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“Cattle Outwintering Demonstration” Year 3 Case Studies

**Co funded by Quality Meat Scotland 0131 472 4040
Supported by SEERAD**

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“3 Case Studies”

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- **Ken, Margaret and Andrew Durston of K H L Durston and Partners, North Nevay, Balkeerie, Angus**
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BACKGROUND

For cattle to be outwintered successfully on any system then their welfare and prevailing environmental conditions must be considered. Failure to adhere to welfare or cross compliance measures could potentially have an impact on the Single Farm Payment, if penalties are imposed.

It would be true to say that the majority of Scottish farms could grow brassica crops well, however only a small number of them can outwinter cattle on them.

The importance of the Outwintering Demonstration is not simply outwintering systems versus housing, but to look at the ability of farms to reduce the amount of time cattle spend in the sheds throughout the winter which has labour saving implications.

Our objective is to demonstrate a range of potential self-feed systems as a discussion focus for producers and policy makers alike.

By simply growing a crop and being able to put outwinter cattle on it for a certain period it can then help reduce costs such as bedding, machinery etc.

This is not a new concept.

BACKGROUND TO THE CASE STUDIES

Much encouragement and confidence has come back into the suckler cow industry in the last year with a significant increase in store cattle, cull cows and finishing prices. Recent QMS data show suckler herds in 2005 were on average recording a loss of about £180 per cow taken to weaning and 1 year old store sales.

This has been taken to Net Margin to include all costs with the only subsidy entered being the Scottish Beef Calf Scheme.

Many top herds will be significantly better than this, and with recent improvements in sale values, losses are being reduced.

It is only when adding in the Single Farm Payment and LFASS proportion that make the herds profitable.

This is no different from when subsidies were used but the only change has been that we no longer need to actually produce to get this support.

But we have to now ask ourselves several questions:

- Are the recent increases in sale values for cattle being offset by higher production costs?
- What will we do when in the future if these additional forms of financial are withdrawn?
- It is easy to just assume prices will go up but so do our costs.

Some will argue that that day with no support will never come as Europe will see a rapid fall in production and aim to recouple.

At present this is speculation and we need to continue to look for ways of making beef systems profitable if support is withdrawn.

THE CASE STUDIES

SAC has demonstrated outwintering cattle during the winters of 2004/2005 and 2005/2006 at Easter Howgate outside Edinburgh.

Due to the large variations in climate and soil types so it was decided to carry out year 3 of the work on commercial farms throughout Scotland.

This would allow farmers to see the outwintering at close hand but more importantly in similar conditions to their own farm and so relate easier to it.

The 3 case studies were based in Dumfriesshire, Angus and Aberdeenshire, which allowed a good geographical spread. The farms had been outwintering for some considerable years. Most of the interest on Outwintering has been from these areas due to their suitability to the practice.

The crucial factor of climate was clearly shown during the winter of 2006/2007 when the farms in Dumfriesshire and Angus suffered their wettest winters for some years with little if any frost while in Aberdeenshire it was a good dry winter with only 3 weeks of frost.

Cogarth Farm at Castle Douglas had their wettest November for 33 years (approx. 260 mm) which was double the average. This did prove to be beneficial in the success of the open day as farmers remarked that it was better to see it in extreme conditions as it allowed them to better judge if they could outwinter. The field at Cogarth showed the importance of good soil types as the field and cattle were in good condition even under extreme conditions.

ADVANTAGES OF OUTWINTERING

- Save on costs associated with straw bedding and machinery.
- Reduce wintering costs by keeping cattle out for part or all of the winter.
- Potential to increase numbers of cows kept with some inwintered and others outwintered.
- Outwintering dry cows provides extra capacity to retain store cattle that would normally be sold.
- Store cattle can be successfully outwintered on forage crops plus straw, thus reducing their wintering costs and reducing pneumonia risk.
- Evidence that spring calving cows have fewer calving problems if “exercised” on outwintering systems.
- Evidence that with fewer numbers and the time cattle spend in sheds reduces the build up of infections in buildings prior to calving.
- Heavily stocked sheds throughout winter can lead to health problems such as pneumonia in young calves.
- Cattle wintered outside in the right soil conditions appear contented and healthy.
- Residual value of dung, which is evenly spread throughout the fields, as they are strip grazed. Dunging of field is accomplished with no machinery so reducing costs and soil damage

IMPORTANT FACTORS IN SUCCESSFUL OUTWINTERING – SAC FINDINGS ON BUSH ESTATE

Shelter and Soil Type

Visitors to SAC's Outwintering plots from 2004 to 2006 asked, "which is more important, a dry lie or shelter?" These two objectives are often incompatible; a field, which is too well sheltered, may not be exposed to drying winds and can often dry out slowly. Cows really need both, and so the best option is to use fields where the vast majority of the land dries out rapidly and provides as dry a lie for outwintered stock as possible. Fields, which do not have this capability, should not be considered for outwintering. There also needs to be a degree of shelter to provide protection during extreme conditions. Cows exposed to the elements during extreme conditions will suffer stress.

Where soils are heavy and not well draining, they will poach easily. This results in an immediate welfare problem and problems with regeneration and establishment of crops – and GAEC issues in the future. Runback areas have to be available and capable of taking cattle over winter months. Cows must also have good lying areas. It is advantageous to have two runbacks so that during the winter the cows can move onto fresh ground allowing the other runback to regenerate.

Field Choice

Important that the field is not significantly sloping which is higher risk for soil erosion. Fields in close proximity to watercourses or drinking water supplies such as spring or boreholes should be avoided.

Restrict Vehicle Access

Deep ruts in the ground can cause severe run off and damage to the soil structure.

All SAC Outwintering Demonstration and the case study farms areas had all their winter feed put in the fields prior to the cows entering and so no tractors, machinery or bikes entered the fields afterwards. This was done by putting all the straw required to supplement the brassicas, in the fields at harvest time along the end rigs. Damage to the fields, especially the gateways was significantly reduced and run off and erosion minimised. Rainwater simply lies in ruts made by the cow's hooves and does not move away apart from into soil with natural drainage.

Feeding Practice

GAEC proposals highlight the need to avoid soil damage due to heavy concentrations of stock around supplementary feeding areas. Strip grazing with daily movement of the electric fences avoids heavy build up of cattle around an area. The cows were able to move to fresh feed and stand where the crop had been the previous day, so minimising poaching.

Non Ploughed Fields

Sowing kale directly into an existing grass sward, which had glyphosate, applied was a major factor in the success of the outwintering trials on the kale crop. As the ground had not been ploughed, cows were able to graze the crop on very firm ground. There was limited soil damage on the kale area in comparison with the yellow turnip area, which had been ploughed.

Ploughing prior to sowing may have given higher yields but the ground is not as firm as those directly drilling from grass.

The decision on whether to plough has to be made based on previous crop and individual field soil type. Moisture has to be maintained early on to achieve germination quickly.

Extensive Grazing

It is not always necessary to sow early and go for the biggest yields.

The Brassicas in 2004 at SAC were sown later and did not produce to predicted yields and the cows were managed extensively. This proved to be beneficial as the cows moved over the ground quickly, minimising soil damage, and this could be a positive option for the future. Many arable farmers were delighted to see the negligible levels of soil damage, especially in the lower yielding stubble turnips, indicating that they could consider stocking cows extensively over a large acreage whilst keeping their ground in GAEC.

Breed and condition score

Only the fitter cows (at CS 2.5 or more) should be outwintered on forage brassicas. Cows are likely to lose some condition on the system and therefore some need to be excluded. In the SAC case, those excluded were lean cows, first and second calvers and any cows over 9 years of age. Breeds used by SAC were either Aberdeen Angus or Limousin cross

Minimisation of poaching

Another key factor to successfully outwintering cattle is minimising poaching. In our trials strip grazed cows never moved more than 4 – 5 yards away from the electric fence, and they eat off clean ground underneath the fence and then used this area for lying on.

Bulling cows tend to be the worst for poaching. This would be particularly true for large heavy cows. Outwintering systems are therefore best suited to non bulling or pregnant cattle i.e. spring calving herds.

Keep land in “Good Agricultural and Environmental Condition” by observing the 18 measures in the guidance published by SEERAD (including the PEPFAA code).

Choosing Fodder Crops

Discussion should be carried out with seed merchant to select the most suitable varieties. The chosen varieties must be matched in with each farms own requirements based on type of stock to be grazed, soil type and climate.

FEEDING BRASSICAS

Requirement of Fibre

The major source of energy in brassica crops is in the form of sugars, not starch as in barley. These sugars ferment rapidly in the rumen and care must be taken to introduce these feeds slowly to avoid problems such as acidosis and bloat.

Brassicas, particularly kale, contain compounds, which can cause problems (antinutritive factors). In particular one compound, SMCO, is converted by the rumen microbes to a compound, DMDS, which destroys the haemoglobin in red blood cells. SMCO levels rise when brassica goes in flower during the following spring – cattle can be put at risk.

In addition kale, stubble turnips, turnips, swedes etc are effectively concentrate feeds with a low content of structural fibre

In order to overcome these problems it essential to feed a source of long fibre such as straw at all times to give a balanced ration. SAC nutrition specialists have based their suckler cow rations on 50% brassica and 50% straw on a DM basis.

Some of the farms in the case study have used a ration based on 70% brassica and 30% straw with the cows not showing any problems but this has been their management decision to cut down on straw due to the cost.

Minerals Trace Elements

Brassicas are also low in the trace elements selenium, iodine and copper. The antinutritive compounds and low trace element status combine to give a “double whammy” effect. Selenium is contained in an enzyme, which protects animal cells from oxidation by compounds like DMDS so it is important that selenium supplements are given to maximise enzyme activity. Extra iodine supplementation is required to overcome the low status and the effects of the goitrogens. Finally, brassicas have high levels of sulphur which, in the rumen, lock up the little copper that there is, so again copper supplementation is required.

It is recommended that the crop be analysed prior to winter to determine mineral status.

Mineral/vitamin supplements need to obtain high levels of copper, selenium and iodine and should be fed in a free access basis. Many farmers remark on the difficulty ensuring adequate levels are consumed. Common practice by many is to occasionally sprinkle minerals over the straw.

STOCKING RATES

Spring Calving Cows at SAC Demonstrations

Kale: 10 cows to 1 hectare (2.47 acres) for 100 days
Stubble Turnips: 4 cows to 1 hectare (2.47 acres) for 100 days

The results in the case studies also show their stocking rates based on “Cow grazing days per acre”.

Example of calculating stocking rate from “Cow grazing days per acre”:

Field 1 = 2ha (5 acres)

Cow Grazing days per acre = 480

If there is 24 cows in the field then $480/24 = 20$ days per acre for 24 cows

2ha (5 acres) = 100 days for the 24 cows

WORM AND FLUKE TREATMENT FOR OUTWINTERED CATTLE

The issue

Changes in husbandry systems mean that disease patterns will change and therefore routine treatments and prevention programmes should be reviewed. Keeping cattle outside has the potential to increase their exposure to the infective stages of the parasitic gutworms, lungworms and liver fluke.

The biology

The infective stages of gutworms and lungworms tend to reach peak numbers on the pasture from mid July onwards. Where young stock has been grazing the pasture and where the stocking density has been high the pasture will be most contaminated. Pasture that has been grazed by cows and calves together will be less heavily infected. Extensive grazings and pastures that have not been grazed with cattle over the summer will have a lower risk of infection.

For fluke the key issue is the amount of rainfall and if there are areas of standing water that support the mud snail which is the intermediate host for this parasite. If these conditions are present then the cattle will be exposed to fluke with pasture contamination of the infective stages of the parasite peaking in late summer and autumn.

The disease

From the end of summer the infective stages of the gutworms on the pasture tend to become dormant in the gut lining of the cattle and emerge to cause damage to the gut in the spring. This emergence is called type II disease and can be fatal. Immature stock is most at risk from this.

Cattle are more resistant to the effects of fluke than are sheep, but where nutrition is in anyway compromised then fluke can have a severe impact on the health of even adult cattle and can lead to death. Remember that we are now seeing fluke in areas where it was previously never diagnosed.

Treatment strategy

Adult cows in good body condition should not need routine treatment for gutworms or lungworms. The low levels of parasitism they are exposed to helps promote immunity and is largely beneficial to the year long control of parasites in the herd. Where there are thin cows or first calf heifers a worm treatment in October or November is likely to be beneficial when they are moved from the pasture they have been on to more extensive grazings. Younger stock can be treated in the same way. **If in doubt check faeces samples for worm eggs.** If required the wormer used should be one that is active against the inhibited stages of the parasites.

If the farm is in a high risk area for fluke then treatment of all out wintered cattle in January and May is indicated. Additional treatments may be needed in some years - check the farming press for fluke warnings. Otherwise it pays to screen ten of the thinner animals for fluke eggs. This should be done in January and faeces can be pooled at the laboratory to reduce cost. If fluke eggs are present then the cattle should be treated. Blood samples offer an alternative more sensitive method to detect evidence of exposure to fluke in cattle.

Action

Changes in husbandry should prompt a review of the routine treatments and preventive strategies with your vet.

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CASE STUDY 1

John and Andrew Nelson, Cogarth Farm, Parton, Castle Douglas, Dumfriesshire

Contact Andrew Nelson on 07803 270951

A 202 hectare (500 acre) upland grass farm, which consists of rough grazing and permanent grass.

Soil Type: Free draining loam with the farm ranging from gravel to clay.
Above Sea Level: 100 to 400 feet
Rainfall: Approximately. 56 inches
November 2006 there has been over 260 mm = 10 inches, which is almost double the November average for the last 33 years.

Cattle Enterprise

Cattle; 130 spring calving herd calving from 1st April consisting of Angus Friesians and $\frac{3}{4}$ Angus crosses with Angus and Charolais sires used.

Also have 11 Montbeliarde cows $\frac{3}{4}$ bred in calf to Angus for replacements.
Small number of backend calvers but will not be continuing with them.

Approximately 20 to 30 heifers each year home bred with the rest sold as stores along with the steers selling at 1 year old.

Calving 2007

Only 1 cow needing assistance to date. 53 cows calved to the 1st turn (51%) which is 17 more than predicted at scanning. 40 calved to the 2nd turn (38%) which is 8 less than predicted. Remaining 3rd cycle cows still to calf

- **Scanning results for calving 2007**

Cows scanned : Calving 1st April. Bulls out 9 weeks

To first Turn	= 36
To second Turn	= 48 In total 4 sets of twins
To third Turn	= 20
Barren	= 7 (2 with dead calves in them)
Total	= 111
In calf	= 94%

Heifers : Calving down at 2 years.

Only 2 turns to the bull and put to bull 2 weeks before cows
21 put to the bull

To first Turn	= 11
To second Turn	= 9
Barren	= 1
In calf	= 95%

Sheep Enterprise

530 cross ewes.

Cheviot Mule ewes put to the Texel

All lambs sold off grass to Galloway lambs

100 Cheviot Mule ewe lambs purchased at Longtown Market each year.

In 2007, 400 ewes lambed in the first 8 days = 75%

OUTWINTERING AT COGARTH 2006/2007

The Nelsons have been outwintering cattle for over 30 years. Main part of the Suckler herd outwintered on either kale or on the hill.

Not Outwintered: In calf heifers, first calvers and thin cows (below condition score 2)

All cows dosed for fluke

38 Cows on kale : In calf to the second and third cycle

From going onto the kale till being removed in January 2007, the cows lost 0.29 kg per day, which is expected for a spring calving cow (see table 1)

Table 1: Results of weighings of cows on and off Kale

38 cows	Average weight 14/11/06	Average weight 12/3/07	Weight loss over period	Loss per day
Cows	643 kg	609 kg	34 kg	0.29 kg/day

Table 2 shows that the cows on Kale lost up to 12/03/2007 half a condition score to 2.3 one month pre calving, which meant that the target was achieved.

The cows finished the Kale on 30th March from which they were moved onto grass fields to calf.

Table 2: Results of condition scoring cows on and off Kale

	Condition score 14/11/06	Condition score 12/3/07	Loss over period
Cows	CS 2.69	CS 2.28	0.41

Table 3: Costing Calculations:

Farm	Cogarth
Crop	Kale
Ha	4.25
acres	10.5
cows	38
start date	23-Nov-06
end date	30-Mar-07
grazing days/cow	127
grazing days per ha	1135
grazing days per ac	460

Item	total costs	per cow	per cow/day
Cultivations	5.50		
Seed	41.30		
Fertiliser	16.00		
Spreading fertiliser	4.00		
Spray	4.00		
Spraying costs	3.40		
Growing cost/acre	74.20		
Growing cost total	779	£20.50	£0.16
Straw	1044		
Other	0		
Forage costs total	1044	£27.47	£0.22
Feed costs	1823	£47.98	£0.38
Moving fence	£457		
Feeding forage	£152		
Labour costs total	£610	£16.04	£0.13
Equipment costs	£100	£2.63	£0.02
Costs total	£2,532.65	£66.65	£0.52

Important points to note:

1. The field had previously been in Kale and so establishing costs were low as the field only received a discing and light roll. Seed/fertiliser scattered by vari fertiliser spreader.
2. Cogarth fed at a level of 70% dry matter intake from the Kale and 30% from straw. Cogarth decided to feed less straw due to the cost of purchasing more in at £58/tonne.

Summary

Costs for the housed control Group estimated by assuming all costs to be £0.90 per day (no straw bedding)
 Outwintered Group on Kale at £0.52
 Saving = £0.48 per day
 Over 100 days = £48 per cow

Other benefits include no cost in slurry spreading

The farm contains high levels of gravel and stones and is not always suited to the plough. Using kale as part of the reseeding policy is vital to minimise excessive cultivation.

Fields will be put down to 2 years of kale initially and then reseeded.

Approximately 4 hectares each year with 0.8ha grass runback. Cogarth has been outwintering on kale for approximately 40 years

Field chosen for kale; Cogarth Drum which is in second year of kale = 4.86ha (12 acres) with 4.25ha sown and 0.6ha run back. Field has been entered as extensive grazing of the RSS. (4 ha claimed)

RSS (Extensive Cropping) main guidelines – completed by FWAG

- Not to be grazed before 17th November each year.
- Not to exceed 250kg per hectare compound fertiliser.
- No pesticides without prior written agreement of local SEERAD office.
- Cover for Wildlife to:
 1. Benefit in UK - Brown Hare, Bullfinch, Tree Sparrow, Skylark, Pipistrelle Bat,
 2. Benefit Locally include – Barn Owl, Lapwing, Noctule bat, Swallow

DIARY OF KALE ESTABLISHMENT

1st June

- Light disc and harrowed
- Sown at 6kg/ha (2.5 kg/acre) Maris Kestrel with a Viking Vari fertiliser spreader with the manure mixed in.
- Harrowed again then light rolling
- Fertiliser: 20:10:10 = Total = 150 kg/ha total compound fertiliser.

11th June

- Kale starts to germinate.

21st July

- Visit: Crop looking well but heavy infestation of weeds (redshank).
- Crop under attack on the leaves with noticeable holes - Diamond Back Moth.

28th July

- SEERAD approved spraying of crop with Pearl Micro at 120 gms/ha (535.2 grammes)
- Sprayed at 400 litres/ha

23rd November

- 38 cows put onto kale with access back to grass field.

8th December

- Cows were no longer given access back to grass field. Straw was then introduced.

30th March

- Kale was finished after 127 days and all cows removed.

CALCULATIONS FOR STRIP FEEDING KALE

Initial estimations made by Nutritionist:

Always recommended that 50% of the diet to come from brassica and 50% from long roughage (see page 7)

There is no doubt that outwintered cows need more feed than housed cows to maintain their condition. But how much more do they need? This is difficult to answer, because we need to define what the 'average' weather conditions are. A rough 'guestimate' would be that energy allowances ought to be pitched about 15% higher than housed cows giving a requirement of nearer 90 MJ rather than 80 MJ/day.

To achieve this it was predicted that the cows should be allocated 5 kg DM of kale per day with another 15% added for wastage to give an overall allowance of about 5.75 kg kale DM/day. The field was measured for yield with an average of 6.83 kg fresh/metre square. This equates to 68.3 tonnes/hectare (range was 58 t/ha to 80 t/ha) and at 12% DM it will give approximately 8.2t/ha.

CALCULATIONS CARRIED OUT PRIOR TO OUTWINTERING

Since yield can vary considerably, yield measurements should always be made to allow for accurate feeding.

Field 4.25ha(10.5 acres)

8.2t/ha DM = 34.9 Tonnes DM. = 34990kg

Each cow on 5.75 kg DM per day = 6085 cow feeding days

For 38 cows this equates to approximately 160 days feed.

There was initially 38 spring cows in the group so the total required per day is 219 kg DM.

Each metre square has 6.83 kg fresh at 12% dry matter = 0.82 kg DM/ square metre

So requirement is 219 kg DM/day divided by 0.82 = 267 sq. m/day.

Feeding face of the kale is 200 m wide so the fence should be moved 1.35 m/day.

Straw will be offered at all times with average intake calculated at 4 to 7 kg fresh per day.

Straw: 70 bales put in at 208kg each = 15000kg

A 208kg bale will supply 38 cows with approximately 5.5kg/day fresh weight so 1 bale per day should be sufficient.

Actual Cogarth Feeding Results

Kale lasted 127 days so they consumed 7.25 kg/DM per day

Straw consumed = 3.5kg per day fresh = 3kg/DM per day

Total Dry Matter intake per day = 10.25kg based on 640kg cow

Results show that Cogarth achieved a diet made up of 70% dry matter intake from the Kale and 30% from straw. No problems occurred with the cows on this ration mix

Recommendation is not to feed more than 50% as previously explained

Cow grazing days per acre = 460

Stocking Rate: 38 cows so 1 acre will last 460 divided by 38 = 12days

Table 4: Proportions of leaf and stem in the crop and crude protein content

	Weight kg	Dry Matter	Dry Matter Weighting	CP g/kgDM
Area1 Leaf	2.81 = 42%	13.2%	48%	279
Area 1 Stem	4.02 = 58%	10.0%	52%	159
Total	6.83	11.34%		216 = 21.6%
Area 2 Leaf	2.47 = 37%	13.0%	42%	263
Area 2 Stem	4.29 = 63%	10.7%	58%	114
Total	6.76	11.56%		176 = 17.6%

Note; Areas that do not germinate as heavy tend to lead to thick stems on the kale due to less competition from others.

COWS ON HILL GROUND (DEFERRED GRAZING): IN CALF TO THE FIRST CYCLE

Average weight before going to the hill was 658 kg. Cows were removed on 17th January 2007. They were not weighed but had moved from average Condition Score: 2.60 to 2.34.

Hard hill ground also where sheep are taken off mid summer (1st June) and grass deferred until late October when the mature cows are weaned onto the hill ground.

Mid November all cows brought down and scanned.

Those in calf to the first cycle are put back onto hill with rest to the kale.

Deferred grazing is the cheapest way of overwintering the stock, particularly animals with relatively low requirements such as dry spring calving cows. It is allowing grass to grow over the summer for grazing the following winter.

Costs at Cogarth where cows are partially overwintered on deferred hill grazing are likely to be very low with only the cost of minerals to be accounted for. Estimation is that the cost per day is only £0.10.

Cows given Liquid Magnesium Ball Feeders on hill and kept on hill until January.

Grass quality on the hill is only able to sustain the cows to the New Year. After this period the unborn calf increases its demand on the cow and she will lose condition rapidly unless supplementary feed is offered such as concentrates. Many farms do this with a snacker.

However Cogarth remove their hill cows during December.

23rd November

26 cows put back onto hill with no supplementation given

Ewes stay on lowground until scanning in January. Ewes carrying triplets and twins pairs are put to the hill and given supplementary feed with a snacker. Singles stay on the lower ground.

17th January 2007

All cows removed from the hill.

CASE STUDY 2

Ken, Margaret and Andrew Durston of K H L Durston and Partners, North Nevay, Balkeerie, DD8 1ST
Contact Andy Durston on 07801 301698

Farm details

Land farmed – 344 hectares (850 acres)
Split LFASS Units of North and East Nevay
Soil - Loam. Grades - 2, 3.1/3.2, 4 and 5
Altitude - 200 to 1000 ft asl (hill kale at 900 ft asl)
Rainfall – 700 mm

Cropping

Table 5: Cropping

Crop	Acres	Hectares
Winter wheat	70	28.3
Winter barley	20	8.1
Spring barley	300	121.4
Potatoes (let out)	75	30.3
Grass	290	117.4
Kale	49	19.8
Stubble turnips	17	6.9

Beef cattle

The herd of 150 suckler cows and 30 heifers are calved outside starting 1st April through to mid July. All of the cows are calved outdoors. Cows are mainly Simmental cross, with a few Charolais crosses and Basadaise crosses. The majority of the cows are put to Simmental bulls, with a Basadaise used for easy calving of heifers, which calve down at 2 years of age. A Shorthorn bull has now replaced the Basadaise for breeding replacements. Calves are weaned in November with cows grazed on the forage crops thereafter. All male cattle are finished entire, with heifers retained for breeding or sold as yearlings.

OUTWINTERING HISTORY

The Durstons have been outwintering cows on kale crops since 1993. North Nevay has been able to increase cattle numbers without major investments in sheds.

Outwintering 150 cows frees up the limited shed space on the farm for all of the weaned calves. If not outwintering, the Durstons would have had to build new sheds, away winter some cattle, sell stores at an earlier stage or keep reduced cow numbers. Heifers and first calvers are weaned earlier than the main group and this year started strip grazing kale on 5th November. This group graze the kale for half of the winter, before being housed. Older cows are weaned in mid November, and graze the kale crop from shortly after weaning until early April.

Cows graze the kale crop in groups of 60 – 70. Yields vary but typically this group of cows will graze 14ha (35 acres) for around 135 days. This gives a stocking rate of around 2 cows per acre from mid November to early April.

Previously straw bales were taken to fields on a regular basis, but straw bales now set up in fields in October, and topped up monthly when ground conditions are favourable, an idea picked up at SACs demonstration at Bush Estate. According to Andy putting bales in the field in big batches has saved 3 hours work per week. Straw is baled more densely than before and given the standard 2 turns of netwrap.

Calving 2007

To date only 1 cow out of 65 calved outside has been assisted. Cows were moved from the Kale pre calving to grass where they are strip grazed to restrict intake. Allowance is approximately 40kg fresh weight per day

Important factors at North Nevay

Fertiliser

Fertiliser costs have been reduced by applying broiler litter to fields in rotation. This is the sole fertiliser for the kale with no additional inorganic fertiliser added. Strip grazing cattle on forage crops distributes the dung evenly across the field.

Trace elements and minerals

There is a known cobalt deficiency on the farm. Magnesium flakes, dissolved into water troughs are used to prevent magnesium deficiency. Minerals for the outwintered cows are sprinkled on to the straw bales.

OUTWINTERING RESULTS

North Nevay case study has shown results with savings from £41.00 to £44.00 for spring calvers over the control group (see table 6)

Table 6: Cost per day and savings made per cow – Dry Spring Calvers

	Total cost per day includes fixed costs	Saving over control group per day (100 days)	Actual cost of the brassica per day	Straw cost per day based on £30/t	Other costs including time spent, minerals etc
Kale	£0.56	£0.44 (£44.00)	£0.22	£0.21	£0.13
Stubble Turnips	£0.59	£0.41 (£41.00)	£0.28	£0.18	£0.13
Control	£1.00	0	£0.53* silage/straw	£0.12**	£0.35

Important points to note on the results from Table 6:

1. Kale received broiler litter (7.4t/ha @ £3.00/t = £22.20/ha) as the fertiliser source on the kale thus significantly reducing input costs. Those applying 150kg/ha Nitrogen compound fertiliser have costs at approx. £120/ha.
2. High cost of stubble turnips per day due to high intake levels, poor yield in 1 field and higher wastage. Comment made that leaf was mostly consumed as bulbs were small and high percentage wasted due to poaching during an excessively wet winter.
3. North Nevay grow kale and stubble turnips following arable and potatoes so have to implement more spray procedures such as for volunteer potatoes.

4. Comments – dry ground conditions led to less than satisfactory germination. Weed problems – fat hen competed with crop and seriously affected kale establishment in some areas of the field
5. Stock on kale were in calf heifers, first calvers and mature cows
6. First calvers and in calf heifers were housed on 25th February.
7. Leaner cows, below condition score 2 were not outwintered.
8. All costs include labour.
9. Control Group has machinery and building costs included.
10. All straw based at £30 per tonne.
11. *The control group are cows inside in straw courts being fed a silage/straw based diet costing 53p/day.
12. **Cost of straw bedding per day is 12p, which will not be a cost incurred with cubicles or slats.
13. Growing costs are based on contractor charges but other farms will carry out the operations themselves with lower costs.

Table 7 below shows weight gain/loss of the cattle being outwintered. Cows on kale gained approximately 38 kg when weighed prior to calving. It should be noted these cattle were close to calving and in effect these would have extra weight due to unborn calf plus amniotic fluids.

Table 7: Results of cattle weighings

	Weight 24/11/06	Weight 20/3/07	Loss/Gain	Loss/Gain per day
Cows on kale	631kg	669kg	Gain 38kg	0.32kg Gain
first calvers/ in calf heifers on kale	494kg	490kg	Loss 4kg	0.03kg Loss
Cows on stubble turnips	639kg	611kg	Loss 28kg	0.24kg Loss

Cows were fed during the winter to gain weight as they were in lower condition than desired at weaning (see table 8).

Aim is to get spring calvers to come into the winter in good condition (score 3 +) allowing condition over the winter to be lost. This is especially important if cows are being outwintered especially as North Nevay suffered their wettest winter for some years.

The North Nevay condition at weaning was score 2.3 to 2.5 which is approximately the score wanted just prior to calving time. Feed levels were significantly increased to allow condition to be maintained during the very wet winter.

The North Nevay 1st calvers and in calf heifers were housed on 25th February. During the winter they failed to put on weight. – average loss of 4 kg. In discussions it was concluded that they had performed well on the kale but had lost considerable weight after being housed in late February till they were weighed on 20th March 2007.

Table 8: Results of condition scoring cows on and off Kale

	Condition score 24/11/06	Condition score 20/3/07	Loss over period
Cows on kale	2.50	2.50	0.00
First calvers/in calf heifers on kale	2.40	2.40	0.00
Cows on stubble turnips	2.40	2.30	0.10

FORAGE BRASSICA FIELDS – KALE

Cottage; 5.34ha sown

North Nevay North Hill; 7.48ha sown

Costing used

Contractor charges per ha – plough (£32), cultivation/sow (£27), roll (£4), spray x2 (£5 x 2)

Sprays per ha – Herbicide (£33) and insecticide (£2.20)

Seed – 5 kg/ha @ £17/kg = £85/ha

Broiler litter 7.4t/ha @ £3.00/t = £22.20/ha

Kale treatments

Cottage Kale

Previous crop - ware potatoes

Soil sampled – average pH 6.0 (range 5.8 – 6.4), phosphate – medium, potassium – high

- 13th May - broiler litter spread at 3tonnes/acre
- 14th may – ploughed
- 25th May – kale sown at 5kg/ha (2.0kg/acre), Maris Kestrel, Ultrastrike seed treatment, Amazon one pass seed drill, herbicide applied at 1.0l/ha {£15/ha}
- 1st July – Dow Shield 0.5 l/ha plus sticker to control volunteer potatoes{£36.4per ha normally kale will not be following potatoes}
- 20th July – second spray Dow Shield 0.5l/ha plus sticker for volunteer potatoes cost as above
- 10th August – Insecticide for diamond backed moth caterpillars

Hill Kale

Previous crop - grass

Soil analysis - high P and K.

- 19th May – grass grazed down by cattle
- 12th June - broiler litter spread at 7.4tonnes/hectare
- 15th June – ploughed
- 25th June – weed control – herbicide 1.0 l/ha. Sprayed Dimethoate 0.75l/ha for Leather jackets (long term grass field)cost £10
- 10th August – Insecticide for diamond backed moth caterpillars

Comments – dry ground conditions led to less than satisfactory germination. No weed problems

KALE YIELDS AND ANALYSIS

Samples were taken from each crop for yield measurements for analysis on 13th November. Crop yields may increase if mild conditions follow. This is especially likely for stubble turnips, since bulbs were beginning to grow in some varieties at the time of sampling.

In 2005, yield samples at North Nevay measured close to 90 tonnes/ha (36 t/acre). The 2006 sown kale crop averaged around 55 t/ha (22.3t/acre) fresh at 13th November following poorer establishment conditions (see table 9 and 10).

Table 9: Results of yield and nutrient analysis of cottage field

Kale – cottage	Dry matter yield kg/m ²	Percentage	Dry matter g/kg	Crude protein g/kg DM
Stems	6.4	73%	148	115
Leaf	2.3	27%	151	222
Average			149	144%

Average yield – 50 tonnes/ha (7.4t /ha DM)

Range – 2.7 – 9.5 kg/sq m (5 samples)

Overall crude protein – 144 g/kg dry matter (14.4%)

Assumed energy content – 11.8 MJ/kg DM

Table 10: Results of yield and nutrient analysis of hill field

Kale - hill	Dry matter yield	Percentage	Dry matter g/kg	Crude protein g/kg DM
Stems	3.5	61%	141	156
Leaf	2.2	39%	154	289
Average			145	208

Average yield – 56 tonnes/ha (8t/ha DM)

Range – 4.4 – 6.5 kg/sq m (5 samples)

Overall crude protein – 208 g/kg dry matter (20.8%) – may decrease if stems continue to grow in proportion to leaf.

CALCULATIONS FOR STRIP FEEDING KALE

Always recommended that 50% of the diet to come from brassica and 50% from long roughage (see page 7).

Fields were measured for yield with an average of approximately 7.8 t/ dm/ha

For the winter it was calculated that the cows should be allocated 5 kg DM of stubble turnips per day with a further 15% added for wastage to give an overall allowance of about 5.75 kg kale DM/day. With in calf heifers and first calvers it was further increased to over 6.5 kg DM day plus straw.

North Nevay actual results

All cattle consumed on average 7.5 kg dry matter Kale per day with 6 kg straw in the dry. As previously shown in tables 7 and 8, cows at weaning were only at condition score 2.3 to 1.5 on average so the aim was to maintain or slightly increase weights and condition by increased feeding. Other reason for increased intake was the very wet winter period.

Grazing cow days per acre = 404

Example; If 54 cows :1 acre will do 404 divided by 54cows = 7.5 days

FORAGE BRASICCA FIELDS – STUBBLE TURNIPS

Small Quarry Field 12 = 5 ha (sown after 2 failed attempts to establish kale)

Field 7 = 2 ha

Costing used

Contractor charges per ha – plough (£32), cultivation/sow (£27), roll (£4)

Seed – 6.1kg/ha @ £4/kg = £24.40/ha

Fertiliser – 188 kg/ha (1.5 cwt/acre) of 20-10-10 @£140/t = £26

Total - £144/ha (£58/acre – contractor - £25/acre, growing costs - £33/acre)

STUBBLE TURNIP TREATMENTS

Small Quarry (stubble turnips after two failed kale crops)

Previous crop – grass hay made then a crop of stubble turnips sown and grazed with suckler cows.

Soil analysis – average pH -6.5 (range 6.0 – 6.9), phosphate – medium, potassium – high

- 13th May – broiler litter spread at 3tonnes/acre
- 14th may – ploughed
- 25th May – kale sown at 5kg/ha(2.0kg/acre), Maris Kestrel, Ultra strike seed treatment, Amazon one pass seed drill, herbicide applied at 1.0l/ha
- 15th June – resown due to flea beetle damage. Maris Kestrel with Ultra Strike at 5kg/ha (2kg/acre)
- 18th June – herbicide at 1.0 l/ha
- Kale crop failed due to dry conditions
- Ploughed and one pass drill
- 2nd August – sowed stubble turnips Civastor and Vollenda at 6.2kg/ha (2.5 kg/acre) in alternate strips
- 4th August - rolled

Field 7

Previous crop – set aside

Ploughed and one pass cultivation/drill

- 3rd August – sown with Vollenda and Appin at 6.2kg/ha (2.5 kg/acre)

- 4th August – rolled

Fertiliser – 3 cwt/acre of 20-10-10

CROP YIELDS AND ANALYSIS

Stubble Turnips 7Ha (17.29 acres)

Table 11: Results of yield and nutrient analysis of stubble turnips (small quarry)

Stubble turnips	Dry matter yield	Percentage	Dry matter g/kg	Crude protein g/kg DM
Bulb	1.1	26%	85	157
Leaf	3.1	74%	131	314
Average			119%	273

Note – mixture of 2 varieties.

Civastor – mainly leaf, little bulb growth when sampled, average 34.5 t/ha, range – 3.0 – 3.75 kg/m² (3 samples)

Vollenda – reasonable bulb developed, average – 40 t/ha, range – 3.8 – 5.0 kg/m² (3 samples)

Leaf to stem ratio Vollenda – leaves 3.05 kg/m², bulb 1.09 kg/m²

Overall crude protein – 273 g/kg dry matter (27.3%).

Assumed energy content – 11.6 MJ/kg DM

CALCULATIONS FOR STRIP FEEDING STUBBLE TURNIPS

Always recommended that 50% of the diet to come from brassica and 50% from long roughage (see page 7)

Small quarry was measured for yield with an average of approximately 37t/ha fresh or 4.4 t/DM/ha. Field 7 estimated to only be at 2.2t/ha giving overall average at 3.8tonnes DM/ha.

Cows should be allocated 5 kg DM of stubble turnips per day with a further 20% added for wastage to give an overall allowance of about 6.00 kg kale DM/day.

North Nevay actual results on stubble turnips

Consumed on average 8.5kg dry matter stubble turnips per day with 6 kg straw in the dry
Cows needed to put condition and weight on while enduring very wet winter period so intake levels increased.

Grazing cow days per acre = 172.

Example; If 40 cows : 1 acre will do 172 divided by 40cows = 4.3 days

FURTHER ADVANTAGES OF OUTWINTERING AT NORTH NEVAY

- Residual fertiliser value. Strip grazed outwintered cows spread the dung evenly across the field. Experience at North Nevay has shown that this results in cost savings for the following spring barley crop. Andy reckons that this is worth 60 units/acre of nitrogen for the following crop and approximately 90 units P and 130 units K (for 50 cows running on 25 acres).

CASE STUDY 3

Jim Riddell, Nether Coullie, Kemnay, Inverurie, Aberdeenshire

Contact Jim Riddell on 07811068316

Soil Type: Sandy /Loam
Above Sea Level: 300 Feet
Rainfall: 850mm

Jim Riddell along with his father Jim farm Nether Coullie and land at Braeside, Blairdaff, which extends to 182 ha (450 acres of which about 380), is rented with the remainder owned.

The farms comprises 135 sucklers, 450 breeding ewes, 45ha cereals with 10 ha of it being taken as wholecrop

For winter 2006/2007 there are 4.8 ha swedes, 6.5 ha kale and 14.2 ha stubble turnips planted.

Sheep Enterprise

450 ewes with approximately 200 pure Lleyln.
All ewes put to Lleyln tups.

Cattle Enterprise at Nether Coullie

105 spring calving cows and 30 autumn calvers with all spring cows outwintered previously on swedes and stubble turnips.

Cows are all home bred as mainly Aberdeen Angus and Aberdeen Angus crosses weighing on average 586 kg.

Most cows go to the 2 Charolais bulls and there is also an Aberdeen Angus bull to provide replacements.

Aberdeen Angus progeny are sold finished while the Charolais are sold as stores.

Autumn calvers are being housed and not included in this report

Bulls are put to the cows on the 3rd June for spring calving to start in mid March through to May but conception is excellent resulting in most calves born by Mid April. Only 7 cows calved in May 2006.

Vast majority are therefore holding to the first turn of the bulls.

Scanning results for cows to the bull summer 2006

Cows and heifers to the bull = 105 .

In calf = 100

Not in calf = 5

Conception = 95% (only 1 out of 19 heifers not in calf)

Calving 2007

By 14th May 2007, only 8 cows and heifers out of 97 had needed assisted. 5 of these were calved using ropes. Of the 5, four were heifers

OUTWINTERING AT NETHER COULLIE

Nether Coullie case study has shown results with savings from £57.00 to £38.00 over 100 days for spring calvers (see table 1).

Table 12: Cost per day and savings made per cow – dry spring calvers

	Total cost per day includes fixed costs	Saving over control group per day (100 days)	Actual cost of the brassica per day	Straw cost per day based on £30 /t	Other costs including time spent, minerals etc
Swedes	£0.43	£0.57 (£57.00)	£0.13	£0.21	£0.09
Stubble turnips	£0.47	£0.53 (£53.00)	£0.14	£0.21	£0.12
Kale	£0.62	£0.38 (£38.00)	£0.26	£0.21	£0.15
Control	£1.00	0	£0.53* silage	£0.12**	£0.35

Important points to Note on the results for Table 12:

1. All costs include labour.
2. Kale costs are for in calf heifers fed at similar levels to suckler cows.
3. Control Group has machinery and building costs also included.
4. All straw based at £30 per tonne.
5. *The control group are cows inside in straw courts being fed a silage/straw based diet costing 53p/day.
6. **Cost of straw for control is 12p for bedding, which will not be a cost incurred if on cubicles or slats.
7. Growing costs have been put in based on contractor charges yet other farms will carry out the operations themselves with lower costs.
8. Other costs include labour time, minerals etc. Note that the kale has a higher cost per day due to straw being taken each day to field and dropped over the fence.
9. Both kale and stubble turnips incurred a further higher cost than the swedes due to less numbers in the field so more time spent per cow when moving the fence.
10. Cattle were moved often between the brassica fields. Reasons included the aim of utilising the stubble turnip fields first due to their less winter hardiness than the others. When heavy frost arrived more cattle were put onto them to allow them to be consumed first.
11. Important to note that stubble turnips have the advantage with late season sowing that a arable crop has already been taken from the field. Before kale is sown grazing can continue up to end of May while grazing before swedes are sown is minimal.

FORAGE BRASICCA FIELDS – SWEDES

Varieties: Kenmore and Rutatofte 4.52 ha(11.16 acres)

Yield varied from 10.5 kg to 12.5 kg per square metre with an average of 11.5 kg = 115 tonnes per hectare fresh = 12.88 tonnes dry.

Table 13: Results of Protein and dry matter weight in the leaf and stem

Sample	Weight	DM g/kg	Dry Matter Weighting	CP g/kg/DM
Leaf	2.35 = 23%	133.2	27%	305
Bulb	8.11 = 77%	105.8	53%	152
	10.46kg	112		163

DIARY OF ESTABLISHMENT

17th May

4.5cwt/acre 12:24:12 +7.5SO₃+ Boron

24th May

Kenmore 1,750 g

Rutaotofte 750 g total = 2,500 g = 0.5 kg/ha

Treflan spray at 2.2 litres/ha

Sowing plus spraying at same time with 1 pass. Sprayer at front of machine.

25th May

Butisan at 1.1litres /ha

30th October

52 cows on Swedes moving up to 80 during the winter

5th April

Finish of Swedes

CALCULATIONS FOR STRIP FEEDING SWEDES

Always recommended that 50% of the diet to come from brassica and 50% from long roughage (see page 7).

For the winter the cows should be allocated 5 kg DM of swedes per day with another 15% added for wastage to give an overall allowance of about 5.75 kg kale DM/day. The field was measured for yield with an average of approximately 12.88 t/ha dry matter.

Yield can vary considerably and so this highlights that measurements should always be taken to allow accurate feeding.

Nether Coullie actual results on Swedes

Cows consumed on average 5.9kg dry matter per day with 6.2 kg straw in the dry

Grazing cow days per acre = 891

Example; If 60 cows: 1 acre will do 891 divided by 60 cows = 15 days

FORAGE BRASICCA FIELDS – STUBBLE TURNIPS

Field Variety – Vollenda on 5.74Ha

29 thinner and older cows grazed the stubble turnips receiving higher feed allowance than others allowing condition to be gained and maintained.

Yields varied from 2.1 kg to 4 kg m² for an average of 3.2 kg m² = 32 tonnes per hectare fresh or 3.68 tonnes dry matter

Table 14: Results of Protein and dry matter weight in the leaf and bulb

Sample	Fresh Weight m ²	DM g/kg	Dry Matter Weighting	CP g/kg/DM
Leaf	1.78 = 60%	119	62%	233
Bulb	1.22 = 40%	108.8	38%	89.5
	3.00kg	115		178

DIARY OF ESTABLISHMENT

8th August

Wholecrop taken off

9th August

1 cwt 20:10:10 / acre mixed in with 6.2kg/ha (2.5kg/acre) Vollenda using Centre liner spinner. Harrowed then rolled.

15th August

Emergence.

31st August

Further 1cwt 20:10:10 / acre

30th October

29 mainly thin and older cows onto stubble turnips.

19th January 2007

Finish of stubble turnips.

CALCULATIONS FOR STRIP FEEDING STUBBLE TURNIPS

As with all brassicas, 50% of the diet to come from brassica and 50% from long roughage (see page 7)

The field was measured for yield with an average of approximately 3.68t/ha dry matter.

For the winter the cows should be allocated 5 kg DM of stubble turnips per day with another 20% added for wastage to give an overall allowance of about 6.00 kg kale DM/day. However a higher allowance will be given as the field had the older and thinner cows.

Nether Coullie actual results on Stubble Turnips

Consumed on average 7 kg dry matter stubble turnips per day with 6.2kg straw in the dry

Grazing cow days per acre = 205

Example; If 30 cows :1 acre will do 205 divided by 30 cows = 6.8 days

FORAGE BRASICCA FIELDS – KALE

Variety – Maris Kestrel

For winter 2006/2007 Nether Coullie has also established kale by direct sowing after the grass field was sprayed off with roundup.

Angus, Charolais stirks and in calf heifers will be wintered on kale. These stirks will be targeted to go through the winter at about 0.75 kg/day supplemented with straw. Ration is based at similar levels to the suckler cows which is approximately 11 kg dry matter based on 50% kale and 50% straw.

Kale: Dutch Barn – 5 acres sown with 0.97 acres runback.

Kale: Braeside – 11.0 acres sown with approximately 2.9 acres run back and rough grazing.

Braeside Kale- Maris Kestrel

Yield varied far end = 8 kg, below cottage = 7.5 kg, middle = 5.5 kg then dyke = 6.5 kg
Average approximately = 7 kg per metre square = 70 tonnes per hectare fresh or 8 tonnes dry

Table 15: Results of Protein and dry matter weight in the leaf and stem

	Weight m²	DM g/kg	Dry Matter Weighting	CP g/kg/DM
Leaf	2.30= 36%	129.2	40% Leaf	308
Stem	4.14 = 64%	102	60% Stem	177
	6.44 kg	113		229

DIARY OF ESTABLISHMENT

3rd June

Gallup Roundup sprayed at 3.7litres per hectare- 20 litres used

9th June

Maris Kestrel Sown at 6.2kg/ha (2.5 kg/acre) with Verda Direct Drill (1 to 2 cm depth)
Sprayed with Chlorpyrifos 1kg/ha (Govern) for Leather Jackets.

17th June

3.8 cwt. of 20:08:12/acre

10th July

1.2 cwt. of 20:08:12/acre

28th July

1 cwt 34.5% N to make total of 167 kg/ha Nitrogen/ha

5th August

Decis (insecticide) 300 ml/ha for Diamond Back Moth

31st August

5 litres per hectare of Opti – sul on both fields due to signs of sulphur deficiency

24th October

Cattle started on kale

12th March

Kale finished

CALCULATIONS FOR STRIP FEEDING KALE

Always recommended that 50% of the diet to come from brassica and 50% from long roughage (see page 7)

For the winter the cows and in calf heifers should be allocated 5 kg DM of kale per day with another 15% added for wastage to give an overall allowance of about 5.75 kg kale DM/day. Braeside was measured for yield of 70 tonnes/hectare (range was 55 t/ha to 80 t/ha) and at 11.3% DM it will give approximately 8.0 t/ha dry matter.

Calculations for Strip Feeding Kale to younger growing stock (Aberdeen Angus and Charolais stirks)

These results are for the young cattle and not included in Table 15 above

Included a wastage factor of 30% over expected intakes.

300 kg Aberdeen Angus cattle at a gain of 0.75 kg/day will require to eat about 35 kg (4.00 kg DM at a DM of 11.3%) and about 3 kg straw. Including wastage it now totals 5.2 kg DM kale. As both kale and straw will be available to appetite don't really know how much of each feed they will eat.

Nether Coullie actual results for stirks on kale

Results showed that the cattle consumed on average 5 kg dry matter including wastage and 4 kg dry matter of straw, which is more than assumed but it was fed to appetite. With the stirks being fed well often the wastage was higher with the kale stems often partly eaten.

The cost was £0.20 per day for the kale with £0.15 for straw and other costs of £0.15 to total £0.50 per day.

No control was in place but based in 2005/2006 results at SAC's Easter Howgate costed the control group at £0.79 so savings are approximately £0.29 per day at similar growth rates.

Grazing days per acre = 488

Example; If 40 cows : 1 acre will do 488 divided by 40 cows = 12.2days

COW AND IN CALF HEIFERS PERFORMANCE

The spring calvers were mainly fed on swedes but the older and thinner cows grazed on stubble turnips where they were given a higher feed allowance.

Table16: All cow weights from moving onto brassicas till finishing crop prior to calving

	Overall Summary				Daily Gain
	Start Date 27.10.06 Wt (kg)	Score	End Date 01.03.07 Wt (kg)	Score	
Cows (59)	586.8	3.07	606.9	2.97	0.18
Heifers (19)	435.8	2.58	523.3	3.03	0.70

Bulling Heifers results

27/10/06

19 have average weight of 435.8 kg with a range from 397kg to 520 kg.
 Average condition score was 2.58
 Average age was 578 days.
 Assumption of average birth weight 38 kg.
 Daily gain from birth to outwintered 0.69 kg /day (range 0.63 – 0.82).

01//03/07

In calf heifers as seen in table 16 have outwintered on kale achieving an excellent 0.7 kg per day, which has put them to 523 kg at 23 months age just prior to calving.

If compared to the cows weights in March of 607 kg then the heifers were at 86% of the farms mature cow weights at first calving. The target is to be at 85% of the mature cow weight when the heifers go to the bull again.

So the first calvers will go to the bull in May 2007 so we can expect that these in calf heifers to either put on little if any weight prior to next service.

More likely they will grow to be heavier cows than in the herd presently due to different genetics now coming into the herd?

ACKNOWLEDGEMENTS

SAC and QMS would like to acknowledge the input by the 3 case study farms.

The Nelson, Durston and Riddell families gave overwhelming support throughout the year culminating in 3 successful open days in December when over 250 people attended.

The feedback was extremely positive by those attending the days with many commenting on the high management standards carried out by the hosts.

The case studies were not about SAC and QMS putting their ideas into practice but learning how the host farms had adopted the outwintering concept some years ago and how they had developed it.

The host farms had adopted recently the policy of putting all the bales into the fields prior to the cattle going in so as to reduce damage caused by machinery both in the fields and gateways.

Without the co funding of QMS with Johnny Mackey giving support at all times it would have made simple systems difficult to organise and demonstrate to the 1,500 visitors over the last 3 years.

Iain Riddell, SAC lead the case study at North Nevay and Ian Pritchard, SAC at Nether Coullie. Other support from SAC was given by Basil Lowman, John Vipond , Mitch Lewis and Colin Morgan.

RAPPA Fencing, British Seed Houses and Rumenco have supported the demonstrations for 3 years and were joined in Year 3 by Norvite, Lakeland (Scottish Feeds & Services) and Ritchie Farm Equipment.

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