

## HEAT STRESS



### Recommended Products for Cows

#### Bluelite Bovine™

Drench all fresh cows during the hot summer months and heat stressed cows with 5-10 gal of Bluelite for instant rehydration to replenish valuable electrolytes lost from salivation.

#### Sodium Bicarbonate™

Sodium Bicarbonate should be provided free choice throughout the year and is critical for replenishing the buffering properties of saliva when cattle hypersalivate under heat stress.

#### Yeast Diamond V XP™

Feeding yeast in hot weather has been shown to help increase rumen pH and prevent acidosis.

#### Potassium Carbonate™

An effective potassium buffering agent which also provides added potassium needed under heat stress conditions.

#### Drench Mate™

This pumping system is specifically designed for pumping fluids into adult cattle. Drenching fresh cows in the heat with an electrolyte solution is easy with the Drench Mate system.

### What is Heat Stress?

Heat stress is created when livestock can't expel enough heat to maintain their core body temperature for optimal production and health. The THI (temperature humidity index) is a number that combines humidity and temperature to correlate with the amount of heat stress an animal experiences. New research from the University of Arizona (Collier et al) suggests that cows experience a milk loss starting at a THI of 68.

**The THI Chart**

Temp	Relative Humidity (%)															
	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
77 25.0																
78 25.6																
79 26.1																
80 26.7																
81 27.2																
82 27.8																
83 28.3																
84 28.9																
85 29.4																
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102 38.9																
103 39.4																
104 40.0																
105 40.6																
106 41.1																
107 41.7																
108 42.2																
109 42.8																
110 43.3																
111 43.9																

Source <http://www.veterinaryhandbook.com.au>

### How can you identify heat stress?

- Professor Jodie Pennington at the University of Arkansas recommends testing 10 cows' rectal temperatures and if 7 are 103° F or above, they are experiencing heat stress.
- Respiratory Rate >100 breaths/min
- Excessive salivation
- Open mouth breathing
- If the dry matter intake decreases by 10% the animal is under high stress. If the dry matter intake decreases by 25% the animal is under severe stress.

### What is the cost?

A heat stress study in 2003 (St Pierre et al) found that cows experiencing heat stress have:

- Decreased milk production by 4,000 lbs per lactation
- Increased average days open by 60 days
- Increased death loss by almost 2%

*These losses for a 1000 cow dairy could easily exceed \$300,000 per year*

### What herd management techniques help prevent heat stress?

- Keep cows comfortable and cool
- Supply adequate, fresh, clean water at all times
- Provide shade, fans, misters (in lower humidity areas) and coolers
- Make sure fans are provided by sprinklers for proper evaporative cooling
- Deliver feed more frequently and push up feed more often
- Feed during cooler times of day

### QUESTIONS?

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# DETECT. DEFEND. DELIVER.

## HEAT STRESS



### Recommended Products for Calves

#### Electrolytes

- Calves need water and electrolytes during times of heat stress.
- Severe cases of dehydration in calves should be given lactated ringers solution fluids subcutaneously or intravenously.
- It's important to provide calves with extra sodium, chloride, potassium, magnesium and sodium bicarbonate with water.

#### Bluelite C™

- Palatable flavored electrolyte acidified energy rehydration formula for calves.
- Can be mixed in water, milk replacer or whole milk.

#### Bounce Back™

- An electrolyte-energy supplement for dehydration that contains dextrose, sodium chloride, sodium bicarbonate and potassium chloride.

#### Resorb™

- Aids in replacing nutrients and electrolytes that are lost through dehydration.

#### Sav-A-Calf Electrolytes Plus™

- Concentrated energy and electrolyte supplement for dehydrated animals, fortified with beneficial, direct-fed microbials to help maintain normal gut microflora during bouts of scours.
- Contains glycine and kaolin, as well as sodium bicarbonate to help correct metabolic acidosis.

### Nutritional Recommendations to Prevent Rumen Acidosis

- High energy palatable diets with high quality forages
- Supplement free choice bicarbonate
- Crude protein should be limited to 16%
- Degradable protein should be less than 61%
- Provide probiotics like yeast and beneficial bacteria, which have been shown to improve feed efficiency during heat stress

### Supplement Sick Animals during Heat Stress

- Oral electrolytes in water ensure adequate hydration
- Adequate hydration with cold water will aid in the recovery process



### How Does Heat Stress Affect Calves?

- Decreases feed intake and subsequent growth rate
- Immune system will be compromised, increasing susceptibility to diarrhea and pneumonia

### How to Prevent Heat Stressed Calves:

**Shade:** Take direct sunlight off the calves, and possibly provide supplemental shading. In barn situations, the roof already does this. With greenhouses or hutches, shade cloth needs to be added.

**Ventilation:** Promote good air exchange. In naturally ventilated structures, open the sidewalls and ridge. Open the front and back of hutches to facilitate air movement. In mechanically ventilated systems, provide for a 45 second air exchange rate or at least 100 cfm for each 100 lbs of animal in the barn.

**Water:** Make sure calves have an ample supply of fresh, clean water available at all times to avoid dehydration. A baby calf may need 3 to 6 gal of water per day during hot weather to compensate for fluid loss. Electrolytes should be added to 1 gal of water and offered to calves during extreme heat when the THI is less than 75.

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