



# OKLAHOMA FORAGES NEWSLETTER



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### BOOKMARKS

[Oklahoma Forages](http://forage.okstate.edu/)  
<http://forage.okstate.edu/>

[OKLAHOMA FORAGE NEWSLETTER](http://forage.okstate.edu/oklahoma-forage-newsletter.htm)  
<http://forage.okstate.edu/oklahoma-forage-newsletter.htm>

[Oklahoma Alfalfa](http://alfalfa.okstate.edu/)  
<http://alfalfa.okstate.edu/>

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 [john.caddel@okstate.edu](mailto:john.caddel@okstate.edu) or [daren.redfearn@okstate.edu](mailto:daren.redfearn@okstate.edu)

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

## What Are Forages?

Most dictionaries define forages as food for browsing or grazing animals, especially domestic livestock. They are much more than that for many of us. Forages are grown to be consumed by livestock, provide habitat for wildlife, and to protect soil from erosion.

Forages may be native or introduced. Some of the introduced forages such as bermudagrass have been here for so long that we sometimes incorrectly think of them as native.

The two main groups of forages are grasses and legumes. Many of the grasses such as wheat, corn, milo, etc., are also grown for grain. The same goes for some of the legumes. Peanut and soybean are primarily cultivated for their seeds, but they can provide excellent forage.

Within the grass group, we have warm-season grasses that are productive during the warm (or hot) part of the year and stop growth before frost. Cool-season grasses, by contrast, grow primarily when it is cool and tend to struggle in the summer. They survive cold temperatures and remain green but produce little growth when temperatures fall below about 35°F.

Other plant groups can be forages including, many of those we consider weeds, both broad leaf and grassy weeds. Some examples include kochia, pigweed, sedges, etc. Most forages are tough and aggressive, which are also characteristics of weeds.

The most economical way to harvest forages is with grazing animals, but forages are frequently harvested.. They may be harvested as hay or silage to be fed later.

Another use for forage is to leave it on the soil as a cover crop or standing for wild life cover and food. Forages may also be incorporated into the soil as a green manure crop. You are probably aware that we use many forages as ornamental plantings, i.e., the grass in the lawn and the ornamental grasses and certain trees may be the same species that we use as traditional forages.

*The role and importance of Oklahoma Forages, continued on page 4.*

## Lime on Forages

Recent papers published in the electronic journal, **Forage and Grazinglands**.

J.L. Caddel, H. Zhang, and K. Wise. 2004. **Yield Response of Alfalfa, Red Clover, and White Clover to Soil pH and Lime Treatments**. Online. Forage and Grazinglands doi:10.1094/FG-2004-1028-01-RS.

This study was conducted to measure the effects of five liming rates to an acidic soil on yield and stand persistence of alfalfa (*Medicago sativa*), red clover (*Trifolium pratense*), and white clover (*T. repens*) and on soil pH. Soil samples, collected and analyzed twice a year for three years, documented that lime increased soil pH for about 14 months and then pH declined slowly. Lime application did not affect legume seedling density, but suppressed certain weed populations. Red clover and alfalfa yields were increased significantly with increasing pH, but white clover yield did not increase above a pH of 5.2. Soil pH did not affect the alfalfa and red clover plant density after 3.5 years, but higher pH resulted in plants with heavier crowns.

To see the entire article go to:

<http://www.plantmanagementnetwork.org/sub/fg/research/2004/treat/>



Soil in the dead strip has a pH of about 5.0 while soil where alfalfa is green and growing has a pH of more than 6.0. The strip was caused when the lime application truck failed to start distributing lime where the previous load ran out.

Halin Zhang, J.L. Schroder, E.G. Krenzer, O.M. Kachurina and M.E. Payton,. 2004. **Yield and quality of winter wheat forage as affected by lime**. Online. Forage and Grazinglands doi:10.1094/FG-2004-1020-01-RS.

The majority of winter wheat (*Triticum aestivum* L.) planted in the southern Great Plains is intended for forage or dual-purpose (grazing and grain) production. Up to 28% of Oklahoma wheat fields have a soil pH less than 5.5 (0- to 6-inch depth) and should be limed to sustain forage and grain wheat yields. This study investigated the effects of seven lime rates on fall forage yields and quality of a winter wheat cultivar planted in a field with the initial pH of 4.5. Soil pH was increased as lime rate increased. Forage yields nearly doubled in the first year when lime rates of 1.25 tons/acre and higher were applied. An application of 1.25 tons/acre, half of the rate recommended to raise soil pH to 6.8, was found to be the most economical, as the value from increased forage production is more than double the cost of liming at this rate. The cost of liming at other tested rates can also be recouped if increased forage yields occurred for two or more years. Our results suggest it is economical to lime low pH soils used for forage or dual-purpose winter wheat production.

To see the entire article go to:

<http://www.plantmanagementnetwork.org/sub/fg/research/2004/lime/>



## CONTRIBUTIONS WANTED

Do you have a comment about some aspect of forage production that you would like to share? Send your comments or short discussion about your production system or a particular forage to the Oklahoma Forage Newsletter.

Do you have a question about some aspect of forage production? Send your questions to the Oklahoma Forage Newsletter.

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

Comments, questions, or articles you have seen and want to share should be sent to Daren Redfearn [daren.redfearn@okstate.edu](mailto:daren.redfearn@okstate.edu) To remain anonymous, just let us know. If you have a question about forage production, be sure to tell us where you want to grow it.

## Bermudagrass Fact Sheet

A new Oklahoma Fact Sheet on Bermudagrass is available from the Oklahoma Cooperative Extension service. The fact sheet is by Daren Redfearn, Bob Woods, and Charles Taliaferro and can be found at <http://pods.dasnr.okstate.edu/docushare/dsweb/HomePage> Also, you may go to <http://forage.okstate.edu/publications/F-2583web.pdf> on the Oklahoma Forage web site.

## Forage Highlight

With each edition of the Oklahoma Forages Newsletter, we hope to highlight one of the many important forage species for our state.

## TALL FESCUE

Tall fescue (*Lolium arundinaceum* (Schreb.) Darbysh.), a long-lived perennial, cool-season, deep-rooted, bunchgrass, is an important forage in the eastern third of Oklahoma. In the middle of the state tall fescue is important in certain areas, but in the west, with the lower rainfall, its importance drops to near none.

It is well adapted to humid, temperate areas. The branched inflorescence is a panicle up to 20 inches long (50 cm). Heads range from broad and loosely branched to rather narrow. Leaves of tall fescue are rolled in the bud. Blades are prominently ridged on the upper surface and glossy on the lower surface. Leaves taper to the tip, and margins are rough and cutting to the touch.

Tall fescue is a valuable grass, suitable for a wide range of climatic conditions, with many desirable qualities. Tall fescue is well adapted to moderately acid, wet soils and can be more productive than other grasses on soils of less than 5.5 pH. It is flood tolerant and drought resistant and maintains itself under limited fertility conditions. Thus, it performs well in waterways, ditches, pond banks, farm lots, and lanes. It also tolerates heavy livestock and machinery traffic.

Like other cool-season grasses, its optimum temperature range is 68-77 F (20-25 C) and primary growth periods are spring and autumn. Tall fescue usually contains an endophyte, which can have bad effects on livestock performance. However, many varieties have now been introduced that contain a low level of the endophyte or 'novel endophytes' that protect the plant but cause no harm to livestock. Thus, it's possible to utilize tall

fescue safely in forage-livestock systems.

Tall fescue can be seeded in spring or late summer. In addition, it may be planted in late summer in southeast Oklahoma, but new plantings may not survive cold winters in the north.

When sown alone, seeding rate for tall fescue is about 20-25 lbs/acre. When mixed with other species, total grass seeding rate remains the same, reducing individual grass seeding rates according to the number of species. When broadcasting on top of the soil and/or stubble, increase seeding rates by 50 percent or more, depending on seedbed condition. Reduce seeding rates by 30 percent for well-prepared seedbeds.

Seeding depth should be between 0.25 and 0.5 inch. When planted with a legume, 0.25 inch is preferred.

Tall fescue is used for pasture, hay, and soil conservation in Oklahoma. Its forage yield is dependent on soil fertility and depth as well as precipitation.

An online tall fescue monograph is available at <http://forages.oregonstate.edu/is/tfis/monograph.html?PageID=124>



## Role and Importance of Oklahoma Forages, continued

We have approximately 44 million acres of land in Oklahoma. Of this total, there are roughly 12 million acres each of forestland and rangeland. Virtually all of the forested land is located in extreme southeastern Oklahoma. Rangeland is scattered across all of Oklahoma, with the largest parcels in the Osage Hills located in north central Oklahoma, the Cross Timbers region in central Oklahoma, and the midgrass prairie region located in the west. Most native grasses are in the rangelands.

Cropland comprises around 9 million acres in the state. Although row crops are grown throughout the state, the largest contiguous acres of row crops are located in western Oklahoma and in the Panhandle. Wheat production occupies 6 to 7 million acres with approximately 3 million acres that are typically grazed in a normal year and almost 2 million acres of that is used solely as a grazed forage crop.

Pastureland production makes up around 10 million acres. Due to the differences in soil types, precipitation amounts, and temperature gradients in Oklahoma, there are many forages that are grown for pasture and hay.

Bermudagrass makes up the largest number of acres of a single forage due to its wide range of adaptability. Although the exact number of acres is difficult to pinpoint, we have probably around 4 million acres of bermudagrass grown either for pasture and/or hay. There are numerous other warm-season perennial forages grown in Oklahoma. Most of these are grown on less than 500,000 acres and are not adapted to wide

geographic regions. These include the Old World bluestems and weeping lovegrass, which are grown mainly in western Oklahoma. Bahiagrass is another warm-season, perennial forage that is important to the southeastern corner of Oklahoma.

There are far fewer cool-season forage grasses grown in Oklahoma. Tall fescue is the most commonly grown cool-season, perennial forage. There are slightly over a million acres of tall fescue grown in Oklahoma. Virtually all tall fescue is grown in the eastern one-third of the state. The most important cool-season annual forage grass is ryegrass with somewhat less than a million acres grown in the state for forage.

Many legumes are used as forage and in pasture systems in Oklahoma. Alfalfa is the most important legume grown in Oklahoma with over 300,000 acres of production, primarily for hay. As a group, arrowleaf clover, red clover, and white clover are grown on about one-half million acres. Most of these are grown in combination with forage grasses.

Urban lands and highway infrastructure make up the remaining 1 million acres. Although we do not normally think of forages as being important components in urban landscapes and along roadsides, many of our most common forage crops also serve as turfgrass, ornamentals, or as conservation plants.

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