

## **What is the Right Time of Day to Cut Hay?**

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Most folks in the Southeast learned how to make hay by watching and helping their father and grandfathers. Historically, most hay producers would start cutting hay about 10 a.m. By then, the dew was off, and it was just right to start cutting hay.

If one had grown up in the semi-arid or arid western US, they likely would relate a similar experience in learning how to make hay. However, their tale would differ in that they would likely have had to stay up late at night to cut hay. That's because in that region of the country, it is best to cut hay between dusk and about midnight in order maximize sugar content. So, why is there a difference between there and here in the Southeast? Which is the right time to cut hay?

### **Daily Variation in Sugar Content**

To answer that question, we need to begin with a primer on a couple of subjects. First, the amount of sugar and starch in any forage crop will go through a daily cycle. Regardless of where the crop is grown, the plant creates carbohydrates during the daylight hours via the process of photosynthesis. The photosynthesis that occurs during the day is at a rate that is higher than the plant needs for growth and maintenance during the day. So, sugar content will generally be highest at dusk. Though starches and simple sugars accumulate during the day, a substantial amount of these carbohydrates are used up during the night for growth and maintenance (via the processes of respiration). Therefore, cutting the crop at night will likely maximize the sugar in the crop, at least at the time of cutting.

However, the difference in sugar content between late evening and early morning is relatively minor. As a percent of the dry matter in the crop, the difference is likely to be less than 1%. This difference is even more marginal in our warm season crops (e.g., bermudagrass, bahiagrass, sorghum-sudan, etc.). This is because of the higher concentration of fiber that exists in these forages relative to cool season crops (e.g., ryegrass, small grains, tall fescue, alfalfa, etc.).

### **Respiration Continues**

Furthermore, respiration by the plant does not stop whenever the crop is cut. In fact, the moisture in the crop has to drop below 47% moisture for respiration to totally cease. In the arid west, the crop moisture in the field can go from ~85% moisture to less than 47% moisture in a matter of just a few hours. In the humid east and especially here in the Southeast, it may take 2-3 times longer (or more) to drop to that same level. Given that the additional sugar content at early evening vs. early morning is relatively low and the period where respiration will continue to occur is long enough that it uses up most (if not all) of this marginal increase, there is no need to cut hay late in the day or evening in order to maximize sugar content in the Southeast.

### **Weather Risk Trumps Timing**

One must also remember that the greatest risk to hay curing and forage quality is rain damage. Weather prediction is, obviously, far from perfect in the Southeast. If the weatherman says there is no chance of rain in

the 48-hour forecast, we have some reasonable amount of confidence that he'll be right more often than not. But, on that third day, and especially on those days beyond, we might as well flip a coin to judge what the weather will be.

Consider this scenario. One wakes up one morning and listens to the 5-day forecast. It predicts clear weather for the next 5 days. The producer decides to cut hay. If the producer cuts on the morning of day 1, he can be reasonably confident that (assuming the crop will dry in 2-3 days time) he will be able to get it up without rain damage. If he decides to wait to cut until late evening on day 1 and assumes it is still going to require 2-3 days in the sun to dry, he may not be able to bale the hay until day 4. The chances are reasonably high that the weather forecast will change for days 3 and 4. So, the risk of rain damage is increased if one waits until the evening because the risk of rainfall on that extra day at the end is much greater than having that same drying day at the beginning.

## **Bottom Line**

Consequently, the answer to the question of "When is the Right Time to Cut Hay?" is that it is usually best to start cutting hay as soon as possible during the day. As with any such generalization, there are always some exceptions (e.g., when cutting it for silage, green-chop, etc.). But, one should base their decision on this timing more on the potential impact of the weather rather than the minor diurnal variations in sugar content in our forages.

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CSS-F050

February 2011

Issued in furtherance of Cooperative Extension work, Acts of May 8 and June 30, 1914, The University of Georgia College of Agricultural and Environmental Sciences and the U.S. Department of Agriculture cooperating.

J. Scott Angle, Dean and Director.