Suckler Cows and the Art of Choice

A report for

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Farming Scholarships

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Nuffield Scholar

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Executive Summary

If beef cows are deemed so unproductive, why are there so many in the world? This study allowed me to assess the various methods used in a number of countries to measure the efficiency of beef-cow production and see what would best suit Irish systems of production.

Each farmer chooses his/her farming system as their land type and resources allow. They choose to be full or part-time, and have the power within themselves whether to farm or not. Some chose suckler cows.

The objectives of this report were to:

- Determine the simplest beef-cow efficiency measurement.
- Discover what allows suckler cows to survive in non-subsidised systems and difficult environmental conditions.
- Determine what function if any the suckler cow has in the future of Ireland's economy and who will maintain it.
- What role do farmers play in advisory and marketing.
- To observe what role farmers play in education and in leadership roles that improves other farmers' self-confidence and skills.

Key findings

In all the countries visited for this study, suckler cows were found in difficult natural environments, yet they proved to be a production animal that can convert the forage present into saleable protein. Successful producers have adapted to their prevailing environments. This begins with the identification of the cow type to match the resources available in the context of a low-cost operation. The common theme among producers was that an efficient suckler cow is a cow that calves unassisted, weans a calf of 40-50% of her body weight, and returns in calf with minimal inputs.

Advisory services – particularly Meat and Livestock Australia, and also Beef + Lamb New Zealand – are farmer-driven service providers. They have a farmer board structure which can be replicated in Ireland using the existing Teagasc regional-unit structure. Their research and advice was localised and picked up better by farmers. The first step in improving skills uptake is at agricultural-education level by exposing students and farmers to the best of what is possible. This can be achieved by reassessing the host farmers' role in an agricultural student's education and using monitor farm programmes similar to the Teagasc BETTER farm model.

Beef farming as a hobby or as a source of income on a part-time basis is not a solely Irish phenomenon. Accepting diversity and tailoring advice to regions rather than adapting a one-size-fits-all approach from Teagasc has the potential to deliver improved skills and incomes at farm level and thereby retain vibrant rural communities.

This report recommends:

1. That government funds Teagasc appropriately, thereby enabling their advisors to have a presence on farms – in particular at the beginning of the grass-growing season.
2. The creation of beef-farmer boards at Teagasc regional-unit level, with representatives from each having a place on the national beef-stakeholder group.
3. That Meat Industry Ireland members engage with discussion groups and bring farmers through the plants.
4. That cattle breeding focuses more on grass-fed genetics than on breed specifics.
5. That the host-farmer system in agricultural colleges be reviewed.
6. The creation of a variety of monitor farms at Teagasc regional-unit level that acknowledge the resource limits on Irish farms.

Contents

Personal Introduction

My name is Tommy Moyles and I live in Ardfield, Clonakilty, Co. Cork. I am the eldest of three children. My parents Tom and Kitty built an agricultural business from a landless base in intensively farmed west Cork. Both my brother and sister are also involved in agriculture: my brother James works on the family pig unit, while my sister Ann Marie is an equine veterinary nurse in Western Australia.

My father came to west Cork to finish his farm apprenticeship in 1972 and never left. Initially a dairy farm manager, he built a pig unit in Ballinascarthy in the mid-1970s and rented 5 acres of land nearby. Following the tragic death of my uncle in a workplace accident, my mother inherited her family's dairy farm of 8 ha in Ardfield. Following another family bereavement in 1999, my parents inherited 24 ha a mile from her home place.

Cattle have played a big part in my life for as long as I can remember. My first memory is being placed on a stool while I watched my grandparents milking in the stall, three Shorthorns to my right and six Friesians to the left. These cows were sold by auction in August 1983, but a seed was sown. Calves and store cattle were reared and some extra land was leased. Tired of not being able to get the cattle he wanted, my father calved down four heifers in 1989. The herd now numbers over 60 Simmental cows, with all stock finished on farm.

Following a number of years of listening to people who said I should be involved in anything but agriculture, I graduated with a Bachelor of Science in Agriculture degree from Cork Institute of Technology in 2005. Currently, I manage a spring-calving grass-based Simmental beef enterprise of 46 ha on the family pig and beef farm.

I served on the national council of Macra na Feirme (2008–13), and was on the national executive for four years, including a term as vice president from 2011–13. I currently write a column for the *Irish Farmers Journal* and I'm a member of Ballinascarthy Macra na Feirme, Clonakilty Agricultural Show and KIlmeen drama group.

Foreword

I wanted to study this topic because I was fed up with the constant negativity surrounding suckler cows in Ireland. This comes from both inside and outside the sector, and is one of the major challenges to be overcome for the herd to fulfil its potential.

I set out to see what can be done to improve the lot of the primary producer. What can they control that can give them a better quality of life and encourage succession to continue. Income generated from suckler farming is used to keep many businesses in rural Ireland thriving and thereby help keep communities alive and vibrant.

If beef cows are deemed so unproductive, why are there so many in the world? On my travels I stayed with a number of producers who purchased properties on the back of livestock production. What enabled this? This study allowed me to assess the various methods used throughout the world to measure the efficiency of beef-cow production, and to see what would best suit Irish systems of production. It was also my intention to see how beef farmers have adapted their breeds of cattle to a range of different environments.

As part of my Nuffield scholarship, I availed of a place on Nuffield Australia's Global Focus Program (GFP). This was a six-week tour of world agriculture, covering all aspects from farm to fork in a number of different countries. It also provided some fantastic visits to businesses and people I would not have considered relevant initially to my topic. The GFP I was on incorporated travel to South Africa, Kenya, Russia, Poland, the Czech Republic, Germany and Washington DC and Nebraska in the US. One of the key benefits of the GFP and also one of its challenges was being in the constant company of eight other scholars for its duration.

I continued on through the American Midwest states of Nebraska and Kansas and from the foothills of the Rocky Mountains near Denver, Colorado right down to the Gulf of Mexico at Johnson's Bayou, Louisiana. I had wanted to visit here to see how American ranchers have developed in a difficult environment. It also provided the opportunity to

meet with two men whose breeding philosophies influence so many successful beef-cow breeders throughout the world.

As time was limited I spent a week on the North Island of New Zealand in Taranaki and Manawatu. New Zealand's climate is similar to Ireland's, and has a beef industry based on grass. One of the more challenging experiences I had was being questioned by the south North Island Farmer Board of Beef and Lamb, NZ. These were farmers just like me, and had a fantastic knowledge of their own business, their region's advantages and the national picture in New Zealand. It made me wonder why farmers aren't given the same responsibility in Ireland.

To conclude my travels I spent three weeks in Australia taking in the challenging cattle climate of Queensland, the more temperate Victoria, and a stop of in Western Australia. My reasons for visiting Australia were similar to those for visiting the US.

The cowherds I visited were predominantly operating grass-fed purebred closed herds. This was more a coincidence than intentional. I had envisaged travelling to Scotland also, but the lure and financial burden of the GFP meant it wasn't possible.

I have met with a number of individuals involved in Irish agriculture, community and sport, as well as numerous people in the agricultural business throughout the world, and all stressed the importance of using what's available to you and simplicity.

The Art of Choice

'Destiny is not a matter of chance; it is a matter of choice.' William Jennings Bryan

Each farmer chooses their system as their land type and resources allow. They choose the cow type, the breeding season, the workload, when to start and stop grazing, whether to house or not, whether to farm or not.

Beef farming as a hobby or a source of income on a part-time basis is not a solely Irish phenomenon; it is common throughout the world. Some people may be more interested in rewards from the show ring than monetary profit, as it is often about the enjoyment of farming as much as the money.

One of the key issues in the Irish beef industry is the unwillingness of farmers at all levels to take responsibility for what they can control. There is much more under their control than they sometimes believe.

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Abbreviations

GFP	Global Focus Program
ICBF	Irish Cattle Breeding Federation
MLA	Meat and Livestock Australia
B+LNZ	Beef + Lamb New Zealand
PCC	Pharo Cattle Company
BCS	Body Condition Score
KPI	Key Performance Indicator

Objectives

- Determine the simplest beef-cow efficiency measurement.
- Discover what allows suckler cows to survive in non-subsidised systems and difficult environmental conditions.
- Determine what function if any the suckler cow has in the future of Ireland's economy and who will maintain it.
- What role do farmers play in advisory and marketing.
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Introduction

SWOT ANALYSIS

Strengths

- Ireland's climate is one of the more stable in the world. Grass can be grown in copious amounts; the ability to convert this into saleable protein is within the grasp of every farmer.
- Proximity to EU beef market. This market is one of the highest-paying beef markets in the world.
- The Irish Cattle Breeding Federation's (ICBF) European animal traceability measures combined with the ICBFs database, and the fact that all commercial cattle are included, make it a unique research asset.
- Agricultural education is accessible to all. Part-time courses come under pressure due to CAP scheme requirements at times.

Weaknesses

- Lack of breeding policy at farm level. Focus on animal selection has focused on breed type, confirmation and growth rates. This has been to the detriment of the key profit driver of fertility and the labour-saving credentials of animal docility. There is a preference for functional animals among beef farmers in the Antipodes and the US. This is determined by the large properties and limited labour per animal. As the suckler cow is largely a part-time sector, labour is also limited in Ireland.
- Many Irish farmers lack the confidence to try new methods. Twenty-plus years of dependence on EU subsidies can be seen as a reason for low confidence. Beef cows outside the EU are found in difficult environments on ground that's little use for much else or in tandem with another enterprise. Farmers there operate in a subsidy-less

environment, yet these cow/calf operations make money – they have to or else they go out of business. The lack of a safety net in the form of subsidies means they are more likely to be business-focused.

Opportunity

- A suckler cow represents the best option at converting the poorer forages into a saleable product. This is the role of the suckler cow in New Zealand's sheep and beef farms. They are used as the least important type of stock on farms as a tool to manage grass quality, allowing growing animals access to best-quality feed.
- Pedigree-cattle societies have an opportunity to develop their breeds commercially by displaying best practice in their show classes.
- Teagasc knowledge transfer is organised into twelve regional units. This provides a local service with an opportunity to use this further by developing beef stakeholder groups and monitor farms covering the diversity of systems practised in suckler farming.

Threats

- The age profile of farmers and lack of successors. A Macra na Feirme study on succession revealed half of farmers aged over fifty years do not have an identified farming successor. The threat of land and community abandonment, particularly in non-traditional dairy areas, is real. Younger farmers will not be willing to work an enterprise that will not return an income similar to that earned by their peers. The problem will be made worse if there is further lowering of populations in the less fertile farming areas, and no advisory service or research on what production systems are best suited for these land types.
- Sexed semen: the use of sexed semen, particularly in the dairy herd, will lead to an opportunity for beef sires to be used in the later part of the dairy herds' breeding

season. It has the potential to provide half-bred beef calves that would cover the reduction of the suckler herd.

- Dairy profitability: dairy has consistently delivered profit at farm level, while gross margin is the target for beef farmers. It is likely that the Irish suckler herd will contract due to increased pressures from dairy expansion.

Irish suckler cows and their owners

From its central place in ancient Celtic life to the roads we drive on today, the cow has greatly influenced and retains an important place in Irish culture. The suckler sector is part of a beef industry worth over €2 billion. It provides a foundation for our premium beef products in domestic and export markets, particlualry the EU.

In 2014 there was just short of one million suckler cows in Ireland. According to ICBF data, the calf/cow/year figure was seventy-nine calves per 100 cows, and a national average calving interval of 412 days. This means almost 210,000 suckler cows had no calf in twelve months. With an average herd size of sixteen, this means that there is the equivalent of over 13,000 suckler herds' worth of cows that have no calf to sell in a year. Beef price is irrelevant if a suckler herd has no stock or an insufficient number of stock to sell.

Continuing CAP reforms and the removal of the milk quota will be catalysts for change in rural Ireland, in particular with the suckler herd. This has been a theme of the national suckler herd since Ireland's entry into the EU in 1973. The CAP system is a social policy designed to keep people in rural communities and to keep those communities vibrant. It is also designed to ensure the EU's ability to produce food. It creates diversity as there is not a commercial imperative to survive, so reduces the risk to rural communities. From a strictly business point of view, this might make little sense, yet from a social perspective it is invaluable.

Dairy has consistently delivered profit at farm level, while gross margin is the target for beef farmers. The cattle producers visited during the course of this study all found a breed suitable to their farm's environment and resources, and fine-tuned the system of production to meet this. This enabled them to make money in non-subsidised environments, and enabled some of these producers to purchase properties on the back of livestock production. Can these methods improve the future of Irish suckler farmers?

Chapter 1 Constructive Conservatism

Adapting to Resources

1.1 Westbeef feedlot

The Davies family own Westbeef feedlot in Kalannie, Western Australia. They buy in and finish up to 15,000 cattle a year, with capacity for up to 7,500 head at any one time. The feedlot itself covers 28 ha, and the family own 1200 ha around the site, which they use for growing feed and back-grounding cattle. There are two styles of cattle purchased: Angus and Murray Grey from the southern parts of Western Australia, and Droughtmaster, Santa Gertrudis and shorthorn breeds from northern parts of the state.

Director Phil Davies explained some of the challenges he faces when buying in stock. These include inconsistency of stock in terms of size and volumes available from sales yards. Heifers arriving in calf are also a major issue that adds unnecessary costs and can be avoided with better management at cow/calf level.

Westbeef's market is about seventy per cent domestic, with cattle fed to supermarkets' specifications. They deal primarily with three supermarkets: Coles, IGA (Independent Grocers of Australia) and Woolworths. The minimum buy in live weight is 380kgs, with a minimum selling live weight of 580kg.

With margins tight, Phil explained that they are not feeding cattle a day over what is required. Diets are formulated to aim for a 2kg/day growth rate. This is worked back from the planned slaughter date, which is organised with the supermarket buyers, with cattle being put on a finishing diet according to their suitability to the final destination market.

Market requirements	Days at feed	Carcass range
Export market	100	Minimum 330kg
Domestic supermarkets	75	280–330kg

The remaining thirty per cent of the business is feeding bulls to export for slaughter to Indonesia, Israel, Turkey and Jordan. These are fed for thirty to forty days, and then sent on the boat.

1.2 Farming in a variable climate

Bob Nixon farms with his parents and brothers in Kalannie, Western Australia. Variable rainfall is one of the biggest challenges faced by farmers in the area. They generally receive an annual rainfall of 300 millimetres. Strict attention to detail and focus on farm cost is paramount in such a climate.

Benchmarking plays an important role, with a clear understanding of costs and break-even point essential. As water is their most limiting resource, the Nixons calculate the financial return on the received rainfall during the growing season. Risk management is key to the Nixons business. This means Bob has to be conservative yet still flexible enough to capitalise on opportunities. Fertiliser, sprays and technology use is basic as there is often more downside risks than upside ones given the climate of the area.

1.3 Suyian Ranch, Kenya

Gilfrid Powys and his family run Suyian Ranch. It is a fantastic example of making the most of available assets. The Powys family run a herd of 450 Boran cows. The breed is noted for its fertility and easy calving ability. These are a native African breed and are from the Bos Indicus family of cattle. All stock not required for breeding are taken to slaughter from grass.

Figure 1 Boran cows using a mineral lick, Suyian ranch

The cows are run in herds of sixty and looked after by a number of workers. Each night the cattle are brought into a mobile bouma (yard) for protection from lions, leopards and hyenas. Despite the presence of these predators, 82% of cows put to bull calve down. Foot and mouth disease is also a constant threat from passing wildlife. As there is little point trying to control it, Gilfrid allows for natural selection. The herd is closed, and because of this it has built up resistance to some tick-borne diseases.

Gilfrid had run a larger herd of cattle, but feed management and planning was difficult. This was because of migrating wildlife coming through the property and eating all available grass. To cope with this variable the herd was reduced rather than buying in

forage. The Powys family have found other ways to make money: a herd of dairy camels are retained to make use of scrub bushes the cattle can't eat, with goat herds maintained for similar reasons. Honey is also produced from the local fauna, and accommodation lodges were built for tourists to further increase the earning potential of the prevailing environment.

1.4 Wambiana Station

Michael Lyons, Charters Towers, Queensland, Australia.

The Lyons family have owned Wambiana cattle station since 1912. They run a herd of 1,200 Brahman cows, fattening steers and breeding bulls.

Figure 2 - Heifers at Wambiana station

One of the keys to survivability of beef businesses is to get animals finished as fast as a property allows. With this in mind, cows graze on roughest country, leaving the better parts of the property to growing and finishing cattle.

Climatic conditions make conception difficult. With this in mind, heifers are bred to calf at three years of age. If a heifer is pregnancy tested and not in calf, she is sold off the property within a number of days.

The key to the survivability of beef businesses is to get animals finished as fast as property allows. This means grazing cows on the roughest country and leaving the better parts of properties to growing and finishing cattle.

One of the core beliefs at Wambiana is that it is expensive to work against nature and that farmers should match their system to their environment. That means doing things like running Brahman cattle that suit the local environment, timing calving to coincide with the wet season, and using camels to control infestations of woody weeds, rather than having to spend thousands each year on chemicals. Grass management is significantly different to Ireland, with grass budgeting having to be done for ten months due to a lack of water. Michael believes in the three P's of grass:

- Perennial
- Productive
- Palatable

According to Michael, 'We can't control the amount of rain we receive, but we can influence how much of the rain soaks into the soil by managing our ground cover.' To overcome this, water points were installed so cattle didn't have to walk more than 1.5km to water, and more paddocks were created with new fencing. Paddocks on Wambiana are generally 850ha, and almost all have 2.5km of lane frontage and are 6.5km deep. Cattle are rotated through a series of paddocks so that all pastures receive a rest from grazing each year. This keeps their root systems robust and healthy, encourages biodiversity and helps reduce erosion. The family also host on-farm education trips for schools and universities from urban areas. Michael Lyons is also chairman of the North Queensland Advisory Group.

1.5 Lessons learned in an Irish context

Making the best use of existing resources is relevant to the Irish industry as a whole. Farmers adapt to various changes, particularly if money is in the equation. This is why the Westbeef feedlot has fine-tuned its finishing period to the requirements of its supermarket buyers. They have a clear direction as to what is required, and work to this target. In Ireland, there are also specifications on the type of carcase required, but there is no reward for in-spec carcases. A greater price differentiation should be offered to cattle within the required carcase specifications.

Bob Nixon runs his farm according to his most limiting resource: water. What are the limiting factors on many Irish suckler farms? With the sector dominated by part-time producers, available farm hours is the limiting factor. Paul Crosson of Teagasc puts it well: 'In any business you require the maximum return on your most limiting resource. For a part time farmer that's time, so its return per labour unit/hrs available. For the full time farmer return/ha or per LU is a better measure.'

Gilfrid Powys and Michael Lyons both work within the constraints of their environments. They have stated that they work with what nature has provided on their properties as they felt it was expensive to work against it. One of the best examples of this is how they have matched their cow herds successfully to the difficult climates they farm in.

Matching the cow to available terrain is one of the most relevant lessons learned and which applies in an Irish context. The removal of the dairy quota will see suckler cows pushed further back to more marginal land. Apart from the use of mineral supplementation, cows received only what was grown on their owners' properties. The correct choice of cow type to the farmers' environment was instrumental in the success of all producers visited over the course of this study. This will be dealt with in the next chapter, 'Simplifying the Cow'.

Chapter 2 Simplifying the cow

'Ranching is simple; the problem is keeping it simple.' Alex Laseter

What methods are used to improve returns from beef-cow production outside the EU? In an Irish context, much of the focus in cattle breeding has been on confirmation, weight and milk production. In terms of a largely part-time sector, have fertility and disposition a greater role to play in farm profitability?

2.1 Beefmaster foundation herd

The Beefmaster is a composite breed developed by Tom Laseter of Matheson, Colorado in the 1930s. It was developed using a combination of Brahman, Hereford and shorthorn cattle. What makes the herd unique is that it has been closed to all outside genetics since 1937. A clear breeding season and culling policy has defied scientists who said a closed herd like that could only last fifteen to twenty years before genetic deformities occur. The success of the herd has been achieved by maintaining a strict breeding season and culling policy.

The Beefmaster foundation herd is comprised of 600 cows, and is currently managed by Tom's grandson Alex Laseter, who says, 'The best cows produce calves that are just above or just below average.' He had no desire to have extremes. One of the principal philosophies of the Laseter ranch is that livestock should be bred, born, raised, performance-tested and sold under the conditions in which they will produce.

With this in mind, Tom Laseter set out what he called the six essentials of breeding. It is according to these that the business developed:

- Disposition

- Fertility
- Weight
- Confirmation
- Milk production
- Hardiness

2.1.1 Disposition

'You have to get your cattle to follow you.'

As they farm in an extremely isolated environment, maintaining quiet stock is essential. Alex Laseter extolled the virtues of training animals to follow him: it saves time, labour and money. At weaning, all the animals are held in the collecting pen, and he takes the time to go among them and feed them until such time as they are eating calmly from his hand. When this happens they are let out, and no animal is let out to pasture until they all conform to this. Alex said it takes five to seven days for all animals to be won over. Weaned calves are trained to eat from the hand; they don't leave the yard until they eat from the hand calmly. Calves that are not eating from the hand after one week are not retained for breeding.

Figure 3 - Alex Laseter training calves

2.1.2 Fertility

Visual appraisal has no place in putting together a cow herd, said Alex when quizzed on his heifer-selection policy. You can't see fertility, so he stated that he combines his philosophy of planning and working intelligently with his grandfather's principle: 'You do some of the thinking and let nature do the work.'

Every heifer born in the herd is considered for breeding. Heifers showing any defects are identified at weaning, with everything else being put to bulls for six weeks. They are pregnancy-tested a month after. Alex feels that farmers are losing a lot of fertility from their herds by using their eyes to judge an animal instead of a limited breeding season to select their future cows. Breeding takes place for six weeks, and cows not culled on age.

2.2 Pharo Cattle Company

'*Optimum production is always much more profitable than maximum production. Bigger is not always better.'* Kit Pharo

Kit Pharo, proprietor of the Pharo Cattle Company (PCC), has a ranch at Cheyenne Wells, East Colorado, and is a firm believer that you match your cow to your environment and grass growth rather than create cost and try to force your environment to match your cow. Eenvironmental conditions in recent years have seen Kit reduce to 130 cows. The company had been operating in severe drought for a number of years, and has not had a year with more than twelve inches of precipitation since 2002; often, up to six inches of this is in the form of snow. Due to these conditions and limited forage, the stocking rate is one cow to 20–30 acres. The herd consists of both black and red Angus and Herefords. Kit feels it is easy to have too many cows but hard to have too much grass. Kit set about making the most efficient use of available forage resources. This involved three distinctive management practices:

1. Utilising a cell and/or rotational grazing system, which provides time for the grass to rest and grow back during the growing season.
2. Calving in sync with nature, which matches the cows' highest nutritional requirements to the ranch's highest and best production.
3. Producing cows that can survive strictly on what the ranch produces with minimum or no inputs. Not only must a cow fit her environment, she must also produce a profitable end product that meets the requirements established by the current beef industry.

Using natural selection in conjunction with a set breeding season, Kit has seen a herd of low-maintenance cows develop. This has led to a smaller cow capable of delivering a calf fifty per cent of its body weight at weaning, which suits the American market.

Figure 4 PCC cows at a wind break on great plains

The rise in demand for PCC bulls provided a challenge for Kit. He wanted to keep supplying bulls yet he did not want to compromise the high standards set for replacement stock. He also did not want his stock to become too expensive and therefore unaffordable to the majority of ranchers. In order to meet this demand and to keep prices affordable, PCC set about finding a way to increase the number of qualified bulls offered in annual bull sales. A system of cooperator or multiplier herds was developed. This has twenty-ine producers all supplying bulls for sale through this brand. Over 800 bulls a year are sold through the company.

Cooperator herds are often referred to as multiplier herds because they multiply or replicate the genetics and/or the philosophies that exist in a central or nucleus herd. These herds sign a contract that binds them to strict guidelines and the standard philosophies of PCC. Bull numbers available for sale have been able to increase without sacrificing quality. This is achieved by selecting the best bull calves from a few select cooperator herds. Young bulls are run on range country in a large group according to age. Minerals are the only form of supplementation they receive.

PCC cooperator philosophies

1. Honesty and integrity will not be compromised.
2. We will manage the natural resources placed under our control in a sustainable manner.
3. The breed of cattle is not nearly as important as the breeding programme and the philosophies that produce the cattle.
4. Cows are run in a real-world environment, as tough as or tougher than the environment most commercial cows are run in.
5. We let the environment sort out the good ones, while we show absolutely no sympathy for open, late or dry cows.
6. We will never make an excuse for a cow. A cow must produce and wean a calf every year to remain in the herd.
7. By limiting feed resources, we try to apply sufficient pressure on the cow herd to force out the unadapted and infertile animals – at least 10 percent each year.
8. In addition to growth and performance, we select for some other vital economic traits like fertility, calving ease, moderate cow size, fleshing ability, structural correctness, disposition and longevity.
9. Replacement heifers are developed on low-cost, forage-based diet with minimum supplements. We only want the most efficient and most adapted heifers to make it into the cow herd.
10. A bull calf must be born unassisted from a fault-free cow that has never missed to make it into one of our bull sales.

2.3 Cody McDaniel, Goodland, Kansas, USA

Cody McDaniel is a cooperative producer for PCC. He runs a herd of 140 red Angus cows.

After a successful calving period in 2012, Cody was faced with the decision of culling efficient cows that were performing or reducing the amount of heifers entering the herd. Cody chose to breed the heifers for twenty-four days instead of six weeks. This also acted as an experiment to see how many would show up in calf. He achieved seventy-six per cent in calf. He has a forty-two-day breeding season for his cows starting in August so that they calve down to grass supply. This compares with a seventy-eight-per-cent in-calf rate on Laseters and Pharo's herd.

Data recording plays an important role in all these cooperative herds. Cody tags, weighs and gives each calf a vigour score from 1-5 to show the initial get up and go of the calf. Cows are also given an udder score of 1-5 as this is when all cows should have similar levels of milk. Each cow is also scored for disposition at calving as this is the time when she is likely to be most defensive. Key to data recording on cooperative herds is honesty. False recording puts the integrity of the whole business at stake.

Cody finds the cooperator herd system very beneficial to his business. It provides a simple blueprint that is easy to implement. He also benefits financially as bull sales attract buyers from throughout the US and Canada. The PCC philosophy is a key selling point to customers rather than the standard breed show and sale-type events normally organised. His stock is exposed to more buyers and can attain much higher prices than if he was selling privately.

2.4 Morrison farming, Marton, North Island, New Zealand

'Morrisson farming strives to be a profitable, large-scale family farming business. Profits are derived using best farming practice methods, developing superior livestock genetics and adding value across a range of products and stock classes.'

Morrison farming was formed in 2008 when brothers William and Richard Morrison, together with their father John, merged their business with their neighbour and Cousin, Graham. This was done to increase scale, and brought the original family land block together. The family has been farming in the area since 1864. They have adopted a family corporate-farming structure. This allows each director to focus on their own different skill sets, with interests and responsibilities split between them. Weekly meetings are held to plan the work schedule and monthly financial meeting with focus on KPI's and individual responsibility.

Cattle policy

'To breed quiet Poll Hereford cattle that are born easy, grow fast and can quickly finish to optimum specifications on our meat schedules.'

There is increased value on beef coming from the dairy herd in New Zealand. Morrison farms have recognised this, and their policy is to breed to their market. They produce easy-calving Hereford bulls that go to dairy farms to mop up the end of the breeding season and produce a higher value calf. Breeding is focused on grass-fed beef genetics and breeding indexes to real market demand, not to breed standards. For example, beef for the Japanese market requires extra marbling. Together with two other farmers they have created the Ezicalve brand.

Ezicalve herd criteria

- All yearling heifers are mated and pregnancy tested in calf.
- All empty cows and heifers are culled.

- All cattle are performance recorded. This includes birth, 200 and 400-day weights, calving ease scores, scrotal measurements and carcass scanning.
- Ezicalve bulls must come from a large herd that is integrated with sheep or other farm enterprises. This ensures that the cattle perform under pressure.

Figure 5 William Morrison moving weaned ezicalve cows

All farms within the brand hold on-farm auctions. Catalogues are sent to prospective buyers, complete with pedigrees and breeding indexes. Morrison farming sells 150 bulls in ninety minutes. This is forty seconds for each bull to sell.

Ezicalve individual bull criteria

- Must rank in the top five per cent for low birth weight from all Breedplan-recorded Herefords.
- Must rank in the top ten per cent for the dairy/maternal index.
- Both sire and dam are in the top ten per cent for low birth weight and dairy/maternal index.
- Bulls must be born in an Ezicalve herd.

- Bulls are managed in large mobs.

2.5 Joe and Shaun Fouhy, Glanworth Stud, Pahiatua

Joe and Shaun Fouhy run 260 Angus cows as part of their sheep and beef farm. Joe's father Pat joined with two other Angus breeders to form the Waigroup in 1967. There are presently two of the three original herds in the group: Glanworth and Pinebrook studs. They employed Dr T.S. Chang, a geneticist, from Massey University, who designed a 120-year breeding programme, and they began performance recording.

Initially they:

- Looked for genetic recessive genes.
- Checked each herd's potential for growth.
- Looked at the different farm environments and their effect on growth.

After ten years they changed selection pressure from growth to weaning weight. This was due to the birth-to-weaning phase being the most expensive part of the beef-production system. Waigroup has selected for heifer mating characteristics since 1974. 'Cows are expected to wean a calf weighing fifty per cent or more of their body weight at 200 days of age.' Reproduction is the key driver in producing profits from breeding cows.

Figure 6 Weaned Angus cows, Glanworth stud

Waigroup cows:

- Are selected to get in calf easily, calve unassisted, wean a heavy, healthy calf and get straight back in calf again.
- Have been in calf as a yearling, and every year thereafter.
- Are challenged to reproduce on testing Wairarapa hill country, in conjunction with high-performing sheep operations.
- Produce ample milk.

According to Joe, extremely high growth rates may sound great, but they are seldom the most efficient or desirable under New Zealand farming conditions. High growth rates need high inputs of top-quality feed. In New Zealand, beef cattle often have to convert average quality feed to above-average weight gains. Cattle in the Waigroup system are tested to produce under commercial conditions. It was stressed by Joe that they are not, and never will be, pampered or preferentially fed. Waigroup cattle are bred for 'optimum feed conversion and optimum growth rates under grass fed conditions' .

All sires are selected for a combination of calving ease, optimum growth rates and carcase traits. Yearling bulls are selected on weaning weight and yearling weight.

Waigroup bulls are:

- Weighed and tagged at birth.
- Easy calving.
- Guaranteed for feet for four years.
- Semen and service-capacity tested.
- Guaranteed for fertility for one year.

The Waigroup members believe that temperament is highly heritable, and have selected strongly for this important trait. Cows have a 'user-friendly' maternal instinct. Calves are born outdoors and are safely weighed and tagged at birth. Temperament also has an effect on meat pH, colour and quality. The Fouhys are aware of the final consumer, and are commited to breeding for beef-taste quality. They have twice won the Beef + Lamb New Zealand-run 'Steak of Origin' competition and are regular semi-finalists in it.

2.5.1 Steak of origin

The Steak of Origin challenge aims to find the tenderest and tastiest sirloin steak in New Zealand. It is open to beef farmers, retailers, wholesalers and food-service outlets. The Steak of Origin challenge began in 2002. It originated from a national carcass competition and there is now a taste element involved. The competition process involves an initial assessment of the sirloin steak. Each steak is aged for three weeks before being tested for:

- Tenderness
- pH
- Marbling
- Percentage cooking loss.

The tenderest steaks make the semi-final and are cooked and tasted by a panel of judges in Auckland. The finalists (the top four from each of the five classes) are tasted by top chefs and celebrities to find the tastiest and tender steak in the country.

2.6 Lessons learned in an Irish context

American and New Zealander producers don't have the luxury of CAP payments, and while landholdings are much larger than in Ireland, environmental and social conditions are tougher. A suckler cow represents the best option at converting the poorer forages into a saleable product. This is the role of the suckler cow in New Zealand's sheep and beef farms. They are used to control grass levels for the benefit of all other animals in the production system.

The original title of this report was 'Optimizing returns from suckler production in Ireland through the development of a measurement for efficiency'. All beef cow owners visited over the duration of this study optimized their financial returns by using the following as their target: 'An efficient suckler cow is a cow that calves unassisted, weans a calf forty to fifty per cent of her body weight and returns in calf with minimal inputs.'

They all used their available resources to optimum levels and ran businesses that grew and allowed them time to spend with their families and communities or to contribute to developing their respective beef sectors. Optimum production is the point at which net profits are maximised. Profit is what must be maximised.

Animal docility and fertility are two of the principal reasons why large herds are maintained with minimal labour and low time input. The same principle is required on part-time farms. Farmers need to look at their return from labour invested on the farm. It is not always just about growth rates and other output measures; it is also about return for time. How can this message reach farmers, and how much involvement have farmers in transferring this knowledge. This is dealt with in the next chapter.

Chapter 3 Knowledge Transfer

Teagasc is the Agriculture and Food Development Authority – it is the national body providing integrated research, advisory and training services to the agriculture and food industry and rural communities. Teagasc provides a local service through a nationwide office network organised into twelve regional units, There is a twenty-three-person beef-industry stakeholder group.

3.1 Meat and Livestock Australia (MLA)

Meat and Livestock Australia is a farmer-funded company that delivers research, development and marketing services to Australia's cattle, sheep and goat producers. It has roughly 50,000 livestock producer members who have stakeholder entitlements in the company. Members apply for membership and then pay a levy on each animal slaughtered. This is divided between the marketing and extension side of the company and research and development. The levy destined for research and development is matched by government funding. The levy for 2014 was AUS$5.

It is a challenge for MLA when:

1. A producer has no idea what is available in terms of research and services.
2. A produce does not see the value from it.

According to Dr Wayne Hall, Meat & Livestock Australia Northern production research manager, one of the key questions asked is, 'Can research allow more time in the office?' To overcome this, industry consultation takes place on how the levy is spent. Committees of commercial producers meet at regional level and determine what is required for their specific areas. In Northern Australia there are eleven regional committees to give farmer input. Research is done, where possible, on commercial farms. This gives the outcome more credibility in the eyes of the target audience of commercial producers.

Farmer committee members

The regional committees are made up of local beef producers. The chairman of each reports to the North Australia Beef Research Council (NABRC). The NABRC provides leadership and advice to organisations that either invest in or undertake beef-cattle research, development and extension (R, D & E) in Queensland, Northern Territory and the Pilbara and Kimberley regions of Western Australia.

NABRC is an independent organisation made up of producer representatives, research organisations and education providers. Similar to the Beef + Lamb New Zealand farmer councils, the advisory groups meet to advise MLA on what services are required in their region. The key focus areas for the North Queensland area are:

- Technology uptake and education
- Grazing and Land Management
- Herd productivity and management
- Financial and business management
- Markets and marketing
- Social and regional community issues,

3.2 Beef + Lamb New Zealand

Beef + Lamb New Zealand (B+LNZ) Ltd is a farmer-owned industry organisation representing New Zealand's sheep and beef farmers. Its mission is to improve the profitability and sustainability of sheep and beef farms. Its aim, by having farmers, marketing and advisory all working together, is to improve farm productivity and profitability, and to ensure a future for the meat industry for generations to come. It's all geared towards making continuous improvements on farms, securing better access

to overseas markets, and elevating the status of New Zealand beef and lamb to boost demand for the meat produced.

The organisation is funded by a levy paid by meat producers. This is set and voted on by levy payers every six years.

Farmers are represented by a farmer council. Its role is to provide leadership at local, regional and national levels. The farmer council is the link between grassroots farmers and B+LNZ. Farmers in different parts of the country have different extension needs, so each farmer council chooses from a range of programmes and allocate funds based on local requirements. As a result, the tools and services are tailored to ensure most benefit to local farms and community. All sheep and beef farmers on the B+LNZ electoral roll are able to participate in their decision-making process through the farmer council. Regional councillors are elected to the regional councils by farmer members. Regional chairs and deputy chairs are then national councillors on the national executive council.

In each of the six electoral regions, the local farmer council works with extension managers and the farmer directors to develop an annual regional delivery plan. Four key programmes – Farm, Market, People and Information – deliver innovative tools and services that:

- Help make informed decisions on farms
- Maintain market access and open up new opportunities for New Zealand farmers
- Improve the farming systems of New Zealand's sheep and beef sector.

3.3 Lessons learned in an Irish context

The Australian and New Zealand models of combining farmers, marketing and advisory appears a successful model. Farmers at regional level get a say in the advisory required for their area and what research is required to benefit the community. There is an

opportunity to introduce this in Ireland using the current Teagasc regional-unit structure. Beef stakeholder groups could be formed in each region, with the chairman and/or vice chairman of each serving on the national Stakeholder group.

The Irish suckler cow herd lacks direction. It would be more realistic and localised to use a monitor-farm system to provide real commercial farm data than a centralised Teagasc financial research herd. The BETTER Farm programme in its next phase (3) could be evolved to fit into this suggestion. There are farmers who have developed systems that work well for a variety of different land types, scale and time availability. One of these could be chosen.

The period March to May on Irish grass-based cattle farms is critical. This is when the first two grazing rotations take place on most farms and the start of breeding in spring-calving herds. What level of advisory activity and discussion group activity is there for these two months? At that time, Teagasc advisors are processing applications for CAP funds and are not out on farms. This work should be subcontracted out.

Chapter 4 Exposure to Excellence

'School isn't where you learn, school is where you learn how to learn.' Tom Laseter

4.1 Current syllabus

The following question was posed to the 2014 Nuffield scholars at the 2014 Contempory Scholars conference in Canberra by Berri Marten of Rabobank: 'How much do you know about the supply chain you are in?'

Currently in Ireland, there are academic agricultural courses supplied by University College, Dublin and the institutes of technology around the country. There is also a demand for the vocational courses, especially part-time courses. More practical training is required rather than teaching that is over-academic if basic skills are to improve.

Students need more commonality: principles of animal health, breeding, soil fertility, grassland management, financial management, personal development and growth are common to beef, sheep and dairy farmers. Let them study together, and for the specialised areas separate out. This will open up one another's minds. Exposure to other enterprises may lead to new thinking/methods coming into beef rearing.

4.2 Host farmers

Farm work placement is where a student is expected to gain knowledge rather than just physical work experience. This is an area where both can work, but unfortunately there is often physical work and minimal learning.

In Level 5, students spend twelve weeks on a given farm; this should be extended, with students having to experience at least two different enterprises on two different farms. William Kingston is currently a host farmer and previously won student of the year. He currently farms over 300 dairy cows near Skibbereen, Co. Cork. He believes that 'At present the average student needs luck. The host farmer process needs to be stacked in favour of students.'

William is of the view that host farmers should be continuously assessed as to their suitability. As well as meeting safety standards, participation in the Bord Bia quality assurance scheme or the ICBF's Herd Plus should be prerequisites for host farmers. Scores from these reports can be used as a ranking for host-farm evaluation.

Host farmers must be motivated and need to view themselves as teachers, and must be viewed as such. Building the confidence and skills of a student is an extremely important role that the host farmer has to play.

At third level, students are encouraged to find their own work-experience employment. The same should apply in agricultural colleges. A list of profiles of qualified host farmers should be made available to students. It's a critical step in creating self-belief, independence and responsibility once they begin their agricultural education.

This would necessitate an interview process, which allow both the student and farmer pick from a number of applicants. William Kingston stressed that 'Communication and 100-per-cent honesty are required from both student and host farmer to be successful.'

Allowing students organise a two-way application process would empower and give the student responsibility. This will stand to them in their future careers.

4.3 Visual learning

Best practice should be displayed to students at all times. Enterprises on college farms need to be the best. Currently, cattle are held back on college farms to teach skills; this is within the remit of host farmers' teaching role.

According to Keith Kennedy, vice principal of Clonakilty Agricultural College, the shortage of dry-stock host farmers is an issue. This is being overcome by bringing students to dry-stock farms and conducting discussion group-like meetings with them. Peer learning and exposure of students to best practice and positive people in the form of host farmers or field trips to innovative and successful farmers would help increase the confidence of students. Students should be shown profitable systems that can be replicated, and this should be repeated throughout their education. This point was

backed up by William Kingston. He spoke of the 'gazelle effect', where a farmer in an area takes a chance and if it works others will follow. Exposing students to these people in the form of field trips would show what is possible. This can be used in a commercial-farmer context too by having monitor farms within each of the Teagasc regional units. These should cover a diverse range of beef-farming situations.

4.4 Voluntary education

The Civil Defence is a volunteer-based organisation that supports the front-line emergency services in Ireland. It offers these volunteers the opportunity to upskill and educate themselves for the benefit of themselves and the community. Niall Twomey is the Civil Defence officer for Cork West. Prior to this, he was an officer in the Irish Defence Forces for nineteen years. What did he think was the incentive for volunteers to give their free time to improve their skills? According to Niall, the key to getting the commitment from volunteers was to engage them, guarantee a result and show them the measurements as a step to their progress: 'You must use plan projection, have people know what they're doing. Show vision, plan.'

Niall gave the example of what he saw at the end of his tour of duty with the United Nations in East Timor. At the end of their tour of duty, the major of the New Zealand army company serving there went through each individual of the company. From second in command to the least experienced private, all were told their roles for the forthcoming twelve months. This clarity allowed them to focus on the required individual tasks ahead.

Learning with leisure is a method employed by the Civil Defence. One example Niall gave was combining hill walking with first aid and training stops for mountain rescue along the way. It was an extra incentive to combine an element of learning with activities that volunteers might use as a form of recreation. Realising the difference in people's ability and how to get the most out of a person for their own and an organisations' benefit is a crucial element of being a leader, stated Niall: 'Everyone has a

strength that can add value to an organisation provided there is positive professionalism and no negativity.'

4.4 Processor-Producer visits

Thika, Kenya

Kimana Rugendo formed the fruit-juice Pick and Peel Company after diversifying from supplying bottled water. He saw an opportunity that would benefit the many smallholders growing fruit in Kenya. Rugendo realised that only ten per cent of fruit went to the fresh market, with the rest going to waste. Farmers are allowed aim for the higher-priced fresh-fruit market first, and then market the remaining product for juicing. Constant communication with farmers about the supply process was important to him. Maintaining a connection with farmers by bringing them to factory and getting them to field days was an essential part in the success of the business. Having the farmer suppliers know what is required and why was of benefit to all links in the chain. Mr Rugendo said: 'Without strong farmer groups, you couldn't have a product.'

3,600 groups of smallholders have been formed into local cooperatives ranging in size from 100 to 500 farmers. This guarantees that up to 200 tons of fruit is delivered to the factory and that the groups are paid on delivery. The groups are self-audited to maintain standards.

4.5 Lessons learned in an Irish context

Improvement of a farmer's confidence, skills and responsibility for his/her actions can begin during agricultural education. Farmers should be given responsibility for themselves from when they start agricultural training rather than having them continuously looking for direction. At present, students are assigned to a host farmer. Minimum criteria to operate as a host farmer should include membership of the Bord Bia quality assurance scheme and the ICBF Herdplus service. Farm work placement must be weighted in favour of the student.

Exposure of students to best practice and positive people in the form of host farmers or field trips to innovative and successful farmers would help increase confidence of students. Bringing students to farmers with a positive attitude can be an inexpensive way of improving the education system. This can be tied in with an increase in monitor farms, as suggested in the previous chapter.

The Civil Defence method of 'learning with leisure' can be implemented in a cattle-farming context by having interactive involvement as simple as weight estimation at demonstrations and agricultural shows.

Beef needs more prominence in the beef syllabus. It is dominated by the raw material, with little mention of the end product. Farmers rear and sell cattle but they are paid for beef.

The Pick and Peel Company engages its suppliers by taking them on factory visits and showing them what is required. By Meat Industry Ireland members hosting factory visits for discussion groups and students, a greater understanding of the chain is available. Dawn Meats has piloted this with Macra na Feirme via the L2D (Live to Dead) programme. Groups are taken through abattoirs from lairage to carcase two hours later in chill, and in between get briefing on market requirements. This needs to be coordinated for all factories with access to farmers via discussion groups.

Conclusion

Making the best use of existing resources is relevant to the Irish industry as a whole.

All beef-cow owners visited over the duration of this study optimised their financial returns by using the following as their target: 'An efficient suckler cow is a cow that calves unassisted, weans a calf forty to fifty per cent of her body weight, and returns in calf with minimal inputs.'

They all used their available resources to optimum levels and ran businesses that grew and allowed them time to spend with their families and communities or to contribute to developing their respective beef sectors.

With dairy farming expected to expand, suckler cows in the future will move away from more fertile ground. A suckler cow represents the best option at converting the poorer forages into a saleable product, and therefore has a place in Irish agriculture.

Teagasc and Bord Bia both need to develop a mentality that they are service providers rather than policy-makers. It is within the remit of the farmer representative organisations to cover policy, with input from Teagasc and Bord Bia when required.

Teagasc needs to:

- Decide at management level what is its core business
- Commit this into its business plan
- Ensure that it's delivered and supported right down as far as the farmer client.

The host-farmer process needs a serious review alongside the current review of the syllabus.

A greater understanding of meat is required at farm level. Beef education from student to farmer is dominated by the raw material, with little mention of the end product. Farmers rear and sell cattle but they are paid for beef. Farmers require more knowledge of the finished product and market.

Recommendations

This report recommends:

1. That government funds Teagasc appropriately, thereby enabling its advisors to have a presence on farms, in particular at the beginning of the grass-growing season.
2. The creation of beef-farmer boards at Teagasc regional-unit level, with representatives from each having a place on the national beef-stakeholder group.
3. That Meat Industry Ireland members engage with discussion groups and bring farmers through the plants.
4. That cattle breeding focuses more on cow functionality and grass-fed genetics than on breed specifics.
5. That the host-farmer system in agricultural colleges be revamped, with the development of the student prioritised.
6. The creation of a variety of monitor farms at Teagasc regional-unit level that acknowledge the resource limits on Irish farms.
7. That Teagasc form a core of dedicated discussion-group facilitators.
8. Meat Industry Ireland members must pay a greater price differentiation to cattle within the required carcase specifications.

Project Title:	Suckler cows and the art of choice.
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Objectives

- Determine the simplest beef-cow efficiency measurement.
- Discover what allows suckler cows to survive in non-subsidised systems and difficult environmental conditions.
- Determine what function if any the suckler cow has in the future of Ireland's economy and who will maintain it.
- What role do farmers play in advisory and marketing.
- To observe what role farmers play in education and in leadership roles that improves other farmers' self-confidence and skills.

Research

Research consisted of farm visits and interviews with beef industry personal.

Recommendations

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