University of Florida, IFAS
Range Cattle Research and Education Center
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RANGE CATTLE REC NEWSLETTER

Calendar of Events

Month	Date(s)	Event	Location
April-May	30-2	Beef Cattle Short Course	Gainesville, FL
May	15	Range Cattle REC Field Day	Ona, FL

IN THIS ISSUE

Brachiaria Grasses For Peninsular Florida?

To provide the best forage grasses for commercial producers there is a continued need for screening and testing new forage germplasm and to develop management practices under grazing. A study was established using six tropical grasses from Mexico consisting of four Brachiarias, and two Andropogon's, comparing them with Florona stargrass and Pensacola bahiagrass. The Brachiarias consisted of Insurgente, Abundance, B. dictyoneura, and Chetumal. The Andropogon cultivars were Llanero and Tun tun. The year following establishment, grasses were grazed at 2, 4, 5 and 7 wk frequencies. Grasses were fertilized in the spring of 2000 with 50-30-60 lb/A N-P_2O_5-K_2O + 1.5 lb/A Cu, Zn, Fe, Mn (sulfate form), 0.15 lb/A B and 6.0 lb/A S. A total of 150 lb/A N was applied annually in a split application. Harvesting all grasses at a 2-wk frequency averaged lowest yield (2.0 t/A) and highest nutritive value (Crude protein [CP] 20% and 68% digestibility), whereas at a 7-wk frequency grasses produced highest yield (5.0 t/A) and lowest nutritive value (14% CP and 59% digestibility). Generally a harvest frequency of 4 to 5 wk and grazing frequency of 4 wk is recommended for tropical grasses. In this study grasses producing the highest total yield when harvested at a 5-wk frequency were Florona stargrass (4.8 t/A), Brachiaria Abundance (4.3 t/A) and B. Insurgente (4.1 t/A). Pensacola bahiagrass yielded 1.9 t/A when harvested at the same frequency.

Forage nutritive value of the three highest producing grasses was B. Insurgente 17% CP and 66% digestibility, B. Abundance 17% CP and 68% digestibility and Florona stargrass 22% CP and 60% digestibility. Pensacola bahiagrass also harvested at 5 wk averaged 20% CP and 59% digestibility.

Brachiaria Insurgente and Abundance are excellent yielding and very leafy bunch grasses with little or no winter production. They have good CP concentration and excellent digestibility. In fact digestibility will run 6 to 8 percentage units above Florona stargrass. The problem with Brachiarias at Ona was **cold tolerance**. The temperature during the fall of 2000 and spring of 2001 dropped below 32^{o}F 11 times with a one time extreme low of 19^{o}F. This temperature regime killed 100% of the Brachiaria study. One commercial producer west of Okeechobee has been growing two Bracharia cultivars for at least 3 yr with no persistence problems. It appears that Bracharia may be a viable alternative for warmerwarmer areas of south Florida.
(PM)

Fertilize Pastures Early

For ranchers who intend to fertilize pastures this year now is the time to start planning. What should you fertilize, and when and how much should be applied?

In deciding what to fertilize, priority should be given to fertilizing the better quality forages such as hemarthria, pangolagrass, and stargrass. Priority should be given to fertilizing pastures that will be grazed by younger cattle, especially first-calf heifers.

Of course, bahiagrass is the major pasture forage in Florida. The South Florida Beef/Forage Extension Agents conducted an excellent field study on 9 ranches in south Florida to measure the benefits of different fertilizer applications. They found that bahiagrass showed a good response to nitrogen fertilization, but little response to phosphorus and potassium. The most economical fertilizer application was to

spread 60 pounds of nitrogen per acre in March.

When nitrogen was applied in March there was a very good response in bahiagrass yield in April and May, and this response continued through the summer months. Nitrogen application also significantly increased the crude protein content of bahiagrass in the April and May period.

It is important to obtain as much growth of good quality forage as early in the spring as possible. Brood cows are just coming out of the winter period, during which they usually lose weight and body condition, and are on the thin side. They are often nursing calves and being exposed to bulls for rebreeding. Thus, brood cows are at a point in their production cycle with the greatest demand for good nutrition.

If you are going to fertilize bahiagrass, strong consideration should be given to the South Florida Beef/Forage Agents recommendation that 60 pound of nitrogen per acre be applied in February or March.
(FMP)

Fall and winter management affects spring green-up in grass pastures

Although temperatures under a heavy canopy are slightly warmer than temperatures of exposed grass crowns, a large grass canopy at the onset of winter does not lessen the chance of stand loss by freezing. When typical frost occurs (as distinct from freezing), a large canopy hinders spring green-up compared to pastures that do not carry a bulk of grass into the spring. Nitrogen fertilization, if applied too late in the fall, decreases frost tolerance because it results in a flush of tender growth. Plants that are rapidly growing can not be frost hardened. In addition, N fertilizer results in a large canopy that shades new replacement growth if it is not removed in late winter. What frequently happens is that the canopy is killed by frost and cattle do not consume it. There is less green forage in the spring compared to pastures with little cover. Frost-sensitive grasses like bermudagrasses, digitgrasses, rhodesgrass, and atra paspalum are more prone to this problem than limpograss or bahiagrass. It is best to remove cover by cutting hay and grazing fall regrowth or burning in late winter. In areas where frost is common, the practice of stockpiling forage for winter grazing should be limited to grasses like limpograss.

In temperate regions, many lost stands can be attributed to low K-fertilization. Potassium increases the ability of forages to survive freezing. I am not aware of any K fertilizer research on survival of tropical grasses in regions of the sub-tropics where frost is common. On bahiagrass in central and south Florida, this is not an important issue. On hay fields where K is removed with the harvested crop, it is important to use narrow N:K fertilizers to maintain summer production. This may also guard the stand against loss by freezing.
(RSK)

Effects of P Fertilizer, Lime, and Gypsum Application on Stargass Yield and Quality and Water Quality

Phosphorus (P) is a primary cause of algae blooms and depletion of oxygen in fresh water lakes in south-central Florida. Research has shown that P fertilizer application to bahiagrass pasture could be eliminated without any adverse effect on forage yield and quality. At the same time, P levels in surface water runoff were reduced by 33 to 60% as P fertilizer rates were decreased from 100 to 25 lb P_2O_5/A.

Those studies led UF/IFAS to adopt a zero P recommendation in 1998 for bahiagrass pastures grazed in Florida south of Orlando.

The recommended P rate for other improved pasture grasses such as stargrass still range from zero to 40 lb P_2O_5/A for high and low P soils, respectively. Studies by Drs. Rechcigl and Bottcher, demonstrated that fertilization of improved pastures even at the optimum P recommended rates caused a significant increase in P levels of surface water runoff. Hence, it became necessary to evaluate the capacity of soil amendments for tying up fertilizer-derived P on other improved grasses.

Field studies were conducted from 1999 to 2002 at Williamson Cattle Company in Okeechobee to: 1) re-evaluate the existing UF/IFAS recommended P fertilizer rates for stargrass, and 2) study the effectiveness of limestone and gypsum for improving the retention capacity of soils for applied P on stargrass pastures. Treatments were 0, 25, 50, and 100 lb P_2O_5/A from triple super phosphate applied to 50 ft x 100 ft stargrass pasture plots every year. Treatments were replicated four times. The amendments were calcium carbonate ($CaCO_3$) and mined gypsum ($CaSO_4.2H_2O$) applications based on 100% $CaCO_3$ at 0, 1 and 2 T/A annually to plots that received 100 lb P_2O_5/A. All plots, including the untreated plots (control), received one uniform application of 80 lb K_2O/A from KCl and two equal applications of 80 lb N/A as ammonium nitrate, annually. Forage was harvested every 30-35 days in 1999-2001 for dry matter yield, crude protein content, organic matter digestibility and tissue mineral content. Soil was sampled at 6 inch intervals down to the hardpan every 6 months and analyzed for total P. Rainfall, surface runoff volume, and depth of water table were measured throughout each year. Water samples from surface runoff and from shallow PVC wells installed to 2 ft and 4 ft depths inside plots were collected for water quality analysis.

Phosphorus fertilizer or soil amendments did not increase stargrass forage yield, crude protein or digestibility throughout the 3 years. Although applied P improved forage tissue P level, most cattle producers routinely feed a mineral mix to provide adequate P. Increased P application caused a significant buildup of P in the top, middle, and hardpan soil horizons, increased soluble P concentrations in shallow and deep wells by 400% and 1500%, respectively, increased P in surface runoff by 50%, and raised the potential for non-point source of P pollution. Gypsum was effective in eliminating P leachate from applied P into deep wells but was not beneficial for reducing P in surface runoff. Although promising in reducing total P in surface runoff, the long-term benefit of Ca-lime was not clear.

This study supports multi-county fertilizer trials to provide strong evidence that current IFAS P-fertilizer recommendations for grazed improved grasses of up to 40 lb P_2O_5 in south Florida could be reduced at tremendous savings to ranchers and protect the environment from P pollution. Soil amendments per se do not provide that kind of long-term protection. **(MBA)**

Forage Production from Silvopastures in South Florida

In silvopasture, trees are planted in grazed pastures, and the components are managed together for multiple products – timber, forage and livestock. Our studies have shown that profitable timber volume and sales are possible from pine-bahiagrass silvopasture. By integrating beef and forest production systems, land use is optimized. Therefore, pine-pasture silvopasture is

appealing to both cattle producers and forest owners who are looking for efficient and more profitable production and management systems. Because of many economical and environmental benefits of silvopasture, it has attracted significant interest. However, not all benefits are realizable in every silvopasture. For the average producer in south Florida, the primary concern may be how trees in silvopasture will impact grazeable acreage and forage production since these are limiting factors in beef production.

The south Florida pine-bahiagrass silvopasture established in 1991 at Ona, presents an opportunity to determine potential benefits of the system in south Florida. Bare-rooted south Florida slash pines were planted in a 40-acre Pensacola bahiagrass pasture. We planted 450 trees/acre in double rows, 8' between rows and 4' between trees. The double rows were 40' apart, which permitted sunlight needed to maintain the grass and provide grazing. After 14 months of deferment, 50 to 60 cow-calf pairs have grazed the silvopasture every year since March 1993, averaging 76% weaning rate with calves averaging 450 lb at 230 days of age. By March 2002, 11 years after grazing, pines averaged 28' tall, and there were 200 trees/acre (44% survival). The cattle have impacted the trees more than the trees have affected cattle. It is, however, from this age that yield reductions of the pasture are expected to begin. Thus, we conducted an experiment to estimate forage yields of bahiagrass in the silvopasture and compare them with grass yield in open pastures.

We selected seven 32' x 96' blocks at different locations in the silvopasture that had uniform stands of trees, approximating the surviving stand density of 200 trees/acre. Each block had two double-tree-rows with one 40' alley between them, and a 20' half-alley at each side. Between April and September 2002, exclusion cages were used to determine grass yields by sampling every 42 days from the center of the alleys, near the tree rows, between the double rows, and outside of the tree areas to estimate yield of an open pasture. The pasture was fertilized with 50 lb N/acre in March every year since 1991, and an additional 4 and 41 lb/acre of P and K, respectively, since 1998.

The highest seasonal grass DM yield of 4.6 ton/acre was obtained at the center of the alleys, with 3.3 ton/acre from adjacent to tree rows, 1.4 ton/acre from between the double rows. Grass yield from the center of the alleys was about 44% greater than yield obtained from the open areas (3.2 ton/acre). When we calculated the total forage production of the silvopasture from the proportionate contributions from the center, near tree row, and between tree rows, we got 3.7 ton/acre, which is 15% greater than yield obtained from the open pasture. These figures suggest beneficial pine-grass interactions. All the pine needles fell between and near the tree rows. We found that the higher the amount of pine needle litter, the lower the grass yields.

We are continuing this study to obtain more information. Pertinent questions are: Will the apparent positive effect of trees on the pasture continue? What would be the benefit of thinning out poor quality trees (presently pulpwood sizes) on forage and beef production? To obtain answers to these questions, we have thinned pines on 20 acres to 125 trees/acre, while retaining the tree density on the other 20 acres. We will graze both sections, and another 20 acre open pasture, and in the next 3 eight years, we will compare calf production and timber values, and the economics of the system on thinned and not thinned stands with the open pasture.

(IVE, RSK)

January 2003 Inventory; Declining Herd Trend Continues

The National Agricultural Statistics Service (NASS) branch of the USDA released its latest cattle inventory numbers and estimates on January 31. They show that cattle inventories have continued the downward trend which began in 1996. That trend puts the cattle industry into the 14th year of the cattle cycle, and there are no clear indications of a herd expansion.

Florida's cattle inventory numbers were in line with the national trend. Overall 2003 Florida cattle and calves inventory is estimated to be down one percent to 1.75 million head from 1.78 million head in 2002. All cows that had calved are estimated to be down 10,000 head to 1.1 million. Beef cows that had calved totaled 953,000, down one percent from 2002, and milk cows that had calved totaled 147,000, down three percent from 2002. Calf crop numbers show a one percent decline from 940,000 head in 2001 to 930,000 head in 2002.

Heifer hold-backs are a key indicator of potential herd expansion and the inventory numbers show little evidence of such a trend beginning. Beef cow replacements in Florida are down from 140,000 to 130,000 head. Milk cow replacements held steady at 40,000 head. This is consistent with the national figures and may be an indication that the current cycle may last into 2004 and beyond which can potentially translate to continued strong cattle prices through 2006. The already tight fed beef supplies will only get tighter as a result of these shrinking numbers further helping maintain prices in the current economic conditions.

The number of cattle operations in Florida fell slightly during 2001-2002. There were 19,000 cattle operations in Florida in 2002 down 500 operations from 2001. Beef cow operations were steady at 16,500 operations. Milk cow operations declined two percent from 510 operations in 2001 to 500 operations in 2002.

An analysis of size and inventory distribution indicates that operations with over 500 head, roughly 3.4 percent of the operations, account for 57 percent of the Florida cattle inventory. In the dairy industry, operations over 500 head, 20 percent of the total dairy operations, account for 83 percent of the dairy cows in Florida. In contrast, similar sized Florida beef cow operations, 1.7 percent of the total beef operations, account for 45 percent of the state's beef inventory.

(TEA)

The Cost of Big Cows

The importance of cow efficiency has been largely overlooked by the cow-calf industry. Although our production systems have made important advances in the production of large calves with heavy weaning weights, the cost for maintaining the associated cowherd is often ignored. Cow efficiency is something that we all understand, but often do not consider in our day-to-day management decisions. When discussing cow traits we routinely use terms like "easy-fleshing" and "easy-keeping". These characteristics are related to cow efficiency. In Florida, pasture forage availability is limiting during the early spring at a time when most of our cows are in mid-lactation. This is an excellent opportunity to see cow efficiency at work on your operation. Within the herd we can identify that group of cows that are able to maintain body condition beyond the herd average even during harsh grazing conditions. Although these cows are maintaining moderate condition, their calves are usually as large as the herd's average. These cows have improved efficiency.

Considering that over 60% of the annual costs for a producing a calf are attributed to nutrition, our ability to identify efficiency traits and incorporate them into the cowherd is critical.

An average body size for mature Florida cows might run between 1000 and 1200 lb. It would be common to find these cows in average production systems across the state. Have you ever considered the costs associated with maintaining this difference in body size? On average, a mature cow will consume about 2.25% of her body weight daily throughout the year. A typical diet must average about 50% TDN annually to maintain a mature cow. Using these figures, the 1200 lb cow will require about 820 lb of additional TDN per year compared to the 1000 lb cow. This added requirement will be most pronounced during the early spring when supplemental nutrition is critical to account for shortages in pasture forage. An average cost for supplemental TDN is about $0.08 per pound; therefore, the 1200 lb cow may require an additional $65 in supplemental feed compared to the 1000 lb cow. Using a weaned calf price of $0.90 per pound, the 1200 lb cow will need to wean a calf that is 72 lb heavier (on-average) than the 1000 lb cow just to offset her additional supplement costs. Usually, there are only minor differences in calf weaning weight between cows of similar breed that differ in size by only 200 lb.

The example above assumes a constant efficiency between both cow types. Our ability to identify cow efficiency traits and perpetuate them in the herd will likely be the new frontier for improving beef cow-calf profitability and sustainability.
(JDA)

Contributors
Adjei, Martin B.
Anton, T. E., Ed.
Arthington, John D.
Ezenwa, Ike V.
Kalmbacher, Rob S.
Mislevy, Paul
Pate, Findlay M.