*SPFCIC General Session*

# High Nitrogen Fertilizer Prices = More Legume Calls

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During any given year, I, like most others working in forage research and extension, get a variety of calls and emails requesting highly varied information. Most of the calls come from within the state, but some come from several states away. Most of the questions are fairly straightforward and relatively easy to answer. Some of the questions and/or situations are so far out that they approach ridiculous. Sometimes the caller or emailer asks the wrong question, but after an exchange of ideas, we try to explain how the caller should approach the situation, hopefully with the desirable outcome.

The subject of calls and emails during the last year or so have had a common subject line. It has to do with "How can I reduce the cost of forage production (sometimes grains production) by using legumes to fix nitrogen to reduce nitrogen fertilizer cost." This general type of question has come to me in one form or another since I have been working with forage legumes, but the number of questions on this single subject has sky-rocketed since the last round of oil price increases.

While trying to satisfy the callers and emails, it has become crystal clear that we have not done as good a job as needed when addressing how to use forage legumes. The calls come from many different types: hobby farmers; cattlemen with small acreages along with those who have large holdings; farm advisors with coops and/or crop consultants who affect practices of many different producers; and county extension educators.

It is clear that we have done a good job at encouraging forage managers to consider using forage legumes, but we have not effectively taught how to get the job done or the increased management required for legumes. Many (probably most) forage producers do not understand the difference in "planting legumes" and "growing productive legumes" as required for fixing large amounts of nitrogen.

It is easy to present a table showing how much nitrogen can be fixed by several different legume species. Explaining how to grow the legumes, especially in a mixed grass/legumes pasture, is much more difficult. The environment where the legume is growing is as important or more important than the legume species. It is also difficult to describe that legumes in a pasture contribute to a dynamic system, and the amount of nitrogen fixed is almost impossible to measure at any one time. It is very different from the traditional "take a soil sample to the lab for analysis."

Several of us in our Plant & Soil Sciences Department at Oklahoma State developed a "fact sheet" on "Forage Legumes and Nitrogen Production," F-2590 (available online at http://pods.dasnr.okstate.edu/docushare/dsweb/Get/Document-3101/F-2590web.pdf). One of the main objectives of this publication was to show that the amount of nitrogen fixed by legumes is dependent on several factors, particularly that of the yield of the legume. If the legume is not productive; little nitrogen will be produced. If the legume is productive and everything else goes right; an important amount of nitrogen may be fixed, but measuring it remains difficult. This seems to have been well received by extension educators as well as the producers who have read it. To address this topic in a highly applied fashion in a short number of pages, many assumptions must be made while guiding the reader along a new path. If you see corrections that should be made in the publication, please advise one of the authors.

As chair of Southern Pasture and Forage Crop Improvement Conference for 2006, I was responsible for selecting a topic for the general session and finding a speaker(s). I asked Daren Redfearn to address this topic of using nitrogen fixed by legumes to reduce the fertilizer cost for pasture production. Along with the request to make the presentation, I asked him to generate discussion among the participants. The purpose was to generate a discussion suitable for the SPFCIC that should help all of us develop a better understanding of how to communicate this relatively complex concept. This is something that can be attempted in groups such as SPFCIC; however, it is difficult in larger groups or groups that do not include both applied research and extension workers.