

**Hot Hay: How Hot Is Too Hot?**

Putting up hay is turning into a real challenge this year. Following are some guidelines from Steve Barnhart, Iowa State Forage Specialist on what to do if hay heats up on you. It is a good practice to check baled hay 4 to 5 days after baling for its initial temperature rise level. Some guidelines for handling hay that is heating in storage are provided below according to temperature range.

**Temperatures up to 120°F.** Normal respiration by fungi and bacteria in wet hay cause the temperature to rise; this process often is called normal sweating during hay curing. Most people can hold their hand or arm in the hay for 30 seconds under such conditions. This level of heating occurs in hay baled at 15-20 percent moisture. These temperatures are generally not considered to cause serious concern in forage quality loss. Mold or mustiness may develop at this temperature range.

**120 – 130°F.** Heating is caused by respiration of fungi able to grow at temperatures in this range. Most people cannot hold their arm in hay very long if the temperature is greater than 120° F. Chemical reactions during heating cause some of the protein and fiber to become less digestible, and the hay to caramelize, giving it a tobacco-cured color and aroma. The loss in digestibility is greater at these temperatures than at lower temperatures. If the excess heat can dissipate from the stack or bale, temperatures seldom increase above 130-140°F.

**135-160°F.** At temperatures between 135° and 160°F, heating is dominated by the respiration of fungi able to grow at these high temperatures. At 150°F, check the temperature every day! At temperatures above 160°F, chemical reactions dominate the heating process and can proceed at a very rapid rate. If the temperatures continue to rise and heat is not dissipated from the storage site, a dangerous condition may develop. At 160°F, check the temperature every 4 hours.

**175°F.** Continue to check the temperature every few hours. Notify the fire department that you have some very hot hay and work with them for recommendations for further action.

**195° F or hotter.** Hay stored at 195°F or hotter can create a dangerous situation. Spontaneous combustion is possible. Do not attempt to move hay without fire department assistance.

Another concern in hay stored at higher-than-desired moisture levels is the growth of mold in the wet hay during storage. In extreme cases, the mold remains visible in the hay; if only a slight amount of mold growth occurred there may be only a musty smell lingering in the hay. Consult your veterinarian about the adverse feeding effects of moldy hay on livestock, but in general, horses are more sensitive to moldy or musty hay than are cattle or sheep. Mold and musty odors are often a factor in the marketing and pricing of hay that is bought and sold.