Michigan Technical Note

Technical Note - MI Livestock Grazing - 1 **July 1, 2002**
(Reviewed 11/12)

Subject: Precautions Needed for Livestock Heat Stress

Michigan weather is well known for its fluctuation in temperature. Every county in Michigan has recorded near or below freezing temperatures for every month of the year sometime in the last 100 years. But usually in mid-summer most counties in Michigan will experience dry, hot weather. This usually only occurs for a short time period before precipitation and cooler temperatures bring relief, at least for a few days. Sometimes Michigan can experience prolonged hot weather in mid-summer. This can have a very negative effect on livestock.

Livestock and especially cattle are the most comfortable between 40° and 75° F. These are the temperature ranges where livestock produce the most weight gain, produce the most milk, etc. Of course humidity plays a very big factor in how comfortable the livestock are. As relative humidity climbs to 90% or more, even 75° F temperatures can put the animal into "Mild Stress".

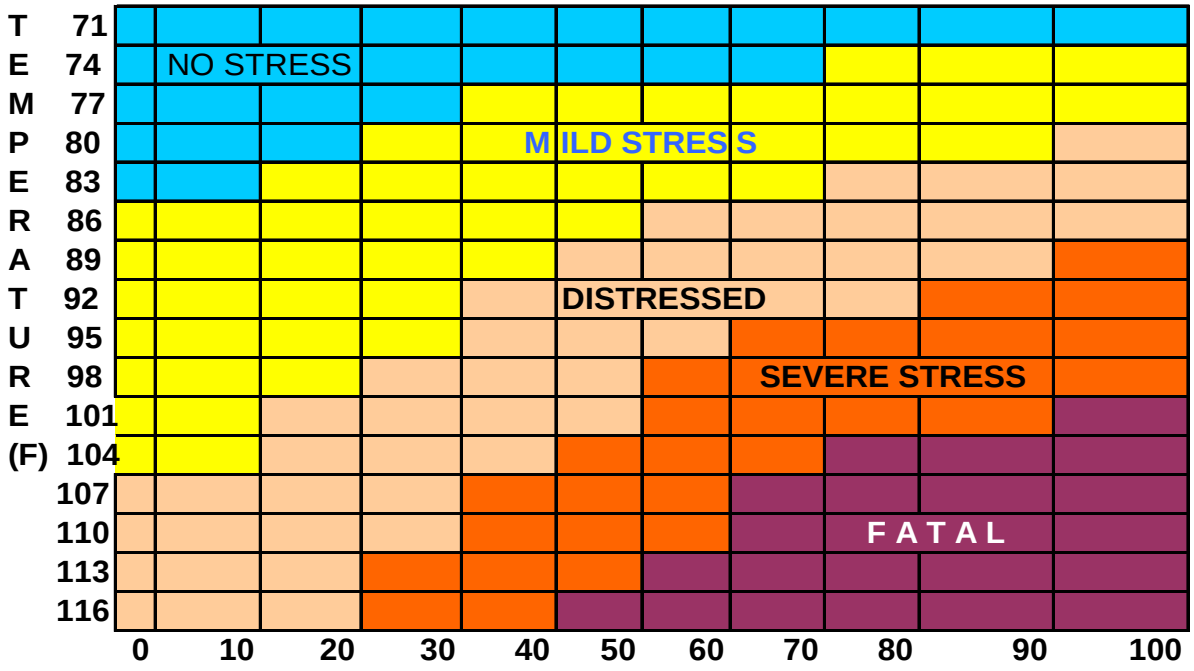
As animals begin to go into "Mild Stress", production may not be curtailed very much if adequate water is provided and night - time cooling (temperature goes below 75° F for several hours) takes place. When livestock become Distressed for several hours a day their diet is affected dramatically. Much like we humans, livestock in hot weather, when they are "Distressed", will reduce solid food intake and increase liquid intake. Livestock production will most likely be affected to a small degree even with adequate water and nighttime cooling. Sometimes all of Michigan can experience some "Severe Stress" in mid-summer. This happens as temperatures reach 92° F or higher and relative humidity is 80% or more. When livestock are in Severe Stress solid food intake will drop by half or more. Water intake will more than double! A water study done on heifers found that water intake went from an average of 8 gallons per day at 70° F temperature average and 75% humidity or less, to a daily average of 19 gallons a day at 95° F temperature average and 90% humidity average.

NRCS planners must emphasize that livestock be relieved as much as possible when they are under "Severe Stress". When the farmer/rancher inquires about livestock performance in grazing systems and/or confinement systems during livestock "Severe Stress", they need to be given this information to show them they need to forget about reaching peak milk output from lactating livestock or peak average daily weight gain from meat animals. The livestock are trying to just survive at this level of stress! Adequate water is a must at this time. Livestock producers need to have large tanks or many small tanks so all of the livestock can get a drink when they want to!

This problem is compounded if there is not any night time cooling (below 75° F for several hours at night). If this is the case, it is very important that livestock be given shade preferably with a breeze or wind movement. If this condition continues for several days the livestock could move into the "Fatal" zone and obviously death could occur.

Providing plenty of water for the whole herd/flock and shade in Severe Stress conditions can bring relief to the livestock until the heat wave passes.

Heat Stress Conversion Chart



% RELATIVE HUMIDITY