

FBD Eurostar €200 Replacement Index Competition

National Commercial Herd Winner



Tuesday, 16th July | 2pm
Niall O'Meara, Quansboro
Killimor, Co. Galway



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Welcome Address:

On behalf of myself and my wife Patricia, and children Kate and Jack I would like to welcome everyone to Quansboro, Killimor. I hope you find today informative and practical.

I have always had a keen interest in animal breeding. I place huge focus on breeding for good replacements on the farm as I believe the cows are the cornerstone to my farming business. I need them to calve every year, produce a good quality weanling from milk and go back in calf again. By using the Eurostar replacement Index I have selected for milk, docility and carcass weight. I rarely look at the sire and I don't favour any specific breed. I just select which ever sire has the characteristics I desire. Calving ease is also important as a difficult calving is of no benefit to man or beast.

Good quality grass swards have a huge role to play in achieving good weight for age when selling yearling bulls. Achieving high output cheaply is very important. Having a clear defined plan has been important in us changing our farming business along with the support from Teagasc advisors. Being an active member of my local beef discussion group has helped influence my decision making and adopting technologies.

I am delighted to have been awarded the 'FBD Euro-star €200 Replacement Index award'. I would like to thank Teagasc, FBD, Irish Cattle Breeding Federation and the Irish Farmers Journal for supporting this initiative.

Niall O'Meara,
Host Farmer

Teagasc, FBD, Irish Cattle Breeding Federation and the Irish Farmers Journal would like to welcome you here to Niall O Meara's farm today. We hope you find the day enjoyable and informative. Congratulations to Niall and his family on winning the inaugural 'FBD €200 Replacement index Competition'.

The competition aims to accelerate genetic gain in the key traits that drive profitability on commercial suckler beef farms, most notably milk, fertility and quality carcass attributes. This is evident here on Niall's farm today.

There are some excellent suckler farmers across the country who are using genetics to its best and in turn reaping the rewards. This competition allows us to showcase Niall's farm and demonstrate to the wider farming public the role that genetics can play in profitable businesses.

Since ICBF launched the Euro-star index in 2007 considerable gain has been made. Through on-farm data gathered from the Beef Data and Genomics Program (BDGP) and Beef Environmental Efficiency Programme (BEEP) ensures higher reliability of the Euro-Star Indexes.

We would like to thank Niall and his family for opening up their farm today. With his management ability and commitment, we have no doubt that he will continue to push his business forward.



Overview of Farm:

Niall and his family operate an autumn calving suckler to weanling enterprise. The farm is a medium to heavy type soil located about 7km from Killimor in east Co. Galway. It extends to 23.70 ha in one block surrounding the farmyard with some roadways and paddock grazing system serviced with moveable piping and drinkers.

The suckler cow herd is represented by multiple breeds namely Simmental X, Limousin X, Charolais X, Angus X and Salers X. Niall's great achievement in winning the Replacement Index award did not just happen overnight. This is a legacy of years of exclusive use of non-breed specific high replacement index AI on his herd to breed high quality replacements from his highest performing cows.

Niall's system is very simple, to calve down 30-35 autumn calving cows, selling male progeny at 12 months to a local finisher and selling females at specialised breeding sales whilst keeping sufficient replacements for the herd. This is a closed herd with no purchases which helps minimise disease risk. Calving takes place in August, September and October with almost 80% of the herd calving in six weeks in 2018.

Following on from Niall's highly successful breeding programme the next key component in his strategy is to maximise weight gain on all the progeny and thus

kg's of output whilst controlling costs by focusing on a grass based system in his own words "I used to be a beef farmer but now I am a grass farmer who produces beef".

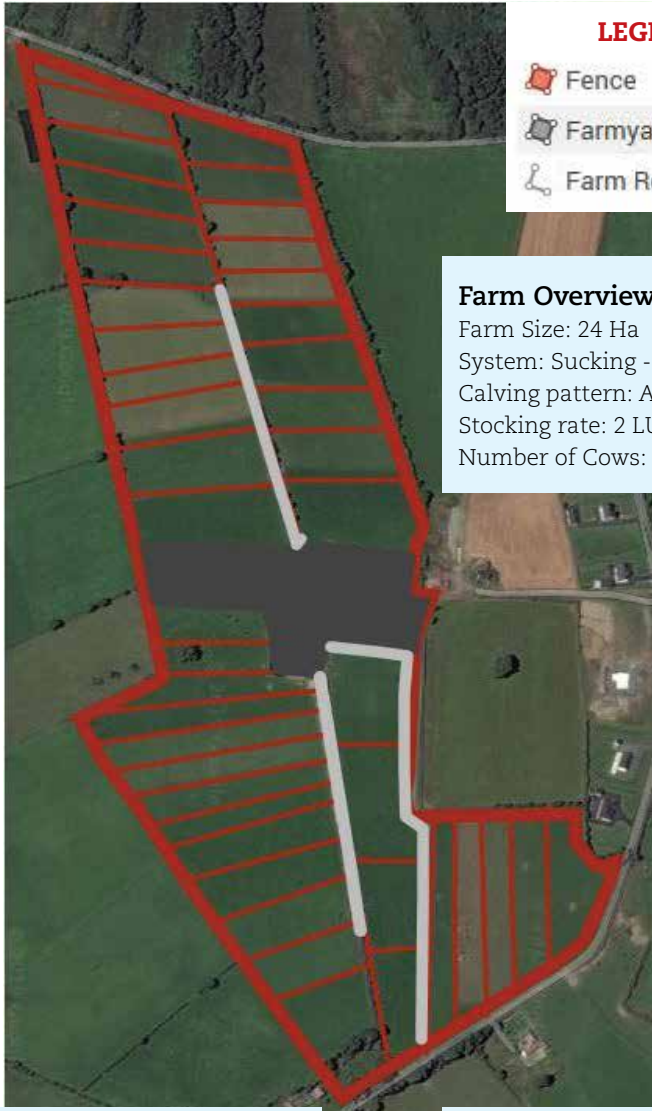
The target is to have the male progeny ready for sale at 500kg's at 12 months of age. The aim for the heifers is to have them at a target breeding weight of 475kg's at 14.5 months. These targets have been achieved by increasing soil fertility, reseeding paddocks, improving the grazing infrastructure with adding extra paddocks, troughs and roadways, extending the grazing season and grass measuring.

The ultimate success of Niall's suckler system is developed on having a clear plan in place that is robust yet flexible, setting clear objectives with measurable targets. To help him monitor his progress he uses a range of technologies that are available namely the Teagasc eProfit monitor to examine financial performance, ICBF herdplus to evaluate breeding programme, Teagasc NMP for fertiliser planning and Teagasc PastureBase to aid grassland management.

Niall is very open to new technologies and also participates in the BDGP and BEEP schemes as well as been an active member of a local Beef discussion group, all of which help him make on farm improvements that will ultimately lead to increased farm profit.

Suckling to Weanling Financial	Niall O Meara 3 Year Average (2016-2018)	Teagasc ePM Top1/3 (2017)
Farm Size	23.7	33.6
Stocking Rate (LU/Ha)	2.1	1.87
Live Weight Output (Kgs/Ha)	848	594
Live Weight Output (Kgs/Lu)	406	318
Gross Output (€/Ha)	1671	1381
Variable Costs (€/Ha)	779	551
Gross Margin (€/Ha)	891	830

Farm Layout:



LEGEND

-  Fence
-  Farmyard
-  Farm Roadways

Farm Overview

Farm Size: 24 Ha
 System: Sucking - Yearling
 Calving pattern: Autumn Calving
 Stocking rate: 2 LU/Ha
 Number of Cows: 30 Cows

Grassland Overview

- Grow in 3 weeks, graze in 3 days
- Target graze 10-12cm (1,400kg DM/Ha)
- 45 paddocks in total (9 in 2009)
- 20 drinkers with moveable piping
- Single strand of electric wire/pig tails
- 6 is the max no. of grazing groups

Breeding Overview

- Calving Interval 370 days
- Calves/Cow/Yr 1.02
- Heifers Caved 22-26 Mts 70%

Better Breeding Increases Output

Niall has been using 100% AI on the farm for the past decade. A Simmental stock bull was purchased in Autumn 2018. Niall concentrates on the replacement index when selecting sires. 'In the past I always relied on the Euro replacement index values and rarely looked at what the sire looked like. More recently I have moved away from looking at the actual replacement index value and I am more focused on the sub-indexes.

Calving difficulty, milk, docility and carcass weight are my main focus. I target a carcass weight of >25kg as I cannot afford to compromise on the quality of my bull weanlings. The target for Daughter milk on the farm +10 Kg with a high reliability as possible alongside a negative calving interval figure of -2 days. I am not partial to any breed, I rely on the Euro star figures. Sires used include QCD, ISL, Bivouac and SI2469", says Niall.

Key Targets

Compact Calving Pattern

A spread-out calving pattern drives production costs up, reduces farm output and increases labour demand. Irrespective of when calving season starts, your focus should be on keeping the calving pattern to a maximum of 12 weeks.

Advantages to keeping the calving pattern tight include:

- Ease of management.
- Better use of grass.
- Improved herd health.
- Higher level of outputs.

Plan of Action

Set clear dates for the breeding season, ensure heifers calve down before the main herd and plan for late-calving cows and poor performers to be culled.

Calving Interval

The target is to have each cow calving once every year, giving a calving interval of 365 days.

Calf/ Cow/ Year

Attention to detail at calving time and post-calving, combined with good disease protocol, are key to achieving this. Keeping low calf mortality on the farm is very important to achieving a calf/ cow/ year target.



New and Improved HerdPlus '5 Year Trend Report'

The ICBF HerdPlus service has relaunched the beef 5 year trend report. The report tracks a herd's progress over a five year period on six key performance indicators (KPI's) for a suckler herd's genetic and reproductive performance.

These are:

1. Replacement Index – Cows
2. Replacement Index – 1st Calvers
3. Average Calving Interval
4. Calves/Cow/Year
5. Heifers Calved 22-26 months
6. Six-week calving rate

Report Layout

The first page of the report has a summary 'Snapshot' which gives an overview of the herd's trends across the six KPI's at a glance. The inclusion of colour coded symbols makes the report very easy to interpret. A green upwards arrow indicates improvement, a red downwards arrow for

disimprovement and a yellow equals symbol where there has been no change (see figure 1). This 'traffic light' colour coding immediately highlights areas of improvement, but more importantly, areas which may need attention.

Figure 1. 'Snapshot' section of report. Colour coded symbols make it easy to interpret.

Your Herds Progress Snapshot (2014-2018)		
Improved ↑	No Change =	Disimproved ↓
1. Replacement Index (Cows)	↑	
2. Replacement Index (1st Calvers)	↑	
3. Herd Calving Interval	↑	
		4. Calves per Cow per Year ↓
		5. Heifers Calved 22-26 Months ↑
		6. Six Week Calving Rate Spring =

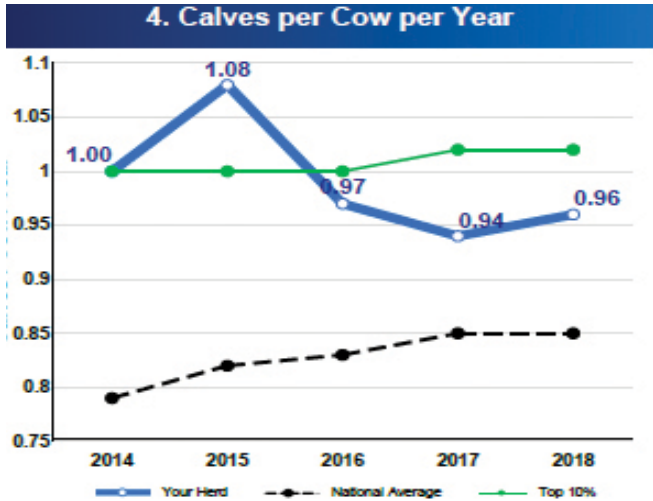
The example herd in figure 1 needs to pay particular attention to calves per cow per year and six week calving rate.

Can I further examine each KPI?

Yes. The report has an individual graph for each KPI tracking your herd's progress over the five year period.

The graph also shows the national average and where the top 10% of herds are at (see figure 2). This allows you to quickly benchmark your herd against the average and top performing herds in the country

Figure 2. Graph of calves per cow per year for the same herd as above. Each of the 6 KPI's are graphed and allow you to benchmark your herd against the average and top 10%.



Niall O'Meara's '5 Year Trend' statistics

Niall's 5 year trend 'snapshot' shows gains in 5/6 KPI's (see figure 3). Calves per cow per year has declined slightly, but is still over 1 and is on par with the top 10% of herds.

Figure 3. 'Snapshot' section of Niall's 5 year trend report showing gains in 5/6 of the KPI's

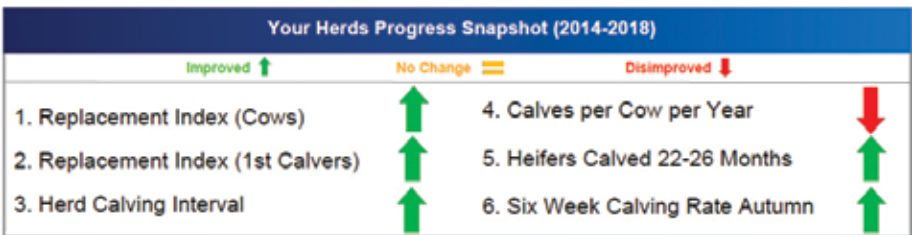


Table 1 below compares Niall's 2014 figures to 2018. Significant gains have been made in the Replacement Index of both cows and first calvers with the herd's reproductive performance remaining extremely high.

Table 1. Comparison of 2014 and 2018 performance for Niall's herd

		2014	2018	Difference
1	Replacement Index Cows (€)	82	97	15
2	Replacement Index 1st Calvers (€)	90	106	16
3	Calving Interval (days)	371	370	-1
4	Calves/Cow/Yr	1.03	1.02	-0.01
5	Heifers Caved 22-26 Mts (%)	67	70	3
6	Six Week Calving Rate (%)	63	77	14

Based on early analysis, Niall's herd is set to make even further gains in 2019 with his cow Replacement Index rising to €108, an increase of €11 on 2018 and his 1st calvers Replacement Index rising to €128, a €22 increase on 2018.

By continuing to select high Replacement Index sires with a balance between milk, fertility and carcass traits, Niall is aiming to maintain the herd's excellent reproductive efficiency, whilst continuing to increase the herd's output by driving weight gain in progeny.

BDGP herds moving in the right direction

This is the clear trend from analysis of the '5 Year Trend' statistics of 24,500 herds participating in BDGP. Table 2 compares the 2014 and 2018 figures across the six KPI's.

Table 2. Comparison of 2014 and 2018 '5 Year Trend' statistics for 24,500 BDGP herds.

		2014	2018	Difference
1	Replacement Index – Cows (€)	76	82	6
2	Replacement Index – 1st Calvers (€)	70	85	15
3	Calving Interval (days)	408	397	-11
4	Calves/Cow/Yr	0.79	0.84	0.05
5	Heifers Caved 22-26 Mts (%)	15	22	7
6	Six Week Calving Rate (%)	52	53	1

Table 3. Differences in rates of gain across the six KPI's between BDGP and non-BDGP herds.

		Rates of Gain 2014-2018	
		BDGP	Non-BDGP
1	Replacement Index Cows (€)	6	2
2	Replacement Index 1st Calvers (€)	15	9
3	Calving Interval (days)	-11	-7
4	Calves/Cow/Yr	0.05	0.05
5	Heifers Caved 22-26 Mts (%)	7	4
6	Six Week Calving Rate (%)	1	2

Rising tide lifts all boats

Non-BDGP herds are also making gains, albeit at a slower rate, and this demonstrates how the positive impact of

BDGP is being felt in herds outside of the programme through the proliferation of higher genetic merit animals.

The 5-Year Trend report is available to all BDGP and HerdPlus herds through online services at www.icbf.com. If you have any queries on this report, please contact ICBF on 023-8820452 or email query@icbf.com.

Calving Beef Heifers at 24 Months

As we continue to strive to make our suckler herd more efficient reducing costs and our carbon footprint there is one area that many herds fail to target and that is age at first calving. Nationally the target is to try and calve heifers at 24 months and currently only 24% are calving at 24-26 months up from 18% four years ago.

Why are farmers reluctant to try it?

(Only 24% of heifers calve @22-26mths)

When asked at discussion group meetings as to why heifers are not calved at 24 months you typically get the reasons as follows:

- Heifers aren't sufficiently well grown at 15 months for bulling.
- It will stunt the heifers growth if they are bulled too early.
- They are too difficult to calve.
- They won't go back in calve again to calve as 2nd calvers.
- Not that saleable if things go wrong at calving.

Many of the arguments for not calving at 24 months are indeed very plausible but table 1 below dispels some of the arguments even if we do concede that heifers irrespective of their age will need more assistance at calving.

Table 1 Replacement Females born in 2011 (ICBF Figures n = 131,077)

Age at 1 st Calving (mths)	Avg Calv. Interval Overall (days)	% Calv. for a 2 nd time	Avg Calv. difficulty of bulls used on heifers	% of Heifers Calv. Unassisted	% Mortality at 1 st Calving	% Reaching 5 th Parity
23-26 mths	383 days	82%	4.7%	50%	3.2%	39%
27-30 mths	394 days	83%	5.1%	53%	2.8%	20%
31-35 mths	392 days	87%	5.2%	58%	2.6%	4%
36 - 40 mths	386 days	86%	5.2%	57%	2.0%	0%

We often put up many reasons as to why not to calve heifers at 24 months such as if they calve at 2 years they will not calve again at 3 years. The table above doesn't really support this notion.

- » Heifers that calved at 23-26 months had as good a calving interval and calved down again as a second calver as heifers calving down in the older age categories.
- » Another reason is that they are harder to calf at a younger age. The figures do show that younger heifers do have slightly higher calf mortality. On the same token heifers irrespective of age will be more difficult to calve and as the figures show will need a high level of assistance at calving.
- » Perhaps this could be reduced if we were more selective in the sires we put on heifers. Even the younger calving heifers are being mated with sires with an average calving difficulty of 4.7%. Interestingly our dairy counterparts try and mate their heifers calving down at two years with sires with a calving difficulty of 2% or less. We may never drop that low on the beef side but should we aim for 4% calving difficulty or less on heifers.
- » Heifers that calved for the 1st time at 23-26 month had greater survivability in herds with almost 40% reaching 5th parity compared to only 4% of those that calved for the 1st time at 31-35 months.

Tips to Achieve 24 Month Old Calving

1. Identify your Replacements Early

Monitor all your potential replacements as calves and by weaning time you should have identified the best performing heifers from your best cows and that have been sired by bulls that have good maternal traits.

2. Feed appropriately over the 1st Winter

Heifers should be 280-320kg at weaning which means that you will need them gaining at a minimum 60-80 kg over their 1st winter if you want them to reach the target bulling weight at 15 months. The table below shows some of the key target weights needed at the various stages for 24 month old calving.

Key Weight Targets

Mature Cow Weight	Weaning Wt.	Bulling Wt.	Calving Wt.
Target % of Mature Wt.		60%	80%
600kg	260-280kg	360kg	480kg
700kg	300-320kg	420kg	560kg

3. 60% of Mature Weight at Bulling

If your mature cow weight is 700kg you will need your heifers to be around 420kg at bulling. Much lighter than this may mean, some of the heifers are not cycling at the start of breeding.

4. Calving Ease of Sire Used

This is really a critical point. Irrespective of what breed you choose to use on your heifers selecting an AI or a stock bull with a proven calving ease is paramount. Ideally select bulls with a proven calving difficulty of 4% or less. Using a young bull with low calving reliability is high risk in this type of system.

5. Pre Calving Care

Once successfully bred heifers need to be well managed to achieve 80% of their mature weight by the time of calving. So if the average at least 0.6kg/day throughout pregnancy they should easily achieve this target. Monitor heifer body condition to ensure they are fit not fat at calving. Once calved do not allow heifers to lose condition.

6. Post Calving Care

Turn out to grass as quickly after calving will help with this. Heifers that remain indoors for a month or more after calving should be supplemented with at least 2kg of concentrate/day on good silage to avoid excessive weight loss which would ultimately delay their return to cycling for rebreeding.

Selecting Replacement Females

The future of your herd

Selecting replacement females is an important job each year for a suckler herd. A batch of replacement females will potentially have an impact on the herd's performance for years to come, therefore, it is critically important that all of the tools available are used in the selection process. A suckler herd breeding its own replacements and maintaining its current

numbers will need to retain approx. half of each year's heifer calves as replacements. Take a herd like Niall's for example. At 30 cows, he will require approx. 7/8 replacements each year. Niall has 14 yearling heifers to select from this year and he only requires half of these. So, how does Niall select the heifers he wants to retain?

1 Visual Assessment

There are certain important attributes of a potential replacement female which can be assessed visually:

Dolcility: Selecting replacements with a good temperament is important from a labour point of view, but even more so, for health and safety reasons. If a heifer exhibits poor dolcility (wild or aggressive), she is not worth keeping regardless of her other attributes.

Functionality: Does the heifer have good feet and legs? Heifers may not exhibit functionality issues at such a young age so it may be worth taking the dam's functionality into account. Has the heifer developed a good frame especially in the pelvic area? This is an important characteristic when it comes to determining the future calving potential of the animal. Heifers that are small and/or very heavily muscled may experience increased levels of calving difficulty.

2 Weight for Age

Heifers need to be at least 60% of their mature weight at breeding. Niall calves heifers at 24 months, therefore heifers need to reach this weight at 14.5 months. Niall's mature cows have an average weight of 727kg, therefore his replacement females need to be 430-440kg at breeding.

Allowing a 50kg birth weight, a heifer will have to gain 380-390 kg from birth to 14.5 months (see table 1). This equates to 0.88kg of an average daily gain (ADG) from birth to breeding. This is a very achievable target.

Table 1. Weight targets from birth to mature weight for a replacement female. This may vary depending on your herd's mature weight and/or breed type.

	Birth	Weaning (8 mts)	Breeding (14.5 mts)	Calving (24 months)	Mature Weight (5 yrs)
Weight	40-50kg	300kg (40% mature weight)	430-440kg (60% mature weight)	580-600kg (80% mature weight)	700-750kg
ADG since birth (kg)	NA	1	0.88	0.8	0.4
ADG since previous weight (kg)	NA	NA	0.7	0.55	0.12

Not a 'guess work' process

Don't assume heifers are thriving. Heifers should be weighed regularly from weaning to breeding to ensure that they are gaining

sufficient weight. This will allow you to intervene where there is a problem.

3 Euro-Star Index

Having gone through the visual and weight checks on a batch of heifers the final step in the selection process is to look at the Euro-Star Indexes of the animals. This may sound like a daunting process for some, but it can be done in a few easy steps.

Accessing the Euro-Star details: You can access the indexes through your Herdplus login. Once logged in you can access either your Euro-Star profile or your Euro-Star report. If you opt for the report, ensure that it is up to date.

What do I need to look out for in a heifer's Euro-Star Index:

1. Has the animal been genotyped:

Look for the DNA 'helix' symbol in the animals' index details (see figure 1). Genotyping confirms that the parentage is

correct and also increases the reliability % **2. What is the overall Replacement Index value:** Look for a high value here. The animal in figure 1 has a Replacement Index of €140 (5 stars). This ranks in the top 3% nationally.

3. Is the index balanced: You need to go further than the overall index. The Euro-Star report also details the carcass weight, milk and calving interval figures. The animal in figure 1 has a very good balance between carcass, milk and calving interval (fertility).

Figure 1. Example of the Euro-Star report. Ensure animals are genotyped and have high, balanced Replacement Indexes.

Animal Details				Replacement Index				
Jumbo	Animal Tag	Sire ID	Calving	Rel %	Carcass Weight (Kg)	Daught. Milk (Kg)	Daught. Calving Interval (Days)	
Date Of Birth	Dam Tag	Index Value (€)		Herd Rank	Across Breed	Across Breed	Across Breed	
Breed	Across Breed Stars	Across Breed	Across Breed	Across Breed	Across Breed	Across Breed	Across Breed	
560	372223227450560 06-SEP-2017 SN(69%),LM(25%)	ISL IE162197810416	2	48%	3	+19.3	+7.3	-3.7
	★★★★★	14	1	14	★★★★	★★★★★	★★★★★	

Avoid extremes

You may come across animals with high overall Replacement Indexes, but with very imbalanced sub-traits.

Figure 2 below shows an example of this. The animal's carcass value is very poor and the milk figure is too high. These animals should be avoided where possible

Figure 2. Example of a 5 -star animal with an imbalanced index. Most of the index is coming from a high milk figure.

Animal Details				Replacement Index				
Jumbo	Animal Tag	Sire ID	Calving	Rel %	Carcass Weight (Kg)	Daught. Milk (Kg)	Daught. Calving Interval (Days)	
Date Of Birth	Dam Tag	Index Value (€)		Herd Rank	Across Breed	Across Breed	Across Breed	
Breed	Across Breed Stars	Across Breed	Across Breed	Across Breed	Across Breed	Across Breed	Across Breed	
728	IE241131120728 29-MAR-2012 AA(47%),HO(44%)	IE241126250259 IE241131130613	6	59%	-0.6	+17.9	-1.54	
	★★★★★	74	1	74	*	★★★★★	★★★★	

Using AI in the Suckler Herd

Artificial insemination opens up the opportunity of accessing a wider pool of genetics that can be used with a higher reliability. Figures from ICBF show that **24% of beef calves were sired by AI sires**, this compares to around 60% in dairy herds

Even though there are pro's and con's to being able to use AI in the beef herd it is something that needs to get further consideration given that our average herd size is only 17 cows.

With such small herds it is hard to justify a large outlay on a stock bull. This potentially limits the bull choice available to smaller herds and their ability to continually make genetic progress. With AI you can match the bull to the cow. It is not for every farm, with factors such as land fragmentation, facilities present and labour availability the main reasons for farmers choosing to use stock bulls over AI.

1 Cow Type

Niall's cows are docile in a one man operation. Cows are quiet and easily handled which is essential.

2 Use of a vasectomised bull

A vasectomised bull, according to Niall, is a must in helping to identify cows in heat. The optimum is a bull fitted with a chin ball that will readily identify cows with paint when dismounting. Bulls are kept from the previous year. They are only kept for 1 year and replaced.

3 Cow Type

Niall recommends using tail paint, even where a vasectomised bull with a chin ball is running with the herd. At the start of the breeding season when high numbers of cows are in heat, a vasectomised bull may concentrate on select cows, while having tail paint applied will still allow heats to be picked up. Changing colour as cows are inseminated will also allow performance to be quickly monitored.

4 Regular Heat Detection

Niall says regular heat detection is required, particularly at the start of the season for the reasons outlined in point 3. Cows are generally checked first thing in the morning, mid-morning, again at 3pm to 4pm and late in the evening. The times of highest activity are early morning and last thing at night.

5 Good Infrastructure

The farm has a good network of paddocks, with good-voltage electric wire. Niall can link on with a geared wire reel and, in a few minutes, set up a coral with a few pigtail posts to get cows separated for AI. Most AI is done indoors therefore good handling facilities are essential.

Cost of the Stock Bull

ICBF figures have shown that the average stock bull sires 80 calves over its average 4 year working life, so approximately 20 calves/year. Based on this and taking account of the salvage value of the bull and annual feed costs.

For a bull costing € 2000 to purchase it will have a breeding cost of €32.50 per calf. This rises to €57.50 per calf if the purchase price is €4000.

Purchase Price €	Cost/Calf €
€2,000	€32.50
€3,000	€45.00
€4,000	€57.50

Looking at these costs AI becomes attractive given the number of bulls available across a number of breeds and the fact that you

have a choice of bulls with high reliability which gives you great peace of mind if you are selecting for a trait such as calving ease.

If the correlation between bull genetic merit and purchase price improves over time then surely smaller herds not using AI run the risk of falling further behind if they cannot justify the cost of the top stock bulls.

My breeding plan going forward

Over the course of the next 4 years I have incorporated a stock bull in my breeding plan in order to compact calving to 9 weeks is the simplest way possible on my farm. I purchased a Simmental sock bull in Autumn 2018 and I intend to keep him for the next 4 years. Last Autumn I let him to all of my cows and I used AI on my replacement heifers. In 2019 I intend to use AI for the first 3 weeks of the breeding season and then the bull for the remainder of the season. This will extend to 6 weeks AI in 2020 and 100% AI being used in 2021. Replacement heifers will continue to be bred with AI as the reliability and select from AI gives me more options especially with calving ease.



Breeding strategy on the farm 2018-2021

Year	Breeding Strategy
2018	100% stock Bull
2019	AI first 3 weeks of breeding season
2020	AI first 6 weeks of breeding season
2021	100% AI on the farm

Grassland Management

High quality grass swards play a huge role in achieving consistent target weight gains of the yearling bulls and getting heifers to target breeding weights at 14.5 months.

According to Niall 'achieving high output cheaply is very important and I pay a lot of attention to grassland management during the year to ensure a long grazing season and maintaining quality swards for grazing'. He has made huge progress in recent years in grazing management and has recently put in new roadways and increased the number of paddocks on the farm.

He also uses pigtails and reels to further divide paddocks during peak grazing periods. "I have 24ha of land, but 45 paddocks," says Niall. "I'm completely convinced of the value of grazed grass. I operate a rotational paddock system, but it doesn't matter what kind of system you have so long as you are getting fresh grass into them every few days. To do that, you need really good infrastructure." The aim is to graze each paddock for three days and allow 18 to 21 days recovery and re-growth.

Performance Achieved from Grass

Over the past number of years through genetic selection and improved grassland management the weight of the weanling bulls at sale has increased as outlined in Table 1 below. Niall has a target weight of 500kg for male progeny at 12 months and has been consistently achieving above this

for the last few years. This has been achieved through minimum use of concentrates. 'While concentrating on heavier bull weanlings the main emphasis is on further increasing grass in the diet and decreasing concentrates.'

Year	Bull liveweight at sale (Kg)	Total concentrate input from birth to sale /head (Kg)
2015	499	150
2016	513	125
2017	525	100
2018	497 (drought)	125



Grass Measuring

Niall has been measuring grass growth on the farm using a platometer for the past number of years to aid management decisions. This information is then inputted to the Teagasc grass measurement programme PastureBase Ireland. 'It can establish my number of grazing days ahead and I can decide if I need to take out surplus grass as baled silage or spread extra fertiliser', says Niall. Grass budgeting is key to maintaining a high quality grass sward at all stages during the grazing season.

In addition, he has found that the quality of silage produced on his farm has improved and the quantity coming from surplus grass has increased. In 2017 grass production was almost 11t DM/ha which decreased due to drought conditions in 2018 to 8.5t DM/ha as in the table below. The annual tonnage report helps Niall to identify poor performing paddocks that may need reseeding or have soil fertility issues which is limiting grass growth. Niall's view is that "I used to be a beef farmer but now I am a grass farmer producing beef,"

Grazing Performance	2018	2017
Grass production (t DM/ha)	8.5	10.9
No. grass measures completed/yr	36	34



Soil Fertility

All grass land was soil tested in 2016. Figure 1 gives a breakdown of the results. In relation to soil pH, 18.1ha (76% of land area) on the farm is correct for ph. – 6.3 and above. The soil pH status of the soil has a significant influence on the availability and uptake of both soil nutrients in the form of either artificial fertilizers or organic manure by the plant. It will be important for Niall to continuously monitor the pH levels in soils as maintaining soil between pH 6.3-6.5 will release between 60-80Kg more nitrogen per hectare than soils with a pH of 5.0. This represents a saving of between €60-€80/ha.

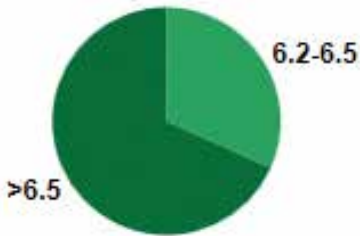
As can be seen from Figure 1, approximately 53% of the farm is index 2 for phosphorus (P) with 24% index 1. Phosphorus is very important for crop establishment and root development.

It also plays an important role in the nutrition of livestock.

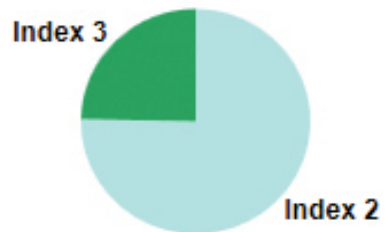
Soil potassium (K) levels are low with 77% of the farm index 2. Potassium is particularly important increasing stem strength, improving drought resistance and cold tolerance and most importantly, for increasing yields. Potassium fertilization is especially important in autumn and on older grass. If adequate amounts of potassium are not available the rate of growth and yield will be restricted.

There is also a relationship between nitrogen and potassium, as the response of grass to nitrogen is dependent on an available supply of potassium to allow N uptake as nitrate and conversion into protein.

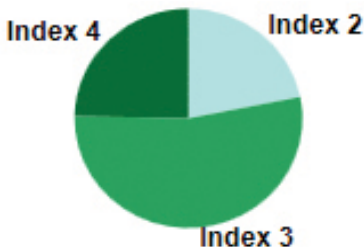
Lime pH>6.2



P Index



K Index



Pro-active Health Planning

Herd health plays a key role in optimising the output and profitability on livestock farms. The consequences of poor herd health include reduced thrive, higher mortality, additional labour and increased veterinary costs.

At turnout, and again in autumn, cows are supplemented with magnesium in the water to prevent grass Tetany. Cows are given a bolus in June and again in October. Around eight weeks after housing, cows are treated for liver fluke.

Dry cow minerals are fed from six weeks prior to calving.

As cows calve in the autumn outdoors it minimises a calf's exposure to disease. Niall ensures that calves get adequate colostrum as soon as possible after birth.

Calves graze outdoors over the winter period as it decreases pneumonia issues and calves are healthier. Calves are vaccinated for IBR in October and a booster shot is administered. Over the course of the winter they graze up to 12 acres. During the grazing season, weanlings are treated for roundworm and hoose on two occasions.



Beef Environmental Efficiency Pilot (BEEP)

The Beef Environmental Efficiency Pilot (BEEP) was launched by Minister Michael Creed TD earlier this year and it represented a significant development for suckler beef breeding in Ireland. Traditionally, levels of weight recording in Irish suckler herds

Why weigh suckler cows and calves?

Recording liveweights on both suckler cows and their calves will allow farmers to identify their most efficient cows, as well as helping ICBF to improve the reliabilities of important traits in the Euro-Star Index. The Euro-Star Replacement Index is made up of 17 traits. Milk, cow liveweight, carcass weight and conformation are some of the most significant of these (see Table 1). The reliabilities of each of these traits are increased by liveweight data. Therefore, it is important to collect as many liveweights as possible on suckler cows and calves to ensure higher reliability Euro-Star Indexes. The milking ability of suckler cows is measured by the pre-weaning weight gain of their calves. Cow liveweight is measured by recording the weight of suckler cows post calving. The optimum time to weigh a cow and her calf is when the calf is aged between 150-250 days.

How will animals be weighed?

Animals are weighed in a standard cattle race/crush using a weighing platform. As the animals pass over the platform, a weight is recorded from the weight indicator (see figure 1). Farmers have a number of options when it comes to accessing weighing equipment:

- Use own scales.
- Borrow a scales e.g. from a neighbour.
- Hire a weighing technician.
- Rent a scales through the BEEP rental network.
- Rent a scales from a third party e.g. vet.

have been extremely low and given that liveweight gain is one of the most significant KPI's for a suckler herd, it is imperative that as much weight data as possible is collected to identify the most efficient animals.

Euro-Star Replacement Index		
Trait	Trait Emphasis	Trait Type
Maternal Calving Difficulty	6%	Cow Traits 71%
Age 1st Calving	6%	
Calving Interval	9%	
Survival	8%	
Milk	18%	
Cow Liveweight	14%	
Cow Docility	4%	
Cull Cow Weight	7%	Calf Traits 29%
Calving Difficulty	7%	
Gestation	2%	
Mortality	1%	
Docility	1%	
Feed Intake	4%	
Carcass Weight	10%	
Carcass Conformation	3%	
Carcass Fat	1%	

Table 1. Milk, cow liveweight, carcass weight and conformation make up a combined 45% of the Replacement Index.



Figure 1. Suckler calf being weighed on a platform with weight displayed on indicator.

How can I analyse my herd's performance after weighing?

The HerdPlus Weaning Performance Report will give a full breakdown of your herd's performance having submitted weights to ICBF.

Figure 2 shows a section of the report for Niall O'Meara's herd. The report allows you to analyse calf and cow performance both at a summary level and on an individual animal level.

All Calves

	Born In Period*	No. Weighed**	ADG (kg)	Avg. 200 Day Weight (kg)	
				Your Herd	Target
All	33	29	1.12	273	N/A
Males	18	15	1.21	294	300
Females	15	14	1.02	252	250

Figure 2. Calf performance summary section of report. Target 200 day weight for males is 300kg and females 250kg.

Positive early picture

Over 50,000 cow/calf pairs have been weighed to date as part of the BEEP.

Analysis of cows by Replacement Index across breed star rating is detailed in table 2.

Table 2. Performance of cows based on BEEP data recorded to date. There are approx. 29,000 cow/calf pairs included in the analysis where calves were weighed between 150-300 days

Rep Index Star Rating	No. Cows	Avg. Rep Index	Avg. Cow Weight (kg)	Calf 200 day wgt (kg)	Cow/Calf Weaning %
5	10364	€129	622	285	47
4	6248	€93	628	279	45
3	4562	€76	632	277	45
2	3998	€58	638	273	43
1	3482	€27	649	268	42
Difference		€102	-27	17	5

*Cow/Calf Weaning % is the calf's 200-day weight as a percentage of the cow's weight.

5-star cows were 27kg lighter, yet their calves were 17kg heavier at 200 days of age resulting in a 5% higher cow/calf weaning % than that of the 1-star cows.

Lighter cows require less maintenance and heavier calves drive output in terms of more liveweight to sell and/or achieving required liveweights for slaughter at an earlier age.

Environmental Benefit

Breeding a more efficient cow which meets the necessary weight, fertility and calf weaning weight targets will significantly reduce the amount of

greenhouse gases (GHG) generated per kg of beef produced in Ireland. A mid-sized cow approx. 600-700 kg that weans a calf approx. 300-350 kg is the optimum.

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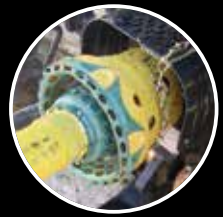
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MAKING YOUR FARM A SAFER PLACE

A to Z of FARM SAFETY



A

Always consider SAFETY on the farm.

B

BULLS: Beware of aggressive animals on your farm. Be sure to cull cross bulls, cows, rams, stags from your farm.

C

CHILDREN: Always supervise children on the farm, especially during machinery operations.

D

DRAWBARS: Never let anyone ride on the drawbar of your tractor or any other machinery. Do not allow anyone ride in an open trailer.

E

ELECTRICITY can kill. Beware of overhead power lines and buried cables.

F

FORESTRY and tree felling: Take care not to be caught under falling trees and logs. Attend a chainsaw and tree felling course.

G

GAS: Slurry gases can kill. Remove all stock from slatted sheds before agitating. Never enter a shed when slurry is being agitated. Close agitation point after each use.

H

HORSES: Some horses can be dangerous. Always wear safety equipment e.g. helmet when handling or riding horses. Be wary of being kicked by horses.

I

INSPECT: Check safety equipment on your farm regularly, e.g. machinery safety covers, PTO guards, fire extinguishers and First Aid kits.

J

JAWS: Keep away from blades of shear grabs, mowers, revolving knives and chainsaws.

K

KEEP CLEAR of machinery such as tractors, HiMacs, bulldozers when they are working. Stay in their line of vision and wear a high visibility jacket or vest.

L

LIVESTOCK: Be wary of being kicked or crushed while working in pens, yards or fields with livestock.

M

MACHINERY: Ensure safety covers and PTO guards are in place and working on all farm machinery. Avoid wearing loose clothing near machinery.

N

NEVER start a tractor when you are standing on the ground alongside it.

O

OVERTURN: Remember tractors have a high centre of gravity and can overturn easily. Drive slowly over uneven ground.

P

PESTICIDES and other toxic chemicals: Keep them out of the reach of children. Read the label and follow the manufacturer's advice on proper use, storage and disposal.

Q

QUAD bikes: Always wear a safety helmet when using a quad bike. Avoid letting children on them. Drive slowly over rough ground.

R

ROOFS: Use a roofing ladder when working on farm sheds. Stay clear of skylights.

S

SAFETY: Complete and update your Risk Assessment Document. This can be completed online at www.farmsafely.com. Take action on risks highlighted.

T

TRAINING: Attend a Farm Safety training course NOW at your local Teagasc centre.

U

UNTIDY: Poorly maintained farmyards/farm can lead to accidents. Keep your farmyard/farm neat, tidy and well maintained.

V

VISION: Your eyesight is vital – protect it. Wear safety goggles where your eyes are in danger.

W

WARNING SIGNS should be erected to warn the public of dangers or hazards such as "Tractors Crossing", "Beware of Bull".

X

XTRA: Be extra careful when there are children or elderly people on the family farm. Restrict access to dangerous ponds, tanks, unstable heights etc.

Y

YOU and YOUR FAMILY: Take every precaution to remain safe and healthy. Assess every farm task carefully for potential dangers or risks. Organise and complete tasks with safety in mind.

Z

ZOONOTIC DISEASES and infections which can be transmitted from animals to humans. E.g. TB, Toxoplasmosis, Weil's Disease, E.Coli ... Wear gloves when handling livestock. Always wash your hands after being in contact with animals.