What Is Haylage?

Johnathan Gladney, Regional Extension Agent

Silage and haylage have resurfaced from the 1970s and ’80s as a lower cost option to provide the daily energy needs for beef cattle. Beef producers who have been in the cattle business for at least one generation should be familiar with corn and sorghum silage. Silages are being used for those in the dairy industry; however, haylage, also known as baleage, has only come along in the last 20 years in specialized situations in beef cattle operations. Haylage has been more widely used in the southern regions of Georgia, Alabama, Mississippi, and Louisiana and in northern Florida.

For those who might not be familiar with the utilization and production of haylage, what is it? Haylage is an anaerobic method of curing forage for later use that allows forage producers to harvest the forage at a time when the energy is at its highest. Why should producers think about and manage for higher energy stored forages? If producers manage the cutting and storage of haylage properly, they will significantly reduce the amount of high priced purchased feed that is needed. It is all about money.

Haylage is cut with the same equipment as hay; however, hay is dried to 18 percent moisture or less, and haylage is only dried to 40 to 60 percent moisture. Haylage is baled in windrows like hay. The baler needs to have some modification to prevent the wet (40 to 60 percent moisture) forage from wrapping around the main roller in the baler. The green, tightly packed roll of hay needs to be wrapped to cut off all air from the bale so that it will go through the ensiling process. Once a roll is baled, it needs to be wrapped with plastic and the air cutoff in 4 to 6 hours. The roll will begin to excessively heat if more time elapses before wrapping. This can cause the degradation of both energy and protein if the haylage continues to heat to higher temperatures.

Once the haylage is wrapped, the pH is roughly 6.0 and the temperature will be in the 70-degree F range. On day 2, fermentation begins and heating slows from the peak of around 95 degrees F. The pH drops to as low as 5.0. On day 3, lactic acid begins to be produced, which is important in continuing to decrease the pH as low as 4.0 to 4.2. When the haylage drops to this pH, the product is becoming stable. It takes anywhere from 8 to 21 days for haylage to become stable and the temperature to drop to an ambient temperature.

Haylage allows for cutting high quality forages at the proper time to maintain high percent of total digestible nutrient values that will more closely meet the needs of the cows in cow/calf production systems. Ryegrass haylage is a great example of effectively utilizing high moisture forages that are able to be cut and preserved in less than ideal conditions for hay production. Normally, there is enough moisture in the winter to make a crop of ryegrass. The optimal time to cut ryegrass is when the flag leaf is just starting to emerge. The flag leaf breaks through in the early spring, depending on planting dates in the fall. The weather conditions are not consistently favorable in the early spring for hay production.
Use Extension publication ANR-1323, "Alabama Beef Cattle Pocket Guide," page 42. If you do not have one, contact your county extension office or the Alabama Cattlemen's Association. The different requirements month by month for a brood cow are listed for dry matter intake (DMI), %TDN, and percent of crude protein (%CP). Test your hay or haylage to determine how many months this forage will meet the needs of your herd. Try this example from a ryegrass haylage test report: 62.3% TDN, 11.5% CP, 50% dry matter, and 75 bales weighing 1,700 pounds. How many days can you feed 25 cows? How many days will the cows need supplement? How much supplement will need to be purchased?

Forage Tips
Jennifer M. Johnson, Extension Forage Specialist

"April showers bring May flowers.” I remember this sing-song saying from my childhood as I would run wildly through the lush green pastures on our family farm. At the time, I was just happy to be out of the cold, daunting days of winter and jumping head first into the new life spring brings every year. As an adult, I still approach spring with childlike wonder as I walk through a pasture filled with the beautiful, artistic, colorful clovers created in nature.

Spring is a wonderful time to be a forage producer. The cool-season grass is growing at full speed, the winter annuals are beginning to put up a seedhead, and the annual legumes are showing their colors as bright as can be. Spring brings possibility and excitement, especially to forage producers.

A few tips to remember when spring approaches:

1. While your winter annual forages are showing their brilliant seedheads, winter annual weeds are showing theirs too and will quickly begin dropping those seeds for a nice seedbank for next year. Once these weeds start putting on seedheads, herbicides are minimally effective. Implementing weed control via grazing or timely harvest will be helpful in reducing the seed in the seedbank for next year. Go ahead and mark on the calendar to scout and control for winter annual weeds in November.

2. Now is the time to help control advancing summer annual and perennial weed control issues. Know the what, when, where, and how much before you apply. Contact your local Extension agent for assistance in making these decisions.

3. As spring approaches, it is a good time to see your grazing management plan spring into action and to use your lush forage efficiently and effectively. When turning hungry animals into a lush legume or winter annual grass pasture, be mindful of the possibility of bloat. Supplement hungry animals with dry hay before allowing them to graze. Ensuring that an ionophore is mixed with your spring mineral mix will help minimize bloat risk too.

4. Spring means establishment and fertility. Spring is the perfect time to begin the process of establishing bahiagrass and bermudagrass pastures as well as fertilizing your warm-season grass pastures to sustain productivity through the summer. Split recommended N fertilizer into two or more applications through the season. This will ensure a more consistent supply of forage through the summer and reduce the risk of nitrate accumulation in the forage if drought occurs.

5. Spring is the time to plant summer annual forages such as sorghum, sorghum-sudangrass, and pearl millet. Planting summer annual forages in a staggered, 2-week separation, will improve forage distribution through the season and improve forage utilization, preventing all of the forage from being ready to graze or harvest at the same time. Summer annuals also have the potential of providing forage for drought protection.

As we prepare for the arrival of spring and all of the bounty that it brings, let’s take a minute to enjoy the canvas that is displayed before us and make plans that ensure the forage is utilized as efficiently as possible.

Issues with Producing and Utilizing Haylage
Johnathan Gladney, Regional Extension Agent

There are many misconceptions and issues with making and utilizing haylage. Haylage can bring great rewards, such as not having to feed supplement. That would be both a cost and labor savings. However, it can be the most costly hay/dry matter you have ever dealt with if not managed properly. The rewards are big and the losses are bigger.

You need specialized haylage wrapping equipment, plastic to wrap the haylage, and the labor to dispose of the plastic after feeding. In most cases, it takes an extra person to wrap the hay on the day of baling. These are all extra costs involved with making haylage. You must make sure that you are getting something for your time, effort and money. What you need is the extra energy represented as percent of total digestible nutrients (%TDN) and the additional percent crude protein (%CP) that can be achieved through making haylage. This extra energy and protein is achieved by cutting the forage at a more ideal time (42 days or less) and fertilizing at a level that will give you the yield and %CP that you need to offset the additional cost of producing haylage. If you do not fertilize enough and cut the forage at the correct time, the haylage will need supplemental feed just like most of the hay produced in Alabama.

A mistake that is common with baling haylage is baling too quickly after cutting at too high a moisture content. Lush winter annual forages can be in the 70- to 80-percent moisture range when cut. Recommended moisture content for haylage is between 40 and 60 percent moisture. Baling winter annual forages in late February, March or early April will usually need a couple of days to go from 70 to 80 percent moisture when cut down to 40 to 60 percent moisture. It all depends on the humidity, air flow, hours of sun light and the density of the forage that was cut. A relatively easy way to check the moisture content of your forage before baling is to use the forage moisture content microwave test found at http://pubs.cas.psu.edu/freepubs/pdfs/i106.pdf.

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A problem that some people have in wrapping their haylage is not applying enough plastic on the rolls to keep the air from being able to come into the tube of rolls or into the individually wrapped rolls. This is an anaerobic method of curing forage. If enough plastic is not put on the haylage to keep the air out the forage, it will begin to heat and the pH will not go down enough to make the forage ensile properly. The %TDN and the %CP that you are after will be greatly reduced, if not a total loss.

Other issues with haylage once the forage has been cut, transported, wrapped and considered stable after ensiling is keeping the plastic from being torn and letting air into the forage. An obvious problem is keeping cattle and horses out of the area where the haylage is being stored. Once that is under control, the next problem is rats and coyotes. One suggestion for keeping rodents out of your haylage is to keep the grass and weeds around your haylage mowed or grazed. Therefore, do not stack your haylage bales or your tube rows so close together that you cannot manage the forage around them. Coyotes are tougher to control, and you need to do some planning in trying to manage this problem. The coyotes will dig holes under the bales of haylage and play on top of the bales ripping the plastic open from the top. The coyotes do not appear to be eating the haylage merely opening the bags. Refer to the following ACES publications: ANR-0587, "Coyote Control in Alabama," and ANR-1413, "The Coyote: Facts and Myths About Living with This Wild Canid."

Managing Mud Around Hay Feeding Areas
Landon Marks, Regional Extension Agent

Winter and spring are typically wet seasons for livestock producers in Alabama. These seasons are also represented by dormant permanent pastures requiring livestock to congregate around feeding areas. Rainfall tends to increase over the winter and spring; with increased rain and concentrated feeding areas, this makes for the best mud recipe possible.

Why Mud is a Problem for Livestock

Completely eliminating mud is a wonderful goal very few livestock producers ever achieve. It may not be practical to totally eliminate mud, but it is certainly possible to manage. Mud can bring several issues with it that can be dangerous and even deadly for livestock. Several livestock producers have babies being born in the winter and spring time. It is extremely important to watch for livestock trying to deliver around mud holes or accumulated water. Newborns and young livestock are at an increased risk for hypothermia if temperatures drop during wet conditions. In severe conditions, babies may become trapped in mud. There have been reported instances where hay bales are placed into feeding rings and livestock are laying in leftover hay and become trapped by the new bale. Observing livestock closely is critical to identify such situations. Muddy areas with heavy manure concentrations are perfect grounds for disease-causing organisms, such as bacteria. Instances of calf scours, naval ill, Johnes disease, mastitis and foot rot can be increased during these conditions. Consult your veterinarian for advice on disease prevention and treatment. Treatment should be prompt for young livestock.

Mud can affect feeding behavior during wet season. Muddy areas create a suction effect on the legs and hooves of livestock. This makes moving around feeders almost impossible. For cattle, 4 to 8 inches of mud can decrease intake by 4 to 8 percent and slow gains by 14 percent. Belly-deep mud can reduce intake by 30 percent.

Solutions for the Mud

Once you have mapped out your pastures and found the best places to feed hay, a few other things can be done to help deal with mud.

When it comes time to start feeding hay, start in the back portion of the pasture and work toward the front to keep mud from blocking access to pastures. Damage to pastures moves along with moving hay feeders, so pay close attention to where you move feeders. Feeding pads, rotational grazing systems, and lowering stocking density can help with mud accumulation. Feeding pads can be designed with concrete or gravel. Make sure you allow enough space to cover feeding areas, otherwise mud will still build up if the pad is just under the hay. When hay feeders are not placed on a feeding pad and are not moved around, nutrients from hay build up to excess levels, making it difficult for grass to grow in those areas. This could be the reason weeds accumulate around hay feeding sites that are not moved around. With limited grass in those areas, the excess nutrients run off into creeks and streams, contaminating the water sources in pastures. Depending on the amount of labor available on individual farms, some of the following feeding techniques can be implemented to reduce mud.

Stockpile feeding is when hay bales are strategically placed throughout pastures at the beginning of winter and electric wire is put in place to prevent access to all of the bales. When electric fencing is moved, hay rings can be moved and placed on the next bales.

Unrolling bales of hay is another approach that can be on the labor intensive side of feeding. This approach allows for livestock to line up as they would at a feed bunk. This approach can become wasteful if overfed because livestock will urinate, defecate, stomp and bed in rolled out hay. One approach to prevent this is to run an electric wire down the middle of rolled out bales to help eliminate waste.

Racks that prevent hay from contacting the ground are effective ways to reduce hay waste, but the mud will still accumulate if a high traffic feeding pad is not designed.

Shelters can be constructed over feeding areas to reduce mud. These shelters will divert rain water and allow a dry space for feeding. Mud will still accumulate if shelters are not guttered and there is not a high traffic pad designed.
Drains can be installed or constructed around feeding areas to divert water in heavy water run-off situations. When designing areas, consult an agricultural engineer to go over your design and discuss goals of installing drains and water diversion systems.

**Last Thoughts**

Mud can cause serious problems for livestock producers in Alabama. The goal here is to manage the mud to your best ability and not be part of the problem but part of the solution. Make improvements as you can and think about where you place bales of hay instead of just placing them wherever is most convenient. When a feeding plan is designed and implemented correctly, it makes for a safer, healthier, and more productive environment for both livestock and producer. For more information, contact your county Extension office.