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Cool-Season Legumes for Southern Pastures

By John Guretzky and Twain Butler

Legumes can improve the production and nutritional value of pastures while reducing nitrogen fertilization requirements. On July 19, 2008, the Noble Foundation will host the "Texoma Pasture Conference" to explain the pros and cons of using legumes in pastures. The Agricultural Division has invited experts from Alabama, Georgia, Kentucky, Oklahoma and Texas to deliver this exciting program. We encourage you to attend this timely event. In the meantime, we will tell you about ongoing research in the Agricultural and Forage Improvement divisions evaluating legumes for pasture.

A goal of our research is to identify best practices for establishing and managing cool-season or temperate forage legumes in winter and summer pasture systems. Besides increasing nitrogen availability through atmospheric nitrogen fixation, temperate legumes can help bridge a gap between winter and summer pastures. Optimum growth and availability of temperate legumes occur during spring, a time in which the quality of winter small-grain pastures is declining and bermudagrass is yet unavailable. In 2006, we initiated research at three regional sites to determine forage yields of different legume species. The following is a description of common legumes included in our trials and their use as forage in southern pastures.

Alfalfa is a perennial, crown-forming legume that tends to be adapted to long rest periods between defoliation. It is often planted as a mono-culture in clean-tilled fields for use as hay. Recent efforts have focused on improving the adaptation of alfalfa to grazing. Because of its perennial life-form, high dry matter yields and nitrogen fixation abilities, alfalfa has shown promise as both a forage and bioenergy crop in the region.

Red clover also is an upright, crown-forming legume adapted to tall grazing heights and long rest periods. Although it is a short-lived perennial throughout much of the U.S., it tends to behave as an annual in the South. Red clover is more persistent under rotational grazing.

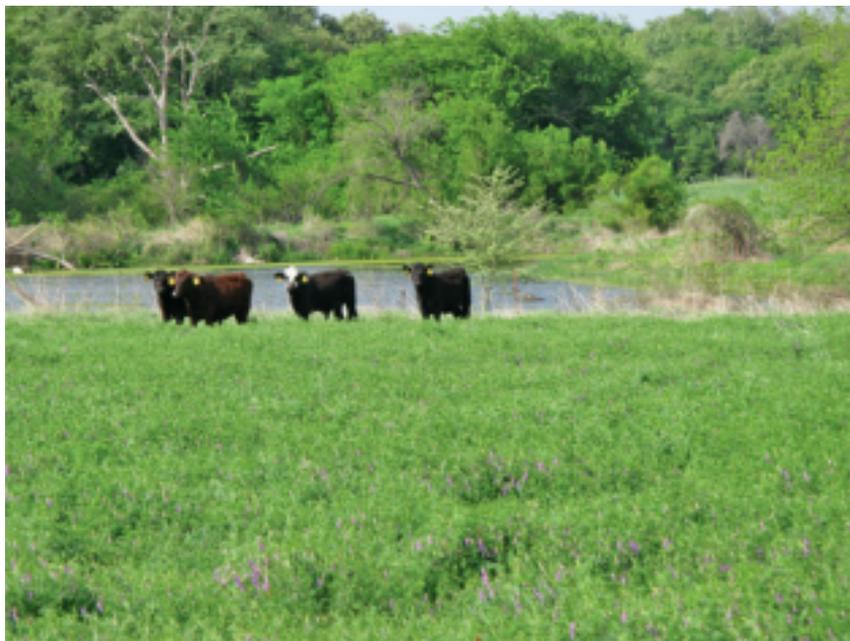
White clover is a low-growing, clone-forming legume well adapted to continuous grazing. In the northern regions of the U.S., it can be a long-lived perennial. In the far southern regions, it tends to behave as an annual. A limitation to use of white clover in the Plains is its inability to survive hot, dry summers.

Arrowleaf clover has been a highly productive, annual clover in eastern Oklahoma with excellent reseeding potential. It matures later than most annual legumes and can grow 2 to 4 feet tall. Arrowleaf clover remains more productive if grazed to a height of 2 to 4 inches in early spring. Regrowth is limited after cutting for hay.

Crimson clover also is a winter annual legume primarily adapted to southeastern Oklahoma. Although it produces excellent forage, it has relatively poor reseeding abilities, necessitating reseeding each fall. Crimson clover will produce more forage at lower temperatures than other clovers and can be grazed throughout winter.

Hairy vetch is a dependable, widely adapted, cool-season annual legume. If allowed to mature, hairy vetch has good reseeding capability. In addition to our small plot evaluations, we are evaluating the performance of stocker cattle grazing hairy vetch-bermudagrass pastures.

Austrian winter pea is a winter annual with an upright, vine-type growth habit. It has produced excellent dry matter yields in our experimental trials. Historically, use of Austrian winter pea has been for silage or a green manure. We are unaware of the performance of livestock when grazing this forage.



Steers grazing hairy vetch-bermudagrass pastures near Ardmore

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