

“Solutions for Your Life”



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Heat Stress and Cattle

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Everyone who lives in Florida knows it gets very hot during the summer. We have come to expect June, July and August to be hot and humid. Just as heat can affect humans it can affect cattle. Heat stress on cattle doesn't just make them hot and uncomfortable, but it can also cost cattle producers millions of dollars each year.

Heat stress is caused by high ambient temperatures and high humidity. Cattle may begin feeling heat stress as the temperatures rise above 75° F. The optimal temperature for cattle is between 50° and 75° F. This comfort zone will vary for cattle depending on their body condition, hair length, level of nutrition, health, breed, color of hide, age and acclimation to their environment. As heat stress increases, so does water consumption. With the increase in water consumption there is an increase in urination which depletes the body of minerals such as salt, potassium, and magnesium, just as in humans.

There are different levels of heat stress on cattle. These levels are based on the heat index. The heat index is calculated by the ambient air temperature and the relative humidity percentage. A dangerous level is indicated by an index value of 79 or greater. On July 13, 2011 the temperature was 91° F with a relative humidity of 55% with a heat index of 99. This would be considered a dangerous level, as are most summer days in Florida, and precautions should be taken.

Temperature (°F)

	80	82	84	86	88	90	92	94	96	98	100	102	104	106	108	110
40	80	81	83	85	88	91	94	97	101	105	109	114	119	124	130	136
45	80	82	84	87	89	93	96	100	104	109	114	119	124	130	137	
50	81	83	85	88	91	95	99	103	108	113	118	124	131	137		
55	81	84	86	89	93	97	101	106	112	117	124	130	137			
60	82	84	88	91	95	100	105	110	116	123	129	137				
65	82	85	89	93	98	103	108	114	121	128	136					
70	83	86	90	95	100	105	112	119	126	134						
75	84	88	92	97	103	109	116	124	132							
80	84	89	94	100	106	113	121	129								
85	85	90	96	102	110	117	126	135								
90	86	91	98	105	113	122	131									
95	86	93	100	108	117	127										
100	87	95	103	112	121	132										

Relative Humidity (%)

Cattle begin to feel heat stress long before we do. Some signs of stress include crowding under shade or trees or in ponds or around water troughs. Cattle may also begin to salivate more and exhibit open-mouthed or rapid breathing. Traditionally stress levels can be determined by the breathing levels. For moderate stress the cow will take 80-120 breathes per minute, increased or strong stress levels would be 120-160 breathes per minute, and severe would be over 160 breaths per minute. As cattle begin to feel the heat stress you may notice a decrease in their appetite. The further their appetite decreases the more they must utilize their stored energy. This can lead to a decrease in body condition or weight gain and also milk production. Heat stress has also been shown to decrease breeding efficiency. Often times you will notice a decrease in the cycling of cattle and reduced conception rates. In extremely severe cases heat stress can cause death.

There are ways to reduce heat stress on cattle. Since we don't feel the heat the way cattle do, planning for ways to reduce stress must begin early. One way to reduce heat stress is to provide enough shade for the number of cattle on the pasture. It is recommended to have 40-50 square feet of shade per head of cattle available. Provide plenty of water. Water should not be extremely hot. If pipes or hoses transporting the water to the trough are in the direct sun the water will be hot. Precautions should be taken to cover or bury the pipes or hoses. For cattle in barns, fans and sprinklers can assist in reducing the temperature and increasing the air flow. Rotating or working cattle in the early morning or late evening will reduce the amount of stress they encounter. You should provide free-choice minerals and salt so cattle can replenish the amount lost and meet their needs. Feeding cattle in the early morning or late evening will increase their feed consumption, reducing the amount of weight that is lost. Flies and other external parasites should be controlled. When there are excessive flies and parasites around cattle they tend to bunch up, increasing temperatures.

Some cattle are at a higher risk for having increased problems with heat stress. These cattle are those that were recently stressed from transporting or processing, sick cattle, dark hided cattle, heavily bred, older and reduced body condition score or thin cattle. We will never be able to make all cattle 100% comfortable. But it is important to take the necessary precautions to reduce as much stress on the cattle as possible. The more the cattle are under stress the more profits are lost.

For more information please contact your county extension agent.

Sources:

Heat Stress and Beef Cattle, Stephen Boyles, OSU Beef Specialist

Reduce Heat Stress in Cattle to Maintain Profits, Stephen B. Blezinger, Ph. D.

Managing Heat Stress in Cattle, Dr. David Smith, Professor and Extension Veterinarian,
Veterinary and Biomedical Sciences, University of Nebraska - Lincoln