Accurate weighing and measuring is key to cost effective heifer rearing

Reducing age at first calving

Calving heifers at two years old, rather than the national average of 29 months, offers producers the opportunity to reduce replacement costs by more than 1ppl. The results of some recent heifer rearing research offer some useful pointers.

text **Allison Matthews**

F eeding and management during the heifer rearing period have a major impact on animal performance and the subsequent age at first calving. So says the Agri-Food and Bioscience Institute's Steven Morrison.

"Research carried out both on-farm and at Hillsborough indicates that the target live weight for high genetic merit Holstein-Friesian heifers calving at two years of age should be around 580kg, at a body condition score of 2.75 to 3.0," he says. "And to achieve these important targets cost effectively, a controlled and monitored feeding regime must be in place."

Monitoring heifer growth is key to making informed management decisions

Steven Morrison: "Heifer weight has been underestimated, on average, by 60kg"

but fewer than 10% of producers actually weigh and measure heifers. Some producers may believe they do not need to measure/weight their heifers and can guess the weight accurately. "This may not be the case. A recent AFBI/College of Agriculture, Food and Rural Enterprise (CAFRE) survey found that producers, on average, underestimated the weight of heifers by 60kg at the breeding stage. Only by accurately knowing the weight of your heifers against targets can you make informed breeding and feeding management decisions," says Dr Morrison, referring to Table 1.

Growth targets

Results from Thompsons' heifer rearing project, which ran in conjunction with the AFBI and CAFRE work, also highlighted the importance of basing management decisions on accurate liveweights.

"The project set out to keep heifers moving consistently towards calving at 580kg at 24 months of age and on average this target was achieved," says Thompsons' Richard Moore. "However what the project highlighted was the variability in heifer performance. This was down to various factors, but the key points were summer grass management, winter forage quality and appropriate concentrate supplementation.
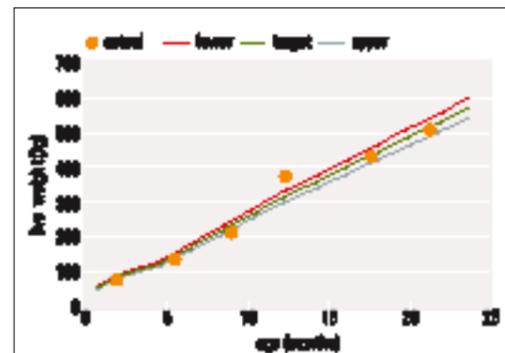
Richard Moore: "Calving at 580kg and at 24 months of age are achievable targets"

"On average a target growth rate of between 0.75 and 0.8kgLW per day is necessary in order to meet the target weights for both serving at between 13.5 and 15 months of age and ultimately calving down at 24 months. But during the summer period alone growth rates varied from 0.55kg right up to almost 0.9kgLW on the project farms," adds Mr Moore.

"With heifers grazing for 460+ days during the rearing period, appropriate management at grass is very important. Normal practice at AFBI Hillsborough is to monitor heifer growth on a tracking graph to highlight periods where growth exceeds or falls below target, which allows appropriate corrections to be made," says Dr Morrison. Such an approach was also adopted during the heifer rearing project with an on-farm example given in Figure 1.

On farm A, autumn-born calves were housed until approximately eight months

Figure 1: Heifer development in relation to target growth on farm A in Northern Ireland

Table 1: Live weights of heifers on Northern Ireland-based units (producer estimate and actual) (Source: AFBI/CAFRE heifer survey)

development stage	target weight for age (kg)	producer estimated live weight (kg)	actual live weight (kg)	percentage difference (%)
weaning	92	85	96	−7.1
breeding	433	378	438	−11.2
calving	580*	555	585	−3.8

* Target weight for calving at 24 months of age but average age of heifers was 27 months with projected calving age of 29 months

Table 2: Average age at calving and milk production of heifers born before and after the blueprint (milk production data available from four units)

	pre-blueprint	post-blueprint
age at 1st calving	26.4	25.1
1st lactation		
milk yield (kg)	7658	7564
fat + protein yield (kg)	551	565
calving interval (d)	408	386
2nd lactation		
milk yield (kg)	9161	9074
fat + protein yield (kg)	658	686

of age before being turned out to grass. These calves did not reach target weight during the early housed period, but once they went out to grass they surpassed their growth target. With nutritional advice regarding grazing pressure and concentrate supplementation these heifers returned to the target growth curve for the remainder of the rearing period.

Thompsons has developed rearing blueprints to help its customers ensure that heifers achieve target weights for their age and recently the company introduced customised feeding guidelines for heifers based on the analysis of grass silage samples.

Blueprint for performance

"These management tools have proved popular, with customers commenting on the extra confidence that these reports give them when they're deciding what and how much to feed heifers," says Mr Moore. These feeding guides, coupled with adjustments based on actual heifer liveweight set against targets, help to ensure that heifers join the dairy herd at the optimum size and weight.

Quantifying the benefits of implementing these rearing blue-prints was a main objective of heifer rearing project. Age at first calving was reduced from 28 to 25 months through informed management decisions based on monitoring heifer growth.

And on the farms with detailed milk records, first and second lactation milk yields were largely unaffected by adopting the rearing blueprint. But calving interval was substantially reduced (see Table 2).

"Financial data has yet to be analysed but with no impact on milk production, a reduced calving interval and reduced age at first calving, adopting a 24-month age at first calving regime, that's based on blueprints and monitoring heifer growth, offers a win-win for producers," adds Dr Morrison. |