

Lifetime growth patterns affect beef eating quality

Research funded by AHDB Beef & Lamb has shown that producing cattle to slaughter under 24 months old has benefits in terms of meat eating quality compared to those finished at an older age. The study, which was carried out by Scotland's Rural College and the University of Bristol, tested Limousin-cross steers and heifers on three different growth paths.

Improving growth rate and reducing the time taken to get beef cattle ready for slaughter is an important component of profitability. Nevertheless, a considerable proportion of prime cattle are slaughtered over 30 months of age and there is concern that these animals produce tougher meat. There is also anecdotal evidence that cattle undergoing a period of very slow or no growth have increased levels of gristle in their meat.

The project finished steers and heifers at a range of ages between 12 and 36 months according to alternative lifetime growth patterns, which included a period of growth check for the older animals, using production systems typically seen on English farms. Data was gathered on the animals' overall productive output, carcase quality and meat eating quality.

Results

The results found that older animals that had been subject to a growth check and hence longer growth periods, had increased gristle as a proportion of the loin joint weight. Shear force results showed that these animals also produced tougher muscle (Table 1).



Dissected gristle from loin

Table 1: The results for the gristle parameters and shear force results for the three different groups

	Growth path		
	Long	Medium	Short
Gristle weight (g)	40.2	31.5	25.8
Gristle (% of joint)	0.46	0.37	0.37
Gristle (% of loin)	1.96	1.62	1.63
Shear force toughness (kg)	11.9	10.4	10.8

The sensory panel results suggested that the animals on the short finishing treatment were significantly less tough than the animals from the other treatments. However, there was also slightly lower beef flavour and higher abnormal flavour values (Table 2).

Table 2: The results of the sensory panel for the three different groups

	Growth path		
	Long	Medium	Short
Toughness	46.9	42.5	38.7
Juiciness	54.1	53.4	51.5
Beef	46.6	47.2	44.4
Abnormal	19.7	20.6	23.7

To calculate the financial impacts of the different growth paths, the feeder's margin was calculated. This is the difference between the sale value of the animals obtained from the abattoir and 'store' value of the animal at the start of the trial period.

The average total feeder's margin (£/head) was £301, £523 and £570 for the short, medium and long growth path systems respectively. However, when the feeder's margin was calculated based on the number of days the animal was on the farm, the feeder's margin (£/head) was £3.72, £1.86 and £0.91 for the short, medium and long growth path systems respectively.

It was concluded that commercial beef finishers should be advised to adopt efficient, short to medium duration (12 – 20 months) finishing systems that deliver higher-quality beef to the human food chain while offering producers the greatest opportunity for commercial profit.

Further information on finishing cattle can be found in the BRP manuals [Feeding Growing and Finishing Cattle for Better Returns](#) and [Marketing Prime Beef Cattle for Better Returns](#).