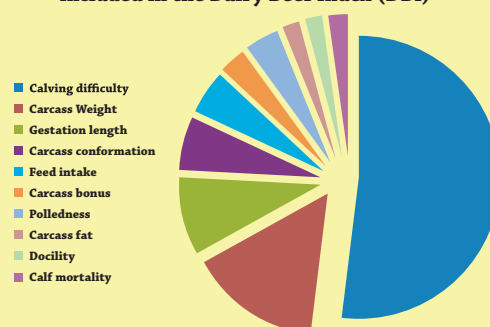# Teagasc Green Acres Calf to Beef Fact Sheet

Improving beef quality with the Dairy Beef Index

With over 1.1 million beef and dairy-beef calves estimated to become available from the dairy herd in 2021, an area that warrants consideration for both dairy and beef producers alike is the marketability of these calves. Influenced by the use of easy-calving, short-gestation sires and a breeding programme rewarding 'easier-maintained, lighter' cows, a reduction in the carcass quality from dairy-origin animals has been witnessed over recent years. To address this issue, the Dairy Beef Index (DBI) – developed by the ICBF and Teagasc – was launched in January 2019.

What is the Dairy Beef Index?

- The DBI is a breeding tool which aims to improve the quality of beef cattle originating from the dairy herd.
- It aims to create a more saleable calf that will have a minimal impact on the dairy cow's calving performance, while also producing a more profitable beef animal.
- Beef bulls for use on dairy cows or heifers are ranked on a number of traits.
- 64% of the DBI's emphasis is placed on calving performance traits (calving difficulty, gestation length and calf mortality) – traits of importance to dairy farmers.
- The remainder is placed on carcass characteristics (27%), feed intake (5%), docility (1%) and polledness (3%) (Figure 1) – traits of importance to beef farmers.
- Expressed in euros, each €1 increase in DBI can be interpreted as a €1 expected increase in the profit of a bull's progeny compared to the progeny sired by the average Holstein Friesian bull.

Figure 1: The relative emphasis of each trait included in the Dairy Beef Index (DBI)

- Calving difficulty
- Carcass Weight
- Gestation length
- Carcass conformation
- Feed intake
- Carcass bonus
- Polledness
- Carcass fat
- Docility
- Calf mortality

Beef benefits

A recent analysis examined the on-farm benefits of using the DBI compared to the traditional selection of beef bulls. As part of the work, the performance of progeny from the top five bulls ranked on the DBI Active Bull List were compared to the performance of progeny from the five most common beef bulls used in Irish dairy herds between 2015 and 2018.

Key findings:

- The progeny of the top bulls on the DBI produced 17kg heavier carcasses at slaughter (330kg vs 313kg).
- Progeny of the top DBI bulls graded better (R- vs O+).
- No difference in fat was observed.
- This resulted in the generation of an additional €104.54 to the finisher at slaughter.

However, for beef farmers sourcing calves on the basis of the DBI, it's important to consider what components are contributing to an individual sire's rating and its reliability. Ideally calves destined for beef production should be sired by high terminal index sires. Ensuring that the parentage of the calf is correct is also critical and this can be achieved through genotyping.

Why impact will the DBI have for beef farmers?

- It selects for higher carcass weight and conformation.
- It selects for more animals that meet factory specifications.
- It recognises that some breeds are paid a premium at slaughter.
- It selects for reduced feed intake and quieter, polled cattle.

Case study

Teagasc Green Acres participant Richard Long has purchased calves off his brothers' dairy farm for the past number of years. Earlier this spring, Richard and his brothers – Michael and Liam – sat down to formulate a bull team that would provide a beef animal that would weigh and grade, without having a negative impact on the dairy herd's calving and fertility performance.

Michael, Liam and Richard Long

This joined up thinking between beef and dairy farmer led to the selection of a team of eight AI beef sires from five breeds. As all of the maiden heifers on the farm are mated to stock bulls, the AI team will be used exclusively on second parity cows and on.

DBI factors considered when choosing the bull team:

- Calving ease.
- Gestation length.
- Carcass weight.
- Carcass conformation.

Although some of the sires chosen are positive for gestation length, their use will be targeted at earlier calving cows. Sires with shorter gestation will be aimed at those mated later in the season.

In addition, the calving difficulty of the bulls selected ranged from 3.2% up to 7.8% (March 2019 evaluation); the harder-calving bulls will be targeted only at mature cows with a proven history of calving ease. All of the bulls selected were also positive for carcass weight (4-40kg on March 2019 evaluation).

By taking this approach, the brothers are potentially adding value to the calves they are producing on their farm, without having a negative consequence on the profitability of the dairy enterprise. At the same time, Richard is being supplied with a calf with a high genetic merit for beef production which he can efficiently bring to slaughter as early as possible while meeting market specifications.

Table 1: A selection of the AI sires chosen from the DBI list for the 2019 breeding season

Sire	Breed	DBI	Reliability	Gestation (Days)	Calving difficulty	Reliability	Beef Value	Carcass weight
Bull 1	HE	€45	95%	0.6	3%	99%	€61	4kg
Bull 2	HE	€37	63%	0.06	3%	88%	€49	11kg
Bull 3	LM	€72	97%	3.84	4%	99%	€126	20kg
Bull 4	BB	€15	95%	0.15	8%	99%	€150	23kg

Source: ICBF Active Bull List for Beef AI Bulls March 2019

More information on the Teagasc Green Acres Programme can be found at Teagasc.ie and on AgriLand.ie.