

## **Longevity: How to Influence with Nutrition and Management**

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Progressive dairy producers want it all. Focused on realising the potential of their high genetic merit cattle, they expect a minimum 9,000 litres, and at least five lactations. The stark reality is that these animals, which cost an average £900 to rear, are lasting a mere 3.42 lactations. Richard Vecqueray independent veterinary nutritionist working with Dugdale Nutrition, discusses how the company's Management for More than Milk program, (M<sup>3</sup>) offers solutions to this quandary through detailed management and nutrition practices during the two years as the high genetic merit (HGM) heifer grows and enters the milking herd.

US research has demonstrated a benefit in terms of longevity in growing HGM replacement heifers to maximise frame and body capacity per day of age. Common sense concludes that a heifer also needs good feet, a sound udder and good fertility. Nutrition has a profound effect on each of these four factors and its influence begins literally from day one. It's a case of starting to pay detailed attention to replacement management; calf rearing, heifer development and how these youngsters are introduced to the adult dairy herd after calving at two years. Heifer rearing is after all the second biggest cost to your unit after the milking herds' feed. Herd longevity can be influenced by adopting the following seven-point plan

### **1. Feed for accelerated calf growth in the pre weaned animal**

Wither height is a better determinant of subsequent yield than weight. The M<sup>3</sup> program targets HGM Holstein heifers to reach 90cm at the shoulder by weaning at 42 days. They should remain lean and by bulling at 15 months achieve a target height of 130cm

### **2. Avoid fat deposition in the developing pre-pubertal udder**

Feed dry forages of lower energy density and also a high quality protein concentrate to avoid a fattening effect. Do not feed ad-lib maize silage! I frequently encounter heifers that have grown too fast and put on condition rather than lean tissue in the five to nine month old pre-pubertal period and then go on to place fat in the udder and milk poorly as adults.

### **3. Maintain lean growth in the heifer's second season**

You can again achieve this by maintaining quality protein supplementation with concentrates. The only time this doesn't apply is at spring grass. If her condition requires modifying, do it well in advance of calving, not in the last month of pregnancy. Calve her large and lean. Fat and stumpy is bad news. I encounter many heifers that are over conditioned at the point of calving, consequently they experience dramatically poorer conception rates than their leaner heifer herd mates, a syndrome well documented by recent research from the Royal Veterinary College.

### **4. Minimise the number of management changes at the point of calving**

If you get this right, then you are also likely to minimise the closely associated issue of heifer laminitis. Heifers are the most likely animals in the herd to experience laminitis, which massively predisposes to solar ulcers. Those unfortunate to experience a solar ulcer are literally scarred for life and are more likely than their sound herd mates to experience further bouts of lameness in subsequent lactations.

You need to plan the following

- ✍ environmental transition: cubicle training and exposure to concrete.
- ✍ feeding transition: exposure to milking forages and straw to control potassium intake. Note, this is not a movement from ad-lib spring grass to a high powered TMR.
- ✍ social transition: is your heifer going to move at the point of calving from a field full of heifer sisters to a cubicle yard full of aggressive cows a third bigger than herself?

## **5. Carefully orchestrate the introduction of concentrate in the first month post calving**

This is area that, in my experience, is often poorly conducted resulting in sub clinical acidosis.

The critical factor in maintaining a healthy rumen pH is the percentage of physically effective fibre (NDF) in the ration and the principle determinant of that is the forage proportion and type. Ask your nutritionist to model the effect of parlour feeding as in the example below for your diet. If the NDF from forage figure is less than 24% and you have problems, then that may well be why.

The intake of the freshly calved animal and specifically the heifer, is very low, sometimes less than 16 kg DM a day. If that heifer calves onto a TMR containing 6 kg of concentrate equivalent and then receives 4 kg of parlour concentrate, her forage intake will be critically low due to the substitution effect. She is not going to suddenly eat 20 kg DM because the parlour concentrate was offered 'on top' of the TMR. She will in fact eat less of the healthy, forage containing TMR, and her fibre from forage figure will fall through the floor, rumen pH will drop and the following chain reaction will begin.

A lowered rumen pH (acidity) is associated with toxic metabolites that leach into the heifer's blood stream disrupting hoof horn growth. It will also result in acidic liquid faeces that create an unfavourable environment to bathe those feet in, ultimately softening the horn further. When this is compounded by dramatic weight loss and extended periods of standing on unforgiving concrete, the consequences can be disastrous on the heifer's feet and her consequential lifespan.

Introduce parlour feed very slowly and increase no more than 0.5 kg per day. If you are trough feeding significantly, there is no rush at all.

## **6. Check feet at four to six weeks post calving to prevent ulcers**

A wedge under the solar ulcer site may well have developed, adding pressure where it's not wanted. Five minutes now could save the heifer's life six months later. Clients whose vets have initiated this protocol really rate its effectiveness at preventing future lameness episodes.

## **7. Feed Biotin to heifers for six months before calving**

Biotin takes six months to reach maximal effect because it increases the strength of new horn laid down at the coronary band. This horn takes six months to completely cover the whole hoof. The calving heifer needs this added protection more than any other cow in the herd so why just feed it to the milkers?

Adopting Management for More than Milk, M<sup>3</sup>, will help to ensure that HGM heifers get off to the best possible start and make a significant contribution to their lifetime's performance.

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