



## HEAT STRESS

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High temperatures in combination with high humidity will cause heat stress in animals just like in people. In addition to causing sheep to be uncomfortable, high temperature causes an increase in the amount of maintenance energy required to keep the animal cool. This added to the decrease in appetite that sheep experience in warm weather causes significant decreases in average daily gain and feed efficiency. During warm weather pastured ewes will decrease their grass intake and alter their grazing patterns. When temperatures increase above 70 degrees sheep will begin to graze more in late evening, night and early morning. During the warm times of the day sheep will spend their time in the shade. Sheep have little in the way of natural defenses against heat stress or exhaustion. The most effective area for heat transfer is the belly and inguinal (between the rear legs) area. This area contains less dense wool and is rich in blood vessels. When sheep are experiencing heat stress they will often lie on an area of shaded ground which is cool to the touch. Evaporative cooling will occur by rapid breathing, however, as the humidity increases cooling by this method becomes less effective.

Heat Index Chart								
Temp	Dew Point(F)							
(F)	50.0	55.0	60.0	65.0	70.0	75.0	80.0	85.0
65:	62.7	63.8	65.0	66.66				
70:	67.8	68.7	69.8	71.1	72.6			
75:	73.1	73.9	74.8	75.9	79.2	80.7		
80:	79.8	80.6	81.6	82.8	84.4	86.9	90.9	
85:	83.5	84.7	86.1	88.0	90.5	94.0	99.0	106.6
90:	87.9	89.4	91.2	93.6	96.9	101.2	107.2	115.6
95:	92.9	94.5	96.7	99.6	103.4	108.4	115.2	124.3
100:	98.1	99.9	102.4	105.6	109.8	115.3	122.7	132.3
105:	103.4	105.4	108.1	111.6	116.1	122.0	129.7	139.7
110:	108.7	110.9	113.8	117.5	122.3	128.4	136.3	146.5

Heat stroke and heat exhaustion do not occur frequently in sheep if they are allowed to naturally find shade and lie quietly during the warm part of the day. Moving, showing and transporting sheep may cause an episode of heat stroke or heat exhaustion. Clinical signs include rapid breathing, unable to stand and an elevated rectal temperature. If their temperature is over 105 degrees it is critical to get the sheep in a shaded area and cool the animal with rubbing alcohol applied to the area between the rear legs. If the rectal temperature rises above 107 degrees cellular degeneration occurs with death of the sheep following.

Temperatures above 90 degrees Fahrenheit have been shown to have a detrimental affect on ram fertility. High temperatures cause sperm cell degeneration and death. It is important to shear the scrotum and belly of rams at this time of year to allow them to better cope with the warm temperatures. Furthermore, a breeding soundness exam prior to ram turnout will allow the shepherd to know his rams have live sperm and is good insurance against a breeding disaster. Heat stress has been implicated as a cause of early embryonic death in ruminants.

During hot summer months shepherds need to be conscious of the heat index and plan all activities such as transporting, deworming, vaccinating, etc. during the cool part of the day. This will be less stressful on the sheep and the shepherd a well. Shaded pastures are a definite benefit. If no shade is available inexpensive shade can be constructed from plans available at your county extension office. Availability of clean fresh drinking water is critical since the amount of water lost at high temperatures is much higher than when it is cool. Fans are beneficial if sheep are confined to a barn with little air movement. If sheep are transported, such as to shows, open the trailer vents as much as possible and park the trailer in the

shade whenever possible. Generally summer sheep shows should be scheduled during morning or evening. Never spray a sheep with cold water to attempt to cool them. While this practice is beneficial for most animals, if the wool gets wet, air will not pass over the skin and virtually no cooling will occur.

On page one is a heat index table. The heat index is a simple combination of temperature and humidity. Essentially it is the heat that an animal or person feels. While it has been designed as a measure of human comfort it is entirely applicable to sheep. Remember a bit of common sense goes a long way.