

A Nuffield Farming Scholarships Trust Report

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Are benchmarking targets for suckler cows achievable?

Steven Sandison

July 2016



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A Nuffield (UK) Farming Scholarships Trust Report



Date of report: July 2016

"Leading positive change in agriculture. Inspiring passion and potential in people."

Title	Are benchmarking targets for suckler cows achievable
Scholar	Steven Sandison
Sponsor	The MacRobert Trust
Objectives of Study Tour	Are the benchmarking targets suggested by industry bodies realistic? What is the best being achieved here in the UK/Ireland? What do those farmers have in common? Which management practices are important? What can we learn from farmers in other countries?
Countries Visited	UK, Ireland, Canada, Sweden, Norway
Messages	The targets set by industry bodies are too high
	Cow type and breed do affect these targets
	Staff and management also affect these targets
	The many services and products which are offered to farmers can be useful but not always necessary
	The family and staff connected to the farm business could benefit from knowing the farm's full potential, to help them support and challenge those making the decisions.

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The opinions expressed in this report are my own and not necessarily those of the Nuffield Farming Scholarships Trust, or of my sponsor, The MacRobert Trust, or of any other sponsoring body.

CONTACT DETAILS

Steven Sandison

Home: 01856771470

Mobile: 07739933126

Email: stevensandison@gmail.com

Address: Millburn Farm, Harray, Orkney, Scotland KW17 2LA

Nuffield Farming Scholars are available to speak to NFU Branches, Agricultural Discussion Groups and similar organisations

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Chapter 1: Introduction

My name is Steven Sandison. I am married to Lorraine and we have three children: Carmen, Callie and Glen. We live in the parish of Harray in the Orkney Islands, in the north of Scotland. I was born in 1979, I am the youngest of three children and was brought up on a small family beef farm. During my childhood the family business was built up but it still wasn't big enough for me to work at home when I left school at the age of 16. From an early age I had a keen interest in cattle and especially beef cows. I was very fortunate to get a job as soon as I left school, on a mixed dairy and beef farm where I could also attend the local college where I undertook a Higher National Certificate in Agriculture. I milked cows for three years until they were sold off and replaced with beef cows. For the next few years I was contracted out working on other beef farms and this gave me a great opportunity to see different systems and management practices.

Lorraine and I were married in 2002 and bought the first of our own stock in 2003. We rented land at first and were fortunate to be offered a farm to buy in 2006. Since then we have bought another farm and built cow numbers up to 100. We currently farm 330 acres, 230 which are owned and 100 on seasonal lets. We have Simmental and Salers cross cows and sell the calves as stores and we also grow some spring barley.

I feel very fortunate to be doing a job I love and feel a sense of responsibility to do the best with what I have. A combination of having no hobbies, being mean and being brought up to avoid waste, has led me to my interest in benchmarking and measuring everything related to the business and especially the cows.



Figure 1: Me, Steven Sandison, at home with the cows

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Chapter 2: Background to study

In 2012 we were fortunate to become Orkney's first Monitor Farm. At the start of the project a whole farm review was carried out on the business. The whole farm review programme is carried out by someone completely independent to highlight the strengths, weaknesses, opportunities and threats to the business. The review highlighted that our herd was not achieving targets for cows scanned in calf, live calves born, and calves weaned, as recommended by both QMS and SRUC.

This frustrated me as this was where my interests lay and I felt I had been trying my best, and being told by someone who had probably never owned a cow that what I was doing wasn't good enough really didn't go down well! So trying to turn my frustration into something positive I wanted to find out if these targets were realistic? I was told they were and that there were farmers out there achieving these targets annually. This made me curious and I wanted to visit them and find out what they were doing to hit these targets.

The start of the monitor farm project coincided with when I first heard about The Nuffield Farming Scholarships Trust. When I did more research on Nuffield I found out they were looking for people who challenge the *status quo*. Ever since I started farming I have attended lots of meetings, farm walks

Quality Meat Scotland estimates that only 82% of cows in Scotland are producing a calf each year. So we are rearing 10% less calves than what we are being told is possible.

and open days. We farmers were often told by industry experts how we needed to be more efficient by achieving 96% scanning, 94% live calves and wean 92% from every one hundred cows exposed to the bull, all in a 9 to 12 week breeding period.

We are told by consultants, vets, breed societies, machinery dealers, feed merchants and even Nuffield Farming Scholars that we need to use the latest information, services, machinery, gadgets, feeds, minerals, vaccines, etc, to make us more efficient. Although we have access to all this information and products, Quality Meat Scotland estimates that only 82% of cows in Scotland are producing a calf each year. So we are rearing 10% less calves than what we are being told is possible. Either these targets are unrealistic or we as an industry are under achieving. At a time when farm support payments have moved to an area based payment system it has never been more important to find out where the inefficiencies lie and where we can make improvements.

So my study started simply, trying to answer 2 questions:

- 1. What is a realistic number of calves farmers should be aiming to wean from every 100 cows exposed to the bull?
- 2. What do the farms who are achieving the best results have in common?



Chapter 3: My study tour

UK February/September 2015	Before embarking on any foreign travels, I wanted to meet farmers here in the UK and see how they cope with the diseases, weather and whatever other challenges they face. And also wanted to see which products and services they use.
Canada October 2015	I wanted to see large scale beef production and see if that was the way forward for our industry. I also wanted to see how beef production copes without subsidy. I also wanted to see if the extreme cold in winter has an effect on production.
Ireland November 2015	Beef cows in Ireland are housed in very similar conditions to cows in Scotland so I wanted to see if there were similarities. Also they are fairly heavily stocked and make the most of grass.
Norway January 2016	I was told "Don't go to Norway, they are very heavily subsidised, it isn't relevant to your subject." So of course I wanted to go to Norway!
Sweden January 2016	Sweden has very high welfare standards. Cattle must be housed from November to April. So I wanted to see if this had an effect on cattle health and profitability.



Chapter 4: Background to questions

In order to answer my two questions (*what is a realistic number of calves farmers should be aiming to wean from every 100 cows exposed to the bull? and what do the farms who are achieving the best results have in common?*) I needed farmers to visit. I am very grateful to the breed societies, consultants, neighbours and Nuffield Farming Scholars for putting me in contact with the farms which I visited. I would also like to acknowledge the value of Monitor Farms and discussion groups and the Better Farm Programme in Ireland. So many of the farms I visited had been - or were - involved in these groups. To find out what they were achieving I asked them all the same questions to identify what, if any features they had in common. These questions were:

- Cow breeds used?
- Bull breeds used?
- Have you ever changed the breeds you use?
- Housing type?
- Method of feeding cows?
- Type of drinking equipment?
- Winter rations?
- Do you supplement cows after calving?
- Are the calves creep fed?
- Type of minerals fed?
- Diseases which you vaccinate for?
- Is fluke treatment for cow's routine?
- Do you treat the navel of new born calves?
- Are stock bull's fertility tested?
- Do you use Estimated Breeding Values?
- Do you have sheep?

These are all subjects that have been debated by many farmers and have been the reason for many meetings, open days and farm walks, whether it is to promote a new product or service, or to show best practice within the industry. But how much of it really matters and does it really affect what happens on the farm? So that is why I also had to ask the farmers these questions:

- Scanning percentage?
- Calving percentage?



- Weaning percentage?
- Replacement rate?
- Calving spread?
- Heifer calving age?

These are the best ways to measure how a farm is performing. The reason I asked about Scanning, Calving and Weaning is to find if all the farms have losses at the same stages or if farms are different - and which of the management practices above affect each of these numbers? It is also important to know the calving spread, as you cannot compare a farm with a short calving period against a farm which calves cows half the year or more.

And my final question was:

• Are you making a profit before subsidy?

Beef farmers in the UK have access to several support payments. This is often justified to keep the price of beef affordable and because costs are high. Some farmers claim to make a profit without direct support while others say it isn't possible. So I wanted to find out what was possible and if there was a link between financial and physical performance or was it just luck!

My first visits were to farmers in the UK and Ireland.



Chapter 5: Analysis of results from the UK and Ireland

5.1: Herd performance

When I had finished my visits in the UK and Ireland. I collected all the information I had gathered. I found that seven of the farmers I had visited were achieving a better weaning percentage than the target. As a direct comparison I took the results from the bottom seven farms to compare. These were the seven farms with the lowest weaning percentage. Although I am calling these the bottom seven, they are very good farmers and are still achieving a better weaning percentage than the average suckler producer in Scotland.

The following table shows figures for scanning, calving, weaning and calving spread.

	Average	Тор 7	Bottom 7
Scanning %	93	95	91.5
Calving %	90	95	86.5
Weaning %	89	93	84
Calving Time	14 Weeks	9.5 Weeks	28 Weeks

5.1.1: Scanning percentage

The average scanning percentage of the group is 93% with the top 7 achieving 95%. This would suggest that 96% is an unrealistic target. If the best guys in the industry aren't achieving the target then what hope do the rest of us have?

5.1.2: Calving percentage

The further down the table you go the gap between the top and the bottom gets bigger; with the top 7 farms having as many calves as cows which were scanned pregnant. This makes me ask the question: do they never lose calves before or during calving? The answer is they do, but the twins make up for the losses. Twins vary between farms but the farms using pedigree Simmental or a big influence of Simmental regularly have more twins, with some farms having as many as 10% twins annually.

5.1.3: Weaning percentage

The weaning percentage is the base to my whole study. With the average of all the farmers being 89% this again would suggest that 92% is setting the bar fairly high. With the top 7 being 93% while the bottom 7 is 84%, this has shown how big a variation there is within the industry.



5.1.4: Replacement rate

The recommended industry target is 15%. The average of all the farms where I went was 16.6%. Some farmers would accept their replacement rate of cows was too high, while others had genuine reasons. Some farmers were increasing cow numbers while others sold their cows off for breeding once they reached a certain age and replaced them with heifers. Half of the farms I visited were achieving 15% or better so it is easy achievable.

5.1.5: Calving spread

Weaning percentage alone only tells part of the story. I needed to know whether farmers were achieving these targets in a compact calving - or were they calving cows half the year? This is where it became really interesting. The average of the whole group was 14 weeks which is reasonable, but the difference between the top 7 and bottom 7 was shocking! The top 7 were weaning 93% calves from a calving period of 9.5 weeks' average; while the bottom 7 were weaning 84% from a calving period of 28 weeks.

5.1.6: Profit

50% of the farms I visited were making profit without subsidy

12% said they would be breaking even

38% said they would not be making a profit without subsidy

So is there a connection between weaning percentage and profit?

6 of the top 7 were making profit while 1 was breaking even

6 of the bottom 7 were not making profit while 1 was breaking even

Hang on a minute! So these guys spend three times as long - more than half of their life - calving cows to produce 9% less calves and NOT make a profit. Surely this is crazy. I really wanted to find out the differences between the businesses to see what had caused this!

5.2: Factors influencing performance

Now that I knew what figures can be achieved and what variation there is between farms, I wanted to know what management factors were influencing the physical performance of their herds.

5.2.1: Nutrition

There are different ways to make winter fodder for cows. I wanted to know if this had an effect on performance. I wanted to find out what farmers were feeding their cows prior to the breeding season to see if this affected fertility. Also what they fed the cows prior to calving to see if this had an effect on calf losses. I also wanted to know what type of minerals if any farmers were using and how this affected performance and what type of drinking equipment is being used for housed cattle.



5.2.1a: Fodder type

64% of the farms I visited make pit silage while 16% made a mixture of pit and baled silage. 14% made bales only while only 6% made no silage at all. These farms either out wintered their cows on deferred grazing or fed them treated straw or hay. There was very little difference between the top 7 and the bottom 7 with a mixture of fodder types in both groups. This suggests that the methods used to make silage aren't a factor in poor performance.

5.2.1b: Minerals

There was huge variation with what minerals farmers were using. 52% of the farmers fed powder minerals only (24% of those farmers were using a powder mineral which had been specially manufactured for their farm), 21% were using powder minerals and boluses combined, while 6% were using boluses only. 7% used buckets while another 7% combined buckets and powdered minerals. 6% fed no minerals at all while one farmer combined buckets with boluses and another farmer used mineralised cobs to feed his cows. There was very little difference between the top 7 and the bottom 7 with both groups using all different methods: although it was interesting that one of the top 7 was one of the farmers who fed no minerals at all.

5.2.1c: Supplement feeding after calving

77% of the farms I visited did improve the diet of the cows after calving. Some turned cows outside on grass while others supplemented the cows with concentrate feed until turnout. What was more interesting was that 6 out of the top 7 did supplement feed while 5 out of the bottom 7 didn't. The improvement in diet will help keep the cows in better body condition and will help get the cows back in calf sooner.

5.2.1d: Creep Feed for calves

63% of the farms did creep feed their calves. 3 of the top 7 did creep while 2 only fed bull calves while the remaining 2 didn't creep feed. All of the bottom 7 did creep feed their calves. If the average age of first calved heifers of the top 7 is 2.2 years, and the bottom 7 is 2.8, then why are the bottom 7 all creep feeding calves if the heifers are going to be left longer before being exposed to the bull?

5.2.1e: Drinking equipment for housed cows

Only one farm which I visited had drinkers. This farm had modified the drinkers to increase the volume of water for the cows. All other farms I visited either had water bowls or troughs. Some farms had invested in new turn-over troughs which are very easily cleaned without wasting too much water. Drinkers are a very clean and simple source of water but farmers need to be sure that cows are drinking enough, especially post calving.

> Figure 2: Turn over drinking trough which is very easy to clean without wasting too much water





5.2.2: Genetics

5.2.2a: Cow breeds

There are many different breeds of cattle in the UK. I wanted to find out if there was any connection between breed and fertility, calf loss, calving age of heifers and even profit. Below is a list of all the different breed of cows I came across during my study.

- 24 herds using Limousin
- 22 Simmental
- 17 Aberdeen Angus
- 7 Shorthorn
- 6 Hereford
- 6 Salers
- 6 Stabiliser
- 5 British Blue
- 4 Luing
- 3 Charolais
- 3 Dairy
- 1 Blue/Grey
- 1 Galloway
- 1 Highland

The top 7 herds were all cross bred cows, while the bottom 7 either had pedigree herds or cross bred continental herds. I wanted to see if this was a pattern through all the herds. So I broke them into 3 sections and calculated the average weaning percentage along with calving spread for each group and the age at which these herds calved their heifers.

	Weaning	Calving spread	Heifer age
Continental based herds	86%	16 weeks	2.5
Cross bred continental/native	90%	11 weeks	2.1
Native based herds	89%	13 weeks	2.2

Herds that are using continental crosses only, have consistently poorer weaning figures and a more spread out calving. The farmers which used pure bred native cattle or a cross of two or more did have better figures, but not as good as the farms which were using a cross of continental and native. This has shown that using continental and native breeds together, it is possible to have the best of both worlds.



Some farmers I visited have started using dairy bred heifers as replacements for their suckler herds. Some dairy farmers are focusing more on milk quality and a cow with better longevity and are using more traditional dairy breeds and then crossing them with a beef breed. A few of the farmers I visited are now sourcing their replacements this way and seeing great results. The heifers are often cheaper to buy and milk well, meaning they can produce a heavy calf off grass with no need to creep feed.

I still don't know if all the breeds we have here in the UK are needed, but certain breeds are better suited to certain environments. Cow breed or, more importantly, cow type does matter and I think it is a myth to say that we can have whatever breed we want, and as long as we look after them to the best of our ability we will get the same results. The farmers with continental based cows were excellent farmers but the cattle are higher maintenance. One of the top seven producers who has a continental x native herd and is achieving 95% weaning, also has a few pure continental cattle as a hobby. I asked him if this weaning figure included the pedigree cattle? "*No*" he replied "*They have a mind of their own.*" This farmer's management was as good as I had seen and I know he would have put the same attention or more into his pedigree cattle as he did to rest of the cows but the results were different. So the breed of the cow does matter!

5.2.2b: Bull breeds

Here are the different bull breeds I came across in my study:

- 23 herds using Limousin.
- 22 Simmental.
- 20 Charolais.
- 13 Aberdeen Angus.
- 8 Salers.
- 6 Stabiliser.
- 7 Hereford.
- 5 Shorthorn.
- 4 British Blue.
- 3 Luing.

An interesting quote I heard from one farmer was "*I don't want an easy calving bull, I want a cow which can put out a decent sized calf.*" Since the introduction of Estimated Breeding Values farmers hear a lot about easy calving. Certain breeds get the reputation for being harder to calve, but is this fair? This comes right to the heart of my subject. Back home on the farm I find myself being pulled two ways. If I have had a few bad calvings then all I want is an easy calving bull. But when the calving is over and it comes time to sell the calves, the bigger the better!



So is it possible to have it both ways? It is provided the cow type is right. I have met farmers who are achieving 90% weaning or better from a 10-week calving spread or less from bulls of all the breeds above.

5.2.2c: Calving age

56% of the farms I visited calve their heifers at 2 years old. 25% calve at 2½ years old which can only be done if the herd calves twice a year or buys in their replacements. 19% calve their heifers at 3 years old which equates to 11 farms. 3 of those farms are working with native type, slow maturing hill cows on a low cost system which were all making a profit without subsidy. The other 8 farms, which have bigger more modern cows and calve at 3 years old through choice, all said they were not making a profit without subsidy. One farmer I visited said that on his farm changing from 3 to 2-year-old calving was the difference between profit without subsidy and not. So I have compared farms doing both to see if this could be the case.

The average weaning percentage of those herds calving at 2 years old is 89% and 62% of those farms are making a profit before subsidy. The farms which calve heifers at 3 years old have an average weaning percentage of 87% while 64% of them said they were not making a profit before subsidy.

The farms with continental cross native cows have an average heifer calving age of 2.1 years. The farms which have 100% native cattle are 2.2 years. This small increase in age is explained because a few farms have Highland cross and Blue Grey cows which are slower maturing and need to be left longer before going to the bull the first time. But it is the farms which have 100% continental cattle which have the oldest heifers when they go to the bull the first time. An average age of 2.5 years is very hard to explain for the type of cows which are faster growing and probably won't live as long as make up for the year which they lost earlier in their life.

5.2.2d: Changed the breed of cows

85% of the farms I visited had changed the breed of cows they are using. 4% were in the process of changing while the remaining 11% had never changed their cow type. Many farms used to source their replacements from the dairy herd but, as the Holstein became more popular, beef farmers switched to using more beef genetics. But now that the dairy industry is reverting to more traditional dairy breeds more beef farms are sourcing their heifers this way again.

The fact 85% of farms has changed shows that farmers are willing to change and adapt as the industry changes.

5.2.3: Housing/management

5.2.3a: Housing

Coming from the Orkney Islands where there are more cows than humans and where we have long wet winters, most cows are housed for 6 months or more. I wanted to find out if this, and the type of housing, has an effect on the performance of a herd. Straw bedded courts are a great way to house cows but land type and weather can make growing crops a challenge in the north of Scotland. The



distance and the cost of importing straw can be too much, so slatted courts are a very popular way of housing cattle.

But does the type of housing affect the performance of cattle and could it contribute to calf losses?

12 farms of the totals in my study winter their cows outside. The average weaning percentage of these farms is 90.6%. The other 46 farms wintered their cows on either straw, sawdust, slats or cubicles, with the majority of them having a mixture of housing types. The herds which calved in 12 weeks or less had the following weaning rates from each different system:

- Bedded only 90.1%
- Slats only 86.5%
- Bedded and slats 86.7%

I have found already that cow breed/type has an effect on performance. Only a certain type of cow can be out wintered. So it is no surprise that a hardier more fertile herd of cows being kept in cleaner conditions with far more room to exercise and stay clean should produce more live calves.

If a farm can't keep cows outside, or has a type of cow which has to be housed, then it is important that we realise that the losses could be greater as well as the costs being higher. So we need to make sure that these cows do produce a higher value product to make up for a poorer weaning percentage.

5.2.3b: Feeding systems

Throughout my travels I have seen many different ways to feed a cow. They all have four legs and four stomachs but there seem to very different ways to feed them: from deferred grazing, feeder trailers, mixer wagons and robotic feeders. Many farmers now prefer a total mixed ration so the cows can get a balanced ration, but is it really needed and is it better?

- 43% of the farms I visited did have a feeder wagon
- 2 of the top 7 have a feeder wagon while 5 of the bottom 7 have a feeder wagon.
- 43% of the top third have a wagon
- 64% of the bottom third have a wagon

There is nothing to suggest here that having a more mechanised way of feeding cows is going to reduce losses. One of the main differences between the top and bottom 7 is simplicity. *"Less machinery and more from grass means more profit"*, was a comment I heard a few times.

5.2.3c: Estimated Breeding Values

Many debates have been held regarding Estimated Breeding Values. Some farmers use them as a tool to select stock while others pay no attention to them at all. The majority of the farmers I met said they would use them as a guide, 80% of them said they did use EBVs. Most of them said they only looked at EBVs after they had picked the stock by eye. The 20% of farmers who said they did not use EBVs were spread throughout the whole group with 2 of the top 7 not using them at all.



5.2.4: Health

Livestock in the UK are at risk from many different diseases. There are many vaccines and other products on the market and I wanted to find out how many of these products farmers are using and if they are having the effect which they should.

5.2.4a: Fertility test

Fertility testing stock bulls is a service being made available to farmers in recent years. It is another tool by which farmers can have more confidence that bulls are going to do their job better. I wanted to find out how many farmers were using this service and if it was having a positive effect.

6% of the farmers I met use AI instead of bulls. Of those who do use bulls, 33% are fertility testing stock bulls annually, leaving 67% who don't.

Those farmers who are testing and who calve in 12 weeks or less have a scanning percentage of 94% while those who don't test have a scanning percentage of 92%

5.2.4b: Vaccines used

Of the 58 farms I visited in the UK and Ireland:

- 45 vaccinated for BVD
- 33 vaccinated for Leptospirosis
- 25 vaccinated with a Scourguard
- 5 vaccinated for salmonella
- 6 vaccinated for blackleg
- 10 vaccinated for IBR
- 4 farmers used no vaccines at all on their cows

The 25 farms which used a Scourguard on average lost 1 calf from birth to weaning, while the farms which didn't vaccinate lost 1.8 calves per 100 cows. There was no difference in the weaning percentage of the farms which did vaccinate for BVD as opposed to the farms which didn't; both had weaning percentages of 89%. As Leptospirosis affects fertility and the unborn calf, I used the scanning results to measure the effect of the Leptospirosis vaccine. The farmers who did vaccinate and had a calving period of 12 weeks or less had an average scan of 92%, while those who didn't with the same spread of calving had an average scan of 93%.

There was a huge variation in this category. One farmer was achieving 93% weaning from a 16 week breeding period with no vaccines, while another farmer used 6 different vaccines and weaned 89% from a nine week breeding period.



5.2.4c: Navel treatment of the new born calf

43 of the farms I visited do treat navels with iodine or a similar product. 10 farms don't treat, while 3 said they had stopped it. Only 2 farms administer antibiotics at birth to prevent infection. Of the 13 farms which don't treat, 7 of them out winter their cows, while 5 wintered them on slats/cubicles and 1 had bedded courts.

5.2.4d: Liver fluke

84% of the farms I visited routinely treat for liver fluke. All the farms which didn't treat were on the east coast of Ireland, Northern Ireland, England and Scotland in arable farming areas. This would suggest that it remains a bigger problem where there is more livestock and a higher rainfall.

5.2.5: Sheep

Many farms that have beef cows also have sheep. Calving and lambing often happen at the same time. So are farmers too busy? I wanted to find out if this was affecting performance.

- 36 farms with sheep had an average weaning percentage of 89%
- 22 farms which didn't have sheep had an average weaning of 88%
- 50% of farms with sheep made a profit without subsidy
- 44% of farms without sheep also made a profit without subsidy

Sheep and cattle work well together, and I didn't find any reason to suggest why sheep would compromise how a herd is performing.



Chapter 6: Comparison between countries visited

	Canada	UK/Ireland	Sweden	Norway
Scanning %	93%	93%	94%	94%
Calving %	91%	90%	91%	90%
Weaning %	89%	89%	90%	89%
Calving Spread	8 weeks	14 weeks	14 weeks	11 weeks
Calving Age	2	2.3	2	2.06
EBVs	63%	80%	86%	100%
Fertility Test	88%	33%	0%	0%
Supplement	38%	67%	0%	66%
Liver Fluke		84%	28%	0%
Navel	13%	77%	15%	22%
Sheep	0%	67%	0%	23%
Creep	13%	63%	28%	44%
Outside	100%	13%		10%
Bedded		40%	50%	30%
Cubicles		16%	50%	60%
Slatted		31%		
Feeder Wagon	25%	43%	28%	33%
Powder Minerals	100%	52%	100%	44%
Bolus		6%		12%
Buckets		7%		12%
Mixture		29%		32%
No Minerals		6%		
BVD Vaccine	62%	78%		
Leptospirosis		57%		
IBR	50%	18%		
Salmonella		9%		
Scourguard	38%	44%		
Black Leg	62%	11%		
No Vaccines	13%	7%	100%	100%
Cow Type Change	100%	85%	58%	45%
Profit ex Subsidy	100%	50%	14%	11%

6.1: Canada

Arriving in Alberta, Canada at the start of harvest after a dry summer was very different to leaving Scotland after a very wet summer. We stayed north of Edmonton, the first week, in a mainly arable area. Although most of the land was used for barley, wheat and canola, there was a significant number of beef cows grazing in wooded areas, some grassland, and grazing on the regrowth which grows after the arable silage has been cut. The cows are taken into corrals for the winter which have tall wooden fences to shelter the cows from the freezing winter wind which can see temperatures drop to -40.





Figure 3: 5/6 month old Charolais cross calves performing well in dry conditions

I visited farms that keep cross bred cows for beef production, and pedigree herds which hold their own on-farm bull sales. Some of the pedigree breeders still calve in January and February in order to have big strong bull calves ready to sell for breeding the following spring. But all the farmers whom I visited with are now calving cross bred cows in late April or May. The snow is gone by then and management is much easier. This means that the calves are only 5 and 6 months old when they are weaned in October but the calves are very well grown and in good condition for their age, and considering the grass they were grazing which looked fairly poor quality. Some farmers were paddock grazing their cows on long grass or lucerne, only grazing the fields three times a year, no more than three days at a time.

A few of the farms I visited were now swath grazing their dry cows in the winter. A mixture of barley and oats get sown in the spring and swathed in September. Because they have very little rain no harm comes to the cut crop and when the snow falls it keeps the crop fresh until the cows eat it in the winter time. An electric fence is used to strip graze the mown crop. One farmer told me he moves his fence daily which means he can get an extra 30 days' grazing each winter for his 300 cows. Weaned calves are also being wintered this way with some kale and cabbage added to the mixture to provide enough protein for calves to grow at 0.5kg per day.

see pictures on next page



Figure 4: Green fields due to different grass varieties and paddock grazing



Figure 5: Swath grazing



South of Calgary I visited a few ranchers in the foothills of the Rocky Mountains. A friend of a friend had arranged for me to visit a real "Cowboy". We drove 14 miles on gravel road from the nearest highway. After being introduced we set off up onto the 'ridge' to see if we could find some of the 300 cows and calves on this 10,000-acre ranch. The main topic of conversation was the number of this year's calf crop he had lost to bears and wolves. He had also lost a mature bull to a bear so when I was out opening gates I didn't take any longer than needed! Nearer the end of our tour the stories became a reality. We found an aged horned steer whose main purpose in life had been to protect a group of yearlings, the latest victim of a bear.



Figure 6: The Rockies, good to look at but not easy to keep cattle on

I didn't have the heart to ask this rancher what his weaning percentage was. This had been one of the best visits I had on all my travels and we had never discussed my subject at all. I did ask him if a 20 year-old who wanted to follow in his footsteps was wanting one piece of advice, what would that be? "Don't do it," was the reply. "My business is losing a six figure sum every year". "So how do you keep going?" I asked "The land is increasing in value every year so I just keep going to the bank." This brought a whole new meaning to the quote which I have heard many times. "Farming is not a job, It's a way of life."

Comparing the farms in Canada with the other countries I had visited, Canada certainly came out on top for technical efficiency and profit. Average weaning percentage was 89%. Farmers in Canada speak about calving period in days, not weeks or months. They average 8 weeks and heifers all calve at 2 years old and 100% were making a profit. It is interesting to find where there are no support payments these things are a must, not an option.



6.2: Norway

I arrived in Norway on the 17th of January. I wanted to visit the Scandinavian countries in winter to see for myself the buildings and systems which the farmers use to house the cattle. I wanted to see if the extreme cold had an effect on production and how the farmers managed that. The night I arrived it was -25C so I soon saw first-hand what it was like to have cattle inside in such cold conditions.

Over the next few days the temperature was never above -10C. I visited several farms and soon saw that although most of the cattle were housed, there was a big difference in building design. Some cattle were in insulated sheds which were temperature controlled. A ventilation system controlled the amount of air coming in the sides and leaving through vents in the ridge of the building. These buildings were very misty and although a few of the farmers I visited had mixed ages of cattle in them and had started calving, they didn't seem to have issues with pneumonia.



Figure 7: Misty sheds and healthy cattle

Others were in sheds which had open sides. These buildings had better ventilation but some did have wind shields up to protect young calves from the cold. Most of the cattle I saw were on cubicles with automatic scrapers moving the slurry. This was a problem with the open sided sheds for the muck froze and the scraper couldn't work properly.

One farm which I visited had a bedded shed with all the cattle having access to outside yards. They were divided into different groups and fed and bedded outside as well and were kept separated by electric fencing. What was interesting about this system was that these cows had the chance of complete luxury in the bedded shed with plenty of room, but they spent most of their time outside even in those low temperatures. This farm preferred calving early and said that the calves were very healthy for the cold helped keep conditions clean. They have now reduced cow numbers but when



they had more cows, calving would last longer into the spring and when the temperature reached about 10 degrees they would have more problems with navel infections.



Figure 8: Despite the cold the cattle prefer outside

Of the farms I visited, Charolais was the most common breed of cow. This was interesting for I had seen so few Charolais cows in the UK and Ireland and the ones which I did see were not performing particularly well. This was not the case in Norway as the farms I visited were averaging 89% weaning from an 11 week breeding period with most farms calving heifers at 2 years old. Hereford, Simmental, Limousin and Aberdeen Angus were also being used. All farmers used EBVs not only for bull selection but for cows as well. None of the farmers fertility-test bulls which seems to have little effect on fertility for the average scanning was 94% from an 11 week breeding period. A few farmers also mentioned that they did not want double muscling in their cattle.

Norway is clear of BVD, IBR, TB, Leptospirosis, Johnes Disease and none of the farms I visited was treating cattle for liver fluke and most of the farmers had never heard of it. Only one farmer was vaccinating his cows with a scour guard.

Only one farmer was making a profit before subsidy. He farmed on his own with 150 cows. This would be unusual in Norway with the other farms I visited having fewer cows and more staff. He also fed his cows in winter very cheaply. He fed hay - which was a by-product of grass seed harvesting - to his dry cows. And he also fed potato slurry which he called "Vodka" to the milking cows. This was the by-product from vodka production which the cows had free access to and was obviously very nutritious. At the time I was there, 80 cows were eating 2 bales of grass silage along with "Vodka" When he stops feeding the vodka, the cows then eat 5 bales of silage.



My last visit in Norway was to a farm which let their cows run outside all winter. It was a beautiful day and the difference from the buildings I had seen only a few days earlier which were damp and misty was very noticeable. So this left me wondering: are buildings designed with welfare in mind or is it just tradition?

6.3: Sweden

Arriving in Sweden with a temperature of zero seemed tropical after being in Norway.

Buildings were a similar design but the ones I saw were a good bit bigger. Most of them were cubicles and bedded, with some of the farms I visited growing their own crops which meant they were partly if not completely self-sufficient for straw.



Figure 9: 400 cows and calves under one roof

Buildings were also high tech. During the time I was there I saw some great pieces of equipment to make the daily routine of looking after cattle very easy and saw cattle being kept to the highest possible standards. By law cattle have to be housed from the 1 of November till the 30 of April.

Weaning percentages were similar to the UK and Norway; 90% was the average of the farms I visited, from a 14 week breeding period. All heifers are calved at 2 years and Simmental and Charolais were the two most common breeds. Again, like Norway, they are getting great results from the type of cow which was among the poorest performing cows I had seen in the UK and Ireland. Why could this be? The one thing which I heard over and over again was *"We don't want double muscling.*"



Figure 10: Typical building design in Sweden

The cows looked very similar to what a Charolais cross Simmental would look in the UK. When I was there, calving had started on a few farms and cows were in very good condition, in fact if my cows were in that condition my neighbours would tell me I was guaranteed calving difficulties! Their housing was similar to the UK, they all fed powder minerals, no one fertility-tested bulls, a few were treating cows for liver fluke and no one supplemented the cows after calving and not one farm vaccinated for any disease.

Most farmers used Estimated Breeding Values and were very confident with them. One farmer especially was very passionate about EBVs and every part of their farm was very impressive. They have 70 Pedigree Simmental cows and 70 Pedigree Charolais. They scan 95%, calve 93% and wean 92% from a 14 week breeding period. Heifers are calved at 2 years old and they only help 10% of the cows to calve and have not had a caesarean section for 15 years.

My final farm visit in Sweden again left me very impressed. An exceptionally tidy farm with 100 Simmental and Charolais cross cows. Scanning 94%, calving 93% and weaning 92% from a twelve week breeding period, again heifers calved at 2 years old.

After I had finished my UK/Ireland visits I was very confident that breed did matter, as the best that I saw with a continental type of cow was 84% weaning. All the others with this type of cow were in the low eighties.

So what could be making the difference between the same breed/cross of cow in the UK/Ireland and Norway/Sweden? The only thing left is double muscling, if that is the effect that double muscling is having on our suckler cow industry then we need to seriously think about a change in direction.





Figure 11: Charolais X Simmental heifers at 11 months old in Sweden

Chapter 7: Case studies

7.1: The influence of management and staff

Most of the farms I have visited were family farms. Farm A was one of the few farms where that was not the case. The current manager took over 15 years ago. At that time the farm was not performing well and when the previous manager retired the owner saw the opportunity to take in a new manager. At that time a typical scanning result would have been 79%, calving would have been 75% and a typical weaning would have been 72%. Calving lasted 12 months of the year and the business was losing a lot of money.

This farm has a history of breeding pedigree cattle and the owner wanted to keep the breed so what was the new manager going to do?

All the staff was replaced along with the farm vet. Numbers of pedigree cattle have been reduced and replaced with cross bred beef cows. Rather than buying in new stock they have bred the current herd from the best of what they had already. Changes to feeding and a vaccination programme have all helped and now the same farm with an improved herd of cows is scanning 84%, calving 80% and weaning 79% from a 12-week breeding period.

This farm has increased its margin per cow by a quite significant amount. This has been achieved by making the most of support payments, improving the stock and increasing their sale value and improving the herd's weaning percentage.

As farmers we find it very easy to blame the weather, market prices, legislation, etc for affecting the profitability of our businesses. This example shows that a change of management and staff can make a massive difference on the same farm. I would like to thank the guys for their honesty and for changing what was one of the dullest days I had into one of the best afternoons I had throughout all my travels.

7.2: The influence of cow breed/type

If you want to spark a debate among a group of farmers, all you need to do is criticise a breed or boast about another breed. A lot of the farmers are very passionate about the breeds they use but does it make a lot of difference?

Farm B is a mixed beef and sheep unit. This farm changed its sheep flock to a more easily managed breed and, after great results, thought they wanted a herd of cows which could do the same. They were breeding show calves and had been successful at the highest level but were finding that costs and losses were increasing. At that time a typical scanning would have been 87%, calving 83% and weaning 78%, and they were calving 32 weeks of the year. Heifers calved at 3 years old and they were using 60-70 tonnes of grain to feed 100 cows and followers. "We could not reduce our fixed costs because we couldn't increase number; firstly because they were losing so much money it would have been commercial suicide, and secondly because we had such a long calving period and a type of animal which needed constant supervision meaning you were physically and mentally exhausted most of the time."





So a change was made to the breed of cows but the new breed didn't meet the family's expectations. So another breed was introduced and the whole system is now based around grass. Heifers now calve at 2 years old, scanning is 92%, calving is 91% and weaning is 90%. But most impressive of all is that this is being achieved in a 7 week calving period. They have seen a swing of £400 per cow from losing money to making a small profit before subsidy.

Cow numbers are now at 140. They now use no grain, instead weaned calves and first calved heifers receive good quality clover silage while the main herd gets hay and straw. Only one tractor and loader is needed for what is a very simple and profitable system. One of the best quotes I heard on all my travels was while visiting this farm. "*Farmers like to complain about the price they receive for their product, but the costs which the farmer has control over makes a far bigger difference to profit.*"

The family said they didn't think the breeds they are using now were special or better than any other breed. "*We probably could achieve similar results from a few other breeds* "Farmers like to complain about the price they receive for their product, but the costs which the farmer has control over makes a far bigger difference to profit."

but this is the breed we decided to use." But what this case shows is, with the same farmer on the same farm completely different benchmarking and financial results can be achieved with a different breed/type of cow. I would like to thank the family very much for being so open and honest and letting me come and visit at very short notice.

7.3: When it all comes together

After visiting so many farms and meeting so many farmers and their families I have learnt so much, made friends and seen so many ideas and gadgets. There are so many pieces to the farming jigsaw and farmers can be so focused on getting some parts of their business right that some of the other parts can get overlooked. So while doing my visits I did wonder: "*Was I going to meet a farmer who ticked all the boxes*?" And right at the end of my UK travels I did.

The first thing that made this family farm so interesting was they only started farming in 2007. "*We sat down around the kitchen table as a family and said: this is what we want to achieve and that is what we have done*." This interested me, because so many farmers will say "*You can plan all you like but farming is so much down to luck, weather, markets, etc.*" This is true but can often be used as an excuse. Farming is a long term project and again this can be used as an excuse not to change. But achieving the results that this family are seeing in less than ten years since the business was started just goes to show what can be done.

I visited in late November when they had just started weaning their spring born calves.

They have a herd 170 Aberdeen Angus cross Friesian cows. They are all put with the Aberdeen Angus bull. Calves were weighing 350kgs at weaning with no creep feed.

The farm is in a low rainfall area and also has shallow dry land which means the cows can be out wintered on kale and baled silage. The calves are wintered on silage and are finished off grass the



following autumn with only the last few receiving any supplement. (Last year only 1 ton of concentrates was used to finish all that year's cattle)

Bulls run with the cows for nine weeks and six weeks for the heifers. This last few years the scanning has been 96% and the calving which happens in the early spring is 95%. They usually wean 93% which is above the target of 92%. Cows being outside at calving can cause problems but overall is cleaner and healthier for both cows and calves. This simple system along with good grass management and a type of cow and calf which performs well on grass all help towards a herd which is achieving £300 profit per cow before subsidy.

"We hear a lot about farmers needing to improve genetics; a lot of farmers are not using the genetic potential of the cattle they already have!"

I would like to say a huge Thank you to this family for being so open and honest and for their kindness during my visit. And also for providing me with the best quote I heard during my travels which not only summed up this visit but my whole study: "We hear a lot about farmers needing to improve genetics; a lot of farmers are not using the genetic potential of the cattle they already have!"



Chapter 8: Getting the message across

Good management, 2 year old calving heifers, block calving, the correct type of cow and hybrid vigour are the main factors in achieving a good weaning percentage and better profits.

These are not new ideas. These are things which have been discussed and debated at farmers' meetings and which industry experts regularly tell farmers they can do to become more efficient. Yet still only 82% of the cows in Scotland that are exposed to the bull wean a calf.

This has left me asking more questions:

- Do farmers like having empty cows?
- Do farmers like it when calves die?
- Do farmers like a spread out calving?

The answer to all these questions is no, I have never met a farmer who likes any of the above. What my study has shown me is that these have an element of luck but also that the farmer can influence these. So why are farmers so reluctant to address these issues? Who wouldn't want more cows in calf, more live calves, less time spent calving cows, more even batches of calves and more profit. Surely this is a win:win situation. So is there someone else who could help the farmer?

- Whose is the shoulder to cry on when things go wrong on the farm?
- Who knows the real financial state of the business?
- Who often has to work off the farm to supplement income?
- Who would like the farmer to take it easier?
- Who quite often does the record keeping?
- Who would like more money?

The farmer's family and staff!

Do the farmer's family and staff hold the key to making the changes which can make the difference? Some of the best visits I had was when the whole family were around the table. One family has regular meetings with the whole family even those who don't work on the farm. The father said *"It is really valuable getting other views especially those who are looking from the outside."*

This is about far more than money. Farming can be a lonely and isolated occupation. One farmer said to me, "*There is nothing worse for getting me down than losing calves*." If a farm is having problems



with disease or losing stock then the family are the first to know about it. They are also the first to feel the financial pain.

So is it not time that more families were involved in making the decisions which can affect losses and profitability? This is why I have gone back to a few farmers and their families to find out their views. Thankfully they are interested. Most are surprised at the variation within the industry and want to find out what management practices make the difference. Some want to know how the business at home is performing but it is not always that simple, as there are often other family members closely involved in the business.

So maybe it is time to start a discussion between farmers and their family or staff to make changes which could improve the health of stock, reduce losses, make life easier and increase profit. This can only be a good thing for improving the lives of farmers, their family, staff and the wider farming community.



Chapter 9: Summing up

After visiting farms in the UK, Ireland, Canada, Norway and Sweden, I have seen very different systems; from Highland cross cows on the hills of Scotland, to pedigree herds on the east coast working well alongside successful arable systems. Cowboys farming thousands of acres on the edge of the Rocky Mountains, to very highly stocked family farms in Ireland. Every farmer I have met is passionate about cows and a lot of them are in the process of expanding cow numbers.

Farmers have different reasons for wanting to keep cows. For some, it is all about profit; others, they are passionate about certain breeds. Some want to have the best price at the market. Arable farmers realise the important part that farmyard manure plays in improving soil structure. Other farmers love attending agricultural shows while some think that showing cattle is doing harm to the cattle industry. I have been on farms owned by people from other industries that see the farm as little more than a hobby. I met farmers who were up before sunrise to check their cattle, worked off the farm all day and came home to spend their evenings working on the farm. I have met farmers whose health limits the work they can do and yet they would speak about cows and farming for hours and are still looking for ways to improve. I even met a few farmers who have cows to produce beef!

So after it all, and once I had had time to reflect, I started to question whether my subject was even that relevant. Is it any of my business if other farmers want to do it differently, farming is a way of life, our work, hobbies and social life are all intertwined in the farming community.

But there is one thing that all livestock farmers have in common: no one likes losing stock, no farmer puts their cows to the bull hoping that only some of them get pregnant, and no farmer wants unhealthy stock. So for that reason above all I hope that this report has highlighted some of the practices of some excellent farmers. If we can increase the number of livestock we sell each year by losing less and increasing our profit and have an easier life - then this can only be a good thing for the stock, the business, the farmer and their families.

Chapter 10: Conclusions

- 1. 92% calves weaned from cows exposed to the bull in a 9 week breeding period is too ambitious. Having the bar set so high is not the way to get the industry to improve.
- 2. Cow breed/type does matter. Continental breeds have size, growth and muscle: while native breeds can have better fertility, feet, easier fleshing and more milk. Using a combination of these breeds can give the best of both worlds.
- 3. It is easy to calve heifers at 2 years old. If there is a problem with this, it is either caused by management or breed, both of which can be changed. Only on hill farms with slow maturing native breeds which do live longer should 3-year-old calving be an option.
- 4. Block calving in a 9 to 12 weeks' slot is achievable. Management is much easier, more even batches of calves and heifers are bred from more fertile cows.
- 5. Housing, machinery, rations, minerals, EBVs, health plans, vaccines, and fertility testing are all important pieces of a jigsaw making up a successful beef herd. However, the study has shown overriding factors to concentrate on first were: cow type, heifer calving age and maintaining a block calving.



Chapter 11: Recommendations

- 90% calves weaned from cows exposed to the bull is a more realistic target. There is such a small number of farms achieving 92% or better. That it is setting the bar too high.
- 2. Make sure the knowledge and Information which is shared for the benefit of farmers is not from a text book. Most farmers learn more from other farmers and want to see if it works in practice on a real farm. Open days, Monitor Farms and initiatives like the Better Farm Programme are excellent ways of sharing knowledge.
- 3. We need to accept as an Industry that we already have a lot of the tools which we need to improve. The weather, disease, market prices and support payments are not in our control but the way we manage our farms is.
- 4. The industry needs to do more to support and educate farmers' family and staff. If everyone involved in the farming business knew how much potential beef cows have, they would be the first to benefit from any changes made on the farm.
- 5. Promote the beef industry better to the next generation through farm visits, school visits and at student level. It has become fashionable to describe farming as "A Way of life" which it is. But it doesn't need to come at the expense of profitability.

Chapter 12: After my study tour

My Nuffield Farming Scholarship has helped me answer questions which I have been asking myself and others for years. As farmers we are continually being offered services, machinery, products and advice, all in the name of efficiency. I could never make up my mind how many of these things were actually needed or was it just fashion. One thing I have learnt from my study is: the simpler a system is, the more likely it is to be profitable.

My study has reinforced to me the importance of cow type, management, 2-year-old calving and block calving. But I have also noticed that a few of the farms I have visited were weaning

the simpler a system is, the more likely it is to be profitable.

calves which are close to 50% of the cow's body weight. At home we are not achieving this and the last time the cows and calves were weighed at weaning they were only 45% average. They varied from 32% to 66%. To try and achieve better and more uniform weights I intend to reduce the average weight of the cows by selling off the biggest cows and culling cows which consistently under perform. I also intend to supplement the cows better before calving to improve the quality of colostrum. I hope this will improve the health of the calves in the first few months of life.

The last three years our scanning rate has been 93%. I hope by culling cows which have had calving difficulties, we can achieve 95%.

I have made good contacts with 8 primary schools locally and I hope to continue this work. Beef suckler cows are a big part of the local economy here in the Orkney Islands. Farming needs to be seen as a first choice occupation. So getting young children interested and enthused in agriculture from an early age is a priority of mine. There are too many people who want to focus on the negative parts of our industry so it is time to highlight what is best about our industry. This study has shown me just how big a variation there is within the top half so the difference between the whole industry must be quite shocking.

I also hope to work with Quality Meat Scotland and other industry bodies to highlight the conclusions of this report. I hope because it is farmer-based and current, it will be more relevant. I also hope to visit more farms in years to come to see if I find the same patterns, and also return to some of the best farms which I visited during this study to follow their progress and see what else can be learnt. I have already organised a trip for a group of Orkney Farmers. We spent three days visiting some of the farms which I had seen during my Nuffield Farming study. The farmers we visited highlighted the need for every cow to have a calf every year. Also how they were calving in a tight block and heifers who were able to were calving at 2 years old.

I hope to work together with fellow Nuffield Farming Scholars and other industry bodies to find ways to get farmers, family and staff more involved in farm businesses. Some of the most successful units which I visited were great examples of different generations of the same family working together, or where the owner/manager had a great working relationship with his or her staff. If everyone connected to the business knew how the farm was performing, and what potential the business has, then those who make the decisions can be supported and challenged and in turn everyone involved can benefit.





Chapter 13: Executive Summary

Beef farmers are continually being told they need to be more efficient. Consultants, vets, breed societies, machinery dealers and feed merchants are all offering farmers information, services, gadgets, feeds, minerals and vaccines. Despite this, Quality Meat Scotland estimates that only 82% of beef cows in Scotland wean a calf each year. Meanwhile QMS and SRUC publish guidance for suckler farmers which recommends that herds should be weaning 92-94% from a 9 week breeding period. Either this target is unrealistic or the industry is underachieving.

The two main objectives of my study were to find out if the targets were achievable, and what the best suckler producers had in common. I have met over 100 farmers in the UK, Ireland, Canada, Sweden and Norway. The main part of my study was based on the farmers in the UK and Ireland. Farmers learn more from other farmers and in order for this report to be relevant to farmers in the UK it should reflect similar systems which face the same challenges whether it is weather, disease or market prices. I visited Canada to see larger systems which had to deal with extreme cold and no support payments. Norway and Sweden also had to deal with extreme cold and adhere to strict welfare rules.

I asked all the farmers the same 22 questions to find out what breeds, housing, forage type, minerals, feeding method, management and health planning they had. But, most importantly, what was the scanning, calving, weaning and replacement rate. Only 10% of the farmers I met in the UK were achieving better than the target of 92%. So the main focus of my study was to compare the top 10% with the bottom 10% of the farmers which I met, which would represent the average suckler producer in Scotland.

My findings have shown that 92% is setting the bar to High. Breed and type of cattle does matter. Continental and native breeds have different strengths and when you combine the two you can have the best of both worlds. Heifers should be calved at two years old unless it is an extensive system using slow maturing, hardy breeds which do live longer. Block calving within 9 or at the most 12 weeks is achievable with the right management and cow type. All the other management practices, services and products are important but can vary greatly between farms.

After visiting farms in different countries which are achieving 92% weaning, I am in no doubt that the industry can improve greatly on what is being achieved at the moment. Farmers have all the tools and information already to achieve this. It is time to get this message across.

Also, is it time the farmer's family and staff knew how much potential the average suckler cow herd has? They may hold the key to support and encourage the farmer to make the changes needed to improve the life of the farmer, reduce losses and improve profitability.



Chapter 14: Acknowledgments

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Steven Sandison