

How valuable is selection for early calving?

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Earlier calving of deer is a topic which receives a considerable amount of attention, as it is seen as a mechanism for making significant improvements in productivity and efficiency of deer farming. Genetics is often seen as the key to early calving by farmers, and some of the recent research is confirming that Eastern deer do have significantly earlier conception than English genotypes.

But just how valuable is earlier calving? As with any other farming practice, the value depends on how we can capture the gains and what impact early calving has on the farm system. The major benefits proposed from earlier calving are associated with better aligning production with market demand (and so obtaining premiums for animals killed at peak schedule) and with seasonal growth patterns (thereby utilising grass more efficiently).

Alignment with market demand

What impact does earlier calving have on the price received for stock? The answer obviously depends on how much earlier calving occurs, and how this translates into heavier weaners coming into the spring. For the purposes of this article, we will assume that we are able to shift calving earlier by 21 days, and kill animals at a constant weight (rather than taking the advantage as a heavier carcass). What is the impact of this on weight of weaners?

There is very little data on calf growth increases from early calving. Analysis of data from Invermay suggested a weight advantage in the order of 350g for every day earlier the calf is born - however there were no early calves in this data set, so we need to be careful about extrapolating what happens in a “normal” calving to what might happen if calving is earlier. It might be argued that a hind calving early has higher quality feed available to support early lactation, and so growth rates at the upper end of the performance range might be achieved over this period. To cover these scenarios we have assumed growth rates over this extra 21 days to be 350 g/day or 550 g/day, which translates to a weight advantage of 7.35 kg or 11.55 kg at weaning, and we assume the advantage is maintained right through to slaughter.

By modelling the impact of heavier animals on kill pattern, we can calculate the impact of calving earlier on average price (Table 1). Note that the figures given are the increase in average price across all stags for the early calving herd compared to the normal calving herd, and the premium for individual animals slaughtered early in the season will be higher than this. The results show that the average price premium is highly dependant on both how much extra growth is achieved, and how close the farm is to killing deer on the peak venison schedule (we have assumed a schedule which has a \$1.50/kg spring premium until 26th September, with the premium declining to base schedule level by 25th November). For a farm which is killing some stags during the spring already, there are substantial price increases to be achieved through calving earlier, as heavier animals coming into spring means that a larger proportion of the stags are killed while spring premiums are available. Our model indicated that the average price received for stag increases by between \$23 and \$35 per animal. There is some impact on average price of hinds, but as hinds are killed

later, a smaller proportion of hinds are killed when premiums are available and so improvements in price received are smaller than for stags.

On a farm where deer are killed later anyway (e.g. due to environmental constraints on calf growth performance), calving early has a much lesser impact on average price received. This is principally because although average kill date is shifted forward, only a relatively small proportion of stags are killed in the premium schedule period which diminishes the impact on average price. In this situation a combination of management practices and genetics would be required to improve weight of weaners coming into spring and move a significant number of deer forward to be killed while premiums are available.

Table 1. Impact of calving 21 days earlier on average price received compared to an equivalent “normal” calving. Scenarios modelled include calf growth rates during early lactation at 350 or 550 g/day, and farms currently killing stags at an average date of 26th October or 25th December.

Average stag kill date	26 th October		25 th December	
	350 g/day	550 g/day	350 g/day	550 g/day
Stag calves	+\$23.50	+\$35.66	+\$3.52	+\$8.97
Hind calves	+\$6.41	+\$13.91	+\$0.02	+\$0.24

Alignment with feed supply

The other gains which might go with earlier calving (and earlier slaughter) arise from a potentially better match between feed supply (both quantity and quality) and animal demand. Calving earlier means hinds are lactating while feed quality is still high in spring and pasture is relatively cheap. An earlier average kill date will also mean feed savings in the summer and autumn. On the other hand, weaners will be heavier going into winter and hinds will be in a more advanced state of pregnancy, both factors which may increase winter feed requirements.

Earlier calving and earlier slaughter will change the pattern of animal demand. How this fits into the farming system will depend very much on the feed supply profile of different regions and individual properties. What (if any) other stock classes are integrated with the venison production system will also have a large impact. Thus generalised recommendations on how benefits from early calving accrue in the farm system are difficult to make. It should not be assumed that early calving will automatically produce a better fit between pasture growth and animal demand. It is likely that properties with longer winters and later springs will not be as suited to early calving as those with good early spring growth. Models run using Farmax have indicated that at least in some situations an earlier calving (and earlier kill) does not always provide a better match between feed supply and demand unless feed savings in summer and autumn are able to be shifted to winter. However, in the limited scenarios we have examined, the financial outcome from meeting the spring schedule

has produced a more profitable outcome even when the alignment between feed supply and demand has not been improved by early calving.