

Stress Management for Heifers

- **Why is stress undesirable?**
- **Reducing stressors and spreading them out**
- **Stacking stressors is the granddaddy of all mistakes for stress management.**

Much stress occurs in the first few months of a calf's life. Just being born is a huge stress. We have only limited control over that one.

Other stressful events, however, are the result of management decisions. Managed one way, too many stressors can be too large and occur too close to each other. Better management has the potential to reduce these stresses and, certainly, spread them out over time.

Why is stress undesirable?

During a presentation to the calf raisers' group in northwestern New York, vet David Hale, DVM, made these points about stress.

“When a calf is stressed the brain signals the adrenal glands to begin making a steroid hormone, cortisol. Five of the main effects of cortisol are:

1. Blood pressure increases.
2. Strength of heart muscle contraction increases.
3. Blood is diverted from peripheral organs to vital ones (for example, from feet to heart and lungs).
4. Blood sugar goes up and sugar use by body cells goes down.
5. Acute reactions of tissue cells to trauma and/or toxins is prevented or inhibited.

We usually see these 5 effects of cortisol as positive. That is, they are critical for survival in life threatening situations.

But, there is always a downside to cortisol, too. It decreases the body defense mechanisms in at least 4 ways:

1. Cortisol decreases white blood cell movement to infection sites. It also decreases destruction of foreign material by body cells (phagocytosis).
2. Cortisol decreases interferon production (interferon is the body's alarm system for viral infections).
3. Cortisol decreases production of 2 types of white blood cells (eosinophils and lymphocytes).
4. Cortisol decreases antibody production.”

“All this adds up to the body turning off the immune system defenses in an attempt to survive crisis situations. On one hand, this may increase short-term survival. On the other hand, the result is often overwhelming infection and death.”

How to manage stress levels in young calves

Start with a low-stress environment for pre-fresh cows.

Overcrowded resting areas, too little trough space, inadequate bedding and poor air quality all add to stressful conditions for pre-fresh cows. The stress-induced cortisol release in these cows will negatively affect the calf even before birth.

Pathogen load in the calving area

The cleaner the calving area the lower the chances of adult cow manure getting into a newborn's mouth. As soon as a calf can stand up it is time to get her in a clean place. Some dairies have a place where the mother can lick the calf but the calf cannot reach the dam's contaminated hair coat.

Adequate nutrition

All calves should have enough to eat to meet not only their maintenance needs but also to grow. A daily liveweight gain of at least 400-450g/day appears to be the minimum rate of gain just for a calf to remain healthy.

If the amount of nutrients from milk, milk replacer and/or calf starter concentrate fall close to or below maintenance levels, the calf is under a huge amount of stress. Most often, this occurs in below-freezing weather.

Moving calves from one place to another on a stock trailer/lorry

Loading calves on and off a stock trailer is a stressful event. Even moves of less than 10 minutes drive still involve the "on-off" event.

Best management suggests trying to separate these “on-off” events from other changes (ration changes, comingling groups).

Weaning calves

Weaning -induced stress may result in cortisol release for at least a week with the effects often lasting 2 or 3 weeks. What are the cumulative effects of this extended suppression of the immune defenses? Look for reduced wieght gain for at least the first week post-weaning. Further, we need to closely observe for stress-induced pneumonia symptoms in calves 7 to 14 days after weaning.

Moving from individual to group housing

Just moving from individual to group housing is stressful. In addition, every subsequent group change that introduces new animals will add stress among transition heifers.

Moving from pen to pen or barn to barn

Even for group-housed preweaned calves moving from one barn to another is a stressful event. In addition, we may have a heifer barn set up to move heifers from pen to pen along the length of the barn as they grow older.

At some point heifers may move from loose yards into cubicles – sometimes at the same time we combine 2 groups into 1 larger pen. Remember stress levels will be lower if these two changes are separated. For example, management tasks such as dehorning and vaccinating each add more stress although for a relatively short time

Stacking stresses is the granddaddy of all mistakes.

Alone each of the events above is a threat to calf health and growth. When these events happen at the same time, stacking stresses, the risk is much higher for respiratory illness and lower growth rates.