Feed budgeting
- Ration planning
- Data collection
- Evaluating animal health and bloods pre calving

Farm Set Up and Current Feeding System

The farm has both spring and autumn calving cows. These are spread over two holdings: the home unit, Auchernack, and a nearby rented unit, Congash.

The spring herd are housed at weaning time in November, on straw bedded courts. For the winter they are typically offered a ration of silage and straw. After calving they are turned out to grass in May. The average cow weight for the spring herd is 650kg.

Spring born calves are housed at weaning on slats and rationed silage and 3-4kg of a 4:1 mix of 34% protein pellet and barley. The calves are weighed throughout the winter and are sold at 12-14 months old from the shed.

The autumn herd are also housed at weaning time in November. The cows are offered silage and straw pre-calving. After they have calved, they are offered 1kg barley per head along with ~35kg (ad-lib) silage. The cows and calves are turned out at the start of February, to a 40-acre wooded area, at which stage the calves are introduced to creep feed. These cows are heavier than the spring herd, the average cow weight is 790kg.

Forage

The first exercise carried out was a feed budget. This allowed the business to understand if they had enough winter feed available for the housing period. This included both pit and baled silage and stocks of cereals such as barley.

To do this the silage was analysed to understand its dry matter and feed value. In addition, the bales were weighed, and the pits were measured (height x width x depth). This allowed an understanding of what forage was in stock. The groups of cattle, their number, weights, requirements and feeding days were then taken into consideration to understand the feed requirement. With the feed available and the feed requirement, a feed budget was calculated. This is shown in the appendix section. This is best used as a "live" document, to ensure that rations being fed are in line with the forage available. It is advised to carry out a second forage stock, half way through the winter, to allow a plan to be made if less forage is available than planned.

The farm has access to two silage pits, where forage is stored for the winter-feeding period. For the 2023/24 winter there were four different silages used for the cattle. These were all analysed to understand the nutrition available in the forages.

	Auchernack Pit	Auchernack Bales	Clachaig Bales	Congash Pit
Dry Matter (%)	23.9%	47.1%	29.0%	32.6%
Crude Protein (% in DM)	11.8%	11.0%	10.3%	10.2%
Metabolisable Energy (MJ/kg DM)	10.5	10.3	9.8	9.6

Table 1: Silage analysis for 2023 made forages

The Congash pit was sampled again in February, to check the analysis. The results showed higher energy and a lower dry matter than the initial sample. Malcolm Smith reported that there was a seam of drier forage in the pit during this period as well. The table below shows the sample differences. It could be possible that the October core sample took in some of the dry seam that was in the pit which didn't accurately show what was currently being fed. This shows the importance of being flexible and monitoring rations throughout the winter period.

	Congash Pit	Congash Pit
Analysis taken	October 2023	February 2024
Dry Matter (%)	32.6%	26.3%
Crude Protein (% in DM)	10.2%	10.0%
Metabolisable Energy (MJ/kg DM)	9.6	11.0

Table 2: Difference in Congash pit

The animals that were being offered this silage were the spring in calf cows, spring born calves and autumn born calves. This change in silage composition made rationing challenging, especially for the in-calf cows who were on restricted rations, to ensure they did not gain weight in late pregnancy. The youngstock were easier to manage as they were offered silage ad-lib so quantities could be adjusted by eye according to their intakes.

The table below shows the change in diet for the spring calving suckler cows in February following the analysis of the Congash pit. When Malcolm got to the dry seam in the pit, the rations were adjusted as Malcolm and Karen saw appropriate as it was a temporary issue.

	Ration based on October silage	Ration based on February silage
Silage	30 kg/hd/day	34kg/hd/day
Straw	1 kg/hd/day	1kg/hd/day
Mineral	120g/hd/day	120g/hd
Cost of ration	£1.08/hd/day	£1.20/hd/day

Table 3: In calf cows change of diet based on straw £70/t, silage £30/t and minerals at £900/t

Rations for the spring born weaned calves changed with different silages being fed. This altered from Auchernack pit and bales and moving to Congash pit, as well as changing from dried barley and protein to ALpHA treated barley and 34% protein concentrate. The table below shows some of these changes. The Congash pit silage was lower in protein than the Auchernack pit, meaning the animals required more protein in the diet (some of this from the ALpHA* barley and some from a bought in protein concentrate).

*ALpHA barley is a urea treated barley to improve protein content of the barley and because of the treatment the barley is also alkaline which helps with good rumen health.

	Ration based on Auchernack pit and Clachaig bales (early winter)	Ration based on Congash pit silage (Early sample)
Auchernack Pit Silage	5kg/hd/day	-
Auchernack Bales	5kg/hd/day	-
Congash Pit Silage	-	12kg/hd/day
Barley and Protein Blend	3.5kg/hd/day	-
ALpHA barley	-	3.3kg/hd/day
34% protein concentrate	-	0.7kg/hd/day
Cost of ration	£1.33/hd/day	£1.37/hd/day

Table 4: Weaned calves change of diet based on silage £30/t, ALpHA barley £210/t, protein concentrate £455/t, barley and protein blend £295/t

Throughout the winter period, Malcolm and Karen touched base frequently, to understand if the cattle were performing as expected on the rations that had been formulated. Rationing is not an exact science and good communication with a nutritionist helps keep feeding on track when there are changes in what bales or pits are being fed. The feed budgeting spreadsheet was used by Karen as a working document, to look at the rations and the availability of the forage. Rations were tweaked throughout the winter, following discussions between Malcolm and Karen, an example of this would be, when the one batch of bales was running out, and changes to the analysis of other bales meant alterations to the ration to ensure the ration was still meeting the animals' needs. Changes to a ration in the wrong direction do not have an impact in a few days or weeks, however, over longer periods they will be significant in terms of cows gaining or losing too much condition or youngstock not meeting their weight gain targets.

External or independent eyes from the business looking into the cattle systems and the rations being offered, were invaluable to the Smith family. There were alternations to rations throughout the winter period, which would not have typically happened on the holding. Animals were rationed according to the nutrient composition of the silage, and their weight, stage of production and performance. For the Smith family they have benefitted from the rationing process. Malcolm said, "it was good to get back to proper rationing (like when I was dairying) knowing exactly what the feed costs were especially when deciding how long to keep the calves. We can definitely save more costs on the cow rations, and we need to look more at producing quality silage to reduce ration costs for the calves."

Forage stocks should be monitored a couple of times the whole winter to check that the rations and forage availability are on track. This aids early intervention if stocks are short to prevent sudden ration changes at key times such as calving. The spreadsheet can be updated through the winter with stocks of silage and ration changes, predicting where there will be shortfalls and excesses in feed supply. It can also act as a "what if" or "stress test" if for example, there is a longer winter, checking how forage and feeds supplies look. An example of the spreadsheet can be found in the appendix.

Young Stock

Like many producers in 2023/2024, shortly after housing the Smiths had an outbreak of pneumonia in their spring born calves where 80 calves were treated. Although none were treated in the autumn born calves, they took a check in weight gains as well. This was largely due to the combination of

- Weaning stress
- Warm humid weather
- Possibly shed ventilation (identified by Jamie Robertson, a ventilation expert, at one of the management group meetings)
- Calves not being vaccinated this year

The weight gains of the calves reduced significantly during the outbreak, which saw calves gaining around 0.6-0.7kg/day, compared to the typical weight gain of 1.0kg/day.

The calves recovered after treatment for pneumonia, allowing their feed intake and weight gain to improve. Weight gains between 17th December 2023 – 8th April 2024 were 1.20kg/day. Double the weight gain throughout the pneumonia outbreak.

To understand the performance of the calves, the weight gains of the calves were analysed.

Spring Calves

The farm collects the birth weight and a weaning weight for all the calves. Using the birth and weaning weights, gives an insight to how the calves perform over the summer months, while they are at grass, with their mothers.

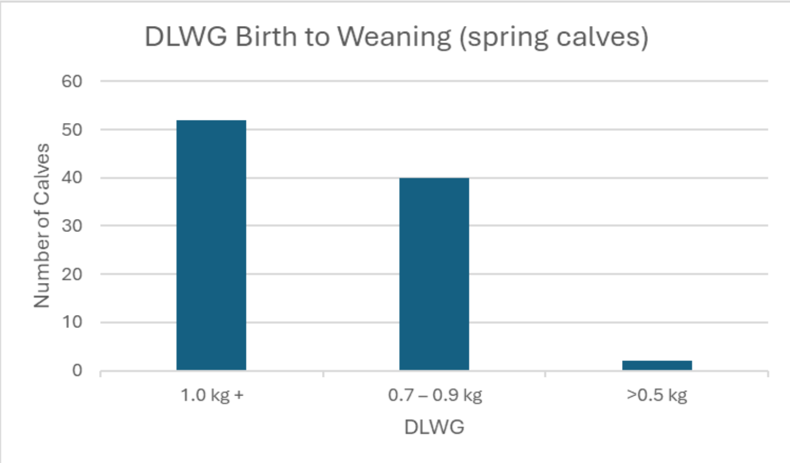

Chart 1: Daily live weight gain to weaning – spring calves x 94

The best weight gains were from a batch of 18 later weaned calves that were left outside with their mothers longer than the main batch. They were not weaned and housed during the pneumonia outbreak and did not have the same check as the main of the herd.

The overall average weight gain for the spring calves to weaning was 0.95kg/day (1kg/day). An aim for the farm would be to have a higher percentage of calves in the 1kg + category going forward, which would be aligned to the industry target of a growth rate to weaning of at least 1kg/hd. There is no one quick formula to achieve this, and requires a combination of genetics, health, nutrition and management. Gathering performance data for the herd allows for a picture to be created to understand where the current weaknesses are, and where improvements can be made.

To make this weaning weight comparison meaningful, calf weight data would need to be adjusted to 200 days of age to consider the spread of calving. There will also likely be a range of birth weights, which could be a difference of 20kg. An example of this difference is shown below. This is a measure the business could assess going forward, allowing an understanding of how both the cow and calf have performed.

	Average Growth Rate to Weaning	x 200 (days)	Birth Weight	200 day calf weight
Example 1	1.1kg/day	220kg	40kg	260kg
Example 2	1.1kg/day	220kg	60kg	280kg

Table 5: Example of the effect of birth weight on 200-day weight

An industry target 200-day weight is approx. 275kg, although there will be variation between males and females. The 200-day weight can also help determine how efficient each cow is with the aim to wean around 50% of the cows' bodyweight in calf weaning weight (adjusted to 200 days).

Autumn Calves

The autumn calves were weighed when they were housed in November, and the daily live weight gain calculated, from birth to weaning. These weights showed more calves in the 1kg+ category than the spring born calves. This is shown below in chart 2. However, shortly following weaning, their weight gains suffered, none of these calves were treated for pneumonia, but with the extent of the outbreak in the spring herd, would mean there were autumn calves with sub-clinical pneumonia, which would affect their performance.

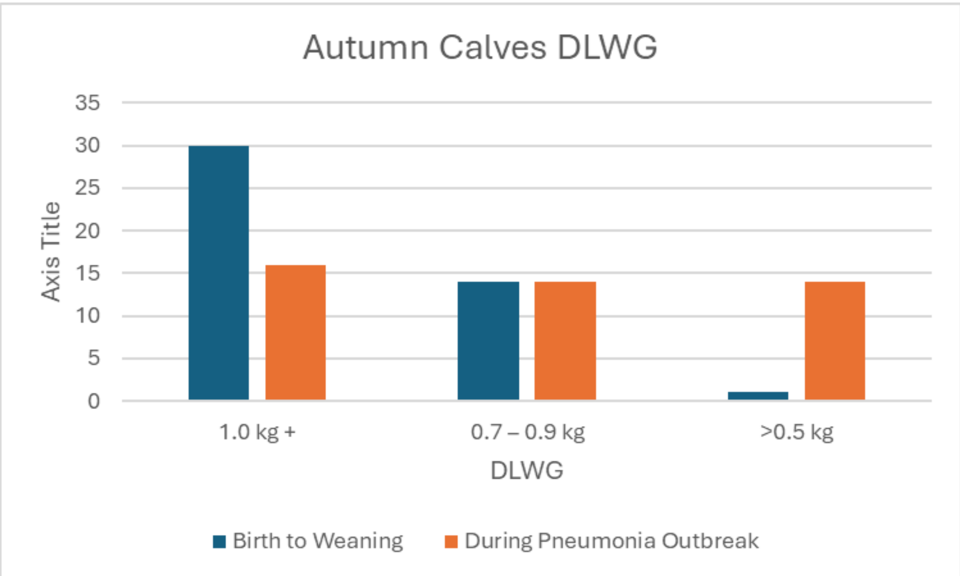

Chart 2: Daily live weight gain to weaning – autumn calves

The average weight gain from weaning in November to sale in February was 0.8kg/day. This shows how much the calves were affected by housing/weaning/pneumonia. Their sale weights below reflected this, however in the 2023 figures there were 6 heifers from the previous spring included which makes the sale weight in 2023 appear higher.

Autumn Calves Sale weights

	Steers			**Heifers**	
	2023	**2024**		**2023**	**2024**
Number sold	18	22		7	6
Average Weight	466.89kg	435.91kg		476.29kg	398kg
Average Price/kg	£3.05/kg	£3.51/kg		£2.89/kg	£3.39/kg
Overall Average	£1423.06	£1529.55		£1375.00	£1350.00

Table 6: Sale details for autumn born calves (2023 and 2024)

Note: 6 heifers in 2023 batch were spring born 2021, hence being heavier and distorting the figures, these were sold with autumn steers.

Spring calf sale weights

A total of 83 spring calves were sold through Aberdeen and Northern Marts in April 2024.

The average weight gains from December to April for the spring calves was 1kg/day. This included a period where weight gains were low due to pneumonia outbreak.

Key information from spring born steers and heifers sales in 2023 and 2024 are shown below and allow for comparisons between the two years.

	Steers			**Heifers**	
	2023	**2024**		**2023**	**2024**
Number sold	35	47		33	36
Average Weight	419.83kg	411.19kg		369.52kg	371.78kg
Average Price/kg	£3.22/kg	£3.41/kg		£3.10/kg	£3.12/kg
Overall Average	£1351.43	£1402.15		£1145.51	£1159.95

Table 6: Sale details for spring born calves (2023 and 2024)

The rations were tailored to the cattle using home grown forages and treated barley aiming at a daily live weight gain of 1.1kg/day

Cows

Throughout the winter Malcolm and Karen spoke regularly to adjust the cows' rations depending on forage supply, cow condition and stage of pregnancy of the cows. The ration was adjusted several times throughout the winter, depending on the forage being fed, the condition, etc. Malcolm has commented these changes caused no extra work or hassle on the farm during feeding, but he was rest assured the cows were getting what was required for maintenance and pregnancy.

The cows that were housed at Congash Farm, were the spring calving cows. With these cows being away from home, the family were feeding the cows every two days, to save time and fuel. When feeding cows every two days, rather than every day, it is harder to restrict the ration. The ration would be restricted to ensure the cows were not becoming too fit over pregnancy. Cows will tend to eat the fresh forage in front of them all day on the first day, resulting in less being available on the second day, leaving them with a longer period of no forage, compared to being fed every day.

A solution to this, to a certain extent, was adding in straw to bulk up the ration, however, there was a limit to how much straw we could add before dropping the overall protein of the ration too far from the required 9%. The younger, leaner cows were separated, and given 1kg of barley in addition to the forage for 6 weeks to bring them back up in condition. Malcolm commented that some of the cows from Congash were too fat for calving. For next year, the aim would be to condition score the herd at housing and group fat and thin cows for separate rationing as early as possible.

Ideally, going forward, cows at Congash would be fed every day to maximise the potential of the home-grown forage, and to assist managing the cows pre calving.

The autumn calving cows ration was unaltered during the winter period.

Conclusion

The nutrition planning was carried out using a forage and full feed budget, as well as rationing the cattle to match the forage available. Matching the forage to the cattle was not straightforward as the Auchernack pit was opened first along with some bales. Bales are hard to manage in rationing as they vary in composition and weight depending on their batch and a whole bale is needed, it is harder to split bales for putting into the mixer wagon. Congash pit was opened and used later in the winter.

Feed planning is a process that benefits from consistency over a longer period. One year is just a snapshot, the real benefits come over time when nutrition is managed well over a period of years. As seen this year, the Smith Family had a pneumonia outbreak which was costly in terms of lost weight gains and medication.

We concluded that there was a little more silage used this year, due to the youngstock having better access to the forage all day and night. In previous years, Malcolm and Calum thought that the spring and autumn born calves cleared up silage early evening leaving 10 hours of missed feeding opportunity. There was 16t less barley used this year for similar weight gains as last year, resulting in a saving of £2,880 (barley at £180/t).

There is this cost saving and if the calves had not had the pneumonia outbreak, the weight gains may have been higher. However, there is also scope to improve on weight gains generally.

Next steps

Next steps for the Smith Family are to analysis their forages annually and carry on using the Forage and Total Feed Budget calculator as "live" documents. This will ensure that they have sufficient forage and feeds for the winter period and make best use of homegrown feeds. It will be especially important to analyse the pits a couple of times throughout the winter period. The feed budget also helps plan according to cattle numbers in groups, feed availability changes or in planning for longer feeding periods i.e. if weather is poor and cattle are to be in for longer.

Feed budgeting and ration planning gives peace of mind that cattle are fed to requirements and the most is being made of the forage available on the farm. Having an independent person to look over feeding plans gives confidence and a good return on investment. This year the Smith family saved on the cost of their barley, the extra silage used is harder to quantify. There are areas recommended to focus on going forward which are summarised below:

- Cattle weight gains – lifetime weight gains of the spring calves are just under 1kg/day as an average. There is scope here to improve weight gains to weaning which will require to investigate how these can be improved from birth to weaning (at grass). Checking calf 200-day weights with what their dams are and what grazing fields to see where improvements can be made.

- Condition management of the spring suckler cows – carrying on with rations and, if possible, find a way to feed daily rather than every 2 days to keep better control of intakes. Using condition scoring at weaning to group cows and feed according to condition.

- Youngstock at Congash – meeting their potential by ensuring that access to silage is as adlib as possible, and perhaps look at whether feeding more and getting higher weight gains and selling a couple of months younger would be worthwhile. For example, feeding an extra 1kg of barley has the potential to gain an extra 0.2kg/day which would give value of an extra 43p/day/animal after extra feed costs (if store cattle price was £3.20/kg). However, there are a few factors to consider; would store buyers want them heavier/fatter, would their pence per kilogram drop? Would they reach this potential extra weight gain if there are other limiting factors such as shed ventilation and health challenges such as pneumonia? Could they reach higher gains without extra barley by having less of a health challenge/weaning check?

Appendix 1 – Forage Budget

Example of the Excel Spreadsheet

Note the pit volumes were provided by Malcolm Smith, the spreadsheet would normally use dimensions of the pit to calculate the volume. ***Please note that this is a working document and information in it is not static.***

Auchernack pit		
Pit Length	0	metres
Pit Width	0	metres
Pit Depth	0	metres
Pit Volume	600	m^3
Silage Dry Matter	23.9	%
Silage Density	780	Kg/m^3
Total Freshweight	**468**	tonnes
Total Dry Matter	**112**	tonnes

Congash pit		
Pit Length	0	metres
Pit Width	0	metres
Pit Depth	0	metres
Pit Volume	900	m^3
Silage Dry Matter	32.6	%
Silage Density	690	Kg/m^3
Total Freshweight	**621**	tonnes
Total Dry Matter	**202**	tonnes

1st cut bales Auchernack		
Bale Weight	500	kg
Number of Bales	164	
Silage Dry Matter	47.1	%
Total Freshweight	82	tonnes
Total Dry Matter	38.622	tonnes

1st cut bales Clachaig		
Bale Weight	600	kg
Number of Bales	86	
Silage Dry Matter	29.5	%
Total Freshweight	51.6	tonnes
Total Dry Matter	15.222	tonnes

Straw		
Bale Weight	250	kg
Number of Bales	1000	
Straw Dry Matter	90	%
Total Freshweight	250	tonnes
Total Dry Matter	225	tonnes

whole farm view	Date Measured		09/01/24			
	Tonnes Fresh	Freshweight Ratio	Tonnes DM	Current Usage (column J sheet 2) Fresh kg/day	Days feed (less 10% waste)	Date will run out
Auchernack pit	468	32%	112	3758	112	30/04/24
Congash pit	621	42%	202	2436	229	25/08/24
1st cut bales Auchernack	82	6%	39	1808	41	18/02/24
1st cut bales Clachaig	52	4%	15	0		#VALUE!
Straw	250	17%	225	200	1125	07/02/27
Totals	1,473	100%	593			

*Density Table (tonnes fresh weight per cubic metre)

DM (%)	Clamp height (m)			
	2	**2.5**	**3**	**4**
20	790	840	890	950
25	690	730	780	830
30	620	660	690	740
35	570	600	630	670
40+	520	550	570	610

Note – Crop bulk density is similar for grass, wholecrop and maize silage. Bulk densities are a guide, which also depends on level of silage compaction, chop length and fibre content.

Appendix 2 – Example of the Feed Budget

(using information from the forage budget). ***Please note that this is a working document and information in it is not static. It is used to look at the rations planned and what that does to forage and feed stocks. Also changing costs and stocks to do "what if" scenarios.***

Total Feed Budget

Feeds available			cost (£/t)
1st cut silage pit Congash	478	t	30
2nd cut silage pit Auchernack	621	t	30
1st cut bales Auchernack	82	t	30
1st cut bales Clachaig	52	t	30
straw	100	t	100
ALpHA barley	90	t	210
balancer	12	t	455
		t	

	Ration 1	Ration 2	Ration 3	Ration 4	Ration 5	Ration 6	Ration 7
Group of Cattle	sucklers sp	sucklers Au	yearlings	spring calves	stock bulls	autumn lact.	
Number in group	70	60	60	70		58	
Start of feeding	17/11/2023	17/11/2023	17/11/2023	17/11/2023	17/11/2023	17/01/2024	17/11/2023
End of feeding	24/04/2024	17/01/2024	24/04/2024	24/04/2024	24/04/2024	24/04/2024	24/04/2024
Number of days	159	61	159	159	159	98	159
Daily ration (kg/hd/day)							
1st cut silage pit Congash	0	0	0	0	0	42	0
2nd cut silage pit Auchernack	22.2	23.4	7.5	5	0	0	0
1st cut bales Auchernack	7.2	8.4	7.5	5	0	0	0
1st cut bales Clachaig	0	0	0	0	0	0	0
straw	1.4	1.7	0	0	0	0	0
ALpHA barley	0	2	3	3	0	2	0
balancer	0	0	0.5	0.5	0	0	0
0							
Cost per head/day (£)	**£1.02**	**£1.54**	**£1.31**	**£1.16**	**£0.00**	**£1.68**	**£0.00**

Daily Group ration (kg/group/day)								(t)	(kg)
1st cut silage pit Congash	0.00	0.00	0.00	0.00	0.00	2436.00	0.00	2.436	2436.00
2nd cut silage pit Auchernack	1554.00	1404.00	450.00	350.00	0.00	0.00	0.00	3.758	3758.00
1st cut bales Auchernack	504.00	504.00	450.00	350.00	0.00	0.00	0.00	1.808	1808.00
1st cut bales Clachaig	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00
straw	98.00	102.00	0.00	0.00	0.00	0.00	0.00	0.2	200.00
ALpHA barley	0.00	120.00	180.00	210.00	0.00	116.00	0.00	0.626	626.00
balancer	0.00	0.00	30.00	35.00	0.00	0.00	0.00	0.065	65.00
0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00
Cost per group/day (£)	**£71.54**	**£92.64**	**£78.45**	**£81.03**	**£0.00**	**£97.44**	**£0.00**	**£421.10**	

Winter Group ration (t/group/winter)								(t)
1st cut silage pit Congash	0	0	0	0	0	238.728	0	238.728
2nd cut silage pit Auchernack	247.086	85.644	71.55	55.65	0	0	0	459.93
1st cut bales Auchernack	80.136	30.744	71.55	55.65	0	0	0	238.08
1st cut bales Clachaig	0	0	0	0	0	0	0	0
straw	15.582	6.222	0	0	0	0	0	21.804
ALpHA barley	0	7.32	28.62	33.39	0	11.368	0	80.698
balancer	0	0	4.77	5.565	0	0	0	10.335
0	0	0	0	0	0	0	0	0
Cost for group for winter (£/t)	**£11,374.86**	**£5,651.04**	**£12,473.55**	**£12,882.98**	**£0.00**	**£9,549.12**	**£0.00**	**£51,931.55**

Feed budget for whole	**Available (t)**	**Required (t)**	**Balance (t)**	**Cost (£/t)**	**To Buy (£)**
1st cut silage pit Congash	478.00	238.73	239.27	30.00	FALSE
2nd cut silage pit Auchernack	621.00	459.93	161.07	30.00	FALSE
1st cut bales Auchernack	82.00	238.08	-156.08	30.00	4,682.40
1st cut bales Clachaig	52.00	0.00	52.00	35.00	FALSE
straw	100.00	21.80	78.20	100.00	FALSE
ALpHA barley	90.00	80.70	9.30	325.00	FALSE
balancer	12.00	10.34	1.67		FALSE
0	0.00	0.00	0.00		FALSE

Appendix 3 – Example of ration sheets for youngstock

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Malcolm & Calum Smith
Auchernack
Grantown-on-Spey

DietCheck Beef & Multiple

Diet name	080224 spring calves 350kg	080224 autumn calves 420kg
Animal details		
Weight (kg)	350	420
Breed	Limousin	Limousin
Maturity rate	Late	Late
Growth rate (kg/d)	1.10	1.10
Sex	mixed	mixed
Financial		
Growth rate (kg/d)	1.10	1.10
COAF (£/d) (cost of all feed)	1.37	1.49
COAF (pence/kg LWG)	125	136
Feeding plan (kg As Fed/head/d)		
Congash 1st Cut pit	12.000	16.000
Alpha Barley	3.300	3.300
Cattle Conc. 35%	0.700	0.700
Nutrients (units as stated)		
DM intake (kg/d)	7.2	8.5
ME (MJ/d)	81.9	95.2
ME (M/D)	11.4	11.2
Protein (%DM)	13.8	13.2

With the lower protein in the Congash pit I would prefer a little more protein concentrate into the ration, and I think as the energy of the pit is 10.2ME I think a little more barley as well.
It can be done with 0.5kg protein and 3.5kg barley but I think it is better balanced with 0.7kg protein and 3.3kg barley.

Prices used:
Silage £30/t
Alpha Barley £210/t (based on current price barley delivered £175/t, £15 bruising, £20 treating)
Protein conc. £455/t

These feeding recommendations are only a guide and depend on the accuracy of the information supplied

Appendix 4 – Example of ration sheets for cows

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Malcolm & Calum Smith
Auchernack
Speyside

DietCheck
Multiple

Diet name	080224 autumn calved cows	080224 autumn calved heifers	080224 spring calvers
Animal details			
Weight (kg)	800	650	750
Fat mobilisation change (kg/d)	0.00	0.00	0.00
Financial			
Diet cost (£/d)	1.61	1.69	1.08
Feeding plan (kg As Fed/head/d)			
Congash 1st Cut pit	35.000	30.000	30.000
Straw -Barley	0.500	0.500	1.000
Alpha Barley	2.000	2.000	-
Cattle Conc. 34%	-	0.500	-
Beef Cow mineral	0.120	0.120	0.120
Nutrients (units as stated)			
DM intake (kg/d)	13.6	12.4	10.8
ME (MJ/d)	141	129	105
ME (% req)	105	112	103
Protein (%DM)	9.9	11.0	9.0

I think 0.5kg straw is better for the calved cows, but can put in 1kg if it needs it for keeping ration more "open"
Heifers +0.5kg of protein for milk quality.
Although for autumn calved cows the crude protein is below the desired 11%, the metabolisable protein supply is well met which is what matters.

Spring cows, this is for 4-6wks pre-calving, no weight loss or gain.

Costs used:
Silage £30/t
Straw £70/t
Alpha barley £210/t
Protein conc. £455/t
Beef cow mineral £900/t

These feeding recommendations are only a guide and depend on the accuracy of the information supplied