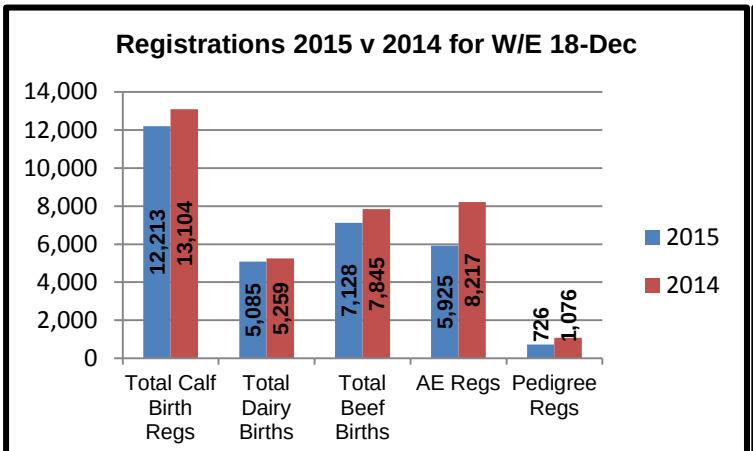
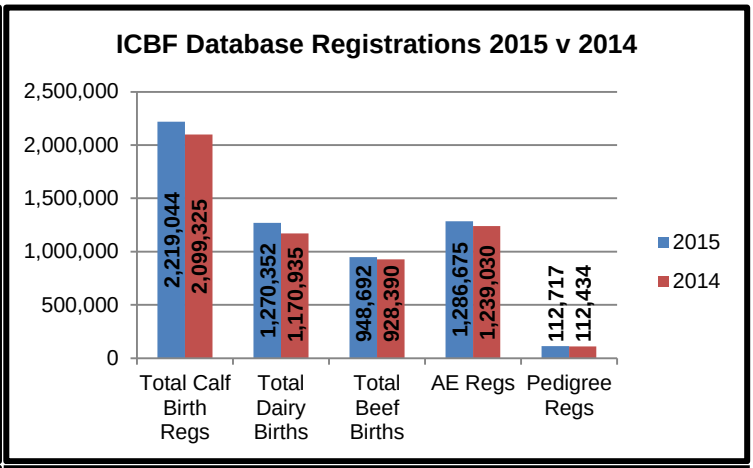

# ICBF Weekly Update 18th December 2015

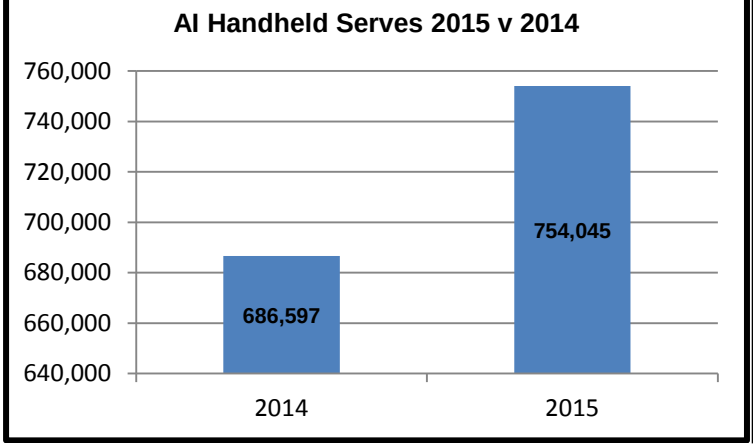
## 1 Important Dates

- **ICBF Board Meeting** – Thursday 21st January 2016, 10:30am Killeshin Hotel, Portlaoise.
- **Sheep Board Meeting** – Thursday 28th January 2016, at 14:00, Killeshin Hotel, Portlaoise.

## 2 Database




- The stats above are compiled with the assistance of DAFM AIM systems.
- BVD test results continue to be received at ICBF and are being processed accordingly. There have been 2.36 million results received since January 1st, of which 17,662 have come in the last 7 days. Since the beginning of the voluntary phase in 2012, 7.31 million results have now been received.
- The chart shows Inseminations recorded on AI Handhelds in 2014 compared with 2015.

## 3 ICBF – A Review of 2015

As 2015 draws to a close, it is a good opportunity to reflect back on the year that was, for ICBF.

The headline project at ICBF early in the year, and indeed throughout the year, was the new Beef Data and Genomics Scheme. Notwithstanding a difficult start in terms of communcation, excellent progress has been achieved on all aspects of this very exciting programme. Over 26,500 farmers joined the scheme, and at farm level, farmers are responding very well to the job of tagging the animals and recording quality data. There has been a huge increase in the awareness of Eurostar indexes with each of the 26,500 herds in the scheme getting a report on the star ratings of their cows, and with the training aspects of the scheme beginning in early 2016, this awareness and knowledge will continue to grow.

Adoption of dairy genomics at farm level continues to operate at very high levels. In 2015, 60% of some 650,000 recorded dairy inseminations were from genomically selected bulls. The results from both the Next Generation Herd in Moorepark, and the 'Daughter Proven' results continue to show that the genomic predictions

are holding up well across the teams of genomic bulls. The AI companies continue to invest very significantly in genotyping, ensuring that the best possible selection of young bulls are going into the Gene Ireland programme for progeny testing. This is key to the on-going validation of the genomic indexes, and to maintaining the on-going rates of genetic gain.

Our genetic evaluation activities continue to be at the very heart of ICBF's role in dairy and beef. We completed a review of the Replacement index in May of this year. While the genotyping efforts of farmers will have a major impact on the reliabilites of our evaluations, they continue, however, to be at the mercy of good quality data for real progress to continue. The on-going roll-out of the Beef Data and Genomics Programme will play a key role in improving progress here.

The G€N€ IR€LAND® dairy progeny test program continued in 2015. The implementation of a revamped G€N€ IR€LAND® beef programme continued in 2015, and after the initial two years we are now in the process of reviewing how we can improve it. The Tully Performance Test station has continued to operate very successfully. The installation of further elements of the new feeding system early in 2015 (using support from DAFM) has allowed us to continue the expansion of steer. Tully is also continuing to provide a rich stream of data in the area of meat eating quality, and the results emerging have great potential in continuing to position Ireland as producers of top quality beef.

HerdPlus® membership has exceeded 19,500 dairy and beef herds. These herds have access to a wide range of valuable breeding information which farmers can use to breed more profitable cattle. On the service income side, both Milk Recording and AI service uptake has continued to grow, thanks to excellent work by the service providers. Our Bull Search facility (on www.icbf.com) continues to be the facility on our website that farmers and breeders find most useful with, again, over 1,000,000 searches in the last twelve months.

We continue to do signficant development work in conjunction with Animal Health Ireland (AHI) in the area of IT infrastructure for management of the BVD programme. Significant progress was also made in relation to the CellCheck and Johnes programmes. ICBF's ability to generate genetic evaluations for animals in relation to disease resistance is becoming an increasingly important area, and initial results are showing significant potential for genetics to assist with national animal health programmes. As such, our relationship with AHI will continue to be extremely important.

2015 saw the completion of OptiMIR project, focusing on the use of spectral data from milk testing, and involving ICBF, Teagasc and 15 other partners across Europe. The project focused on making good use of the extra data (the MIR spectra) that can be collected from milk sample testing. This work will continue in 2016 under a new collaborative structure

Irish farming benefits greatly from the unique partnership that exists between Government and the industry. The ability of ICBF to put DAFM funding to good use is widely acknowledged and in 2015 was particularly evident again through the progress being made across a range of areas, and adoption by farmers. Without DAFM support it would be much more difficult for ICBF to deliver so much benefit to the industry and wider community, through the services it provides. In that context, I would like to acknowledge the contribution that Dr. Dave Beehan (DAFM representative on the ICBF Board) has made to the ICBF journey over the past 12 years. We wish him well in retirement.

## Summary

2015 has been another very exciting year in the cattle breeding community. There are many challenges ahead, but also lots of opportunity. The key to ICBF's success remains the same as ever - the application of good science, a focus on the needs of farmers, working closely with our stakeholders and a 100% commitment to delivering by a talented and dedicated team. We are most fortunate to operate in an environment where ICBF's vision is shared by our Board, our members, DAFM, Teagasc, and, most importantly, Irish Farmers.

## 4 Sheep Ireland – A Review of 2015

Sheep Ireland (www.sheep.ie) continued to make excellent progress in 2015, with strong leadership from its Chairman, James Murphy, and a strong development team operating under the stewardship of Eamon Wall. Commercial and pedigree farmers continue to become much more aware of the existence of the EuroStar indexes, and how they can play a significant role is removing the risk around ram purchases, and help the industry to ensure that it does not lose ground to other countries in terms of gains through genetic progress.

The commercial farms that make up the CPT and MALP programmes have again put in a huge amount of work this year, and data coming from these farms is hugely valuable in generating accurate genetic evaluations for Sheep.

LambPlus has again expanded in 2015, and numbers are continuing to rise. This means that over 50% of the rams sold this year would have EuroStar figures available. We expect this number to rise again in 2016, and current indications are that this is achievable.

STAP continued to have a major impact in terms of raising the awareness of Eurostars on Sheep, especially rams, and the fact the Eurostar concept is similar to that in cattle also helps in this regard. It is critical for the success of Sheep Ireland that (a) farmers use the indexes in their purchasing decsions and (b) that the performance of the sheep correlate with the indexes – i.e. high index sheep perform more profitably that low index sheep.

Very significant updates to the systems infrastructure supporting Lambplus were launched during they year, and they provide LambPlus members with as good a web infrastructure as exists anywhere in the world. It is the culmination of a huge amount of work from the Sheep Ireland team, and it puts Sheep Ireland in a strong position next year as we continue to grow the levels of participation in the various activities.

Irish Sheep farming is benefitting from the unique partnership that exists between Government and the sheep industry. The ability of Sheep Ireland to put DAFM funding to good use is widely acknowledged and in 2015 was particularly evident again through the LambPlus and STAP programmes. Without DAFM support it would be impossible for Sheep Ireland to deliver to the industry and wider community. We are most fortunate to operate in an environment where Sheep Ireland vision is shared by our Board, DAFM, Teagasc, and, most importantly, Irish Sheep Farmers.

## 5 G€N€ IR€LAND® Beef

| Code | Name of Bull | Breed | Straws Ordered |
|---|---|---|---|
| AA2064 | Carrigroe Kian | AA | 405 |
| AA2163 | Liss Brendan | AA | 145 |
| AU2155 | Slaneymill Jack | AU | 310 |
| CH2159 | Bondi Jacob | CH | 180 |
| PDR | Dereskit Improver | CH | 355 |
| CH2154 | Polar Joe 2 | CH | 60 |
| HE2148 | Ballyaville Hamlet | HE | 210 |
| LM2156 | Clonark Jumbo | LM | 450 |
| LM2151 | Ballygarvan Stud Ike | LM | 230 |
| LM2116 | Tomschoice Ironstone | LM | 185 |
| OEO | Ivoire | LM | 100 |
| ZKY | Kyle Herd Ivan | PT | 360 |
| PI2157 | Kilree Leo | PI | 110 |
| SA2153 | Highfield Odran | SA | 280 |
| SH2181 | Coolvin Dominator | SH | 25 |
| SI2152 | Curaheen Earp | SI | 415 |
| SI2158 | Seepa Fionn | SI | 315 |
| ETP | Curaheen Evolution P | SI | 270 |

### Autumn 2015 Beef Programme

- Sign Ups are continuing for the Autumn 2015 Beef Programme.
- 250 herds taking a total of 4345 straws have joined so far.
- The average order is 17 straws per herd.
- The catalogue is available to view at the link below.

  http://issuu.com/herdplus/docs/gi_beef_autumn_2015_catalogue
- To learn more or to order straws please phone 1850 600 900.
- Approximate total straws ordered to date for the bulls are detailed in graph above.

## 6 GROW®

- 557 Pedigree animals were scored in November. This is down by 67 animals from November 2014
- 963 Pedigrees were weighed in November. This is up by 50 animals from November 2014.
- These totals do not include animals scored as part of the initial Gene Ireland Maternal Bull Breeding visit.

## 7 Beef Data and Genomics Programme (BDGP)

- This week's Irish Farmers Journal page is at the end of this update. The title of this week's article is **"Genomics update".**

## 8 Milk Recording

| National Milk Recording Statistics - Herds, Cows & EDIY 18/12/15 | | | | | | |
|---|---|---|---|---|---|---|
| **Milk Recording Organisation** | **Total Herds Recorded YTD 18/12/15** | **No. EDIY Herds YTD 18/12/15** | **% Herds EDIY** | **Total No. Cows Recorded YTD 18/12/15** | **No. EDIY Cows YTD 18/12/15** | **% Cows EDIY** |
| **Munster** | 3,994 | 1,279 | 32% | 370,178 | 127,005 | 34% |
| **Progressive** | 2,516 | 1,081 | 43% | 264,251 | 113,746 | 43% |
| **Tipperary** | 127 | 54 | 43% | 11,911 | 5,295 | 44% |
| **Total** | **6,637** | **2,414** | **36%** | **646,340** | **246,046** | **38%** |

| Recorded Cows by Milk Recording Organisation - Year on Year Comparison | | | |
|---|---|---|---|
| **Milk Recording Organisation** | **YTD 2014 Cows Recorded 01/01/14 - 18/12/14** | **YTD 2015 Cows Recorded 01/01/15 - 18/12/15** | **2015 vs 2014 Year on Year Difference (%)** |
| **Munster** | 337,849 | 370,178 | 9.6% |
| **Progressive** | 247,738 | 264,251 | 6.7% |
| **Tipperary** | 10,411 | 11,911 | 14.4% |
| **Total** | **595,998** | **646,340** | **8.4%** |



Department of Agriculture, Food and the Marine
An Roinn Talmhaíochta, Bia agus Mara

## 9 Sheep Ireland

### DNA Workshop Meeting Tuesday 15th December


- This week many sheep breed society representatives attended a very informative DNA workshop organised by Teagasc and ICBF/Sheep Ireland. This workshop brought together the very best expertise on all things DNA and genomics related. The objective of the workshop was to cover the very basics of how DNA can be used to benefit the dairy, beef and sheep industries while also demonstrating the intricacies of genomic evaluations. The presentations were tailored to cater to a wide audience from the more advanced interests involved in the dairy and beef industries to those just embarking on the genomics journey in the sheep industry.
- There was some excellent debate between each presentation on the day and I think all in attendance went away with a far greater level of knowledge on the potential that genomic technology can continue to deliver to the dairy industry and what it will hopefully deliver to the beef and sheep industries in the future.

### Breed Society Meeting Tuesday 15th December

Following the DNA workshop we used the opportunity to meet with sheep society representatives again. As mentioned before, it is our intention to organise these meetings at least twice each year. The main issues discussed were in relation to OVIGEN and the possible plans to continue the genotyping of pedigree sheep going forward following on from the free genotyping that has been available to Texel, Charollais, Suffolk, Belclare & Vendeen LambPlus Breeders for their adult sheep.

- Now that these adult/foundation animals have been genotyped it is critical that new breeding animals entering each flockbook from this point forward get genotyped. While OVIGEN has a very limited budget, there is an opportunity for the research project to subsidise the genotyping of breed animals. OVIGEN will work with each breed society to come up with a plan to implement this genotyping. It is critical that the genotyping of new animals entering each flockbook does not end at this point, as the major cost burden associated with genotyping the foundation/adult animals has been covered by OVIGEN. Without this, the costs to breeders to establish this foundation of genotypes would be too great.

**At the Breed Society Meeting two significant actions were agreed upon:**

1. For OVIGEN (through Teagasc, UCD & Sheep Ireland) to initiate a pilot project involving 10 flocks across the 5 breeds involved (50 flocks). These flocks will be chosen based on their flock Data Quality Index – the top 10 DQI flocks from each breed will be invited to participate. Each flock will need to collect DNA from their lambs at their own cost and OVIGEN will cover the cost of genotyping 50% of their male lambs. Breeders will be asked to select lambs that will be presented for sale in 2016 where possible. This will mean for the first time ever in Ireland, commercial farmers will be able to purchase DNA parentage verified rams. There will also hopefully be other interesting gene information available on Scrapie etc.
2. In 2016 the genotyping of replacement females and males can be genotyped by breeders of Texel, Charollais, Suffolk, Belclare & Vendeen breeders at a subsidised cost. The remainder of the genotyping cost will be covered by OVIGEN. This offer applies to 2016 only.

**Important Notes on the above agreed actions:**

- The objective of the pilot project will be to develop the necessary systems to facilitate hassle free genotyping of all performance recorded sheep. This will necessitate the development of web screens to allow breeders to view the status of DNA availability of all sheep in their flocks. Breeders will also need a

facility to request the genotyping of individual animals, and in turn they will also need a facility to track the progress of genotyping for their animals. The final stage will be the reporting of genotype results.

- Significant time and resources will be required to establish these systems before a full roll-out across all LambPlus will be possible, hence the need for a pilot project to develop these systems.
- The subsidised genotyping of sheep will hopefully be available to sheep breeders next Autumn and OVIGEN will be communicating with breeders in relation to this throughout the year. Breed societies will play a crucial role in educating breeders about this opportunity and the importance of continuing the genotyping all replacement sheep entering each respective flockbook.

***We would like to thank everybody for their contribution during the year and we look forward to another very productive year in 2016.***

***We will close for Christmas on Wednesday 23rd December and return on Monday 4th January 2016.***

*Wishing you all the Best*
*for Christmas and the coming Year*

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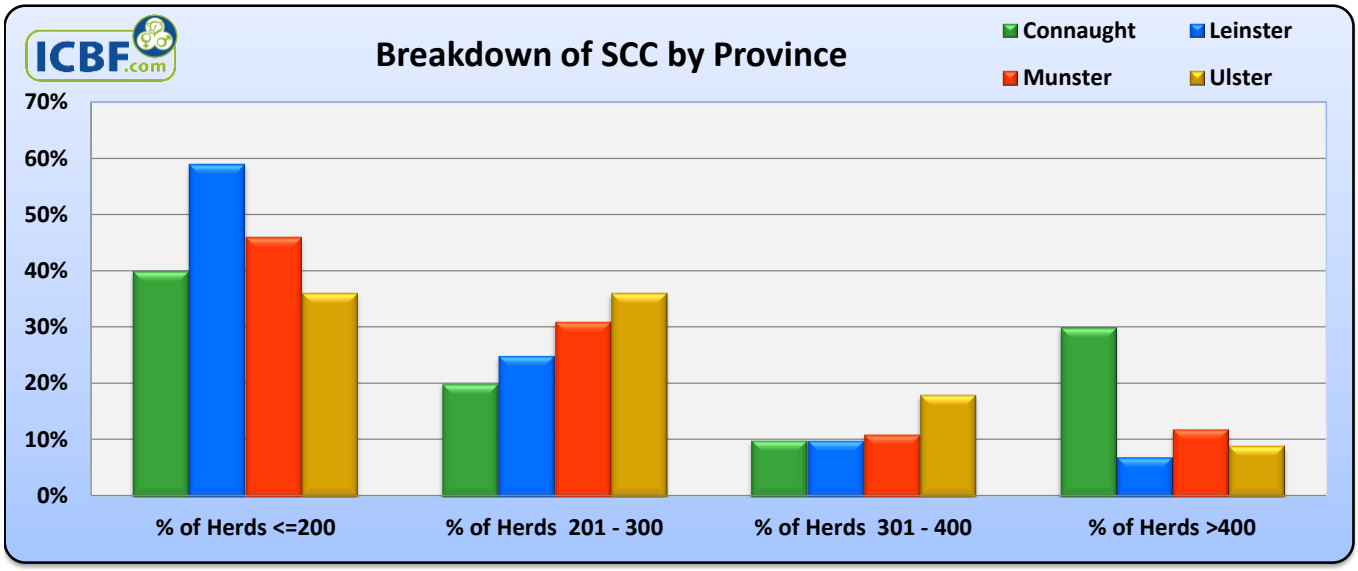
Email info@icbf.com, **Registered Office:** Irish Cattle Breeding Federation Society Ltd trading as "ICBF", Highfield House, Shinagh, Bandon,Co Cork. Registered Dublin, Ireland. Registration Number 4914R, Industrial and Provident Societies Acts, 1893 to 1978. Web: www.icbf.com.
**Registered Office:** Sheep Database Ltd trading as "Sheep Ireland". Highfield House, Shinagh, Bandon, Co Cork. Registered Dublin, Ireland. Registration Number 465004, Companies Acts 1963 to 2006. Web: www.sheep.ie.

| National Milk Recording Results for the 10 day period, 09-DEC-2015 To 18-DEC-2015 | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | No. Herds Recorded | No. Cows Recorded | Avg Herd Size | Avg Milk kg/Cow | Average Fat % | Average Protein % | Average F+P kg | Average SCC* |
| Connaught | 10 | 538 | 54 | 18.6 | 4.41 | 3.41 | 1.45 | 253 |
| Leinster | 73 | 5,627 | 77 | 19.7 | 4.37 | 3.43 | 1.53 | 185 |
| Munster | 244 | 16,646 | 68 | 17.8 | 4.42 | 3.52 | 1.39 | 213 |
| Ulster | 11 | 541 | 49 | 17.8 | 4.38 | 3.43 | 1.39 | 224 |
| **National Statistics** | **338** | **23,352** | **69** | **18.2** | **4.41** | **3.50** | **1.43** | **208** |

* Geometric Mean Herd SCC

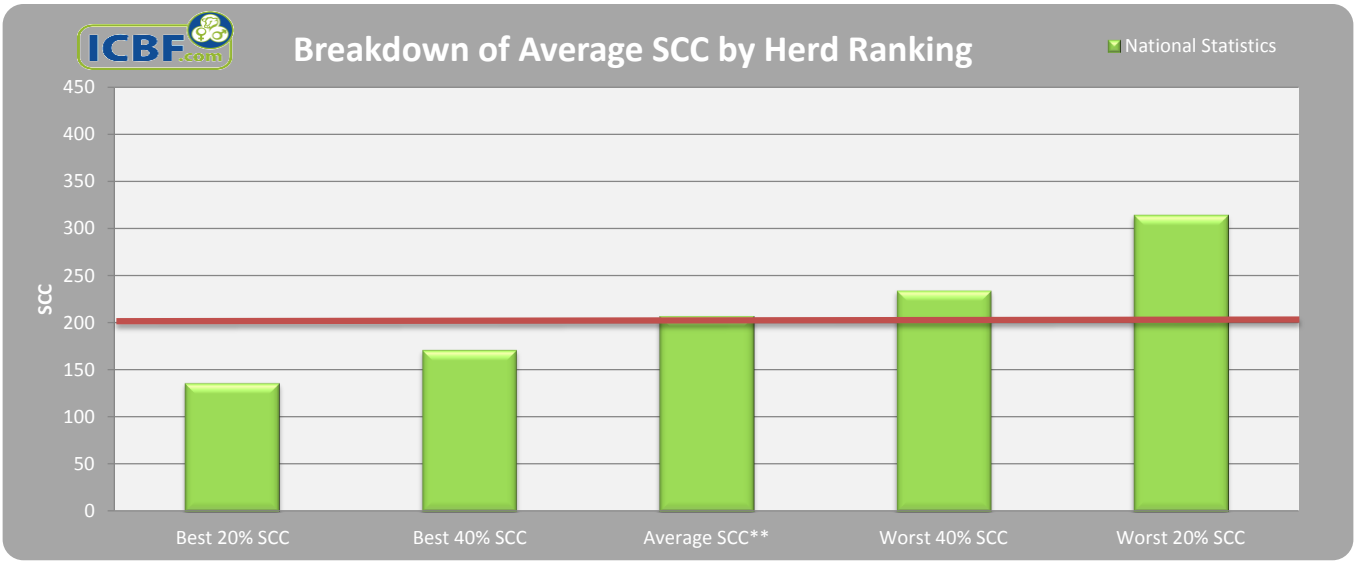
| SCC Distribution for the 10 day period, 09-DEC-2015 To 18-DEC-2015 | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | No. Herds Recorded | No. Cows Recorded | Avg Herd Size | % of Herds <=200 | % of Herds 201 - 300 | % of Herds 301 - 400 | % of Herds >400 | Average SCC* |
| Connaught | 10 | 538 | 54 | 40% | 20% | 10% | 30% | 253 |
| Leinster | 73 | 5,627 | 77 | 59% | 25% | 10% | 7% | 185 |
| Munster | 244 | 16,646 | 68 | 46% | 31% | 11% | 12% | 213 |
| Ulster | 11 | 541 | 49 | 36% | 36% | 18% | 9% | 224 |
| **National Statistics** | **338** | **23,352** | **69** | **48%** | **30%** | **11%** | **11%** | **208** |

* Geometric Mean Herd SCC




| % Herd Breakdown for the 10 day period, 09-DEC-2015 To 18-DEC-2015 | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | No. Herds Recorded | No. Cows Recorded | Avg Herd Size | Best 20% SCC | Best 40% SCC | Average SCC** | Worst 40% SCC | Worst 20% SCC |
| Connaught | 10 | 538 | 54 | 166 | 212 | 245 | 296 | 430 |
| Leinster | 73 | 5,627 | 77 | 130 | 160 | 170 | 204 | 259 |
| Munster | 244 | 16,646 | 68 | 139 | 177 | 214 | 236 | 321 |
| Ulster | 11 | 541 | 49 | 134 | 241 | 268 | 268 | 322 |
| **National Statistics** | **338** | **23,352** | **69** | **136** | **171** | **207** | **234** | **314** |

** Percentile Herd SCC Rank (Median SCC)



# Genomics update

In week five of the BDGP information page series, we outlined the benefits of genomics to beef farmers. Genomics works by using an animal's DNA to help to predict how it will perform in the future. It will increase the reliability percentages on animals €uro-Star Indexes before they are ever used for breeding.

Therefore, it is essentially removing some of the risk for farmers. There are a few steps involved in establishing genomic indexes.

**1. Reference population**
You firstly have to establish a reference population. To do this, you take DNA from animals with high reliabilities on their genetic indexes (proven animals). A reference population will primarily be made up of well-proven AI bulls as well as older, well-proven stock bulls and cows. DNA is usually taken via hair, skin, blood or semen. Samples taken as part of the 2014 Beef Genomics Scheme were used to establish a reference population.

**2. Identifying traits**
Once the reference population has been set up, you then need to identify sub groups of animals within the overall reference population according to their performance on different traits. As these are proven animals, we know exactly what their strengths and weaknesses are. Take the milk trait as an example. You look at the DNA profiles for all of the reference animals that are strong on milk and look for common genetic markers. Once identified, these markers are then associated with good milk production. The same applies to animals that are very poor for milk as it is equally important to identify these genes so that they can be avoided in future.

**3. Applying to young animals**
Once genetic markers for the various traits have been identified in the reference population, you can then apply genomics to young animals. If a young animal has similar markers in its DNA profile to those associated with milk in the reference population, then it is highly likely that this young animal will be strong for milk also. The same principle applies to all other traits, eg carcase, docility, fertility, etc.

**Removing risk**
Traditionally, replacement females would have been selected on breed, visual appearance and the performance of their dam. In more recent times, the €uro-Star index would have been taken into account also. This may work well, but by adding genomic information into the criteria, the selection process will be much more accurate.

Having a prediction on the future performance of an animal from a young age will be a big improvement on the current situation whereby you have to wait two to three years before you find out how the animal will perform.

**Initial genomic results**
Initial work carried out by ICBF and Teagasc on beef genomics has quantified the potential effect on the €uro-Star Indexes of young animals. Table 1 details a number of key profit traits for beef and the impact of genomics on the reliability figures, as well as the equivalent number of progeny which the genomic information will represent. Traits which traditionally were very difficult to quantify, such as calving interval, will receive the biggest boost from genomic data in terms of equivalent progeny records.

**Table 1:** The effect of genomic data on the reliabilities of traits and the equivalent numbers of progeny records which genomic data will provide

| Trait | Reliability | | Equivalent progeny records |
|---|---|---|---|
| | Pre-Genomic | Genomic | |
| Age first calving | 21% | 46% | 6 |
| Calving interval | 16% | 44% | 96 |
| Survival | 14% | 43% | 140 |
| Carcase weight | 25% | 48% | 5 |
| Carcase fat | 22% | 46% | 5 |
| Carcase conformation | 21% | 46% | 6 |
| Feed intake | 12% | 42% | 4 |

Ramona Farrelly

Jerome pictured with some of his dairy cows. Over 90% of Jerome's milking herd is genotyped. Genomics has given him an extra tool when selecting both AI bulls and replacement heifers.

## Q&A

**Q. Will a genomic index be a 100% guarantee of an animal's future breeding performance?**

No, unfortunately you cannot be 100% sure as to how any animal will perform in the future. What genomics will do is give more certainty to farmers when selecting potential breeding stock through increased reliabilities. There is also the added bonus of parentage verification.

**Q. Will all traits benefit equally from genomic data?**

No, certain traits will benefit more than others. The traits that will benefit most are those that traditionally required a much higher number of records to get to a high reliability. Fertility traits such as calving interval and survival are two examples.

## December Beef Evaluations

December proofs are now available for beef AI sires in the genetic evaluation section of the ICBF website at www.icbf.com. The bull search, Active Bull List and herd profiles will be updated on 21 December.

## FARMER FOCUS: JEROME DESMOND

# "Moving to genomics was a natural progression"

**Name:** Jerome Desmond, Ovens, Co. Cork
**Farming System:** Dairy
**Genomics:** Over 90% of cows are genotyped.

This week we decided to change the farmer focus to look at how genomics has benefited a dairy herd. Genomic indexes have been available for dairy farmers since 2009 and it has dramatically increased the rate of genetic gain experienced in dairy breeding. Jerome Desmond is a dairy farmer based in Ovens, Co. Cork. He is a member of the Crookstown discussion group and in 2013 the group members took the decision to genotype all of their cows. We asked Jerome for his thoughts on genomics.

Jerome Desmond

**When and why did you start genotyping your females?** I started genotyping my heifers in 2012 and I did all cows in 2013 if my memory serves me right. Following the success of our discussion group in the 2009 EBI competition and considering that we had been very focused on EBI, we felt that it was a natural progression for us to move to genotyping and explore the potential benefits of the science. Parent average EBI's are a good predictor, but genomics goes the extra mile by giving a direct insight into what genes each animal has inherited from their sire and dam.

**How has genomics benefitted your herd?** The improved reliabilities from genomics give me a lot more certainty when picking my replacement heifers. I also sell surplus heifers to other dairy farmers and it is a good selling point to have heifers for sale with genomic indexes. Being able to guarantee that the parentage of all animals is correct is a big bonus. Calving takes place in a loose straw bedded shed and there could be anything up to 20 cows together at a given time. I have never mixed up calves, but genomics gives me that extra peace of mind. I would also have a number of bull calves genotyped each year by AI companies with a view to purchasing them as future AI bulls.

**Do you plan to continue genotyping into the future?** Yes, that's the plan anyway. I will more than likely do my heifer calves each year from now on. I suppose, like any farmer, I'm running a business and I try to reduce costs where at all possible and genomics would be even more attractive if the price reduced further in the future.

NEXT WEEK GENETICS V ENVIRONMENT