

Caramelized Sugars May Taste Good, But Mean Lower Protein In Hay

FAYETTEVILLE, ARK.

A little moisture in hay is normal, but higher levels will mean higher heat levels in the bale leading to destruction of proteins in the forage and at high enough temperatures, the storage barn, said Dirk Philipp, assistant professor for the University of Arkansas System Division of Agriculture.

Different plant parts dry at differing rates.

“Stems retain more moisture than leaves, which dry faster in the field,” he said. “This is especially true with forages that have relatively large stems, such as pearl millet, less so with bermudagrass or fescue.”

For all hays, moisture monitoring is necessary to produce consistently high-quality hay. Moisture in hay will stimulate the growth of microbes in the hay, causing heat.

“Even at recommended moisture levels, hay will slightly increase in temperature, as microbes respire for a couple of weeks and slightly

increase bale temperature – up to around 120 degrees Fahrenheit,” he said.

If moisture is left unchecked, temperatures will rise.

“If temperatures reach above 140 degrees, protein will be broken down and sugars caramelized,” Philipp said. “Although heat-damaged forage is highly palatable, much of the protein is not available to animals anymore.”

If the hay is allowed to ferment with high moisture levels, “temperatures may reach 180 degrees or more and the hay may be in danger of spontaneous combustion,” he said.

Phillip said it’s important that hay is stored properly in barns and moisture is monitored either by a meter or the microwave method.

“Consistent moisture is important for a high quality hay product to keep customers,” he said. “If produced for own farm animals, producers should also aim for a high quality product to ensure nutritional requirements are met.” Δ