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(Supported by The Scottish Government and Rumenco)

“Cattle Outwintering Systems”

Deferred Grazing and Open Woodland

Co funded by Quality Meat Scotland 0131 472 4040

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“2 Case Studies on ”

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OBJECTIVES

“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.

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”.

This is not a new concept.

INDUSTRY BACKGROUND

Over the last 10 years there has been increasing pressure put on the suckler cow industry. Cattle numbers in 1998 were healthy with almost 530,000 Beef cows. Over the last few years numbers have reduced as direct payments were taken away from a production linkage.

For the last census in 2007 it has shown that since 1998 there has been an 11% drop in numbers to 470,000.

This number will continue to fall as we see a significant number of pre 1996 cows taken out from now up to the end of December 2008. These cows can continue to be on farm but after 2008, the older cattle disposal scheme will not be in place to give payment for them. If numbers take a substantial fall to the best "guestimate" of 425, 000 then since 1998 numbers will have dropped about 20%. Whether these numbers be replaced is a debatable issue but it will not be until 2009 census that indications can be seen of what numbers of replacement breeding heifers are coming through. Recent breeding heifer sales have given encouragement.

Beef farmers see that in the recent 2006 QMS Enterprise Profitability Year Book average Net Margins for suckler cows are ranging from minus £150 to minus £250 for herds taken to weaning. This does not take into account any form of indirect payments such as LFASS and SFP but does include the Beef Calf Scheme payment.

SFP is likely to reduce over the next few years, and LFASS payments are under threat. How then will beef producers respond to bring their enterprises back into profit? Some improvement should come from increasing end prices?, but we also need to explore ways of reducing production costs per cow. Not everyone can do it.

The beef industry continues to look at ways that cows can be kept that cheapen the cost. It is the significant feed and fixed costs that do not allow us to compete with other countries throughout the world where their climate allows them to work to a low cost structure.

There has to be scope for many how we maintain dry sucklers over the winter.

Farmers have been cutting costs for many years. Are there any ways to further reduce costs? One potential area to make savings is to develop systems for overwintering stock. Such systems can improve animal performance, animal welfare and health and possibly even eating quality.

The importance of the Overwintering Demonstration is not simply overwintering 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.

If we do not continue to look into other beef systems trying to reduce costs then there may be limited alternatives in the future if prices fail to increase to the required levels. If hard decisions have to be made then they should be on the back that all avenues have been explored.

Opportunities have been taken with approximately 200 farms, which were suited to overwintering cattle on brassicas, since the demonstration work started 3.5 years ago. Savings were being made of £40 to £60 per cow over the winter when comparing to housed cattle.

DAVID KIRKPATRICK, AUCHENBAINZIE FARM

Auchenbainzie is run on a commercial basis and David Kirkpatrick has adopted his own way of outwintering (deferred grazing) to suit the farm over the last 2 years.

Farms total 857 ha split between hill and upland grazing ranging from 60 metres to 300 metres. Labour force of 2.5 on the upland beef and sheep farm.

230 Spring calvers, 220 Holstein Dairy cows and 1700 breeding ewes. Moving away from Blackface to Lleyns. Left with 400 Blackface ewes

CATTLE ENTERPRISE

Original cows base was Angus cross Holstein. Currently a mix of Angus cross and Stabiliser cross cows, which has allowed David to compare performance and adaptability to the hill during the winter.

Stabiliser bulls now being used with the aim to have cattle that can look after themselves and be outwintered on the hill for as long as possible. Currently after the New Year cows are brought down and put onto kale (45 acres) and then inside one month prior to calving.

No kale will be grown from next winter as David finds moving the fences on the kale time consuming, cold, wet and tedious.

Bulls out 1st July for 9 weeks – calving start of April, after 6 weeks the bulls are swapped round.

Calves are weaned on 15th October into house with the cows put to the hill

Male calves are castrated and finished at 16 to 20 months off grass with hoppers on wheels. 7 to 8 kg per day of a barley/maize gluten mix

Steers sold to Macintosh Donald at 280kg deadweight (520 kg liveweight)

OUTWINTERING SYSTEM (DEFERRED GRAZING)

Carried out on green vegetation hills. **They are not heather rocky areas with little if any winter vegetation.** No sheep or cattle on hill from June till cows put on in October. No in calf heifers, old cows or thin cows put to the hill. Grazing on green hill area of about 200 hectares through October to December. The only supplementation given is minerals

ADVANTAGES IN OUTWINTERING ON AUCHENBAINZIE

- Very simple system.
- Savings from October to the New Year of £0.57 per day over housed cattle. Additional feed needs offered after New Year if cattle continue on hill areas
- No heavy build up of cattle in any areas such as if feeding with silage trailers/ring feeders which can cause poaching in a small confined area.
- Reduced stocking rates with good levels of vegetation at all times so avoiding damaging species rich/ unimproved pasture
- Minimum erosion which can lead to run off into watercourses
- 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.
- 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.

AUCHENBAINZIE SYSTEM

Two distinct areas split evenly with a 101 ha hill and another 100 ha hill, running approximately 66 cows in each hill. 1 to 1.5 cows to a hectare (1 cow to 3.8 acres). Vegetation includes molinea/bent grassland, meadow grass, fescue and heather.

Cost: Currently estimated at £0.28 per day
Control: Cows inside cost £0.85 per day
Benefit: £0.57 per day or £57.00 saving over 100 days*****

Dry suckler cows require a minimum protein of 8% to 9%. Table 1 shows results of grass samples taken on the hill, which indicates that there was the required level of protein. The cows with an abundance of grass currently will be choosing what they eat which will have higher levels of protein than sampled. This is due to the samples taken including the while crop from top to 3 inches from soil. (Cows currently not eating down to that level)

Previous work by SAC showed that deferred grass was only capable of keeping the cows up to New Year as after this the reducing quality of the grass was insufficient to

meet the increasing demands of the calf. Deferred grass is not conserved like silage so nutrient reductions occur. Additional feed would have had to be introduced if these cows were to stay longer on deferred grass.

FEED REQUIREMENTS AND ANALYSIS

If protein levels falls below about 8% then this will be insufficient to meet the requirements of the rumen bugs and dry matter intake – and hence energy intake – will fall (see table 1). Unfortunately this decline happens at a time of increasing energy requirement for the spring calving cow. The energy requirement of late March calving cows increases by about 35% from mid January to calving, so this coupled with a low intake of a low protein – low digestibility grass will result in a rapid weight and condition loss in the cows.

*****Deferred Grazing savings are only for a defined period, as additional feed is usually given after the New Year. However last winter many kept them going up to 1 month prior to calving on the hill areas due to the mild conditions maintaining grass quality. A plan B has always to be in place, as we cannot rely on continued mild winters. By taking cows off in mid winter, risk of damage to species rich/ unimproved pasture is reduced.

Auchenbainzie has a Rural Stewardship Scheme – Moorland Management Plan.

This system if carried out in the correct fields will be a low cost option to many where housing could be delayed for up to 2 months = less straw usage or slurry storage.

Table 1: Forage analysis taken from the hills

| | October 2007 Forage Sample | December 2007 Forage Sample | January 2008 Forage Sample |
|------------|---------------------------------------|----------------------------------------|---------------------------------------|
| Dry Matter | 32% | 28% | 28% |
| Energy | 9.3MJ/kg/DM | 9.3MJ/kg/DM | 8.2MJ/kg/DM |
| Protein | N/A | 8.7% | 8.8% |

RESULTS OF WEIGHTS AND CONDITION SCORES

Table 2 shows little breed difference between the stabilisers and Angus crosses. When weaned the cows were in a fit condition and were at condition score of 2.61 versus 2.85 (Angus and Stabiliser). The cows went to the hill for a period of 84 days to graze on the hill. Minerals offered at all times. The weather throughout October to December was relatively mild with little if any snow or severe frost.

When removed on the 11th January (see tables 3 and 4), the cows had lost 0.25 kg versus 0.21 kg per day (Angus and Stabiliser) which was in line with outwintering results in previous years. Condition had fallen down to give C.S 2.4 versus 2.48 (Angus and Stabilisers). Target for that time was C.S 2.5 so all the cattle were deemed to be at the desired condition levels.

At this time, limited falls in condition are wanted, so, as previously stated, additional feed needs to be offered if they are to continue on the hill due to the lowering of nutrient quality on the hill. The analysis taken in January (see table 1) shows a fall in energy levels. Additional feed could be in the form of feed blocks, cobs or forage.

Table 2: Summary of the Angus and Stabiliser crosses from weaning to removal from the hill. Period 84 days.

| | Weight loss | Loss per day | Condition loss | Condition (Target = 2.5 in January) |
|------------|-------------|--------------|----------------|-------------------------------------|
| Angus | 21 kg | 0.25kg | 0.21 | 2.4 |
| Stabiliser | 17 kg | 0.21kg | 0.37 | 2.48 |

Tables 3 and 4 show the average weights and condition scores of all the groups when they went to the hills. The Angus cows were on average 55 kg heavier but quarter of a condition score less. The weighing and scoring which will be carried out after New Year will give indications how well each breed has coped on the hill. As the stabilisers have been replacing the Angus crosses there is only 2 years when they overlapped (2001 and 2002).

Table 3: Aberdeen Angus cross cow weights and condition scores

| | Average | Average | | | 19/10/2007 | 11/01/2008 | |
|----------------|-----------------|-----------------|--------------|------------------------|-----------------|-----------------|-------------|
| Birth | Weight 19/10/07 | Weight 11/01/08 | Weight loss | Loss per day | Condition Score | Condition Score | Loss |
| 1994 | | | | | | | |
| 1996 | 606 | 598 | 8 kg | 0.1 kg | 2.25 | 2.25 | 0 |
| 1997 | 678 | 657 | 21 kg | 0.25 kg | 3.05 | 2.69 | 0.36 |
| 1998 | 619 | 600 | 19 kg | 0.23 kg | 2.67 | 2.50 | 0.17 |
| 1999 | 670 | 635 | 35 kg | 0.42 kg | 2.85 | 2.44 | 0.41 |
| 2000 | 674 | 639 | 35 kg | 0.42 kg | 2.77 | 2.44 | 0.33 |
| 2001 | 622 | 609 | 13 kg | 0.16 kg | 2.47 | 2.36 | 0.11 |
| 2002 | 657 | 638 | 19 kg | 0.23 kg | 2.16 | 2.08 | 0.08 |
| Average | 646 | 625 | 21 kg | 0.25 kg per day | 2.61 | 2.4 | 0.21 |
| | | | | Target .2 to .3 | | Target 2.50 | |

Table4: Stabiliser cross cow weights and condition scores

| | Average | Average | | | 19/10/2007 | 11/01/2008 | |
|----------------|-----------------|-----------------|-------------|------------------------|-----------------|-----------------|-------------|
| Birth | Weight 19/10/07 | Weight 11/01/08 | Weight loss | Loss per day | Condition Score | Condition Score | Loss |
| 1997 | | | | | | | |
| 1998 | | | | | | | |
| 1999 | | | | | | | |
| 2000 | | | | | | | |
| 2001 | 640 | 609 | 31kg | 0.37kg | 3.14 | 2.63 | 0.51 |
| 2002 | 621 | 605 | 16kg | 0.19kg | 2.68 | 2.38 | 0.3 |
| 2003 | 605 | 570 | 35kg | 0.42kg | 2.82 | 2.42 | 0.4 |
| 2004 | 563 | 574 | 11kg gain | 0.13 gain | 2.9 | 2.6 | 0.3 |
| 2005 | 529 | 516 | 13kg | 0.16kg | 2.69 | 2.36 | 0.33 |
| Average | 592 | 575 | 17kg | 0.21 kg per day | 2.85 | 2.48 | 0.37 |
| | | | | Target .2 to .3 | | Target 2.50 | |

Cows back to the hill in January 2008

The cows in January 2008 were brought into the handling yards and split into 2 groups. 61 cows that were under condition score 2.5 were put on to kale.

The yield of kale was poorer than normal at Auchenbainzie and the decision was taken that 71 cows scoring 2.5 upwards would be returned to the hill, being fed on Rumenco Cattle Super Energy blocks initially then changed onto cobs towards the end of January . Cobs were fed from a snacker up to 4th March then housed to start calving from 1st April.

Problems encountered

During January 2008 the conditions were very wet resulting in the cows losing condition faster than targeted. When the energy feed blocks were introduced to the hill the cows consumed them very quickly each day as the forage quality reduced.

The Rumenco blocks were put out at a rate of 1 to 15 cows every 2 days. With the blocks being small and compact the cows were often aggressive towards each other as they tried to get to the blocks. The decision was taken to feed cobs with the snacker along a line allowing them all to feed at one time eliminating the pushing behaviour previously seen.

Thoughts were that for cows to be going back up to the hill after January the blocks had been introduced too late. The cows should have been adapted to the blocks a lot earlier when they would not have wanted to gorge on them making the transition easier. Condition would also have been maintained.

Next winter programme 2008/2009

For winter 2008/2009 the aim is to have the cows on the hill areas all winter even calving on them. No kale will be grown.

The cows will again be weaned in October and put on the hill supplemented by a Rumenco "pressed mineral block". This will get them used to block feeding.

From Mid November 2008, Rumenco high energy blocks will be introduced. The aim is to keep the cows in good condition right up and through the New Year, as they will be on the hill for another 3 to 4 months.

The blocks will continue to be fed until it has been decided that they are relying on the blocks to a degree that they are constantly near them and not grazing outwith that area.

From then the snacker will be introduced to allow them all to consume a set amount of cobs per day to allow condition to be kept on as the unborn calf continues to increase its demand on the dam.

Condition cannot be lost too quickly during the winter as its is a very hard and risky task trying to put condition back on them when being outwintered.

MINERAL AND VITAMIN SUPPLEMENTATION: DEFERRED GRAZING

Forage analysis showed low levels of Copper, Selenium and Phosphorus. Low in Selenium in the bloods as well.

Rumenco minerals offered *ad-lib* to address the shortages on the hills. “**Pressed mineral blocks**” have been manufactured which will be now be used

In previous guidance notes on outwintering suckler cows we have emphasised the importance of adequate mineral and vitamin supplementation with forage brassicas. When outwintering cows on deferred grazing it is just as important to provide a mineral and vitamin supplement, especially on hill pastures, which tend to have poorer soil nutrient status. Such pastures are commonly deficient in certain of the trace elements (notably copper, cobalt and selenium) and with old pasture even major minerals, such as phosphorus, may be low.

If no supplementary feed is being offered, the convenient way to provide minerals and vitamins is through a free access supplement. Although this is not ideal because some animals may be reluctant to use the supplement while others may over-consume; it does give the animals the opportunity to overcome the shortcomings in the grass.

Rumenco (David Thornton 01283 524257) have developed a free access mineral and vitamin supplement for the deferred grazing situation which typically comprises:

| | % |
|------------|----|
| Calcium | 15 |
| Phosphorus | 8 |
| Magnesium | 10 |
| Sodium | 7 |

| | iu/kg |
|-----------|---------|
| Vitamin A | 500,000 |
| Vitamin D | 100,000 |
| Vitamin E | 1000 |

| | mg/kg |
|-----------|-------|
| Cobalt | 80 |
| Copper | 1,500 |
| Iodine | 150 |
| Manganese | 2,000 |
| Selenium | 25 |
| Zinc | 2,000 |

Copper is important because it is involved with enzymes in many reactions in the animal's cells, including the synthesis of haemoglobin, protection of cell membranes, oxygen metabolism and development of the nervous system. It is also involved in hair growth and pigmentation; hence the typical changes seen in copper deficiency.

Cobalt is especially important to ruminants because the rumen microbes need it to manufacture Vitamin B12. This vitamin is necessary for the metabolism of propionic acid (produced by the rumen microbes in the fermentation of feeds) to glucose.

Ruminants do not normally absorb much glucose from the gut because of the fermentation activity of the microbes, but glucose is needed for special purposes (the brain, the foetus and milk production). Hence the importance of cobalt and Vitamin B12.

Selenium acts with Vitamin E to protect cell membranes from oxidative damage and thereby prevent conditions such as white muscle disease, muscle stiffness and retained placenta. It is also involved in the production of the thyroid hormones, which have wide-ranging effects on metabolism.

DEFERRED GRAZING – POINTS TO PONDER

The practice of deferred grazing – setting aside and resting pasture in the autumn for winter grazing - for spring calving cows has been adopted on a number of farms in order to reduce the costs of winter feeding. Whereas there should be no problems in maintaining cow performance with this system before the year-end, there could be problems with grass quality and/or supply and intakes in the New Year. For optimum performance and to allow for adequate DMI, the grass should have an energy (ME) content higher than about 8 MJ/kg DM, corresponding to a D Value of about 54, and a protein (CP) in excess of 90 g/kg DM.

The quantity and quality of the grass available for winter grazing will vary tremendously from site to site and will be affected by a number of factors:

- **Pasture species.**

Some species such as perennial ryegrass, tall fescue and cocksfoot tend to produce more autumn/winter growth than other species.

- **Length of time the pasture is rested.**

Dry matter yield is directly related to the length of the autumn rest and to the amount of autumn rainfall but the **quality** of the forage is inversely related to the length of the autumn rest; the longer the autumn rest the poorer is the quality.

Pastures that have had a relatively short rest consist largely of young leafy material of high quality, suitable for young or producing stock. A long rest produces a high yield of poorer quality pasture, suitable for maintenance for older and non-producing stock.

- **Fertilizer application (if relevant)**

Of the fertilisers applied nitrogen (N) is the most important and, provided the other nutrients (especially phosphorus and potash) are in adequate supply, has a major effect on pasture production. However, the response to N if applied in autumn is limited in terms of both quantity and quality. Moderate levels of N applied before the pasture is shut up will:

- improve the resistance to cold;
- improve dry matter yield and quality;
- provide a residual response for early spring growth.

- **Grazing system**

Strip grazing the stockpiled forage tends to extend forage quality more than continuous grazing. Since cows selectively graze plant parts with the highest

digestibility and protein content, continuous grazing severely reduces forage quality later in the winter.

- **Weather and rainfall**

Higher winter rainfall tends to reduce the digestibility of the stockpiled forage so the quality of grass will be higher and will be maintained for longer in drier areas. Also, in wet winters there is an increased risk of herbage degradation due to fungal growth and the possibility of mycotoxins accumulation in the sward.

Problems with low grass availability and/or quality are unlikely to occur before the year-end. This is especially true this winter as the weather has been unusually mild; since grass will still be growing at soil temperatures over 7C the quantity and quality available should be adequate. However, from mid January onwards it is likely that grass quality will start to deteriorate.

It is therefore essential to monitor cow condition during this time and prevent excessive loss of condition by using appropriate supplementation. Low protein in the grass can be corrected by using high protein blocks or licks but if the digestibility of the grass available is low as well then some additional energy supplementation – as baled silage or concentrates – will be required. If this is not possible then there is no option but to put the cows on a conventional winter diet for the last few weeks before calving.

Mitch Lewis, SAC Ruminant Nutritionist

TICKS, TICK-BORNE FEVER AND SUCKLER COWS

Auchenbainzie had in early winter 2006 an unacceptable number of cows not in calf. Laboratory investigations pointed to TBF as the potential cause. Other common causes of abortion were ruled out by laboratory testing.

Tick-borne fever (TBF) is caused by a bacteria *Anaplasma phagocytophila* and is transmitted by the sheep tick *Ixodes ricinus* when it bites a susceptible animal. Clinical signs of TBF in cattle include a high temperature, possibly associated depression and a reduced food intake and a suppression of the immune system. These clinical signs may not be evident clinically in extensive suckler cow systems. The high temperatures can also cause embryo loss and abortion, which is well recognised in sheep.

Ticks and tick associated diseases in cattle, sheep, grouse and deer are becoming more common in Scotland with many hills thought previously not to be affected now carrying a tick burden. It is also known that within a tick population on a hill TBF organisms will be present.

SAC Veterinary Services has investigated some suckler herds in South West Scotland with high barren rates in cattle that have been outwintered on tick affected hills. We know that the cattle were initially in calf and embryo loss has occurred when the cattle have been outwintered on the hill. Common infectious and management reasons for the high barren rate have been ruled out and the history and initial laboratory investigations point to TBF as the potential cause.

This particular disease presentation seems to apply only suckler cows that have not been on hill ground before and are not acclimatised to hill conditions. Farmers need to be aware of this condition as a potential problem and discuss the risks and potential control strategies with their vet.

Additional comments with regard to TBF in cattle at Auchenbainzie Farm

Investigation of an increased barren rate in outwintered cows suggested TBF as a likely cause. Other common causes of abortion were ruled out by laboratory testing.

Affected cattle had antibodies to TBF suggesting exposure. There is no test for TBF in the foetus and many of the foetuses in this extensive system were not identified.

The history of naïve cattle being put into a tick environment resulting in embryo loss was highly suggestive of the disease. This has also been observed on other farms, particularly in the west of Scotland. Of the small number of foetuses found on the hill and subsequent to that no other potentially significant infectious cause was identified.

It is thought that the organisms that cause TBF do not pass to the foetus, but the high temperature of the cow after infection is sufficient to cause embryo loss.

This year the cattle have been managed to try and acclimatise them to the tick environment when not pregnant to raise their immunity to the disease. While it is not known how long the immunity to TBF lasts in the absence of tick exposure it was assumed that cows that went to the hill in 2006 would in 2007 have immunity to the disease and blood result supported this. Therefore heifers that had not previously been on the hill, grazed this ground in the early summer.

Pour on acaricide and antibiotic treatments are of potential use to control TBF when the cattle move onto this hill, however there is no trial data to support their use in cattle (only sheep) and there are no products licensed for tick control in the UK for cattle. What is more there are concerns that by treating with an acaricide it is only delaying rather than preventing tick exposure. For that reason this year we aim to rely on acclimating the cattle to the hill environment as above to try and control the disease.

Checking antibody status and pregnancy status of the cows before they go to the hill and after they come off will be used to assess the situation further as appropriate.

**Colin Mason SAC Veterinary Services, Dumfries
Ross Muir, Nithsdale Veterinary**

GLENCRERAN ESTATE

The Estate is owned by a Family Holding Company and is tenanted by 3 brothers. John Livingstone is the Estate Manager with help at peak periods from his father Gilbert.

Estate totals 5,300 hectares dominated with hill land rising from sea level to 950 m. Silage is taken from 40 hectares of improved land. 1000 bales of silage are made each year to be fed to both the cattle and the deer.

The Estate is very mountainous having 2 Munros. The Land Capability values are 6/2 and 6/3 with a significant area at 7. There is a small area of 4/3 on the valley bottom where the arable ground is located.

Rainfall is 125 to 150 inches with mild winters but heavy snow on the mountain peaks.

Estate is currently in the following schemes

- Countryside Premium Scheme
- Rural Stewardship Scheme
- 2 Woodland Grant Schemes
- Challenge Fund Scheme – Woodland
- Agricultural Building Development Scheme – new GP shed being erected

Glencreran is run on a commercial basis and John Livingstone has adopted his own way of Outwintering to suit the farm over the years where dry cows are wintered in old woodland where they are fed silage. With 125 to 150 inches rainfall putting cows onto the hill is not seen as an option.

ENTERPRISES

Red Deer Stalking

- 25 Stags
- 30 Hinds

2 large cottage lets sleeping up to 22 people as well as 3 properties permanently let.

Sheep

In 2003/2004, 1,000 ewes were removed mainly due to the shortage and cost of casual labour for gathering. There are currently no sheep.

Cattle

There are 50 cows with the aim to increase in the medium term. The cows are mixed but with a predominance of Limousin and Simmental crosses although there are 4 pedigree Highland heifers. Breeding own heifers although 5 Simmental heifers were purchased recently. Mainly spring/summer calving. Approx. 35 calving March /April sold off their mothers in November/December. Bulls used 2 Limousin and 1 Highland.

The 15 August/September cows have their calves weaned in early winter and then taken over the winter to be sold at about 14 months age in Oban.

OUTWINTERING SYSTEM

Cows wintered in open woodland where they are fed silage and then cake introduced. Prior to calving, cows are moved onto enclosed grass areas.

Woodland has no economical value apart from shelter for the cows.

Saving on straw as it is currently £2.25 for a small bale = £100 /t

Although silage is fed the benefit of this system is that the cattle are outwintered in areas that can take them through the winter, and not taken in to sheds which have a high financial cost. Many have the opportunity in the Argyll areas to carry this outwintering system out.

During the open day it was clearly shown that the cows had an excellent wintering site with considerable shelter. It was an extremely windy day but in the wood it was barely noticed. The round bale silage was fed from feed trailers in the wood being positioned in an open area. Poaching was at a relatively minor level. The visitors could see that this was an ideal wintering system for the cows and was being well managed.

ADVANTAGES IN OUTWINTERING ON GLENCRERAN ESTATE

- Reduce wintering costs by keeping cattle out for part or all of the winter.
- Saving estimated to be approximately £0.30 per day over a control group housed. Based on 100 days = £30.00 saving
- Maximisation of the resources on the estate
- Very simple system
- Woodland offers ideal shelter
- Reduced need for increased capital for sheds etc
- No stock grazing the hill through the winter so keeping the ground in ideal condition for the spring
- Outwintering dry cows provides extra capacity to retain store cattle that would normally be sold.
- 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.

WEIGHTS AND CONDITIONS SCORES FROM WEANING TO ONE MONTH PRIOR TO CALVING

Cows and their calves were summered on the hill. During late autumn the cows lost more condition than anticipated. It is hoped to have them over CS 3 at weaning.

John Livingstone commented that he should have weaned them earlier to keep condition on the cows but due to other work commitments was unable to. These cows are now in better lowground fields where they are being fed silage and cobs to improve their condition. It was decided that it would be more beneficial to put condition on now as if left too late then feeding concentrates could cause large calves at birth. The ground is well capable of putting condition on as those that did not rear a calf this year were at condition score 4

At the start of December the cows were moved into the woods. They had gained condition from weaning and so only silage was fed with minerals. At the end of January the cows were reassessed and found to have put on weight and more importantly condition.

With just over 1 month to calving they averaged condition score 2.72 (C.S variation 2 to 3.5). The silage quality has allowed condition to be put on the cows without feeding concentrates. However some of the cows in the group are at C.S 2. It was felt best that cake with magnesium was fed as calving approached so looking after the thinner cows.

Table 5: Weights from weaning to 1 month prior to calving

| Born | 02/11/2007 Wt | 30/01/2008 Wt | DLWG 89 days | 02/11/2007 Cond Score | 30/01/2008 Cond Score | Gain Cond Score |
|-----------------|--------------------------|--------------------------|-------------------------|----------------------------------|----------------------------------|----------------------------|
| 1995 | 502 | 490 | -0.13 | 2 | 2 | 0 |
| 1996 | 541 | 558 | 0.20 | 2 | 2.25 | 0.25 |
| 1997 | 587 | 616 | 0.33 | 2.40 | 2.40 | 0 |
| 1999 | 594 | 647 | 0.6 | 2.17 | 2.34 | 0.17 |
| 2000 | 530 | 581 | 0.57 | 2.25 | 2.5 | 0.25 |
| 2001 | 551 | 598 | 0.53 | 2.5 | 2.90 | 0.4 |
| 2002 | 598 | 642 | 0.72 | 3 | 3.5 | 0.5 |
| Averages | 558 | 600 | 0.37 | 2.34 | 2.72 | 0.03 |

The silage made using a mower conditioner for the first year has analysed wet in line with others but does contain high levels of energy and protein (see table 6) which will help keep additional feed costs down. Dry cows require 8% to 9% protein in the dry matter. All these silages below are good enough to sustain the cows. Store cattle will only need small inclusion levels of additional feed.

Table 6: Silage analysis

| | Bales 1 | Bales 2 | Bales 3 | Bales 4 |
|-------------------|----------------|----------------|----------------|----------------|
| Dry Matter | 18.8% | 23.5% | 20.5% | 21.8% |
| D Value % | 60 | 57 | 61 | 66 |
| ME (MJ/kg DM) | 9.7 | 9.1 | 9.8 | 10.6 |
| Protein | 13.8% | 10.5% | 10.5% | 11.7% |
| Intake Prediction | 75 | 72 | 72 | 81 |
| pH | 4.4 | 4.2 | 4.0 | 4.3 |

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 have 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. The infective stages of fluke contaminate pasture from early autumn onwards.

The disease: From the end of summer the infective stages of the gutworms on the pasture tend to become dormant in the gut lining and emerge to cause damage to the gut in the spring. This emergence is called type II disease and can be fatal. Immature stock are 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 help 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.

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

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ACKNOWLEDGEMENTS

SAC and QMS would like to acknowledge the input by the 2 case study farms.

At Auchenbainzie, David Kirkpatrick and his team of William Dempster, Mark Lockhart and Clark Cuthbertson

At Glencreran, John Livingstone and his father Gilbert.

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 developed it.

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 1,800 visitors over the last 4 years.

Scottish Government support has allowed SAC to knowledge transfer the findings to both industry and farmers in all areas of Scotland.

David Thornton from Rumenco has supported us in making sure that the correct minerals are offered which in the future will be in the form of a pressed mineral block. Rumenco have also developed rocker feeders which controls consumption, minimises waste and reduces ground damage when feeding minerals on the hills.

Donald Harrison, Niall Campbell from SAC Oban have given the utmost support at Glencreran. Donald's in depth knowledge of systems was a tremendous asset to the project. Gillian Reid from SAC helped with the environmental aspects at Auchenbainzie.

Other support from SAC was given by Basil Lowman, Brian Hosie, Jimmy Hyslop, Mitch Lewis and Colin Morgan.

Ritchie Farm Equipment has given us a weigh crush on the farms to carry out weighings. Jim has travelled considerable distances for us at very short notice and has given us overwhelming support. All the host farmers over the last 4 years have found the Ritchie weigh crushes to be very easy to use and of the highest quality.