

## Preservatives and Hay Moisture

The moisture content of hay when it is baled influences yield, quality, and storability of the hay. Preservatives can help us get it right.

When hay is baled too dry, leaves fall off of stems to the ground, reducing both quality and yield. Unfortunately, hay baled too wet can get moldy, overheat, or even catch fire. So we have a narrow moisture range that results in good hay that keeps well.

Hay can be baled a bit wetter if a preservative like propionic acid is applied as it's baled. To get good results from preservatives, though, it helps to know how it works and what it can and can not do.

Baled hay naturally contains millions of bacteria and mold fungi. As they consume hay nutrients, these microbes produce heat. The duration and intensity of this heat determines the amount of damage the hay receives.

This heat also forces moisture out of the bale, something we often call "going through a sweat". Usually, hay gets dry enough that the microbes soon die or go dormant. But when too much moisture is present, heating becomes excessive, mold develops, or both.

Preservatives kill many of the microbes so less heat is produced. This gives hay time to dry out naturally, without the "sweat". But as it dries the preservative also vaporizes and disappears. If we stack bales tightly into storage soon after baling or fail to allow drying to occur in other ways, the remaining microbes eventually produce the mold and heat we wanted to avoid. Also, if rain, high humidity, or other sources moisten the hay later, microbial activity can redevelop since the protection from preservatives lasts only a short time.

Preservatives can help make good hay at higher moisture levels but correct management is needed to keep that hay in good shape.

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