

An economic comparison of RSPB The Oa's current system of selling Continental X calves at 6 months against finishing pure Highland and Luig calves on the Isle of Islay, plus considering a future option of using a Whitebred Shorthorn bull.

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Abstract

The current method of cattle farming at the RSPB reserve at The Oa, Isle of Islay is based on selling Continental X calves each October at 6 months old. The aim of this paper is to compare the costs associated with this method against those incurred when finishing pure Highland and Luining calves on the island before sale at around 12-18 months, and to make an assessment of the relative efficiency of each system. Sales figures and costs from the RSPB The Oa reserve were compared with those of two farmers on the island in order to make this judgement.

The paper also considered the possibility of using a Whitebred Shorthorn bull as a crossing sire at the reserve. Anecdotal evidence of the breed on Islay and a similar site off the island was taken into account, and it was found that the Whitebred Shorthorn could be a suitable breed for use at the reserve.

The results of the comparison found that although the pure Luining and Highland calves achieved far higher sale prices, it was likely that the extra maturity of the calf at the point of sale (6-12 months older than the Continental calves in this instance) was at least a contributory factor. The costs required to take the calf up to this advanced stage in an environment such as RSPB The Oa would be unlikely to leave much, if any room for profit.

Introduction

Islay is an island of the Southern Hebrides, around 25 miles long and 15 miles wide. The island is famous for its malt whisky industry, and it is this, along with tourism and agriculture that provide the majority of the jobs for the permanent population of around 4,000. The Gulf Stream Atlantic current is largely responsible for the mild climate (relative to the Scottish mainland), but also the high levels of wind and rain that sometimes seem ever present on the island. Frequent gales and storms make the winter months difficult, with power cuts and travel to the mainland often disrupted. At the Southwest point of the island is an exposed and elevated peninsula known as The Oa, which is home to an RSPB reserve.

Monthly mean weather readings from 1999-2010. Figures from the Islay Airport weather station

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Ave rainfall mm	133.3	97.8	91.9	82.7	72.0	83.9	73.5	105.6	117.6	133.4	147.2	143.6
Ave temp C	7.7	7.9	9.4	11.5	14.2	16.0	17.3	17.3	15.9	13.1	10.0	8.2

Mean annual rainfall 1282.5mm

Mean annual temp 12.3C

By way of a comparison, according to official Met Office statistics, the mean annual rainfall in England is 838.00mm, and the mean annual temperature is 13.1C

The Royal Society for the Protection of Birds (RSPB) is Europe's largest wildlife conservation charity and currently runs over 200 nature reserves around the UK. The RSPB reserve at The Oa, Isle of Islay is a 2,100ha area combining a mixture of blanket bog, moorland, sea cliffs and coastal grassland. It is a working farm, grazed by around 200 cows and 1,000 sheep, controlled by the small team of RSPB employees on site. The reserve is managed for a range of rare birds and other wildlife, particularly Chough, Corncrake, Twite, Golden Eagle and the Marsh Fritillary butterfly. The reserve produces income for itself each year by selling lambs and calves, with the cattle farming operation mainly focusing on producing Continental X breed calves that are sold each October after weaning, at roughly 6 months of age.

The cattle herd at RSPB The Oa is made up of around 80 breeding Continental cows (predominantly Limousin X) and 4 bulls (3 Limousin and 1 Simmental) that produce around 75 calves each April. The majority of calves are sold in October, but the smaller ones generally get sold in December, after an extra period of feeding and development.

There are other farmers on the island that produce pure Highland and Luining cattle that are taken close to a finished weight on Islay before sale. It is difficult to identify a specific "finished" weight for calves to reach before slaughter, as weights and growth rates vary considerably according to breed, genetics and environmental circumstances, but generally calves are taken up to around the 500kg mark before they are considered at their optimal weight for slaughter.

Farmer A produces between 5 and 10 pure Highland calves on Islay. He currently has 8 breeding Highland cows and 1 Highland bull. His grazing and habitat conditions are broadly similar to that of RSPB The Oa. His cattle are out-wintered but have their forage supplemented with a winter feeding regime of cake and hay each day. Calves are generally sold as store cattle at around 400-410 kg in weight and at roughly 18-20 months of age.

Farmer B produces pure Luining calves each year. He farms an area of the island that is considerably less exposed and has generally better grazing conditions than those at RSPB The Oa. The breeding herd size is around 15 and 10-15 calves are produced and sold each year. Calves are outwintered but also fed cake and hay each day. The calves are then sold locally in March/April the following year at around 370kg.

The aim of this paper is to compare the economic factors involved in these contrasting methods of calf production on Islay – RSPB The Oa with its Continental X calves and these independent farmers with their pure bred, older Luings and Highlands and to assess the pros and cons of each.

The paper will also look at evidence of the suitability of the Whitebred Shorthorn bull for use on the RSPB reserve at the Oa.

A short introductory summary of the breeds mentioned above and some of their relative strengths and weaknesses in this context is as below.

The Continental

Continental cattle is a term used to describe various European breeds of cow, including popular breeds such as Limousin and Charolais. These breeds have increased size and value at market in comparison to many native breeds due in part to the increased growth rates associated with their calves. This can come at a price, however – it is considered by the farm manager at The Oa reserve that many continental breeds need shelter and considerable supplementary feeding in the sort of environment found on Islay in order to maintain condition.

The Luing

The Luing is a native breed of cattle that originated on the Island of Luing off the West coast of Scotland in the mid 1900's. The Luing breed started out as a result of crossing Beef Shorthorn and Highland cattle, which has produced a medium sized and very hardy breed well suited to the climate and habitat conditions found on Islay. Morgan-Davies et al (unpublished) reports excellent overwintering and foraging ability with little need for supplementary feeding.

The Highland

The Highland is another Scottish native breed which can thrive in harsh conditions that many other breeds would find intolerable. It is well suited to the conditions on Islay, due to its thick hair that enables them to deal with the West coast weather and ability to cope with poor pasture and grazing opportunities. Anecdotal evidence suggests that the breed has a great ability to calve unassisted, no matter how bad the weather and conditions. This is of particular value in an environment such as RSPB The Oa, where indoor facilities and cover are extremely limited.

The Whitebred Shorthorn

The Whitebred Shorthorn is a type of beef cattle currently assigned “critical” status on the Rare Breeds Survival Trust’s Watchlist 2012. The breed was historically an important one to use as a crossing sire but has had a dramatic decline in population over recent years and is now one of the rarest types of cattle in the UK, with only 833 registered cattle in the UK on the 1st June 2008, according to the RADAR Cattle Book of that year. Whitebred Shorthorn cattle are traditionally from the border areas of Scotland and England and are generally considered to do well in upland environments. Whitebred Shorthorn bulls can be used as crossing sires with any breed of cattle, particularly with Highland, Galloway and Angus cows.

Costs

Costs are difficult to precisely identify, as there are many direct and indirect costs associated with calf production, such as manpower, transport, electricity and veterinary medicines. One area is comparatively easy to assess, however, that of supplementary calf feeding. Calves at RSPB The Oa are given supplementary feeding in the form of Tarff Valley Islay Blend cake, a blend of various cereals and molasses, which is fed to them in calf creeps through the months of September and October. This feed is high in protein and minerals and assists the calves in gaining weight before they are sold. The current cost of this feed is £255 per ton, though this has varied significantly over the preceding years. A typical year would see around 8 tonnes of this feed purchased and fed to the calves. The cost of cake for the calves is one of the few significant direct costs incurred in their production.

Hay and silage would not normally be fed to the calves sold in October in any significant amount, but does come into the diet for calves that are kept until December and obviously would be a factor if calves were to be kept until finished. Grass growth is extremely minimal in the winter in an environment such as Islay's, so silage and hay is an important supplement to the diet. This year, RSPB The Oa purchased 12 tonnes of hay (at £200 per ton), which should be enough for the breeding cows and December calves until the grass begins to grow again the following spring. Silage production costs are £6.50 per bale, with 700 bales produced on the reserve this year. The bulk of both silage and hay is consumed by the breeding herd and as such is an indirect cost.

Farmers A and B use exactly the same brand and type of cereal cake and silage or hay to feed their calves through the winter, and we can assume the same basic costs of buying and producing these. Farmer A allows for roughly 2 kg cake and 5kg hay per day for each of his Highland calves throughout November to March. Farmer B's Luing winter feeding regime is to allow each calf to receive 3kg of cake and 5kg hay per day.

RSPB The Oa employs two full time farm staff to manage all livestock on the reserve. Farmer A works alone, and has no additional staff to assist him. Farmer B also has no additional staff, and runs his farm with his wife.

Manpower costs are difficult to quantify – activities such as the de-horning of the calves are easily enough accounted for, but in all cases, much of the work on the farm throughout the year, including working with the breeding herd, has to be viewed as an indirect cost.

Petrol and diesel prices on Islay are some of the highest in the country and as such form a significant percentage of each farmer's costs on the island. Total farm fuel budget at RSPB The Oa is £7.5k, though this covers a multitude of vehicles and tasks. It is impossible to isolate the fuel costs incurred through calf production from that of general farm work. It was not possible to accurately assess the fuel costs of the other farmers in the report.

RSPB The Oa has very limited indoor rearing facilities. There is one medium sized shed suitable for use as a calving area, but it is not large enough to permanently winter the entire Continental herd in, so cows judged to be closest to giving birth are moved into the shed a couple of days prior to calving and can remain inside for a few days after, especially in the case of weak calves. This small facility does allow the slight majority of calvings to take place inside, which is highly beneficial in the event of difficult births and to the prospect of success of marginal calves.

Farmer A has no indoor facilities – the Highland cows calve unassisted outside and remain outside throughout the winter. Farmer B has adequate facilities to allow him to enable all his Luing calvings to take place under cover, though his cows also spend the rest of the year (including the winter) outside. RSPB The Oa's Continental X calves are usually sold by the time winter arrives.

The vast majority of the Continental X calves produced at RSPB The Oa are sold in October in the market at Bridgend, Isle of Islay. The auctioneer charges a standard percentage of the total sale as commission. Transportation to market takes around 30 minutes. Calves that are born late in the spring or are just too small to sell in October are kept and sold later in the year, usually around December, at sales in Islay and Stirling. Increased transportation costs are obviously incurred with selling on the mainland, and for a typical sale in Stirling would be in the region of £25 per calf transport, plus £9 per calf per night "B&B". This can make up a significant sum if there are large numbers of calves being sold, and can be a risky strategy when sale prices are low.

Farmer A tends to sell his Highland calves also on Islay, though usually in the spring sales. Costs are the same as RSPB The Oa's in this respect.

Farmer B sells his Luing calves on Islay, and so occurs no additional costs compared to the RPSB's.

The budget for veterinary medicines and expenses at RSPB The Oa is £8k, though again this covers not just calves and breeding cows, but the entire head of livestock at the reserve, including sheep and non-breeding heifers and bullocks. Farmer A calculates that he spends around £500 per year on veterinary expenses for his Highland cows and calves. Farmer B's estimated vet bill was around £1,500 per year. Standard treatments for calves at RSPB The Oa, Farmer A and Farmer B are pour-on treatments for ticks and regular dosing for fluke and other parasites, and no significant difference would occur between the three farms in this respect.

Results

	RSPB The Oa Continental X 6 months	Pure Highland 18 months – Farm A	Pure Luing 12 months – Farm B
Average sale price	£407.31	Around £700	Around £640
Average weight at sale	254.24kg	400-410kg	350-370kg
Supplementary Feeding per calf	106.66kg cake during Sept - Oct	2kg cake 5kg hay per day Nov - Mar	3kg cake 5kg hay per day Nov - Mar
Total feed cost per calf	£27.73	£244.72	£286.56

RSPB The Oa calf sales prices 2008 - 2012

Date of sale	Number of calves sold	Total price received	Average weight at sale	Average price per kilo	Average price per calf
06/09/2008	15	£7475	362.00	137.66	498.33
29/11/2008	35	£13120	250.80	149.46	374.86
18/04/2009	5	£2640	309.20	170.76	528.00
05/12/2009	36	£15412	239.90	178.84	428.11
26/10/2010	15	£3308	147.33	149.68	220.53
03/12/2010	23	£7630	250.09	132.65	331.74
20/10/2011	25	£11115	237.84	186.93	444.60
03/12/2011	11	£4755	236.73	182.60	432.27
Totals	165	£65455	2033.89	1288.58	3258.44
Averages			254.24	161.07	407.31

Based on current cake prices of £255 per 1000kg (£0.26 per kg) and £200 per 1000kg of hay (£0.20 per kg), and a winter feeding schedule of once per day throughout November – March, we can calculate that each calf costs Farmer A £0.52 in cake and £1.00 in hay per day. Over the 161 days in this period, this would amount to a total of £244.72 per calf in feed costs

Farmer B's winter feeding schedule costs £0.78 in cake and £1.00 in hay per day, resulting in a winter feeding total of £286.56 per calf

RSPB The Oa's provides 8 tonnes of cake (total price £2040) to its 75 calves over the 61 days of September and October. Assuming all calves eat the same amount in the calf creeps, this means each calf consumes 106.66kg of cake (1.75kg of cake per calf per day), at an average cost of £27.73 per calf

Comparisons between the three sites is difficult, as there is very little common ground in policy or practice. Much of the financial figures from Farmers A and B are estimates and their historical costs and prices were particularly difficult to establish. However, it is useful to compare each of these systems directly with the nearest equivalent system for which costings and details are published, in this case the SAC Farm Management Handbook 2012 and the QMS Cattle and Sheep Enterprise Profitability in Scotland 2011 edition.

	Oa data	SAC farm management handbook*	QMS **
Concentrates (Cake)	£27.73	£65	£38.56
Hay	n/a	£80 (silage)	£39.59
Bedding (straw)	n/a	£42	£26.65
Veterinary medicines	£6.66	£24	£40.07

* Figures from “Hill suckler cows – calving period” section

**Figures from “Extensive upland herds selling weaned calves” section

	Farmer A data	SAC farm management handbook*	QMS**
Concentrates (Cake)	£83.72	£40	£45.58
Hay	£161.00	£56 (forage/grazing)	£22.17
Bedding (straw)	n/a	£16	£22.85
Veterinary medicines	£27.77	£12	£35.72

*Figures from “Finishing year-old spring-born calves at 18-20 months” section

** Figures from “Extended rearing – upland suckler herds selling yearling calves” section

	Farmer B	SAC farm management handbook*	QMS **
Concentrates (Cake)	£125.58	£60	£45.58
Hay	£161.00	£38 (forage/silage)	£22.17
Bedding (straw)	n/a	£31	£22.85
Veterinary medicines	£50	£21	£35.72

* Figures from “Overwintering spring-born suckled calves” section

** Figures from “Extended rearing – upland suckler herds selling yearling calves” section

Discussion

The idea of finishing calves on Islay needs to be seen in the wider context of the island – weather and habitat factors and crucially, slaughterhouse facilities (or the lack of) mean that very few calves are actually finished on Islay. In order for calves to reach optimal slaughter weight, most farmers would need to provide large amounts of supplementary feeding. The Islay weather and the limited grazing opportunities available mean that it is simply too expensive to put enough weight on the calf, so most will sell their calves as stores.

Just as important, if not more so is the situation with the slaughterhouse facilities on the island. Islay currently has one small commercial abattoir that operates on an occasional basis. The costs associated with running such a facility in a remote location such as Islay are very high, and as a result there has been limited demand in recent times. The Islay slaughterhouse is currently owned and run by one of the local estates, though there are rumoured plans for this facility to be purchased and operated by a community group, on a part time basis.

Farmer A and Farmer B take their calves fairly close to a finished weight before sale, though due to the above issues, the bulk of their sales are still to other farmers on the mainland who take the calves on before selling them for slaughter.

Average price of Store Calves nationwide (from the Scottish Government's Economic report on Scottish Agriculture 2012)

	2007	2008	2009	2010	2011
Number ('000 head)	29.6	31.0	30.9	32.7	35.4
Average price (£ per head)	450.14	496.87	602.46	554.94	562.09

The above table contains average prices for calves sold as stores throughout Scotland. Although extremely crude, it does at least provide a comparison point with the figures in this report. The age of the calf is the big variable that is missing here - probably the most important single factor when considering the relative costs and profits – from this we have an idea of how much effort and expense has gone into producing the calf, and we also can deduce the kind of growth rate that has taken place. When selling calves, the greater the weight and the quicker the calf can get to that weight the better. A calf that can get to 400kg 4 months quicker than another calf has obvious benefits in terms of the amount of care, feed and other resources that have gone in to its development. So we see with the Continental X calves produced at RSPB The Oa, sold at an average of 254kg after only 6 months of life, and only 2 months of supplementary feeding. The increased growth rates associated with the Continental breeds mean that pure Luig and Highland calves need more time to get to the same

weight. When selling at 6 months old, this must be a significant factor when deciding which breeds to use. The older pure Luing and Highland calves produced at the other sites in the project make more money at sale, but the increased months of feeding and manpower required must be considered.

In conclusion, although Farmers A and B clearly achieve a higher price at sale for their pure Highland and Luing calves, when the costs of the extra feeding, not to mention the other indirect costs and time are considered, it would appear that any financial benefits are marginal at best.

One of the difficulties in a paper such as this is identifying which costs can be directly allocated to calf production. Assessing costs and profits was relatively easy in the case of RSPB The Oa, as detailed accounts and budgets need to be kept with an organisation of this size, but the increased scope and ambition of running a farm as part of a nature reserve needs to be considered. Farmer A and Farmer B are only involved in calf production and have no other distractions or overheads, but their accounting methods were slightly more rudimentary, and accurate information was not always easy to come by.

The prospect of using a Whitebred Shorthorn bull at RSPB The Oa depends greatly on the breed's ability to cope with the conditions found on the reserve. Anecdotal evidence from various farmers on the island suggests that the Whitebred Shorthorn was once a relatively common crossing sire on Islay, but many farmers were lured by the prospect of the supposed increased growth rates of the Continental breeds. However, the Limousin and Simmental bulls at The Oa reserve spend most of the winter inside in order to maintain their condition and for ease of observation, so a perceived "hardier" more local breed that could be outwintered would certainly save on costs in this matter. The winter conditions and the available forage are simply too poor for the Continental bulls at RSPB The Oa to maintain their condition. The history of the Whitebred Shorthorn breed would suggest that it would be far better able to cope in a British upland environment. Carlyle (1974) reported that the Whitebred Shorthorn was one of the main breeds on the hill farms of South-West Scotland. Clearly the breed has the ability therefore to cope with the type of conditions found on Islay. This is backed up by the experience of the Forestry Commission Conservation Cattle Grazing Project at Loch Katrine, in the Loch Lomond and the Trossachs National Park. The project's success so far suggests that the Whitebred Shorthorn bull could indeed be an appropriate option for RSPB The Oa. Forestry Commission Scotland (FCS) has a small group of 5 Whitebred Shorthorn bulls which they have been using as crossing sires for their herd of Highland cows for the past 3 years. The FCS website indicates that the cross calves produced have increased growth rates when compared to the pure Highland calf, without losing the hardiness and foraging ability required for Scottish conditions. The project is still very much in its infancy and a regular sales pattern has not yet been established, but so far FCS have sold some of the calves produced at around the year mark. Forestry Commission Scotland have calculated that the supplementary feed required to maintain the Whitebred Shorthorn bulls over the winter works out at about £100 per head, but that this cost is more than repaid by the increased sale prices of the cross calves/heifers that are produced. The Whitebred Shorthorn bulls at Loch Katrine are grazing the same rough areas as the Highland herd, and are similarly outwintered. Staff there also rate their Whitebred Shorthorn bulls extremely highly when it comes to ease of handling. All these factors would seem to indicate that a Whitebred Shorthorn bull could be a suitable option for the reserve – it would appear to have the hardiness required for the conditions, and produces a larger, more rapidly growing calf when crossed with the Highland cow.

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