B.O.W. – Beef's Own Worth

Valuing a growing animal on its contribution to profit

Problem

The price paid for animals destined for beef is usually dictated by breed, weight, age, and visual appearance. Visual appearance relates to the conformation and fleshiness of the animal, but it is not easy to be assessed in young dairy-beef calves. Considerable genetic variability exists within breeds for economically important traits, whilst some performance metrics like feed efficiency can not be easily measured by visual appearance.

Solution

Providing producers with a decision-support tool able to predict both the revenue and costs associated with an animal until slaughter will help assess what price should be paid for that animal. It can be used to guesstimate the profit likely to accrue for an animal at a given price. Providing such information also facilitates online transactions of animals without the requirement to view them.

Outcome

This research produced a framework for a comprehensive decision-support tool that provides the farmer with a single Euro value estimate of the expected profit potential of a growing animal destined for slaughter. This Euro value is a function of five traits: three relating to carcass merit (weight, conformation, and fat score) and two relating to animal docility and feed intake. Several factors contribute to estimating a Production Value for each of these traits, which are then used to estimate a single animal's potential (BOW - Beef's Own Worth). The factors considered when estimating the production value of each of the five traits include genetic merit (which also encapsulates the breed effect), animal sex, whether it was a singleton or twin, characteristics of the dam, and whether both the cow and calf are crossbred (Figure 1). The emphasis placed on each of the five traits within the BOW is a function of the respective relative economic importance. The BOW can be applied to any breed or any age of the animals. It is particularly useful in young calves, both pure- and cross-bred, especially in dairy herds. The index can be modified slightly for animals ready for slaughter, in which the docility and feed intake traits can be removed but also more up-to-date prices for the carcass traits can be used.

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Traits considered in the BOW

- Carcass weight
- Carcass conformation
- Carcass fat score
- Docility
- Feed intake

Illustrations

Figure 1. Factors contributing to the production values

Dam PE = Dam permanent environmental effect

Practical recommendations

The BOW updates in real-time as new data becomes available. Furthermore, the accuracy of the index is improved if the animal is genotyped so it should command a higher price. Used in tandem with the beef females profit potential animal (BFPP), the BOW can help to decide whether a female beef animal is more suited to become a replacement or should be destined for slaughter. The BOW is useful for producers to gauge what price to expect for their animal when selling but also for purchasers to help determine animals' values.

On-farm application

The BOW index contributes to a more data-driven decision-making process underpinned by a transparent model of prediction. The BOW will support producers avoiding the need to individually interrogate excessive amounts of data into a single ranking per animal. The modular framework lends itself to accommodate new data sources as they become available (e.g., sensors) and is also sufficiently generic to apply to other species and sectors.