

B.F.P.P – Beef Female’s Profit Potential

Estimation of the lifetime profit potential to identify candidates for voluntary culling

Problem

Voluntary culling decisions for beef female cattle are complex, making it difficult to identify under-performing animals. Difficulties also arise when identifying beef heifers that have a greater lifetime profit potential when retained as replacements relative to being finished for beef production.

Solution

Providing producers with a decision-support tool capable of estimating the potential lifetime profit based on both current performance and expected future performance for a diverse range of traits (shown on right). When presented as a single profit potential value in Euros, it is easier to rank females within the herd, thus facilitating the identification of the least profitable females suitable for voluntary culling. The tool is dynamic, enabling additional data sources to be included and operates in real-time.

Outcome

The single euro value of the decision-support tool can be broken down into four contributing factors (Figure 1):

- 1) the profit potential of the female as a heifer, provided she has not calved,
- 2) the profit potential arising from the beef female’s current parity, provided she has calved at least once,
- 3) the expected profit generated from her remaining future parities,
- 4) the retention value of the beef female which represents the cost-benefit of retaining the beef female within the herd and not voluntarily culling her.

The Beef Female’s Profit Potential (BFPP) was validated on 21,102 Irish beef females that were stratified, within-herd, into 4 strata based on their BFPP value. Results indicated that the beef females within the best BFPP stratum calved earlier in the calving season and had a greater likelihood of surviving to the next lactation relative to the females in the worst stratum. Furthermore, the progeny of the beef females in the best BFPP stratum, on average, killed out with heavier and better conformed carcasses with less fat cover than the progeny of the worst BFPP females.

Practical recommendations

- Inputting quality data into the BFPP is fundamental to the accurate ranking of animals based on their BFPP. Persuading producers to input all data on their beef females into a national database will maximise the effectiveness of the BFPP.
- The national database operators can then run algorithms to generate the cow-level merit for each trait included within the BFPP and subsequently estimate the within-herd ranking of the beef females.
- This ranking can then be evaluated by the producer to: 1) identify beef females that rank poorly and should be voluntarily culled and, 2) identify the highest ranking heifers within the herd and determine if they should graduate to the mature herd.

On-farm application

The impact of the BFPP is to help producers throughout the decision-making process whilst avoiding the need to handle excessive amounts of data to achieve a single ranking per animal. The tool is flexible enough to allow expansion should new data sources become available (e.g., sensors) and is also sufficiently generic to be applicable to other species and environments.

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Publication

An index framework founded on the future profit potential of female beef cattle to aid the identification of candidates for culling

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Traits considered in the BFPP

- Age at first calving
- Maintenance (heifer and cow)
- Docility (cow and calf)
- Calving difficulty (direct and maternal)
- Maternal weaning weight
- Cull cow weight
- Calving interval
- Survival
- Feed intake
- Mortality
- Gestation length
- Carcass weight
- Carcass conformation
- Carcass fat

Illustrations

Figure 1 Factors accounted for within the BFPP

