



Managing growth rates and breeding of dairy heifers to ensure an optimal age at first calving

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Another key influence on achieving the optimum AFC is ensuring that all heifers are served and conceive by 15 months of age. This again requires an adequate early growth rate so that they reach puberty by around 12-13 months of age and can later go on to calve with an adequate frame size. The breeding strategy to be used needs to be organised in good time to avoid delays. If artificial insemination is being used then easy access to good handling facilities is essential. In summary, although higher levels of nutrition, in particular milk, do increase early rearing costs this outlay will be recouped later by the superior performance of well-grown heifers in the herd. Achieving this consistently requires farmers to monitor growth rates at critical time points on a regular basis. Birth, before and shortly after weaning and at around 6-9 months are recommended. This enables any failings in feeding strategies to be detected early so that any they can be remedied sufficiently quickly not to impact on heifer fertility.

The goal of successful heifer rearing is to produce functional dairy cows economically while maintaining high standards of animal welfare. The rearing process is subject to high initial costs with revenue only generated at the end of the period when the heifer calves for the first time herself and so enters the dairy herd. The breakeven point when the outlay incurred during rearing is paid back through milk sales generally occurs around the middle of the second lactation. This means that any cow which does not reach this point represents a net loss to the business. UK figures show that around 14% of dairy heifers born alive never calve themselves due to mortality or failure to conceive while a further 19% are culled during their first lactation. Delays in age at first calving (AFC) increase the rearing costs while at the same time decreasing the subsequent performance of the cow in terms of milk production, fertility and survival time in the herd. For these reasons it is crucial for farmers to keep their heifers under conditions which promotes a sufficient growth rate and minimises disease. To achieve an optimum AFC of around 24 months, Holstein heifers need to maintain an average growth rate of about 0.8 kg/d throughout this 2 year period. A significant number fail to achieve this, with 70% of heifers monitored on typical UK farms achieving growth rates of <0.7 kg/d in the critical pre-weaning period. Of these, around 20% grew at <0.5 kg/d, which is indicative of poor welfare. Growth during this period is influenced by colostrum management and disease incidence.

Achieving higher concentrations of IgG in blood leads to a modest increase in growth rate, while periods of diarrhoea lasting over 2 weeks or bovine respiratory disease lasting over 4 weeks both reduced growth rates significantly. The main reason for poor growth was, however, feeding an inadequate amount of milk. This was mainly due to offering a diet which contained insufficient milk solids but early weaning of some calves also contributed.