Western Hay Production vs. Eastern Hay Production

Tom Keene
Research Agronomist
University of Kentucky

Early in the history of mankind, man was nomadic and moved from location to location in order to gather and find sustenance for themselves as well as their livestock. At some point in time, man decided that rather than keep moving, they would establish a community in one location, usually near running water (or fresh water of some kind), and would begin to sustain themselves with production agricultural practices.

Planting and harvesting soon took the place of packing up and moving every time the current resources had been depleted. Each year a new crop would be planted; livestock also became an important part of agricultural production for food and other supplies. Staying in the same location required animal feed during the winter because in many locations forages ceased to grow during the colder months. While grains were a part of the animal feed ration during the winter, dried forages or hay were essential for feed and as a fiber component for animal digestive health. Thus started man’s quest to produce and keep hay for his livestock.

In the beginning, making hay was hard work. None of the modern equipment was available and only a scythe and backbreaking labor gathered the hay into the barns or maws. The cut hay would lay on the ground until sufficiently dry and then would be gathered by hand into the appropriate facility. This practice changed very little for century upon century.

Horses and oxen soon began to lend a hand when the loose hay was loaded onto wagons or carts and hauled to the barn for winter storage. Then as man began to fashion other agricultural tools, he began to make various new hay making tools as well as improvements to existing ones.

In the 1900’s, loose haymaking and storage soon gave way to modern mechanized “balers”. These started out as stationery units but soon transitioned to the more modern pull behind PTO driven machines and eventually into the self-propelled units that dot today’s haymaking landscape. While machinery upgrades have made haymaking far less labor intensive, the one thing that has remained constant in haymaking is dealing with the weather. Even during the early days of haymaking, cutting hay and getting it put into the barn before it was damaged by rain was a big deal. Haymakers have known for centuries that the quality of hay deteriorates when it is rained on and the more rain….the greater the deterioration.

When comparing hay making between the western United States and the eastern United States, weather is the biggest variable that needs to be considered. Variation in rainfall and humidity make a tremendous difference when putting up hay in these two regions of the country. For the sake of discussion in this article, I consider the land area east of the Mississippi to be the eastern U.S. and the land area from the Rocky Mountain front range to the Pacific Ocean the western U.S.
Modern technology and communications along with highly sophisticated satellite imagery has greatly enhanced weather forecasting compared to even just a few years ago. However, relative humidity, especially in the east, continues to make harvesting very challenging. It is commonplace during the haymaking months for the humidity to be greater than 50% during the day and even greater during the night. The hurdle of getting the hay dried to 15% to 18% can be challenging to say the least.

In the west, just the opposite is the issue when it comes to humidity. It is rarely high enough during the day to do any baling since daytime humidity readings hover at 10% to 12% or lower making hay too dry to bale (leaf shatter is an issue when hay is too dry). In the western U.S., a majority of hay is baled during the nighttime hours when the humidity rises and softens the hay for baling. However, in the early morning toward dawn the humidity will rise to the point that baling has to be halted. There is one more small window for baling as the hay begins to dry out once again in the early morning.

Rainfall in the different regions certainly plays a part in the moisture issue. In the western states, annual rainfall totals are often only in the single digits and most of that falls during the winter months when production is not an issue. In the eastern states, annual rainfall can be near or above 50 inches dispersed fairly evenly throughout the entire year. As you can imagine, almost all of the hay in the west requires irrigation for production while irrigation is rarely used for eastern haymaking.

Most all of the hay produced in the eastern US is consumed in the area while much of the hay produced in the west is shipped elsewhere. Some of this western hay may travel east to horse markets or dairies and large amounts are shipped to overseas markets.

The following chart reveals just a small snippet of some of the price differentials seen for western produced hay and eastern produced hay. If you include all of the hay produced in the east including tall fescue, orchardgrass, and grass/legume mixtures, then you see that the price is quite different than western produced timothy and alfalfa. However, if you look at the alfalfa as a stand-alone crop then eastern alfalfa hay producers can compete nicely with western hay prices.

One of the main reasons for the lower alfalfa prices in the west is for the transportation cost incurred when shipping western produced hay to the east or overseas. Sometimes the actual cost of the shipping can exceed the price of the hay received on farm.
2015 USDA Yield & Prices

<table>
<thead>
<tr>
<th></th>
<th>KY</th>
<th>ID</th>
<th>WA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alfalfa Acres</td>
<td>170,000</td>
<td>1,000,000</td>
<td>390,000</td>
</tr>
<tr>
<td>All Hay Acres</td>
<td>2,370,000</td>
<td>1,330,000</td>
<td>750,000</td>
</tr>
<tr>
<td>Price/T All Hay</td>
<td>$136</td>
<td>$169</td>
<td>$174</td>
</tr>
<tr>
<td>Price/T Alfalfa</td>
<td>$216</td>
<td>$170</td>
<td>$171</td>
</tr>
</tbody>
</table>

In conclusion, while there are many production practices and weather issues that vary from east to west, some things remain constant. If you use improved varieties, if you correct the pH, if you fertilize according to soil test recommendations, if you have well drained soils, if you cut at the proper stage of maturity, and if you can bale without rain damage, then you can produce extremely high quality hay.