



# OKLAHOMA FORAGES NEWSLETTER



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We welcome contributions and suggestions. Comments about and contributions to the Oklahoma Forages Newsletter and/or our web sites are welcome and should be submitted to

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*Everyone interested in forages is welcome to receive and contribute to the Oklahoma Forages Newsletter.*

## Planning Winter Forage and Pasture Options during Drought Conditions

It is time to begin planning, evaluating, and choosing forage and pasture options for winter feeding. With careful planning, winter feeding costs can be substantially reduced with a few basic forage management practices. This is even more critical during periods of drought. During droughty conditions, it is likely that some combination of two or more of the following options be should be considered during the planning process. This will increase the chances of providing grazable forage during the winter which will be more economical than providing additional concentrates and protein with increased hay feeding.

### Hay

By far, the most common winter-feeding option is to feed hay during the winter. It is less risky than any of the other available options and requires the least amount of planning, but it is also the most expensive. Hay purchasing should not be the first priority unless there is less than a 45- to 60-day supply of hay available. During a 4-month hay-feeding season (120 days), a 1200-pound cow will consume approximately 30 pounds of hay each day. This means that each cow will require between 3 and 4 round hay bales weighing at least 1100 pounds. One disadvantage is that cattle can waste a large amount of hay if it is not fed in a feeder or ring. Up to 50% of the hay fed without a feeder or ring can be wasted. In this case, the number of hay bales required will double to between 6 and 8 round bales for each cow. Assuming a hay cost of \$50 per ton, cost of feeding hay for 120 days could range from around \$80 to over \$220 for each cow. There are several options available that can reduce the associated costs of extended hay feeding during the winter.

### Stockpiled forages

One option to reduce the amount of hay fed during the winter is growing stockpiled forages. Stockpiled forage is simply forage that is allowed to accumulate in the pasture for grazing when production is slow during the winter months. The only out-of-pocket cost associated with growing stockpiled forages is the fertilizer cost plus any application cost. However, this has more risk than feeding hay, because the success depends almost entirely on rainfall. When successful, the cost of grazing stockpiled forage per animal unit is lower than the cost of feeding hay or the cost of feeding protein supplement on dry grass. Grazing stockpiled forages is not a new concept. Livestock producers have grazed dormant native grass pastures for many years. Hay is generally not fed on native grass pastures during the winter except during periods of heavy snow cover.

Stockpiling native grass pastures is different than stockpiling introduced grass pastures such as bermudagrass and tall fescue. Stockpiling fall growth of bermudagrass and tall fescue requires nitrogen (N) fertilization, whereas stockpiling native grass pastures is from non-fertilized summer growth. Even with N fertilizer prices approaching \$350 per ton, 1 ton of stockpiled bermudagrass or tall fescue forage would cost \$20 to \$30 per ton. This should be compared with the cost of purchased hay.

### **Bermudagrass**

Forage production from stockpiled bermudagrass can be quite variable depending on amount of late summer rainfall. A general rule of thumb is to expect between 25 to 50 pounds of forage per acre for each pound of applied N. For example, 50 pounds of actual N per acre (108 pounds of urea) would produce from 1250 to 2500 pounds of forage per acre.

Pasture preparation is key to producing quality fall-grown forages. Summer growth of bermudagrass should be removed by mid- to late-August. This can be accomplished through grazing, haying, or mowing. Fifty to 75 pounds of actual N per acre should be applied by late August to take advantage of late summer rainfall. Application of 50 to 75 pounds of actual N per acre in August to short bermudagrass can supply one ton of forage per acre. This stockpiled forage can be grazed prior to February to reduce the length of the hay-feeding season. One acre of stockpiled bermudagrass will provide grazing for one cow for approximately 45 days.

### **Tall fescue**

Management of stockpiled tall fescue is similar to the management for stockpiling bermudagrass. The two major differences are the amount of N fertilizer applied and the grazing period. Seventy five to 100 pounds of actual N per acre should be applied by early September to take advantage of late summer rainfall. Similar to bermudagrass, fall production is highly dependent on rainfall. Research conducted in the Cherokee Prairie on stockpiling tall fescue concluded that an average of 1 ton of fall growth from fertilizing tall fescue is possible. Stockpiled tall fescue can be grazed from late-December through February. One acre of fall-fertilized tall fescue will provide grazing for one cow for approximately 45 days.

### **Summer annual forages**

In the past, it was believed that only forage sorghums were suitable for field curing. In addition to forage sorghums, sudangrass, sorghum-sudangrass hybrids, and millets have also been successfully used as stockpiled forages. Due to number of varieties commercially available, it is difficult to recommend a particular variety for use as stockpiled forage. Any medium to late maturing variety forage sorghum can be used.

Using stockpiled summer annual forages will require more management. Prepare a clean tilled seedbed or apply a burn-down herbicide, such as Roundup™, to control weeds and fertilize according to the soil test. Plant 12 to 15 pounds of pure live seed per acre of forage sorghum and 25 to 30 pounds of pure live seed per acre of sudangrass, sorghum-sudangrass hybrids, and millets. These should be planted in 10- to 12-inch drill rows in early to mid July. Grazing can begin as soon as early November following a killing frost.

### **Small grain pastures**

Sod seeding small grain pastures are not dependable for fall and winter grazing. This results from lack of dependable rainfall and competition from other grasses. However, these are still good options for grazing in mid spring before growth of summer pasture begins. Annual cool-season grasses can be planted on a clean tilled seedbed in late summer to provide grazing during late fall through late spring. There are many cool-season annual grasses with the most common being wheat, cereal rye, oat, and annual ryegrass. Planting a combination of 2 or more species would increase the distribution of forage production. Cereal rye generally produces more fall forage than spring forage and matures earlier than wheat. Annual ryegrass is generally the most productive of all the cool-season annual grasses, but the majority of production does not occur until late March or early April in eastern Oklahoma. Annual establishment costs for cool-season annual grasses cause this option to cost more than stockpiling either bermudagrass or tall fescue, but this is still less costly than feeding hay for an extended period of time.

-- Daren D. Redfearn

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## Alfalfa Producers Should Have a Marketing Plan

There is a great looking stand of alfalfa out in the field. The weather worked in your favor--for once it seems. Now it's almost time to swath and bale it. A producer wonders what to do with this ideal crop before it's in the barn or on the highway, sold, and headed to feed livestock.

But how do you get it sold? How do alfalfa producers market their alfalfa hay? It's not an easy task, but it is one that can be tackled pretty easily with a little forethought toward developing a marketing plan.

First, one must start with quality. The quality of alfalfa one intends to grow ultimately depends on the target market. Sometimes, producers end up with a different quality due to Mother Nature and must search for a different market. The target market is an important thing to establish early.

The importance of quality depends directly on the market one is targeting.

- ✓ High quality or high nutritional value is important to dairy producers.
- ✓ Quality, as it relates to type of bale, potential insects/weeds, and maybe nutritional value, is important to horse raisers.
- ✓ Quality is less important to beef cow owners. The size and shape of bales also determines where the hay will sell most easily.

Successful producers aim for a certain end product and work toward that goal. Hay quality is of utmost importance for some cash-crop alfalfa producers, but it is of secondary importance for most producers in the southern Great Plains who are most interested in getting high yields of "respectable" hay while keeping stands productive for many years.

Those producers who want to raise the high-end alfalfa know there are extra dollars in it. They cater to the high-producing dairy cow market and understand the importance of high quality and insist on being paid for high quality. They know that hay must be harvested prior to bloom, and it should be dried quickly while keeping as many leaves in the bale as possible.

Research has shown a strong relationship between price

and quality. High quality alfalfa hay must be grown in a controlled environment, and managed for high quality.

Successful producers understand the importance of minimizing the amount of weeds in their hay and correctly use herbicides to control them. They also understand that insects can affect forage quality and do their utmost to control them. Alfalfa producers going for high-quality hay normally practice good soil fertility because they are aware of the difficulties of producing high quality when low pH or important nutrients are limiting. The extra work pays off in the end.

High quality is vital to certain alfalfa producers and they work hard to market their hay. On the other hand many producers grow alfalfa and harvest hay when they get around to it. They tend to feed most of their hay to their own beef cows and sell whatever appears to be excess. In general, this group of producers does not spend much time marketing their hay and do not normally get the best price.

Other considerations producers need to evaluate include: bale type or size, time of year to sell, storing or selling directly from the field, and drought (or flood) impacts.

Large square bales were more easily shipped and sold to feedlots and dairies. Large round bales work for some feedlots and most small beef cow herds, while for others it doesn't. Many horsemen prefer the small rectangular bales.

Again, targeting a market first and producing for that market is critical. When selling hay, producers should be cognizant of the supplies as well as the demand.

Prices are typically lower during the growing season when supplies are plentiful. Prices rise towards a peak in winter and then decline toward spring in anticipation of the new growing season.

Some producers sell hay directly from the field, simply to save money; others like to store it and wait for better prices. Selling it directly out of the field allows immediate payment and no storage costs, as well as only having to handle the hay once.

Due to the seasonality in prices, often storing alfalfa for

the winter months pays. However, it depends on having storage facilities or storing alfalfa in a manner than results in little or no loss in nutritional quality. Second, it depends on the winter and overall supplies. A good production season and mild winter might combine to make returns to storage relatively small. But a short crop and severe winter might reap windfall returns to storage.

Drought will also influence how a crop is grown as well as how it is marketed. The obvious effect is to drive up prices, but it also has other consequences.

Drought has the effect of driving up hay prices to a certain extent, but as the drought continues, herds are downsized and demand for hay decreases. Another factor affecting alfalfa hay prices is whether there is an abundance of hay somewhere else. Alfalfa hay can be profitably transported fairly long distances when it passes the neighborhood of \$100 per ton. This also has the effect of decreasing demand for local hay.

Hay that stayed in Oklahoma was limited this year but got a good price. There is no assurance the price will

continue to increase. First cutting dryland hay had such low yield that the price per ton was immaterial. Fair to excellent third cutting hay will bring a good price in the field.

No matter the quality of hay, type of bale or other considerations, producers need to have a plan to successfully market their hay crops. A written marketing plan can be helpful and should be reviewed periodically. It can also be used to review marketing decisions and allows producers to make future plans. Different fields and different cuttings may also have their own marketing plans. OSU has a marketing plan worksheet available online at <http://alfalfa.okstate.edu/webnews/market4.htm>

Remember it is likely easier to keep good customers than to find new ones, and it's also easier to keep a good supplier than to find new ones.

Also see Alfalfa Harvest Management Discussions with Cost- Benefit Analysis. Circular E-943 at <http://alfalfa.okstate.edu/pub/harv-943.htm>

### **Marketing Horse Hay Is A Little Different**

For horse owners, hay quality is important also, but good horse hay is difficult to define and there are no measures of exactly what it should be. In general when marketing horse hay, a person is marketing to the horse owner, and the owner has certain vague notions of what makes good horse hay.

Several important factors to remember when buying or marketing horse alfalfa include mold or moisture, maturity, cutting/harvest date, smell, color and storage/bale type.

Absence of mold may be the most important criterion of good horse hay. Horses cannot tolerate eating or breathing mold and mold spores to the extent of most other classes of livestock. If hay is dried quickly and never allowed to get wet, there is little likelihood mold will be present.

Blister beetles are also important to horse owners. Consuming a small number of blister beetles can make a horse sick, and a large number may kill a horse. Avoiding blister beetles in alfalfa hay can be accomplished, to a certain extent, by feeding first-cut hay (May or earlier) or last-cut hay (October or later) because few, if any, blister beetle swarms are present at those times.

Color is also a consideration. Most horse owners want green-colored hay for horses, but a green color is only a fair indicator of hay quality. Bleached hay indicates exposure to sunlight or rain, and can mean vitamin A has been lost, but other important nutrients may be present in bleached hay.

Packaging is also an issue with many horse owners, and hay producers should be aware of this when making "horse hay". Small rectangular bales are the easiest for horse owners, but large bales (rectangular or round) may also contain good horse hay. This is a convenience to the person feeding the horse. It is also easier to inspect small square bales, flake by flake, for presence of mold, blister beetles, or toxic plants.

This article paraphrases an article in the High Plains Journal By Kylene Orebaugh June 1, 2006 with contributions from John Caddel, Plant & Soil Sciences Department and Clement Ward, Agricultural Economics Department, Oklahoma State University.

## Hay Purchasing Guidelines

From now through Spring 2007, hay production and hay supplies are expected to continue to decrease in the southern Great Plains. Although not usually a major problem across a large region, increased hay feeding in the southern Great Plains over the past year has many producers concerned about the availability of hay that will be fed through the winter. In years when hay supplies are low, the hay purchase price will likely be high, even for low quality hay. It is important to do some comparison shopping and not be forced to purchase the first hay that can be located.

Some good news is that even during times of tight hay supplies, there will be much hay of sufficient quality that little or no supplementation will be necessary to meet the animal's nutritional needs. However, there will also be hay of such poor-quality that additional energy and protein will be required to meet the animal's nutritional needs. A forage analysis is the only way to determine whether or not additional supplementation is required. A forage analysis is not practical when buying small lots of hay, but the purchase of large hay lots should not occur without a forage analysis. Also, feeding a large portion of hay for an extended period without a forage test should not occur due to the expense of providing supplemental feeds. For more information please see OSU Extension Fact Sheets [F-2589 \(Collecting Forage Samples for Analysis\)](#) and [F-2117 \(Forage Quality Interpretations\)](#).

One of the first considerations when purchasing hay is that it be based on individual animal requirements. For optimal production, forage quality should be matched as closely as possible to the nutritional needs of the animal. The nutritional needs depend on several production factors, which include the type of animal, reproductive cycle, sex, and age. Feeding animals excessively rich forage wastes nutrients and can result in health problems for the animal. Low quality forage can result in reduced animal performance and increased supplemental feeding costs. Do not purchase hay that has a higher quality than you can use. Limited feeding of high quality hay could be more economical than free-choice feeding hay that was purchased at a bargain price.

Oftentimes, when hay becomes available for purchase, there is no forage analysis. The following factors can be used as general guidelines for evaluating potential forage quality until the hay can be properly sampled and analyzed for forage quality. For more information please see OSU Extension Fact Sheet [F-2588 \(Hay Judging\)](#).

### **Plant maturity**

The maturity of the forage plant at harvest influences forage quality more than any other single factor. The reason for this is that as forage plants mature and yield increases, the amount of stems also increases. The presence of stems and many seedheads indicates overly mature forage and lower forage quality.

### **Leafiness**

Another characteristic often related to maturity is leafiness. Based on this, the ratio of leaves to stems can also be used as an indicator of forage quality. Since the majority of the compounds that result in high forage quality are located in the leaves of the plant, it is important that as many of the leaves as possible be retained during the hay-making process.

### **Color and Texture**

Although not always 100% fool-proof, green-colored hay is a good sign that the hay has potential to be good quality. The most desirable colored hay will have a bright green color. There can also be high-quality hay with the color bleached out by sunlight that can be just as good as green-colored hay and sometimes better. Hay texture is another characteristic that can give some indication of the hay quality. Many times, this is related to plant maturity and is based on the amount of leaves and stems present. High-quality hay should not be stiff or have a rough, abrasive texture.

### **Smell (the nose knows)**

Properly cured hay will have a fresh smell. If the hay has a dusty or musty odor, it usually indicates that the hay was baled too wet. Often the forage quality may not be substantially lower, but livestock acceptability may be decreased.

## Soil Fertility

Some hay is advertised as having been fertilized. Fertilization increases forage yields more than forage quality. With the exception of N fertilizer increasing the crude protein concentration, additional fertilization seldom has an influence on forage quality.

Be cautious and do not pay for hay with high forage quality if it is not needed or if the hay is low quality. If possible, purchase hay that has been tested for nutritive value. It is also important to consider purchasing the hay on a "per ton" basis and not on a

"per bale" basis. Saving or spending an extra \$0.10 to \$0.25 per bale can make a difference of several dollars with hay purchased by the ton, especially when purchasing small, square bales. Even with the purchase of larger round bales, saving or spending an additional \$1 to \$2 per bale can also make a difference of several dollars when hay is purchased by the ton.

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## Hay Feeding

For guidelines on reducing losses from hay feeding and storage please refer to the following links on [Round Bale Feeders Worth the Investment](#) and [Hay Loss from Storing Round Bales Outside](#)

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## CONTRIBUTIONS WANTED

Do you have a comment about some aspect of forage production that you would like to share?

Do you have a question about some aspect of forage production?

Have you read something that helped your forage production and want to share it with the readers of Oklahoma Forages Newsletter?

Send comments, questions, or articles you have seen and want to share to Daren Redfearn [daren.redfearn@okstate.edu](mailto:daren.redfearn@okstate.edu) To remain anonymous, just let us know.

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