Cooperative Extension Service

Institute of Food and Agricultural Sciences

RANGE CATTLE REC NEWSLETTER

March, 1998 - Vol. 1, No. 1

Calendar Of Events

April	
4	Florida Santa Gertrudis Spring Sunshine Sale Mariana, FL. Phone: (850) 535-1000.
7-8	Land and Resource Management School -- Arcadia, FL. Phone: (941) 763-6469.
20-22	Land Use in a Growth State: Issues at Florida's Rural-Urban Interface Tampa, FL. Phone: (352) 392-5930.
25	Florida Limousin Breeders Association Annual Show and Sale Tallahassee, FL.
28-30	Beef Cattle Reproductive Management School Wauchula, FL. Phone: (941) 993-4846.
May	
6-8	Beef Cattle Short Course Gainesville, FL. Phone: (352) 392-5930.

11-14	Aquatic Weed Short Course Ft. Lauderdale, FL. Phone: (352) 392-5930.
June	
24-26	Florida Cattlemen's Association Annual Convention Marco Island, FL

- IN THIS ISSUE –

Introductory Comments

- Center Director

This is the first of many newsletters to be published by the Range Cattle REC. The newsletter is only one of the extension outlets from the Center. It is the primary intention of the newsletter to frequently update ranchers, county extension faculty, extension specialists, researchers and others of happenings at the Range Cattle REC. This will include new information in both the forage and cattle areas. The newsletter will also highlight innovative techniques and discoveries from other sources that appear to have application to Florida cattle and forage production. The newsletter will include a calender of events related to forage and cattle programs of interest to individuals throughout south Florida. All are encouraged to inform the Extension Agronomist, Dr. Martin B. Adjei, about future events that will be held in their county or region for advertisement. Likewise, all are encouraged to submit information from other sources that they feel would be of interest to those involved in south Florida forage and beef production. (FMP)

Editorial:
Florida's Rangeland is Unique and Special

What makes range and pasture plants unique and special? --- Their endurance.

Range and pasture plants are largely made up of the most abundant organic compound on earth -- **cellulose** -- just like the woody trees of the forest or the corn stalks in the grain belt. And yet, forage plants provide the vital initial link to a food chain that brings steak to the dinner table and hamburgers to the fast food stores.

Naturally, range plants grow, mature, and reproduce themselves in environments (**soil, rainfall, temperature**) that are too extreme to support a solid forest vegetation or domesticated field crops. Range and pasture plants survive being trampled, bitten, torn up, and defecated upon with both manure and urine. As these plants grow to maturity in rather harsh environments, their cellulose content becomes increasingly impregnated with **lignin** to form **fiber**, with negative nutritional consequences. Of the 1902 million acres of land in continental USA, 1106 million acres are farmland and 796 million acres not in farms. About 37% or 294 million acres of land not in farms are used as grazing land. About 63% or 702 million acres of farmland are used variously as grassland (permanent), woodland, improved pasture, and for the production of hay and corn silage. In the state of Florida, we have approximately 4 million acres of flatwood rangeland and 3 million acres of improved permanent pastures to support our livestock industry.

What makes cattle that roam the range and pasture unique and special? -- Their digestive system

Surprisingly, in the evolutionary development of mammals, none acquired the capacity to directly produce and/or secrete enzymes that will digest **cellulose** in their gut. Instead, a group of mammals called **ruminants** evolved a stomach consisting of four pouches called the reticulum, rumen, omasum and abomasum. The **rumen** develops in the young calf and a mutual relationship is established with microbes that are capable of producing a cellulose digesting enzyme, **cellulase.** The first compartment, the **reticulum,** allows balls of food (**cud**), that have been hurriedly eaten at some earlier time, to pass up the esophagus back into the mouth for a second, thorough chewing. Rechewed food goes back into the rumen. Only after it reaches a certain particle size does it leave the reticulo-rumen and pass into the omasum. The third pouch, the **omasum,** is specially equipped with many layers or folds for the absorption of water and products of microbial **fermentation** such as **propionic** and **acetic acids.** Additionally, microbes in the rumen convert plant protein into microbial protein which have a more balanced amino acid composition, eliminating the need for essential amino acid supplement. Digestion of microbial protein and other nutrients in forage that escape the fore-stomach pouches is completed in the true stomach, the **abomasum** and the rest of the gut. In effect, cattle or ruminants are the most uniquely specialized **grass eaters** of all mammals.

What makes the IFAS Range Cattle REC unique and special for Florida's cow-calf program? ---- Grass farming

Recognizing the truth in the saying that "all beef is grass", the Range Cattle REC at Ona is an IFAS unit which has been dedicated solely to research on beef cattle and grass farming for nearly 60 years. In this issue, and subsequent issues of your newsletter, we will share with the livestock industry practical information on research conducted at the Range Cattle REC at Ona. It will include information on efforts by range scientists to reconstruct our rangeland vegetation; new grasses and legumes which have been carefully screened and selected by center agronomists for higher yield, better quality and persistence. Collaborative work between agronomists and animal nutritionists establishes grazing management guidelines to ensure quality forage production. Nutritionists evaluate feed supplements to promote cattle growth and reproduction during adverse seasons. The soil scientist plays a vital role in developing new liming and fertilization recommendations to sustain pasture yields in a safe soil-water-plant-animal environmental complex. In each issue, we will feature a cattle producer who shares their innovative cultural and grazing management experiences with the rest of the livestock industry. There will be a calender of events. Feedback information, support and patronization of this newsletter by Florida's agricultural community and professionals will be necessary for the success of this information exchange. **WELCOME TO THE FIRST EDITION OF THE RANGE CATTLE RESEARCH AND EDUCATION CENTER NEWSLETTER.** (MBA)

Controlling Dogfennel and Thistle

Springtime is here and this is the time forage and livestock producers in south-central Florida should be concerned about spraying their pasture to control broadleaf weeds such as dogfennel, thistle, goatweed, etc. Perennial weeds, like dogfennel, have just about exhausted their crown-root energy reserves to initiate new growth. Additionally, their young shoots are tender and most susceptible to herbicides. Timely spraying of young weeds means reduced rates of herbicides, lower production costs and lower environmental pollution on your ranch. In early spring, allow dogfennel to reach 18-24". This ensures that the dogfennel shoot is manufacturing food to replenish the rootstocks and that the herbicide you apply will travel with this food to the roots and provide control. Good transport of herbicide is essential because of the ability of the rootstocks to regrow. Apply **1 - 1.5 qt/A of Weedmaster®** to control dogfennel plants that are between **18 and 24 inches** tall.

Thistle should be sprayed in early spring while in the 'rosette' (ring of leaves on soil surface) stage of growth development but definitely before it attains the bolting (flowering) stage. About **2.5 qt/A of Weedmaster®** spray is necessary for effective control of thistle. This same rate of application will also control other weeds such as soft rush. Remember, do not spray hemarthria grass (Floralta or Bigalta) with Weedmaster because it will cause harm to that grass. Broadleaf weed problems in hemarthria must be treated with Banvel® (Dicamba). **Dicamba at 1.0 qt/A** will provide excellent control of

thistle, dogfennel and smartweed in hemarthria. Be sure to read the pesticide label for protective clothing during spraying. (MBA or PM)

Planning for Successful Pasture Establishment of New Grasses

As a result of extensive mole cricket damage to bahiagrass pasture in both the 1995-96 and 1996-97 seasons, some producers are considering planting other grasses. Preparations for pasture establishment in south-central Florida should begin as early as fall of the previous year. The primary reason for land preparation is to eliminate weed competition before establishing new forage grasses. Old pasture can be moldboard plowed, rotovated or disked in November and seeded to ryegrass. In April, of the following year when ryegrass dies and drought conditions usually prevail, clean till at 2-3 week intervals until planting material and adequate moisture are available. Improved grasses can also be established on a clean seedbed following a winter vegetable crop. Soil pH must be brought up to 5.0 to 5.5 depending on cultivar being planted, by applying dolomitic lime. In a normal season, planting of vegetative material such as for stargrass or limpograss should be done in July to ensure a moist seedbed. Vegetative planting material should be obtained from a field that was fertilized with 100-40-80 lb/A of N-P_2O_5-K_2O and allowed to regrow for 70 days. About 1500 lb of freshly harvested plant material must be uniformly distributed (do not leave areas larger than 1 sq ft void of plant material) on an acre of clean cultivated soil, crimped 4" into the soil or covered by disking to allow 25% of stem material to be exposed. Be sure to press plant material into the soil or cover by disking within 30 minutes after distribution to prevent drying. Then immediately pack field firmly to conserve moisture. Seven days after planting, spray with 1 qt/A of Weedmaster® for stargrass and bermudagrass plantings or Banvel® at 0.75 qt/A for hemarthria plantings to control broadleaf weeds and watergrass. Also seven days after planting, apply a starter fertilizer of 35-35-35 lb/A of N-P_2O_5-K_2O. Thirty days after planting, apply additional nitrogen fertilizer at 50 lb N/A. If everything suggested is done on a timely basis, you could get a hay crop in about 80 days from time of planting. Remember, limpograss tends to come up and establish slower than star or bermuda grasses. (PM or MBA)

Where have all the Mole Crickets Gone?

About this time in 1997, every producer, every extension agent and every agricultural professional was talking about how bad the mole cricket damage to bahiagrass pasture had been. There were dead patches of bahiagrass everywhere that needed replanting. It was estimated that about 100,000 acres were destroyed in south-central Florida.

In response to the crisis, IFAS selected a committee to study the problem and come up with suggestions that will lead to finding long term solutions. The UF/IFAS mole cricket program had released nematodes on 2-acre pasture plots in Clay, Flagler, Osceola and Pasco counties in 1989 to control mole crickets. These sites were revisited in 1997 to find out what proportion of mole crickets were still infected. According to Dr. J.H. Frank,

IFAS Entomologist, the percent infection rate by nematodes in spring of 1997, 8 years after release, was quite impressive. It ranged from 20% in an untreated control site (Clay county) to 50% in a treated site (Osceola county). Data collected from ranches other than release sites in Osceola county showed that the nematode had spread widely in central Osceola, and that the nematode built up from 8% in January to 100% in June, 1997. In Osceola, Flagler and Pasco counties, nematode infection levels exceeded 40% in the spring, and there were also very few mole crickets. No nematodes were present in DeSoto and Polk counties where there had not been a release.

Next, mole cricket traps were installed on ranches in DeSoto, Hardee, Highlands, Manatee, Polk and Pasco counties. The goal was to scout for mole crickets, understand their movements and build up, and try to test biological and chemical materials for their control.

In July 1997, average weekly counts of trapped young mole crickets varied from 75 to 200 in low-lying areas of Manatee county and the Green Swamp of Polk county. The summer weekly count of mole crickets on a sandy ridge in Polk county was only 6. The 1997 season was very unusual in terms of rainfall distribution. Pastures in low flatwood areas became increasingly waterlogged as the year wore on. We do not know how many of the crickets got drowned or were eaten by birds, but mole cricket counts from these low fields declined progressively to near zero by the fall and winter. At about the same time, we observed a dramatic build-up of adult, winged mole crickets on pasture located on the high ridge, deep sandy soils in November, 1997. This indicated that some insect movement had occurred across large tracts of pasture.

A few mating flights have been observed so far in March 1998. Mole cricket numbers are considerably down on flatwood pastures from where they were about this time in 1997. Where nematodes have not been released, excessive soil moisture and predators have all had their toll on mole crickets. But the problem is far from over. These insects are extremely mobile. So long as there are the sandy ridges, well drained golf courses, and elevated home lawns, there will always be plenty of hiding places for mole crickets during prolonged flooding. From these sites the insects will regroup, multiply and invade flatwood bahiagrass pastures in dry years.

Chemical pesticides such as Prozap (Sevin) bait provide only temporary mole cricket control. Most chemicals have been withdrawn from the market by the EPA and are no longer commercially available. Our only remaining chances for eliminating mole cricket as a pasture problem in Florida are by 1) establishing self-sustaining natural enemies in all counties and 2) selecting for grass cultivars that are tolerant of mole cricket damage. These are the areas we at UF/IFAS plan to work on diligently in the coming months. (MBA)

Time for Spring Fertilization – Are You Aware of the New IFAS Recommendations?

The most recent revision of IFAS document on fertilization recommendations for Agronomic crops in Florida was published in **January 1998.** The information is contained in Fact Sheet SL-129. It is available on EDIS. Producers are strongly encouraged to familiarize themselves with the most recent changes in order to reduce fertilization cost.

The relevant portions of Fact Sheet SL-129 that deal with bahiagrass pasture fertilization for central and south Florida fall under **Crop Code 30** and **Footnote 131.** Producers should become aware that soil testing is not recommended for bahiagrass **pastures** in central and south Florida because field research has shown no yield benefit to phosphorus (P) and potassium (K) fertilization of grazed bahiagrass in this region. South and central Florida as used here refers to that part of the state south of an imaginary line drawn east-west through Orlando.

Liming and **nitrogen (N) fertilization** remain the only two important considerations that influence bahiagrass yield and cattle production in the region. The target pH for bahiagrass pasture should be **5.0** and nitrogen around **50- 100 lb/A** should be applied between mid February and March. Since N fertilization does not require soil testing, the only sample you may need to send to the UF/IFAS Extension Soil Testing Laboratory will be for liming recommendation. This can be done at 3-4 year intervals.

A note of caution --- new plantings of bahiagrass should be fertilized differently from established pastures because their root systems are not fully developed to take advantage of residual P and K in the soil hardpan. For new plantings, obtain a soil test recommendation for lime, P and K. Then lime soil to a pH of 5.0 or higher. Apply 30 lb N/A, all of the P and 50% of the K as soon as the seedlings emerge. Apply 70 lb N/A and the remaining K 30 to 50 days later.

If you have questions, consult with your County Cooperative Extension office. (MBA or JER)

Update on Suerte

Suerte (Luckygrass) was released by the University of Florida in 1995. This is a perennial bunchgrass established rapidly from seed. Its bunch habit of growth may be of an advantage because this has allowed open places for legumes like aeschynomene to grow. It is palatable and leafy, and grazing trials at the Range Cattle REC have indicated that it can provide very good gains for young cattle. Today there are about 2000 acres in Florida, with about 500 acres at Deseret Cattle and Citrus. Pastures of 50 acres or more are found at Blue Head, Hayman's 711, C.M. Payne's, Sun Ag, Inc., and Triple S ranches. The main problem so far has been obtaining commercial quantities of seed. Suerte flowers in October and produces abundant seed, but must be harvested at exactly the right

time. If you are too early you will not get seed, and if you are late by a few days seed has fallen off. So, it is a learning process for the seedsmen. How is it doing where it is planted? Ranchers who have it, like it. Many pastures are going into their fourth year, so it seems to be persistent. Suerte can reseed itself if cattle are pulled out of the pasture in August, thus allowing the grass to go to seed in the fall. Removal of the top growth by grazing or as hay, and grazing in the spring to keep the stand open, allow the seedlings to develop. Suerte can be (and should be) periodically grazed hard in the growing season, and allowed to regrow. Suerte provides almost all its growth in the summer and must be fertilized heavily compared with bahiagrass. It is not a grass for everyone, but it definitely has a place. It is interesting that the University of Florida sold the rights to an Australian seed company and they are marketing it as HiGane. Reports are that dairymen on the east coast of Australia are using it as a pasture and green chop forage. Two other varieties have been released, one in Argentina (called Camba FCA) and one in Thailand (called Ubon). Maybe the grass is greener on the other side of the fence! (RSK)

Grazing Trial with Brachiaria at Ona

In South America, signalgrass (*Brachiaria humidicola*) is used on ranches to the same extent that cattlemen use bahiagrass in Florida. Signalgrass has been evaluated at the Range Cattle REC as early as the 1950's, when it was tested in small plots. Protein in signalgrass is a little lower than that in bahiagrass, but digestibility is as good or better. It is definitely a warm season grass with no growth in winter, and stockpiled grass was very poor after frost. In short, the advantages over bahiagrass did not seem too great at the time, so why recommend signalgrass? With the recent mole cricket and other problems associated with bahiagrass decline in pasture, there may be a reason for renewed interest in signalgrass. Signalgrass has several valuable points as a pasture grass. It is extremely competitive, does not require high soil pH and fertility, is adapted to wetter soil than is bahiagrass, and is established through seed. In May 1996, seed was imported from Brazil and sown at 6 lb/A on a 300 acre "experimental" pasture at Deseret Cattle and Citrus. Cattle were grazing on this pasture by late July 1996, and it appears to be a good grass after the 1997 season. Information on livestock performance have never been obtained in Florida, so fifteen acres each of signalgrass and Pensacola bahiagrass will be seeded this summer at Ona, and a year-round trial will begin in 1999. Basic information will be collected such as grass protein and digestibility under grazing, individual daily gain and live weight gain/A, number of grazing days/year, problems with insects and disease, etc. Experience with the grazing trial at Ona and the seeding at Deseret should provide information about its value and its management under Florida conditions. (RSK).

Featured Ranch:
Blue Head Ranch
Griffin Ben Hill Inc.

The Blue Head Ranch is located on typical flatwood soils alongside SR 70 east of Arcadia, in DeSoto County. It is a large scale cow-calf operation with a unique forage program based on year-round grazing of grass/legume mixtures integrated with forage seed production to generate a secondary income. I had the privilege to speak with the ranch manager, Mr. Steve Van Ostran who shared the following information on their forage program for the benefit of our readers.

Cool season (fall-winter) grazing on the ranch is made possible with white Dutch clover (probably Louisiana S-1)/bahiagrass pasture. At least, a 1000 acres of this grass/legume mixture may be found on the ranch, some of which have persisted for more than 20 years! According to Steve, the key to the clover persistence is the location of these pastures in low land sites. Such sites, he continued, become periodically flooded during summer rains which helps control nematodes and retain moisture for the fall. If any rancher is interested in trying this forage mixture, hold it right there until you have thoroughly digested Steve's five point recipe:

1. **Select a low-lying area for clover establishment.**
2. **Sow the clover in the fall (October to November).**
3. **Don't let the soil pH fall below 5.7 (maintain between pH 5.7-6.1)**
4. **Apply ammonium sulfate (50 lb/A of N) fertilizer in the spring when clover is blooming (for self re-seeding) to stimulate grass growth and then graze it heavily through summer to open up the sward.**
5. **Put on 100 lb/A of 0-15-30 fertilizer in the fall to promote legume growth.**

There are two main types of warm season legume/grass associations in use on the ranch. Both are based on Tifton 9 bahiagrass and both are managed for grazing as well as grass and legume seed production. The two summer legumes used are **American Joint Vetch** (*Aeschynomene americana*) and **Savanna Stylo** (*Stylosanthes guyanensis*). Again, consider Steve's recipe:

1. **For establishment on virgin land, chop flatwood vegetation a number of times in the winter to pulverize and bury palmettos.**
2. **The final chopping should be completed by the end of February.**
3. **Put out lime, seed (grass and legume) and fertilizer the same day, preferably in early March. Seed is mixed with fertilizer (either a 14-14-14 or 16-16-16 plus minor nutrient mix) the same day just before broadcast. About 300 lb of seed/fertilizer mix is applied to an acre.**
4. **A Lawson pasture aerator covers seed and firms the soil.**

With this kind of operation, Steve and his men can plant 100 acres each day.

The fertilization and grazing strategies employed on the Blue Head Ranch towards forage seed production are equally intriguing:

Management for seed --- Aeschynomene/Tifton 9 bahiagrass:

Spring fertilization of 300 lb/A 20-10-15 is used to promote grass growth which is then heavily grazed to open up the sward. Grazing is continued until the first appearance of Tifton 9 flower, which usually occurs in June. Cattle are then pulled out of the pasture to allow for grass seed development and seed harvest. This period may take 30-40 days depending on summer rainfall. After grass seed harvest, cattle are returned to graze the pasture until mid August when the pasture is rested again to allow aeschynomene to flower and set seed. Aeschynomene seed is harvested in November, followed by two options: 1) either the legume-grass residue is cut for hay or 2) the residue is grazed through the fall before animals are moved to the winter clover pastures. Four other points of clarification. Steve believes that for good bahiagrass seed production, the sward should be limed to a pH of 6.0 instead of the pH of 5.0 required for forage production. The grass-legume pasture should be chopped every couple of years. During grazing, cattle are rotated among pastures on the basis of stubble height (about 6" stubble) and not according to the calendar. Blue Head Ranch has about one acre of improved pasture for each cow/calf pair. They use a lot of native pasture also.

Management for seed --- Stylo/Tifton 9 bahiagrass:

Planting and fertilization are done the same way as described for aeschynomene. After a year or two of establishment, the pasture is burned annually in late February. Steve says that burning helps to scarify legume seed and promotes seedling establishment. Stylo is an annual in central Florida and must come back from seed. Fertilizer and grazing management for seed production are similar to those described for aeschynomene but with one important difference. Cattle must be pulled off a stylo/bahiagrass pasture the first week of September (i.e. 2 weeks later than removal from aeschynomene/bahiagrass pastures) for legume flowering and seed set. Stylo seed is usually harvested in mid-December.

If readers would like to learn more about the Blue Head Ranch in action, they may direct their questions to the Editor of Newsletter. We salute Steve for sharing his secret recipes with us. (MBA).

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