



OKLAHOMA FORAGES NEWSLETTER



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BOOKMARKS

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[Oklahoma Alfalfa
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[Oklahoma Alfalfa Variety Test
Results](#)

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 or daren.redfearn@okstate.edu

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

Alfalfa Varieties For Oklahoma

Every year new alfalfa varieties are released, sometimes more than 100 in the U.S. Also, every year we establish new alfalfa variety tests in Oklahoma. Our objective is to identify the best varieties available for Oklahoma alfalfa producers. Companies marketing alfalfa seed also use the information when deciding which varieties should be marketed in the state.

For almost 30 years we have summarized the findings from the alfalfa variety tests in time for Oklahoma alfalfa producers to find seed for fall establishment. [This year the report](#) contains 1. A list of the varieties that have performed best in recent tests; 2. A summary description fo the good varieties; 3. Internet links for those who what to examine the data in detail; and 4. A general discussion of Roundup Ready alfalfa and why we do not have data on the RR alfalfas.

Summary of Good Alfalfa Varieties

Good As Gold II was released in 1999 as a replacement for Good As Gold. It has performed well in our tests and is distributed by Johnston Seeds.

55H05 was developed and has been marketed by Pioneer Hi-Bred International, Inc. since its release in 2002. 55H05 has always been a high yielder in the seven test that it has been in.

Garst 6420 was released in 1998, and is distributed in Oklahoma by Garst Seed dealers. It is another in a long line of good varieties marketed by this company.

OK 49 is a relatively old (1990) variety developed by the Oklahoma Ag. Experiment Station for Oklahoma that has maintained its high yield and persistence. It is marketed by Ross Seeds.

Garst 631, released in 1993, is still a reliable variety in most situations. It is marketed by Garst Seed Dealers in Oklahoma.

Magna 601, released in 1999, is distributed by Dairyland Seeds. It has performed well in all but one test where it was included, and for some unknown reason some other traditionally good varieties performed poorly in the same test.

OK 200 was released by the Oklahoma Agricultural Experiment Station in 2000, but no seed has been commercially available for sale. OK 200 is almost always a top yielder in many variety test.

Watch Forage Nitrate Closely on Certain Crops

Nitrate is one of the major nitrogen forms utilized by plants. Excessive nitrate accumulation can, however, occur when the uptake of nitrate exceeds its utilization in plants for protein synthesis due to factors such as over nitrogen fertilization and stressful weather conditions. Nitrate can be toxic to livestock when too much nitrate is accumulated in the forage crops. Sorghum and millet have been noted as having a high potential for accumulating nitrate. Producers should watch their forage nitrate closely to avoid cattle fatality and to better manage their hay crop since we

have seen many high nitrate forage samples this year.

Normally, drought stress, cloudy weather and other climatic conditions will enhance nitrate accumulation in the plant. In addition, forage planted in failed wheat fields with high soil residual nitrogen unused by wheat can result in high forage nitrate problem too.

Below is a summary of our laboratory nitrate test results so far this year on two major warm season forage crops.

Forage Crop	Mean NO ₃ (ppm) (dry matter basis)	Range NO ₃ (ppm)
Pearl Millet	10,322	940-32,000
Sorghum Sudan	7,800	300-58,000

It is considered potentially toxic for all cattle when nitrate in the forage is greater than 10,000 ppm. Producers should avoid grazing or feeding forage with high nitrates. More detailed interpretation can be found from OSU Extension Fact 2903 Nitrate Toxicity in Livestock. The most reliable way to determine how much nitrate is in the hay is to collect a representative sample and have it tested by a laboratory. OSU Extension Fact 2589 “Collecting Forage Samples for Analysis” highlights the proper techniques to collect forage samples. Samples can be submitted for nitrate and other forage quality analyses to the Soil, Water and Forage Analytical Laboratory in Stillwater through the local county extension office. We normally have the results ready within 24 hours from the time when sample is received by the lab. However, many samples we receive at the lab were not sampled properly. More attention should be paid on sampling standing forage, such as a haygrazer by

following the right procedures:

Clip at least 20 representative plants at grazing or harvesting height from the suspected area. Cut the whole plants (include leaves and heads) into 2-3" long pieces, combine and mix well in a bucket.

Fill the cut sample into a forage bag. Use quartering to reduce the amount if there is too much sample to send to a lab.

Put the forage bag into a plastic bag will give you more accurate moisture content, but never put plastic bags inside our forage bags.

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[OSU Extension Fact 2903 Nitrate Toxicity in Livestock](#)

[OSU Extension Fact 2589 Collecting Forage Samples for Analysis](#)

See the [June issue of the Oklahoma Forage Newsletter](#) for a discussion of both Nitrate and Prussic Acid Problems in Warm-Season Grasses

Do You Know Your Forage Quality?

How to Evaluate Hay Quality?

Table 1 is the revised national hay test guidelines for Alfalfa, Alfalfa/Mix Hay, and Grass Hay. These guidelines are used by agricultural publication reporters. Analytical quality parameters along with visual characteristics are important factors for hay trading.

Table 1. Alfalfa - Alfalfa/Mix Hay and Grass Hay Testing Guidelines

Quality Designation	Alfalfa - Alfalfa/Mix Hay		Grass Hay
	Relative Feed Value (RFV)*	Acid Detergent Fiber (ADF%)	Percent Crude Protein (CP%)
Supreme	Over 180	Under 27	- -
Premium	150-180	27-30	Over 13
Good	125-150	30-32	9-13
Fair	100-125	32-35	5-9
Low	Under 100	Over 35	Under 5

Quantitative factors are approximate, and many factors can affect feeding value. Based on 100% dry matter. *Calculated value based on American Forage and Grassland Council formula.

What Does Each Hay Quality Designation Mean?

Supreme: Very early maturity, pre-bloom, soft fine stemmed, extra leafy. Factors indicative of very high nutritive content. Hay is excellent color and free of damage.

Premium: Early maturity, i.e., pre bloom in legumes and pre head in grass hays, extra leafy and fine stemmed factors indicative of a high nutritive content. Hay is green and free of damage.

Good: Early to average maturity, i.e., early to mid bloom in legumes and early head in grass hays, leafy, fine to medium stemmed, free of damage other than slight discoloration.

Fair: Late maturity, i.e., mid to late bloom in legumes, head in grass hays, moderate or below leaf content, and generally coarse stemmed. Hay may show light damage.

Low: Hay in very late maturity, such as mature seedpods in legumes or mature head in grass hays, coarse stemmed. This category could include hay discounted due to excessive damage and heavy weed content or mold. Defects will be identified in market reports when using this category.

What Forage Tests Do You Need To Use the Guidelines?

OSU Soil, Water and Forage Analytical Laboratory offers four packages of forage analyses. To use the new quality guidelines, Basic Analysis is all you need for grass hay if you do not need the energy values, while Basic Plus Energy or Basic Plus Energy Plus RFV are needed for alfalfa or alfalfa/mix hay (Table 2). Forage and feed mineral test is also offered. More information about forage analysis can be found from our website: <http://www.soiltesting.okstate.edu/>. OSU Extension Facts 2117 Forage Quality Interpretations details all quality parameters mention in this article.

Why is Forage Test Important?

Forage testing is important because value pays. The value of forage/feed dictates their prices through increased milk or meat production or reduced supplement need. Accurate testing provides the producer, the seller and the buyer with accurate, valuable information.

How do I Select a Forage Testing Laboratory?

Not all forage testing laboratories are the same. To make sure you get reliable test results, I encourage you to use NFTA (National Forage Testing Association) certified forage labs. Certified laboratories have proven the ability to produce accurate test results on recognized reference methods. Our lab has been certified on wet chemistry forage analyses by NFTA since 1994.

Table 2. Alfalfa - Alfalfa/Mix Hay testing guidelines

Hay Type	Package to Choose	Tests Included
Grass	Basic Analysis	Dry matter, Crude protein
	or Basic Plus Energy	Dry matter, Crude protein, ADF TDN (calculated from ADF)
Alfalfa, Alfalfa/Mix	Basic Plus Energy	Dry matter, Crude protein, ADF TDN (calculated from ADF)
	or Basic Plus Energy Plus RFV	Dry matter, Crude protein, ADF, TDN, NDF RFV (calculated from ADF and NDF)

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The **OKLAHOMA FORAGES NEWSLETTER** is published in electronic format on an as needed basis throughout the year. To receive an a notice when a new version becomes available, send an email with "subscribe" as the subject line to john.caddel@okstate.edu

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 To remain anonymous, just let us know.

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High Cost of Nitrogen Fertilizer!!

As the price of Nitrogen fertilizer goes up, as we get close to the second important date for fertilizing introduced pastures, and as we get closer to planting season for small seeded legumes as well as wheat, we receive more and more calls about using legumes to replace the high priced nitrogen fertilizer. Each call reminds me of the need to help producers understand how to use legumes for this purpose.

The March issue of the Oklahoma Forage Newsletter contained quite a bit of information that some should review. In addition there is the OSU Extension Facts "Forage Legumes and Nitrogen Production" that should be reread if you are considering trying to reduce your fertilizer bill by using legumes.

Misconception: Planting a legume eliminates the need for nitrogen fertilizer.

FACT: The legume must be productive. The amount of nitrogen fixed is directly related to the amount of legume growth. None of the legumes adapted to Oklahoma have much growth before late March. To produce 100 pounds of N/acre, you need to grow about 4000 (dry) pounds/acre of legume.

Misconception: Legumes growing with grass will provide all the nitrogen needed by the grass and increase the forage quality of the hay produced.

FACT: Legumes are selfish. They use the nitrogen they fix and then let the grasses have what is left when the legume dies. If you carry off the legume as hay, the nitrogen contained by the legume hay cannot help the grasses.

Misconception: Legumes planted in the fall and can be grazed in January and February like I do wheat, but the quality will be higher.

FACT: We do not have any legume that will be big enough by this part of the year to provide grazing of any significance. Grazing the legume before it has put on a lot of growth will stunt the legume.

Using legumes to supplement nitrogen fertilizer needs of wheat and pastures is a good idea; however, it requires a lot of work and it will take some time to realize the benefits. By growing legumes in a pasture and grazing the legumes along with the grass, the nitrogen in the legume is consumed by the animals and most of it is recycled back to the pasture. In this process the nitrogen in the legume begins to build up in the pasture soil. As it builds up the grasses have access to it.

Legume green manure or cover crops work similarly. You grow the legume but do not harvest it. Turn it under to decay and release its nitrogen.

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