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The importance of cow type in increasing the viability of the Suckler herd – A Southern Ireland perspective.

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1. Introduction.

There has been a sharp decline in the size of the Suckler herd in the Republic of Ireland (RoI) over the past 5 years, from a high of 1,090,831 in 2007/2008 to 935,564 for the current year, a drop of some 15% over the 3 year period (Table 1).

*Table 1. Trends in Suckler Beef calvings over the past 5 years**

Year	Number	% change from previous year
2006/2007	1,039,565	
2007/2008	1,090,831	4.9%
2008/2009	1,046,346	-4.1%
2009/2010	950,910	-9.1%
2010/2011	935,564	-1.6%

** 12 month period is from 1st July to 30th June in given year. Based on data from the ICBF and AIM databases.*

So why this sharp decline in Suckler cow numbers? Clearly it must be linked to some function of farm profit. Indeed a recent analysis by McCarthy (2011) has indicated no increase in GM/ha for Suckler beef systems between 2004 and 2009 (based on Teagasc profit monitor data), despite a significant increase in beef price over the period (up 26% over the past 10 years). Similarly trends in phenotypic performance indicate a steady increase in carcass weight for steers, heifers and young bulls over the past 10 years, with each category having increased by 25 kg, 26 kg and 21 kg respectively, over the 10 year period (DAFF, 2010).

Given these improvements in carcass weight and beef price, the lack of improvement in suckler beef profit, seem somewhat inconsistent. Or they do? It is well acknowledged that profit is a function of two components, that is, output value minus costs of production. A closer look at one of the key cost of production traits (female fertility) indicates a steady decline fertility performance within the National Suckler herd (Table 2). For example, calves/cow/year has declined from 0.86 in 2007 to 0.80 in 2010, whilst calving interval has increased from 399 days to 406 days during the same period.

*Table 2. Phenotypic trends for female fertility over the past 5 years**

	2006	2007	2008	2009	2010
Calves/cow/year	0.82	0.86	0.81	0.81	0.80
Calving Interval Days	399	399	398	399	406
Age at first calving	30.5	31.2	31.0	31.4	32.0

** Based on data from ICBF Beef HerdPlus.*

Coupled together these observations would appear to suggest that despite considerable productivity gains (in terms of carcass weight and price), the benefits of these gains are being eroded by reduced performance in key cost of production traits such as fertility performance. The objective of this paper is therefore to better understand the relationship between output and cost of production traits in suckler cows, as knowledge of this relationship will help us define the

ideal type of suckler cow for future beef production systems. In answering the question, we will focus on four key areas;

- Suckler herd replacement strategy.
- Breed choice.
- Role of genetic and economic index data.
- Importance of breeding programs.

In addition, we will give an insight into some of the new developments that will be available to beef farmers in the coming years. Based on these findings we hope to present a very positive perspective on the future of our National Suckler herd, one that is based on ***profitability as opposed to simply viability*** for future generations of beef farmers, and to give clear guidance as to how to select for improved suckler cow type in the future.

2. Suckler herd replacement strategy.

One of the most talked about aspects of Suckler beef production is replacement strategy, whether it is breed choice or whether to purchase or breed your own replacements? Tables 3 and 4 provide a very insightful perspective into the whole area of replacement strategy in Suckler beef farms in RoI.

*Table 3. Replacement Strategy in the Suckler Herd – Breed Choice**

Breed choice	2005		2010	
	Number	% Total	Number	% Total
1st Cross – Continental * Dairy	21,910	14.0%	16,579	12.6%
1st Cross – Traditional * Dairy	16,268	10.4%	15,973	12.2%
¾ bred – Continental * Continental	70,491	44.9%	66,084	50.3%
¾ bred – Continental * Traditional	34,617	22.1%	21,364	16.3%
¾ bred – Traditional * Traditional	13,535	8.6%	11,393	8.7%
Total	156,821	100.0%	131,393	100.0%

** For the purpose of this analysis, continental breeds were defined as either Charolais, Limousin, Simmental or Belgian Blue. Traditional breeds were defined as either Angus, Hereford or Shorthorn. Based on data from the ICBF and AIM databases.*

Trends from Table 3 indicate that the majority of Suckler replacement females calving down for the first time in 2010 were ¾ bred continentals or more, with 66,084 of the total 131,393 (50.3%) being to this breed combination. A further 16.3% were ¾ bred beef, albeit continental * traditional breeds, with 12.6% being 1st cross continental from the dairy herd. Indeed trends from Table 3 indicate that 75% of suckler replacements are ¾ bred beef crosses (or more) with 25% being 1st crosses from the dairy herd. Looking more closely at trends from Table 3 indicates that of all the breed combinations, the one that is gaining most in popularity is the ¾ bred continental bred suckler, with 44.9% of replacements being to this breed combination in 2005, compared to 50.3% for 2010.

Another interesting aspect of replacement strategy is whether farmers chose to breed their own or purchase in replacements (Table 4). Looking at trends from table 4 indicates that some 60% of suckler herd replacements are home-bred, with the remaining 40% bought in. Of the 60% home-bred, the majority are ¾ bred continentals (or more) with this number increasing in relative terms between 2005 and 2010. Similar trends are apparent for bought-in animals, with this type of animal (i.e., ¾ bred continental animals) gaining in popularity over the past 5 years. The drop in numbers for continental * traditional breeding is also of interest, suggesting a switch away from

using traditional breeds by the majority of suckler farmers. In addition, the drop in numbers for home-bred 1st cross animals from the dairy herd, suggest that suckler cows are being replaced by dairy cows on farms with both dairy and suckler enterprises.

*Table 4. Replacement Strategy in the Suckler Herd – Home-bred or bought-in**

Breed choice.	2005		2010	
	Home-bred	Bought in	Home-bred	Bought in
1st Cross – Continental * Dairy	8,382	13,528	4,892	11,687
1st Cross – Traditional * Dairy	5,736	10,532	4,707	11,266
¾ bred – Continental * Continental	48,445	22,046	45,350	20,734
¾ bred – Continental * Traditional	23,050	11,567	14,925	6,439
¾ bred – Traditional * Traditional	8,766	4,769	8,209	3,184
Total	94,379	62,442	78,083	53,310
% Total	60.2%	39.8%	59.0%	41.0%

** For the purpose of this analysis, continental breeds were defined as either Charolais, Limousin, Simmental or Belgian Blue. Traditional breeds were defined as either Angus, Hereford or Shorthorn. Based on data from the ICBF and AIM databases.*

Two final points to note from Tables 3 and 4 are that despite increasing concerns regarding animal health and disease, there has been no increase in the number of home-bred animals entering the suckler herd over the past 5 years (~60%). Furthermore the average replacement rate of the National beef herd in the South of Ireland would appear to have remained relatively stable at some 15% over the past 5 years.

3. Breed Choice.

Data from Tables 3 and 4 would seem to suggest a definite shift towards continental bloodlines and increased usage of ¾ bred females (as opposed to ½ bred from the dairy herd), as the ideal suckler cow for our beef production systems. But are these trends justified and more importantly, on what basis have these decisions made? In answering these questions, we will look at data from three potential areas; (i) phenotypic data from commercial suckler herds, (ii) data from research and (iii) data from ICBF genetic evaluations.

i. Phenotypic data from commercial suckler herds. Looking at trends from the National suckler herd (Table 5) would confirm the strong benefits that the continental breeds (i.e., Belgian Blue, Charolais, Limosuin and Simmental) exhibit over the traditional breeds (i.e. Angus, Hereford and Shorthorn) in terms of terminal traits (these analysis are based on 1.21 million terminal records and 562k maternal records collected by ICBF in commercial beef herds). For example, the average carcass weight of Limousin sired progeny was some 45kg heavier than Angus sired progeny (at a similar slaughter age), although a proportion of this difference is due to the slightly higher proportion of records from dairy dams for the Angus breed. Similar differences are apparent for other output traits, such as weaning weight and carcass grade. Therefore it would appear that the shift in breed preference is completely consistent with returns from the market place, with commercial farmers moving to those breeds that have good terminal attributes.

However, as noted earlier, these additional gains in terminal traits do come at some extra cost, with the continental breeds generally exhibiting poorer milk and fertility performance compared to breeds such as the Angus, Hereford and Shorthorn. For example, average calving interval for progeny of the Hereford breed is 390 days, compared to 401 and 402 days for the Charolais and

Limousin breeds respectively. Similarly maternal milk (derived as the difference between direct weaning weight and maternal weaning weight) is considerably higher for the traditional breeds compared to the continental breeds (~+20kg). Very often these costs are hidden cost, which take many years come to surface. Indeed it wasn't until the establishment of the Suckler Cow Welfare Scheme in 2008 (which required farmers to record their calf registration data, including sire identification, through the ICBF Animal Events system), that farmers and the wider industry started to get a handle on these important cost of production traits.

*Table 5. Average phenotypic performance for main sire breeds in ICBF genetic evaluations (April 2011)**

	Terminal Traits			Maternal Traits			
Breed of Sire	weaning weight (kg)	carcass weight (kg)	carcass grade (EUR)	age first calving (mths)	calving interval (days)	survival to 2nd parity (%)	maternal wean wt (kg)
Angus	285	310	O+	29.2	392	79%	308 (+23)
Belgian Blue	332	354	R	29.1	399	77%	326 (-28)
Charolais	320	369	R+	30.1	401	77%	323 (+3)
Hereford	287	313	O+	29.8	390	79%	303 (+16)
Limousine	308	355	R	30.6	402	80%	309 (+1)
Shorthorn	282	333	R-	29.8	389	83%	298 (+16)
Simmental	324	353	R	29.4	393	80%	331 (+7)

** Average age at weaning and age at slaughter were 7.6 months & 24.7 months respectively across the breeds. Above breed comparisons are based on 1.213 million records for terminal traits and 562,979 records for maternal traits. Maternal weaning weight calculated as difference between sire progeny weaning weight and maternal grandsire progeny weaning weight, i.e., 308kg-285kg=+23kg for Angus breed.*

ii. Results from scientific research. The issue of suckler cow type and its impact on farm profitability is currently the focus of a major research project at Teagasc Grange (termed the Derrypatrick herd). In this study, four breed types are being compared; (i) ½ bred Limousin * Friesian (as a control group), (ii) ¾ bred Limousin * Charolais, (iii) ¾ bred Limousin * Simmental, and (iv) ¾ bred Charolais * Simmental. Early results from the study would indicate that progeny from ½ bred Limousin * Friesian cows are on average 40kg heavier at 14 months than progeny of the other ¾ bred continental breed types (Table 6). Given that all calves from these cows were to the same group of bulls, these results confirm the much superior maternal milk performance of the Limousin * Friesian cross cow compared to the other ¾ bred continental groupings.

Table 6. Progeny performance from different Suckler cow breed types (McGee, 2011).

	Limousin * Friesian	Limousin * Simmental	Charolais * Limousin	Charolais * Simmental
Birth weight (Mar 2010)	45.7	43.1	45.1	45.4
Live weight at housing (Nov 2010)	316	283	264	284
Live weight at grass (May 2011)	440	401	382	408

These results confirm the benefits of having additional dairy genes in our Suckler herd (in terms of maternal milk performance) but would appear to be inconsistent with the trends presented in tables 3 and 4, which suggest a movement away from ½ bred animals as a potential source of replacement stock.

iii. Results from ICBF genetic evaluations. Over 30 different beef traits and 6 million animals are evaluated as part of ICBF's genetic evaluation system, the results of which are published to farmers and the industry through a combination of the ICBF website (http://www.icbf.com) and various reports produced by beef herdbooks and/or ICBF HerdPlus. The results of these evaluations allow a very comprehensive picture to be established regarding the relative merits of different breeds and also regarding the rate of genetic change within the various breeds for different traits. Indeed it could be argued that these analysis are the most definitive guideline regarding breed (and within breed) performance, as they are based on large volumes of data from commercial beef farms and are focused solely on genetic differences.

Looking at data from table 7 indicates that that of the seven main beef breeds represented in Ireland, the Charolais breed is the best for carcass weight (+30.3 kg carcass weight based on AI sires born in 2001-2005), and is some 36.2 kg/progeny ahead of the Shorthorn breed (based on AI sire born in the same time period).

Table 7. Genetic trends in Carcass weight (kg) and Calving Interval (days) for main beef breeds.*

		Year of Birth for AI Sires.			
Breed	Trait	1986-90	1991-95	1996-2000	2001-2005
AA	Carcass Weight kg	0.1	0.2	1.9	5.8
	Calving Interval Days	-3.9	-4.7	-4.2	-3.7
BB	Carcass Weight kg	16.7	19.0	19.7	23.9
	Calving Interval Days	4.9	4.7	5.4	6.3
CH	Carcass Weight kg	24.3	24.8	28.2	30.3
	Calving Interval Days	-0.1	0.3	1.5	1.4
HE	Carcass Weight kg	-1.2	0.8	4.2	4.0
	Calving Interval Days	-4.1	-3.7	-4.5	-3.5
LM	Carcass Weight kg	11.6	15.6	19.2	21.8
	Calving Interval Days	1.4	2.2	3.3	2.8
SH	Carcass Weight kg	-5.7	-1.4	-2.1	2.0
	Calving Interval Days	-5.2	-5.6	-5.7	-5.9
SI	Carcass Weight kg	11.6	13.8	17.1	21.3
	Calving Interval Days	-2.2	-2.1	-1.8	-2.1

** Results for Calving Interval Days are based on new "test" proofs (July 2011).*

In contrast, the Shorthorn breed is genetically the best for fertility performance (-5.9 days for the most recent group of AI sires) and is some 12.2 days better than the Belgian Blue breed. All breeds have demonstrated an increase in genetic merit for carcass weight over the past 20 years, reflecting the emphasis that has been placed on this traits within their breed improvement programs, with the rate of increase being greatest for the Limousin breed (+10.2 kg over the 20 year period). However, this emphasis on growth and carcass traits within their breeding programs has had a negative genetic effect on fertility performance with all breeds (with the exception of the Shorthorn) showing an increase in calving interval days, with this rate of increase being largest for the Belgian Blue, Charolais and Limousin breeds.

These data are clear evidence that past genetic selection for growth and output traits in beef cattle has resulted in animals that are less fertile than their parents. This trend should not surprise us as the exact same trend has been evident for many years in dairy cattle, where selection for increased milk yield has resulted in animals that were less fertile than previous generations (Coleman et al., 2010).

Similar trends are also apparent for other cost of production traits, e.g., maternal milk. For example, latest trends from the new maternal "test" evaluations (July 2011) indicate a negative relationship between selection for direct weaning weight and subsequent daughter milk performance (Table 8). This downward trend is apparent for all of the main beef breeds, reflecting the focus that each of these breeds has been placing on terminal traits within their breed improvement programs. Indeed the real danger from the results presented in table 8 is that the gains being achieved in growth genes for weaning weight are being "wiped out" by losses in milk genes in the daughter, i.e., no net gain in weaning weight from the female side. It is also interesting to note that the rate of decline has been largest for the Charolais and Simmental breeds, which are arguably the breeds that have put most focus on terminal traits over the past 10 years.

Table 8. Genetic trends in Direct and Maternal Weaning Weight for main beef breeds.

		Year of Birth for AI Sires.			
Breed	Trait	1986-90	1991-95	1996-2000	2001-2005
AA	Weaning Weight – Direct	-13.5	-11.3	-10.9	-13.2
	Weaning Weight – Maternal	11.4	7.3	9.0	6.8
BB	Weaning Weight – Direct	1.6	1.4	1.0	4.6
	Weaning Weight – Maternal	-0.2	2.8	0.7	-4.6
CH	Weaning Weight – Direct	9.1	10.2	13.3	14.8
	Weaning Weight – Maternal	-3.7	-4.4	-6.9	-11.6
HE	Weaning Weight – Direct	-5.2	-6.1	-1.9	-1.1
	Weaning Weight – Maternal	5.6	5.4	4.6	4.0
LM	Weaning Weight – Direct	-5.2	-4.3	-1.5	1.0
	Weaning Weight – Maternal	-0.3	-1.3	-2.6	-3.3
SH	Weaning Weight – Direct	-12.0	-9.4	-11.4	-10.4
	Weaning Weight – Maternal	8.0	8.7	7.2	3.5
SI	Weaning Weight – Direct	5.5	7.5	9.4	13.0
	Weaning Weight – Maternal	4.4	4.1	1.8	-3.3

** Weaning weight results are based on new "test" proofs.*

Data from Table 8 also allows different breeds to be compared directly for maternal milk performance. On that basis, the Angus breed ranks best for this trait, followed by the Hereford and Shorthorn breeds. Indeed the expected genetic difference between the Angus and Charolais breeds in terms of maternal milk performance is some 17.4kg (based on the most recent group of AI sires), which is consistent with trends presented in Table 5, where the difference was 20kg (in overall phenotypic terms).

4. Role of genetic and economic indexes.

i. Genetic indexes. Data from Tables 7 and 8 indicate substantial genetic differences between breeds for key profit traits such as carcass weight, weaning weight, female fertility and maternal

milk. However, they give little indication of the within breed differences, which are even more important in the context of future breed improvement programs for our National Suckler herd.

Looking at trends from Table 9 indicates substantial within breed differences for all of the breeds across the range of key profit traits. Indeed results from Table 9 confirm that there is as much variation within individual breeds, as there are across breeds for each of the traits presented. For example, whilst the Charolais breed ranks poorest for maternal milk (-5.4 kg), the top1% of that breed are + 12.4 kg, which is some 17.8 kg above the Charolais average (or 3 standard deviations above the mean). Comparing this level of genetic difference, with the across breed difference between Angus and Charolais (the top and bottom ranked breeds for this trait) indicates a difference of 13.9 kg, which is less than the Charolais within breed difference. Similar results are apparent for each of the other traits.

Table 9. Within and across breed genetic differences between main beef breeds for a number of key profit traits.

		Breed						
Traits	Data	AA	BB	CH	HE	LM	SH	SI
Carcass weight kg	Number AI Sires	161	251	412	125	324	63	182
	Average	2.6	20.4	26.9	1.9	17.9	-1.0	15.8
	Across breed rank	5	2	1	6	3	7	4
	Standard Deviation	7.3	7.4	7.5	6.6	7.4	10.2	7.4
	Top1% in breed	19.7	40.1	45.3	24.7	38.5	20.1	38.4
Weaning weight kg	Number AI Sires	102	104	259	76	216	38	121
	Average	-11.8	1.6	11.1	-4.3	-2.9	-10.5	7.8
	Across breed rank	7	3	1	5	4	6	2
	Standard Deviation	8.8	6.8	7.4	5.5	6.8	3.6	7.3
	Top1% in breed	11.8	25.1	32.4	12.2	18.6	-1.2	30.1
Calving Interval Days	Number AI Sires	113	128	239	96	210	46	119
	Average	-4.2	5.1	0.7	-4.0	2.5	-5.6	-2.1
	Across breed rank	2	7	5	3	6	1	4
	Standard Deviation	2.1	2.9	2.7	1.6	3.0	2.3	2.0
	Top1% in breed	-10.1	-3.6	-6.4	-7.7	-5.8	-10.1	-7.5
Maternal milk kg	Number AI Sires	102	104	259	76	216	38	121
	Average	8.5	0.6	-5.4	5.1	-1.8	7.3	3.0
	Across breed rank	1	5	7	3	6	2	4
	Standard Deviation	5.9	6.1	6.6	4.8	5.6	3.8	6.3
	Top1% in breed	23.2	13.9	12.4	17.0	12.3	15.0	19.8

These results are hugely important in the context of our future breed improvement programs. Indeed all of the breeds represented in Table 9 have the capacity to quickly respond to the changing requirements at farm level (moving away from terminal and towards maternal traits) and breed a suckler cow that has the ability to combine good maternal performance, with the ability to rear a high value calf. However, doing this will require our industry (and particularly herdbooks and pedigree breeders) to reduce their focus on growth and muscle traits and instead focus on the traits that will leave profitable long-lasting cows. Similarly commercial farmers will also have to stop selecting replacements females on the basis of looks (which invariably means

breed and to a lesser extent type) and instead start to use genetic indexes such as those outlined above.

ii. Economic indexes. Economic indexes combine individual traits (such as those outlined above), into an overall profit index based on their relative contribution to farm profit. The relevant index in Southern Ireland is termed the Suckler Beef Value (which combines both terminal and maternal attributes), whilst in Northern Ireland there are two separate indexes for maternal or terminal sire selection. A summary of the key traits included in the Suckler Beef Value is given in Figure 1.

Figure 1. Summary of traits included in the Suckler Beef Value.

Beef €uro-Star Flow Diagram 2011

Source		Traits	Economic Values	Traits % Weighting		Sub - Index	% Weighting		
Animal Events		Calving Difficulty	-2.96	62%		Calving	7%		Overall Suckler Beef Value
AI Handheld & Web		Gestation Length	-2.12	28%					
DAF-AIM		Calf Mortality	-5.34	10%					
Marts & On-Farm		Weaning Weight	1.55	34%		Weanling Export	14%		
Linear Scores		Calf Quality	2.58	66%					
SCWS									
Marts & On-Farm		Weaning Weight	1.29	8%		Beef Carcass	52%		
Factories		Carcass Weight	2.5	30%					
		Carcass Conformation	14.77	9%					
		Carcass Fat	-7.86	5%					
Tully		Feed Intake	-0.1	48%					
DAF-AIM		Cow Survival	16.19	12%		Daughter Fertility	20%		
Animal Events		Calving Interval	-7.51	49%					
		Age at First Calving	-1.38	16%					
		Maternal Calving Difficulty	-9.98	23%					
On-Farm Weights		Maternal Weaning Weight	9.9	100%		Daughter Milk	7%		

Based on data from Figure 1, one can see that the major drivers of suckler beef profit in RoI are weight and carcass traits. Indeed the index is acknowledged as a very effective tool for this requirement. However, there is some concern that the index does not place enough weighting on maternal traits – especially for those pedigree and commercial farmers that are interested in breeding and selecting their own replacements (in such cases farmers are advised to select a bull on the basis of overall SBV and then to select within the overall index for bulls with good maternal ability).

In an effort to address this concern, ICBF are looking at a number of new developments including;

- An update of the economic values in Suckler Beef Value, based on latest data from Teagasc research (including information from the Derrypatrick herd). The expectation

from this work is that it will result in increased emphasis on traits such as maternal milk and female fertility.

- A review of how ICBF presents terminal and maternal indexes, including whether we should consider publishing two separate indexes, as opposed to just a single overall index.
- The introduction of a new Suckler Cow Index, which will assist suckler farmers in identifying suitable suckler female replacements. This is an important development as the current SBV is designed for selection of AI sires and stock bulls, but not females. The new index will put increased emphasis on maternal milk and female fertility, reflecting farmers desire to have "easily managed" cows, with a long life expectancy. All breeds and breed combinations will be evaluated for this index, including pure-bred, ¾ bred and even 1st cross animals from the dairy herd.

ICBF expects each of these pieces of work to be completed by November 2011.

5. Importance of breeding programs.

Genetic improvement is dependent on three key requirements; (i) data on which is identify the best animals, (ii) accurate economic indexes on which to rank animals for breeding and (iii) a breeding program that ensures the very best animals are then used on a widespread basis throughout the industry. The G€N€ IR€LAND beef breeding program was launched by ICBF in 2007, with the objective of identifying a new top maternal bull within each of the main breeds on an annual basis. These top bulls would then be used to either; (i) breed replacements directly from within the commercial suckler herd (through AI), and/or (ii) breed stock bulls (in pedigree herds through AI), with these stock bull then being used to breed commercial beef cows to generate female replacements (some 80% of the total 1 million beef calves born per annum are bred via this latter route). To-date almost 60 bulls have been progeny tested through the program (across some 500 commercial beef herds), with the first of these bulls (from the 2007 program) now receiving their full maternal proof.

Whilst the program has been very successful, ICBF are currently reviewing the program, with the objective of introducing a number of significant improvements. These include;

- *Greater engagement with bull breeder herds.* Experience from dairying has demonstrated that direct support and advice for top bull breeders is an important means of ensuring a steady stream of high indexed bulls for the program.
- *Increasing the number of bulls on progeny test.* At present some 15 bulls per year are being progeny tested through the G€N€ IR€LAND program, compared to a target of 50 bulls across each of the main beef breeds. Ensuring this increase will require that semen is collected and utilised from more privately owned bulls. ICBF are currently working with a number of herdbooks and AI companies to ensure that this can happen in the future.

Although difficult to grasp, it is critical to appreciate the huge impact an effective breeding program can have on genetic gain. Within breed genetic differences from Table 9 have demonstrated the major opportunity that there is to make rapid genetic progress in key profit traits such as maternal milk and female fertility. Over the next few years it will be interesting to see which of the breeds responds most vigorously to the challenge of serving commercial beef farmers with these future requirements. To do this they will have to engage with and actively support an effective breeding program.

6. Other developments.

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In addition to the above developments, there are a number of additional pieces of work which are underway, that will have a major impact on our ability to identify the correct type of suckler cow for future beef production systems in Ireland. These include;

1. *Research and demonstration farms.* The Grange Derrypatrick herd is currently being expanded to consider additional traits and breeds (including 1st cross females from the dairy herd by traditional breeds) as part of its widened research agenda. This is a most welcome development and reflects a strong desire to identify the most profitable beef cow for Suckler farmers in the future. Doing this will require accurate recording of these females (at Grange), as well as females from "linked" demonstration farms, e.g. the BETTER farms program.
2. *Improvements to maternal evaluations.* In addition to new indexes, ICBF and Teagacs are also working on improvements to maternal evaluations. This includes the use of insemination and additional calving data in the evaluation of daughter fertility and the use of cow milk scores (as collected recently by farmers through the SCWS) in the evaluation of maternal milk. Both of these pieces of work are nearing completion, with the test evaluations presented in this paper (for weaning weight and calving interval days) being based on these new "test" proofs. As expected these new proofs are showing strong positive effects on the accuracy of evaluation for these important traits.
3. *New weight recording services.* At this stage, only a small number of commercial (and pedigree) beef farmers weigh their cattle on a regular basis. This is in contrast to dairy farmers, where milk recording is seen as an integral part of their farming business. ICBF are currently undertaking a review of its weight recording service, with the objective of increasing the level of weight recording, through a wider range of service options. It is anticipated that these service options will range from DIY recording (where the farmer owns &/or shares a set of scales with other farmers), to a fully integrated service where the farmer can get the equipment and access to an on-farm technician. Part of this new service will also include a new set of performance recording reports, which will support decision making on the farm. Again it is anticipated that elements of this new service will be available in Autumn 2011.
4. *Genomics.* Genomics has revolutionized dairy cattle breeding, with an almost doubling of rates of EBI gain, since the introduction of this technology in 2009. Similar opportunities now exist in beef breeding. Indeed Ireland is very well positioned to capitalize on the potential benefits of genomics through having; (i) accurate data on which to base the predictions (as evidenced earlier), (ii) access to DNA for AI and stock bulls, (iii) the necessary skill set to undertake the required research and (iv) an industry structure that can facilitate swift uptake in the technology. One of the constraints to the current research work is having the required funding to undertake the genotyping of historic animals. Over the next few months, ICBF will be working with relevant industry partners to secure these funds and hence commence this work on behalf of Irish beef farmers and the wider beef industry.

Summary.

Results presented in this paper have clearly demonstrated a number of key conclusions regarding suckler cow type and its impact on future farm profitability. These include;

Paper to: Irish Grassland Association, Ulster Grassland Society, Irish Farmers Journal Conference re: Cow Type. Tuesday 19th July 2011.

1. There is a medium to strong negative genetic relationship between terminal traits (e.g., weaning weight and carcass weight) and maternal traits, such as maternal milk and female fertility. As a consequence profit from beef cattle breeding is being compromised as gains in terminal traits are being negated by losses in maternal traits.
2. Over the past 5-10 years, there has been a significant increase in the usage of continental breeds within the suckler herd in RoI, mainly due to their excellent performance for terminal traits. However, current and future concerns regarding maternal traits will mean that the traditional breeds will gain in popularity over the coming years, as farmers try to breed cows that are more fitting with lower cost beef production system. The rate of this increase will be dependent on how quickly the continental breeds can respond to the changing requirements of commercial beef farmers (see point 3).
3. There is as much genetic variation within breeds as there is across breeds for maternal traits. This is a highly important and significant finding as it demonstrates that the ability to respond to the new requirements of suckler beef farmers (towards a lower cost beef cow) is entirely within the control of each individual breed. The breeds that succeed in this new era for beef breeding will be those breeds that have a strong combined offering, in terms of both terminal and maternal attributes.
4. Suckler beef farmers interested in improving the profit performance of their suckler herd must use genetic indexes as a key support tool when selecting breeding bulls and/or female replacements.

On the basis of the above, we are confident that there is a very positive perspective for the future of our National Suckler herd, one that is based on ***profitability as opposed to simply viability*** for future generations of beef farmers. As a stakeholder involved in the Irish beef industry, we (Irish Cattle Breeding Federation) look forward to playing a very active role in these developments.

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