

Dairy-beef trilogy toolkit: Dairy-Beef Index, sire advice and commercial beef value

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Summary

- A trilogy of tools are now available to farmers to aid in the breeding, mating and trading of dairy-beef animals:
 - » The Dairy-Beef Index (DBI) ranks the most suitable beef bulls for mating to dairy females
 - » Dairy-on-beef sire advice in Herdplus recommends optimal individual matings between beef bulls and dairy females
 - » The Commercial Beef Value (CBV) forecasts the likely profit from a calf destined for beef production.

Introduction

The expansion of the national dairy herd, improved dairy cow fertility, and the rapid growth in the use of sexed semen to generate dairy replacements will contribute to a greater quantity of Irish beef originating from dairy herds. New beef-on-dairy breeding strategies are therefore required to increase the value of non-replacement calves by capitalising on the superior carcass credentials of beef × dairy cross calves compared with purebred dairy cattle. A trilogy of tools are now available for the breeding, mating and trading of dairy-beef animals: 1) an index to select the most suitable beef bulls for breeding to dairy females; 2) a web-based service to recommend optimal individual male-female matings; and 3) an index to forecast the likely eventual profit from a calf destined for beef production.

The Dairy-Beef breeding index

The Dairy-Beef index (DBI) was launched in 2019 with the goal of ranking beef bulls for suitability to both dairy and beef producers. The index comprises traits of importance to dairy producers (calving difficulty, gestation length and calf mortality), but also includes traits of interest to beef producers (carcass growth and value, feed efficiency, age at slaughter, and temperament). The dairy and beef components of the index are unfavourably correlated. A similar unfavourable correlation exists between milk production and fertility, but clear evidence from dairy cow breeding (i.e. the EBI) has demonstrated the ability to breed for both traits in a favourable direction. Selecting beef bulls on the DBI rather than on a specific beef breed or on calving characteristics produces more balanced and valuable progeny. This helps to meet the requirements of the dairy farmer, and also generate additional profit for the beef finisher.

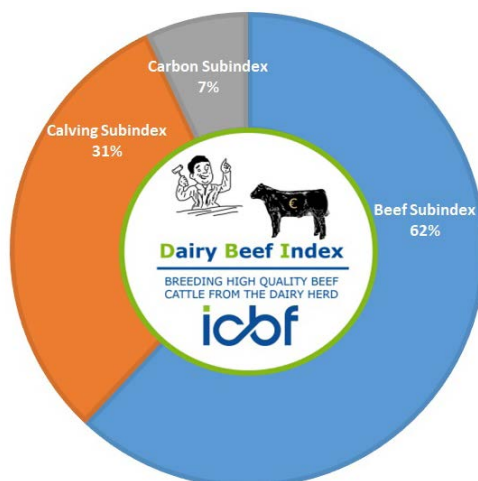


Figure 1. Traits and their relative emphasis included in the DBI

Dairy-Beef mating advice

Once the dairy producer selects an appropriate team of beef bulls based on the DBI, the next stage is to decide which bulls should be mated to which dams (cows and heifers) using the sire mating advice. In the sire advice system, the females' likely predisposition to calving difficulty (based on genetic merit and age) is considered, and the genetic capacity of the offspring generated to achieve the carcass weight and conformation specifications is also factored in. Dairy females with a genetic predisposition to require assistance at calving (i.e., a more positive direct and maternal calving difficulty figure) should be mated to a proven beef bull that has a genetic proof for low(er) direct calving difficulty. The sire advice tool only recommends matings using the bulls the farmer selects. Therefore, farmers should invest time in appropriately selecting a suitable beef bull team. The outcome from the web-based sire advice is a list of dairy females in the herd with the beef bull recommended to mate to each female.

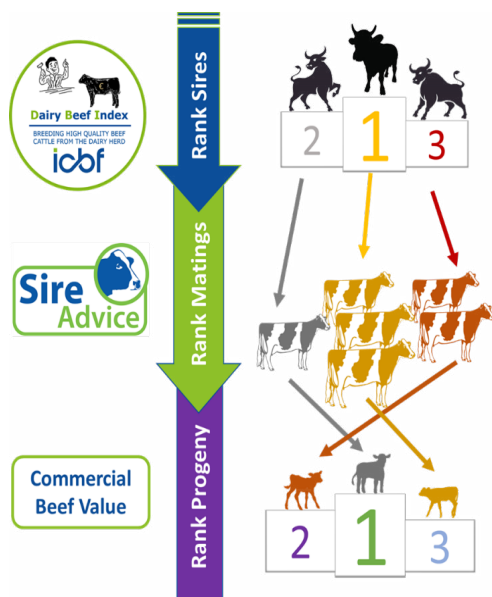


Figure 2. The trilogy of Dairy-beef tools available: DairyBeef Index, sire advice and commercial breeding value

Dairy-Beef trading tool – the commercial beef value

Carcass value is the main factor that determines the revenue received for dairy-beef progeny, but predicting potential carcass value is not easy in 2-3 week old calves. Carcass value is highly heritable, however, meaning that the genetic merit of an animal translates very well to the actual observed performance. The Commercial Beef Value (CBV) is a new tool, which assigns a value to calves based on their expected profit until slaughter. It comprises estimated genetic merit for five traits from the dairy-beef index: carcass weight, conformation and fat, as well as docility and feed intake. Therefore, it links very well to the DBI (and associated sire advice). The CBV is presented within three main breed categories: suckler, dairy-beef and dairy-dairy. The CBV is now available for all genotyped cattle and displayed at livestock marts.

Conclusions

Three interlinked dairy-beef tools are now available to Irish farmers. The Dairy-Beef index aids dairy farmers to select the most appropriate beef bulls, the beef-on-dairy sire advice system recommends beef-on-dairy matings using the components of the dairy beef index, and the Commercial Beef Value (CBV) trading tool assigns a monetary value to a calf based on its estimated genetic merit for the traits in the DBI. All data underpinning the three tools are housed within a single national database, which will enable the tools to be updated as more data becomes available on beef bulls, dairy cows and beef-cross calves.