**Implications of beef price seasonality on the profitability of Irish beef production systems**

**Application:** Seasonality of Irish beef production influences beef prices which affects the profitability of beef production systems.

**Introduction:** Irish beef is produced under production systems (dairy-beef and suckler) that incorporate large amounts of grass, both grazed in-situ and ensiled in the animals’ diet (typically representing 80-90% of total feed budgets). This has resulted in spring-calving systems dominating and production systems with a competitive cost advantage through a lower reliance on purchased concentrates. However, the resulting seasonality of beef supply, with a peak in finished animal sales in autumn, has led to seasonal price trends. Thus, beef price tends to decline in mid to late autumn while highest prices, coinciding with lower numbers of finished animal sales, occur in early summer. The aim of this present study was to evaluate the effect of seasonality of beef price on the profitability of a range of production systems differing in age/date of slaughter, by analysing data relating to the period 2013 to 2022.

**Material and Methods:** Average weekly beef prices for steers slaughtered at Irish beef processing plants over the ten-year period 2013 to 2022 were obtained from Bord Bia (The Irish Food Board; 2023). These data were used to determine the seasonality of beef price, defined as the ratio of monthly price to annual average price, across carcass conformation (U, R, O, P) and fat classes (2, 3 and 4). To quantify the effect of seasonality on the profitability of beef cattle production, four beef finishing systems were modelled. These systems represented March-born late maturing crossbred steers, which were either light (‘L’, 480 kg) or heavy (‘H’, 580) at purchase in early September in their second season (i.e. 18 months of age) and which were either finished at pasture (P) or following an indoor finishing period (I). The pasture finishing systems involved finishing animals at 20 months of age in late October having been supplemented with 4.5 kg concentrate for 60 days (HP) or at 28 months of age in June with no supplementation during finishing (LP). The indoor finishing systems involved finishing animals on a silage + 4.5 kg concentrate diet at 22 months of age in January (HI) or at 25 months of age in April (LI). Prevailing prices for inputs and fixed/overhead costs were applied. Beef carcass price of €5.06 was assumed with seasonality effects for each of the years 2013 to 2022 quantified separately providing for a total of four (systems) x ten (seasonal pricing effects) scenarios.

**Results:** Analysis of historical carcass price data from 2013 to 2022, showed pronounced intra- and inter-year price fluctuations, and underlined the historically high prices which prevailed in 2022. The data indicated a general trend for beef prices to increase from January until May/June before decreasing towards the year-end (Figure 1). Large differences in margins (€/head) were seen between systems years, with the highest margins for LP (Table 1). This mainly reflects lower feeding and animal purchase costs in that system. However, the longer period on farm for this system (ten months) compared to the other systems has implication s for the number of animals that can be accommodated and hence profitability per hectare. The yearly impact of price seasonality led to differences in the ranking of the remaining three systems.

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| Table 1: Ranking of profitability (€/head) for finishing systems purchasing light (L) and heavy (H) steers finishing off pasture (P) or indoors (I) |
| Year | LP | LI | HP | HI |
| 2013 | 1 | 2 | 4 | 3 |
| 2014 | 1 | 2 | 4 | 3 |
| 2015 | 1 | 3 | 4 | 2 |
| 2016 | 1 | 2 | 4 | 3 |
| 2017 | 1 | 3 | 4 | 2 |
| 2018 | 1 | 2 | 4 | 3 |
| 2019 | 1 | 3 | 4 | 2 |
| 2020 | 1 | 3 | 4 | 2 |
| 2021 | 1 | 4 | 2 | 3 |
| 2022 | 1 | 3 | 2 | 4 |
| Average margin (€/head) | 343 | 8 | -24 | -6 |

**Conclusion:** Beef production systems that maximise the utilisation of grazed grass and minimise the use of purchased concentrates are more profitable than those involving more prolonged indoor feeding periods. The data also highlights the importance of beef price seasonality on the profitability of Irish beef systems.

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**References:** Bord Bia (2023) Available at: <https://www.bordbia.ie/farmers-growers/prices-markets/cattle-trade-prices/cattle-price-dashboard/> (Accessed 12th August 2023).