

What is genomics?

Over the next two to three weeks, the last of the remaining animal genotyping tags, will be sent to herds involved in the Beef Data and Genomics Programme (BDGP). So what is genomics, and how will it benefit participating herds in the future?

In the past, farmers used visual assessment and breed as the primary means to estimate the value of an animal at, for instance, weanling sales, replacement heifer sales or pedigree bull sales. In certain circumstances, such as buying a bull or using AI, this would be supplemented by information on the pedigree of the animal and its Euro-Star evaluation, as the farmer attempted to get a better “handle” on how the animal (and its potential progeny) would perform in the future.

The use of genomic data is simply another tool to help inform this important breeding/purchasing decision.

By taking a tissue sample from an animal (via an ear tag) we can assess the animal's DNA, and in doing so predict expected performance based on knowledge of how similar DNA (from other animals) has performed on Irish farms in the past.

This additional DNA/genomic data is then combined with traditional information on pedigree and the animal's own performance (or that of its relatives) to provide a more accurate assessment of each animal's genetic merit at a much younger age. This is in essence how genomics works.

So how will genomics benefit my beef herd in the future?

If we take a trait such as weanling weight or weanling calf quality, then arguably genomics will have little impact as most of the expected performance (of that animal and/or its progeny) can be assessed visually by the farmer. However, if we take a maternal trait such as milk or fertility, then the im-

BDGP MEETINGS

The Department of Agriculture, Teagasc and the ICBF are organising a series of nine regional meetings, starting from mid-October to address key questions on the BDGP. Topics covered will include a better understanding of the Euro-Stars (including genomics), herd replacement strategy and questions in relation to BDGP payments, reference cows etc. See first confirmed dates and venues in the dates for the diary section below.

pact is potentially huge, as it is almost impossible for farmers to assess these traits visually, especially on younger animals.

Indeed initial research undertaken by Teagasc and ICBF has indicated that DNA collected on beef animals provides the same level of milk and fertility information as about 30 actual calvings on beef cows. These findings are supported by recent results from the national dairy herd, which have clearly confirmed the accuracy of the genomics in being able to forward predict performance for key traits such as milk and fertility in dairy cows.

This is where genomics has significant potential for the Irish beef industry as it is these traits (eg calves/cow/year) that are currently affecting the profitability and sustainability of our national suckler beef herd. By collecting DNA on important breeding animals (starting with 4 and 5 star cows and calves this year) ICBF is confident that we can help farmers shape the makeup of their suckler herds in the future, to put more emphasis on these important maternal traits.

Recording online: Farmers interested in recording their BDGP data online, can contact 1850-625-626 for their password.



Michael pictured with one of his best cows. This BBx cow has a Replacement Index of €125 (5 stars). She is 10 years old, first calved at 23 months and has had nine calves with an average calving interval of 370 days.

Q&A

Q. Do some beef animals already have genomic indices? No, genomic indices have not been published for any beef animals yet. The animals sampled as part of the 2014 Beef Genomics Scheme (BGS) were used to establish a reference population. These animals will have been parentage verified, but do not yet have genomic indices. Genomic indices are due to be published in spring 2016.

Q. Some animals in my herd are missing sires. Will genomics identify the sires? If the sires have already been genotyped, they will be identified. You may have older cows in your herd that are missing sires. Many of these were sired by old stock bulls that were never genotyped. These sires will not be identified. If you manage to identify sires, these can be recorded on the ICBF website www.icbf.com. Only record missing sires where you are 100% sure that they are correct.

FARMER FOCUS: MICHAEL BIGGINS

‘It has been proven to work in dairy’

Name: Michael Biggins, Ower, Co Galway.
Farming system: Suckler to weanling.
BDGP cow reference no: 61
4 and 5 Star females: 25 cows; nine heifers.
Stock Bull or AI: 80% AI and bull mops up.
Replacement Strategy: Breed most and buy in some.

Why did you join the BDGP? We're always trying to improve our breeding and any tools which can help us, particularly in the area of picking replacements, have to be seen as a positive. I'm looking forward to seeing what genomics will bring to the beef herd as well.

Do you feel it will deliver for the national suckler herd? We have to start somewhere to improve from where we currently stand in terms of beef breeding. We became a little preoccupied with the high value, export-type weanling, to the detriment of maternal traits. I think the scheme will help to put a renewed focus on breeding top-quality replacement females.

What replacement strategy do you plan to implement in light of the scheme? We plan to target our highest-index cows with the best maternal AI bulls to breed replacements. We have bought in some beef cross heifers from the dairy herd in the past and this is a quick fix where milk is a problem. I think more weighing should be done on beef farms to identify the best-performing cows and bulls for milk.

Do you know much about genomics? Not a huge amount I suppose. It's a science that's proven to work in the dairy herd and should be



Michael Biggins.

embraced by beef farmers. Being able to predict the potential performance of an animal, before it's ever used for breeding, will be a huge development.

How do you record your data? We do everything online. All information for the old suckler scheme was recorded through the ICBF website www.icbf.com and we will continue to do this for the BDGP. It's so much easier and gives great peace of mind.

DATES FOR THE DIARY

1 October: Teagasc and Munster AI BDGP information event, Kanturk Mart, 8pm.

9 October: Teagasc BDGP farm event, Edward and Richard Butler's Farm, Danesfort, Co Kilkenny, 11am.

Department of Agriculture, ICBF, Teagasc BDGP information meetings: Mon 12th Oct – Gleneagle Hotel, Killarney at 8pm; Weds 14th Oct – Silversprings Hotel, Cork at 8pm; Thurs 15th Oct – Brandon House Hotel, New Ross at 8pm.