



Cooperative Extension Service

Institute of Food and Agricultural Sciences



RANGE CATTLE REC NEWSLETTER

July 2001 - Vol. 4, No. 2



Calendar Of Events

August

- | | |
|----|---|
| 7 | Polk County Cattlemen's Association Calf Sale. Lakeland, FL. Tel: 863-533-0765. |
| 18 | 6th Annual Accent on Quality Sale - Florida Brangus Breeders. Kissimmee, FL. Tel: 407-846-4181. |
| 25 | Florida Angus Futurity Sale at NFREC - Marianna Beef Unit. Tel: 850-482-9904. |

September

- | | |
|----|---|
| 11 | Florida Limousin Association Show & Sale. Fair grounds, Lake City, FL. Tel: 904-752-5384. |
|----|---|

October

- | | |
|----|---|
| 11 | Range Cattle REC Field Day. Ona, FL. Tel: 863-735-1314. |
|----|---|

In This Issue –

1. [Estimating the Value of Wet Citrus Pulp for Florida Cattlemen](#)
2. [Value-Based Marketing](#)
3. ['Shaw' Creeping Vigna](#)
4. [Argentine Bahiagrass Seed Production](#)
5. [Management Practices for Consideration with Perennial Grasses](#)
6. [Establishing Nematodes on Bahiagrass Pasture for Mole Cricket Control](#)
7. [Featured Ranch Featured Ranch: The Buck Island Ranch](#)

- Estimating the Value of Wet Citrus Pulp for Florida Cattlemen -

The year 2000 marked the driest and one of the coldest years ever recorded at the Range Cattle Research and Education Center. Where we normally average < 3 frosts (episodes < 32o F) annually, the 2000-2001 winter provided a total of 14 episodes. These weather conditions have provided considerable challenges for south Florida ranchers. Providing adequate nutrition through standing forage has almost been unheard of, therefore, most ranchers have turned to alternative sources of feed. One opportunity, which has made a recent comeback in Florida, is the use of citrus pulp. In the past, the Florida dry pulp market was mainly tied-up in European feed formulations. Depressed export opportunities have once again made this classic citrus byproduct affordable for Florida cattlemen.

Citrus pulp can be provided in at least two common forms, wet and dry. Dry pulp has been the most common form available. It is derived from drying pulp and rind waste from the citrus crushing process. Generally, it is found in an easy-to-handle pelleted form. Another form that has become more available to south Florida cattlemen is wet pulp. Dry and wet pulp should be considered identical in terms of nutritional content, less the water. Depending on the price of energy, the costs of drying pulp may exceed its value as a commodity feed. Therefore, many citrus plants have offered wet pulp to cattlemen for only the price of trucking. This may sound free, but it is not. Wet pulp contains approximately 80% water, and trucking water to livestock is not a profitable endeavor. Therefore, the value of wet pulp must be weighed against the cost of dry pulp. We have had numerous inquires at the Range Cattle REC regarding the value of wet citrus pulp. The information below should be helpful in making these purchasing decisions.

Estimating the Value of Wet Pulp

Some assumptions must be made to make an appropriate comparison. Individual producers can increase the accuracy of the comparison by obtaining actual information specific for their situation.

For the example, we will use the following information that was obtained from south

Florida during the 2000-2001 winter season.

1. Truck delivers 15 tons of wet pulp and charges \$100 delivery.
2. Wet pulp contains 20% dry matter (DM).
3. Dry pulp is \$75 / ton, delivered.
4. Dry pulp is 91% DM.
5. Both dry and wet pulp contain 78% TDN and 7.0% protein on a DM basis.

Using this information we can calculate the value of wet versus dry pulp.

Table 1. Calculating nutrient costs (TDN and protein) of wet and dry pulp.

Product	\$/ton, as fed	\$/ton, DM	\$/ton, (after waste)	\$/ton, TDN
Dry Pulp	\$75.00	\$82.42	(5%) \$86.76	\$111.23
Wet Pulp	\$6.67	\$33.35	(30%) \$47.64	\$61.08

Although the citrus processing plants may offer wet pulp for free, the cost of shipping and the amount delivered are important considerations to the actual cost to the producer. As the charge for delivery increases and the size of load decreases, producers can realize large increases in their actual cost per ton of wet product. When comparing the value of wet versus dry pulp there are other considerations to keep in mind. First, cows will waste a large amount of the wet pulp when offered free-choice in a pile. Compared to a minimal waste (approx. 5%) with dry pelleted pulp, wet pulp wastage could be as high as 30%. As well, the cost of dry pulp will vary to Florida cattlemen depending on other available competing markets. Therefore, when comparing the two products both waste and dry pulp price need to be considered.

Considerations to Feeding Wet Citrus Pulp

Other considerations are important when deciding whether or not to utilize wet citrus pulp.

1. Dry pulp can be stored in bags or a covered shed and fed to cattle at a desired rate, therefore, overeating is rarely a problem. Because of handling constraints, wet pulp is usually offered free choice. If citrus pulp makes up too much of the total diet, cattle may experience ruminal problems that can adversely affect performance and may lead to death. A rule of thumb is that citrus pulp should not exceed more than 40% of the total diet dry matter. When feeding wet pulp, be sure that there is at least some forage available to the cattle.

2. Dry pulp is more concentrated in nutrients on an 'as-fed' basis and therefore more likely to deliver a uniform supply of TDN and protein.

For Example: To deliver 5 lb of supplemental TDN, a cow would have to consume 7 lb of dry pulp versus 32 lb of wet pulp.

Citrus pulp feeding should be viewed as a complement to a good winter forage program. During harsh winters, producers may find available forage to be limited. In these situations, it is important to consider the need for supplemental protein. As well, lactating cows may require supplemental phosphorus. An analysis of forage quality and availability will provide useful information when supplementing cattle consuming citrus pulp.

3. Pasture sod damage will occur in the feeding areas used for wet pulp. In these areas pasture weeds and undesirable grasses may establish themselves the following growing season. To minimize this problem, place wet pulp on less productive areas of pasture and continue to dump new loads in the same location. Also, these feeding areas will result in high-intensity sites for nutrient accumulation. Consider the Florida Cattlemen's Best Management Practices to reduce the risk of water runoff contamination. JA and FMP

- Value-Based Marketing -

Six years ago in 1995 a group of UF/IFAS extension faculty and Florida cattlemen toured the feedlot industry in Oklahoma and Texas. At that time most fat cattle were sold on a cash or weight basis at the feedlot. Little emphasis was placed on value-based marketing or carcass merit.

This past March (2001), Payne Midgette and I toured several feedyards in the Texas panhandle, and oh what a change. It is estimated that 60% of fat cattle are now being sold on a grid. A grid is a formula that pays for carcass merit. Premiums are paid for high quality grades (choice and prime), high yielding carcasses (yield grades 1 and 2), large rib eyes (> 12.5 square inches), and a low back fat thickness (< 0.5 inches). Grids discount low quality grades (especially standard), low yielding carcasses (yield grades 4 and 5), small loin eyes (< 12.5 square inches), and a high back fat thickness (> 0.5 inches).

There are several grids, each placing emphasis on specific quality traits. Most grids heavily discount dark cutters, and heavy (> 949 lb) and light (< 600 lb) carcasses. Some grids even discount brands, implants, and kidney fat.

One Texas rancher-feeder shared a print-out or spread sheet on a pen of heifers finished at McLean, Texas and sold on a grid. We were amazed at the amount of information that the packer provided on each carcass to establish market value. The spread sheet gave rib eye area, carcass grade, back fat thickness, carcass weight, dressing percent, and %

kidney fat. These data can be used back at his ranch to cull cows, select heifers, and improve his bull buying plans.

Most interesting about the above carcass data was the \$300 difference in the price paid for the lowest and highest value carcass. A good proportion of this value difference was due to carcass weight; but grade, yield, and muscling (rib eye area) had high dollar effects.

With the technology to identify calves at birth or weaning and follow them with scanners and computers all the way to the rail and meat counter, value-based marketing is here. More and more Florida calves will be purchased on their ability to gain well and efficiently in the feedlot, and produce a good-quality, high-yielding carcass.

Even for cattlemen that sell small lots of calves through public auction markets, the technology is available to identify their calves and follow them to the rail. This will allow any cattleman to develop a sound breeding and production program that will be recognized by the feedlot and packing industry. Cattlemen that make an effort to develop good reputation calves will be rewarded with premiums, and those that do not will have their calves discounted accordingly. (FMP)

- 'Shaw' Creeping Vigna -

Shaw vigna (*Vigna parkeri*) is a viny, perennial legume released by the Australians. It was planted in pastures at the Range Cattle REC by Dr. Buddy Pitman in the early 1990s and proved to be very compatible with bahiagrass. It forms a low, dense ground-cover and is persistent under grazing. Shaw vigna flowers in December in Florida, so commercial seed production is not reliable here. We have had to rely on seed production in Australia and it has been very expensive to import. I received a letter from a seedsman in Queensland, Mr. Phillip Carrick (pcarrick@spiderweb.com.au), who has made some changes in his Shaw vigna management and streamlined harvesting procedures to reduce risk of rain and frost. The result is a more reliable source of less expensive seed. This spring we pooled with several local ranchers and bought 500 lb @ \$13.61/lb, door-to-door delivery. This may seem expensive, but seeded at 1 lb/acre (Phillip Carrick's recommendation) or 2 to 3 lb/acre (which we feel may be needed here), it compares favorably to *aeschynomene* (in the hull) at \$3.30/lb and sown at 10 to 20 lb. At the Range Cattle REC, we are sowing Shaw in bahiagrass and with *Suerte atra paspalum* this summer. (RSK)

- Argentine Bahiagrass Seed Production -

A cooperative research project is underway between Haile-Dean, Hydro-Agri North America, and the University of Florida's Range Cattle and Indian River REC. The objective is to increase yield and quality of Argentine bahiagrass seed. In 2000, we compared two fertilizers containing calcium nitrate with a standard fertilizer containing

ammonium nitrate and ammonium sulfate. Fertilizers were applied to a 360 acre pasture in May at Rhode Ranch near Yeehaw Junction and seed was combined in September. Dried, clean seed in the bag averaged 40 lb/acre for the standard fertilizer vs. an average 125 lb/acre for the other fertilizers containing calcium nitrate. In 2001, we have expanded our work and have started a replicated, small-plot study which includes standard fertilizer and calcium nitrate treatments, and fertilizers containing silica. Research has indicated that silica-rich fertilizers may be useful by providing plant protection against disease and insects. Ergot (a fungus) is a major problem with Argentine bahiagrass seed production. Although Florida's sandy soils are composed largely of silicon, little is available to plants. (RSK)

- Management Practices for Consideration with Perennial Grasses-

Perennial grasses (bahiagrass, limpograss, stargrass, bermudagrass, pangolagrass, rhodesgrass, and atra paspalum) provide the nutritional foundation for Florida's livestock industry. Bahiagrass occupies about 70% of Florida's 3.5 million acres of improved pasture, with the remaining 30% consisting of various acreages of other grasses. These perennial grasses are used basically for grazing with limited amounts as hay and haylage. Since these are warm season grasses 70 to 90% of the total seasonal yield is produced between April and November, depending on the grass cultivar.

Bahiagrass produces 86 to 90% of its total seasonal yield between April and September, with only 10 to 14% of the total yield produced during the 6 winter (short day) months (October-March). Floralta limpograss, Florona stargrass, Florakirk (hay only) and Jiggs bermudagrass all produce between 15 and 30% of their annual yield during short days.

Floralta limpograss will tolerate the most cold, expressing the least amount of cold damage following sub-freezing temperatures. The bermudagrasses and stargrasses are extremely sensitive to cold, turning brown at temperatures of 30 to 32 oF. However, these selected stargrasses and bermudagrasses will produce forage during cool, moist, short day winter conditions. Therefore limpograss, selected stargrasses and bermudagrasses should be fertilized in late September to early October for fall and early winter forage production and/or fertilized again in early February for late winter-spring production. The late September and early February fertilization program takes advantage of fall and spring soil moisture and rainfall patterns.

Bahiagrass will not respond to fall fertilization because it will not grow under short days. Therefore, it would not be desirable to fertilize bahiagrass for fall growth. However, in the spring, bahiagrass should be fertilized in early to mid-February to take advantage of spring showers and set this grass up for forage production during March, and April (the driest month).

Another factor growers should consider is to re-establish at least one pasture annually, especially those pastures that have shown considerable deterioration. Observations at the

Range Cattle REC indicate, that pastures that are 1 to 5-yr-old will respond much better to fertilization under dry spring conditions than older pastures. When summer rains come and soil becomes well saturated, even the old pastures produce well. At Ona during the spring of 2001 a 1, 2, and 14-yr-old stand of Florona stargrass was well fertilized with the same rate and on the same day. All three fields received the same moisture. By mid April the 1 and 2-yr-old stands were 25 to 30" tall and the 14-yr-old stand was 8 to 10" tall. Apparently, even on sandy flatwood soils, old grass stands become root bound, producing little forage under stress conditions. Re-establishment appears to be the best way to alleviate root bound conditions. This practice destroys the entire sod allowing for a clean seed bed for re-establishment to new desirable grasses.

Mechanical chopping or aeration practices have showed little effect on forage yield increases. Studies in Florida, Oklahoma, Mississippi, Tennessee, and Alabama showed various types of aeration machines had no effect on forage yield. However, forage yields were doubled or tripled in the Texas Backlands with Coastal bermudagrass when eroded soil with a clay pan on the surface was chiseled to a six inch depth.

In conclusion, timing of fertilization on all perennial grasses is very important especially for late fall and spring forage production. Under favorable short day conditions, Floralta limpgrass, Florona stargrass, Florakirk (hay only) and Jiggs bermudagrass all have the ability to produce limited amounts of forage between October and March. Newly established pastures tend to be more responsive to fertilizer under limited rainfall than old pastures. If additional information is desired, please call. (PM)

- Establishing Nematodes on Bahiagrass Pasture for Mole Cricket Control -

The University of Florida holds patent to the sale of mole cricket nematodes (*Steinernema scapterisci* (Ss)) for the control of Tawny mole crickets. In June 2000, the Office of Technology and Licensing of the University of Florida granted an exclusive right to MicroBio, a subsidiary of Berker Underwood of Ames, Iowa, to mass produce and market the nematode. That company spent the greater half of 2000 on nematode production research and development regarding type of fermenters, storage, packaging, and quality control. This was followed by field efficacy evaluations of the product on golf courses and pastures in spring and fall of 2001. The product is expected to be launched on the market under the name "Nematacs" in spring 2002. Presently, MicroBio is evaluating suitability of traditional agricultural distribution channels such as Lesco, Prosource, Golf Ventures, UHS, Diamond R, Lykes, and Florida Fertilizer for local distribution of Nematacs in spring 2002. The shelf life of Ss nematode is only 2 months, so orders placed through selected local vendors will be shipped directly from Berker Underwood to customers for field application, probably by trained custom applicators.

In anticipation of the commercial availability of Nematacs, the Mole Cricket Task Force, consisting of personnel of the University of Florida-Institute of Food and Agricultural Sciences, Florida Department of Primary Industries, MicroBio and stakeholders from the

cattle, turf, and golf industries, have initiated 25 field research/demonstration projects to test the efficacy and rate of spread of the nematode on pasture when applied in strips. These trials are being expanded with a \$300,000 grant from the Florida Legislature in 2001. In one of the earlier trials in Polk City, Ss nematodes imported from Australia were applied in September 2000 to one-acre centers of two-acre bahiagrass plots in strips to cover 0, 1/8, 1/4, and 1/2 the centers. The standard application rate of nematodes is one billion/A, but stripping allows for significant reduction in quantity applied/A. Preliminary data obtained in Spring 2001 from the Polk City trial indicate that mole crickets that were initially infected with the nematode have spread the nematode across the whole 24-acre pasture. Nematode infection level in trapped mole crickets was 80% or higher at 1/2 rate strip application, 60% at 1/4 rate, 50% at 1/8 rate and even 33% at 0 rate. These results have persisted through June 2001 which suggest that the targeted market price for Ss nematode on golf courses (\$200/A) can be substantially reduced to \$20-30/A using strip application on pasture. Field application cost would run similar to a bush-hog operation of \$5 to 10/A. For proper control, nematodes should be injected into the top inch of the soil, during the fall or spring adult mole cricket seasons, after a rainfall, at sundown, in areas where adult mole crickets are abundant. The nematode can withstand water jet pressure of 100-200 psi. Therefore, future trials will evaluate the effectiveness of pressurized spray machinery.

MicroBio has so far donated 16 billion nematodes from their production facility to the Mole Cricket Task Force for trials on bahiagrass pasture. These were injected in 1/4 and 1/8 area-strips over 92 acres in Hardee, DeSoto, Pasco and Polk Counties in Spring 2001 to test the efficacy of their first product. Results from these tests are not ready yet. Fifteen additional demonstration sites will be treated in fall 2001 to show handling, mixing, and application techniques. Producers are advised to contact their county extension office for a schedule of demonstrations in their county so we all get prepared for the launching of the Nematacs product in spring of 2002. Meanwhile a factsheet on "biocontrol of pasture mole crickets with nematodes" has been published to inform producers about this technology. Copies of the factsheet and further information are obtainable at your county extension office and on University of Florida's Electronic Digital Information Service (EDIS) webpage. (MBA)

Featured Ranch: **The Buck Island Ranch**



The Buck Island Ranch covers 10,300 acres 15 miles southeast of Lake Placid in Highlands County. The main ditches surrounding the Ranch (from which it derives 'the island' connotation) drain directly into the Harney Pond Canal, a major drainage way for central and south Florida. The Harney Pond Canal connects the region to the larger regional Kissimmee-Okeechobee-Everglades watershed which ties us to the major water quality concerns of the entire region.

Buck Island Ranch is on a 30-year lease from the John D. and Catherine T. MacArthur Foundation to the Archbold Biological Station with the primary mission to conduct long-term studies on relationship between cattle ranching, citrus production and changes in wildlife species and ecosystems similar to the vast prairies that support most of Florida cattle. Hence, the Buck Island Ranch has become synonymous with MacArthur Agro-ecology Research Center or MAERC.

Operationally, Buck Island is maintained as a full-scale working ranch and grove, with a research design. It offers the opportunity to measure how agriculture and the environment interact over the long term. The ranch was the venue for a visit and tour by Florida's Grazing Issues Working Group on June 6, 2001

According to a report by Hillary M. Swain, Executive Director, predominant physical features of MAERC are its climate, soil, hydrology and flatland. Climatic conditions at the Ranch are monitored by four weather stations that collect continuous data on temperature, rainfall, wind speed and direction, and solar radiation. Soils are poorly drained sands or very poorly drained organic soils with low to moderate fertility. Adequate moisture, high temperatures, and long growing season have allowed for production of improved grasses, such as bahiagrass, on better-drained areas for summer pastures. Currently, there are 4,500 acres of bahiagrass pastures. Native grasses and marsh plants dominate the more poorly drained 5,640 acres of native range used for winter pastures. These dominant landscape types provide the basis for an extensive seasonal rotation in which cattle are stocked more heavily on the bahiagrass pastures in the summer and are moved to the semi-native marshes in the winter. Ranch Manager, Gene Lollis indicated that total cow herd size on the Ranch has fluctuated between 2,000 and 3,500 as management evaluates the carrying capacity of the system. The ranch has a 160-acre citrus grove.

Minor variations in topography control variation in plant communities. Wetlands and marshes occupy poorly-drained, low-lying areas and cabbage palm or live oak hammocks occupy higher, well-drained areas. Landscape depressions due to cavities in deep limestone formations have resulted in the development of more than 500 isolated wetlands which are critical resources for wildlife. In addition to natural wetland, there is an extensive network of more than 400 miles of drainage ditches to facilitate draining of surface water and prevent flooding during the rainy season. The mosaic of habitats - improved pastures, semi-native range, forests, and wetlands - supports distinctive wildlife species such as sandhill crane, burrowing owl, river otters, crested caracara and wading birds, as well as the common white tailed deer, alligators, wild turkeys and meadowlarks.

In 1994, three organizations (MAERC, IFAS, and SFWMD) came together with an outline of new research programs designed to examine the relationship between management practices of the Ranch and environmental issues and economic sustainability of beef cow/calf operation in central Florida. In 1966, the Florida Cattlemen Association and the U.S. Natural Resource Conservation Service (NRCS) joined the Advisory Committee to oversee and coordinate research at MAERC. This multi-disciplinary group meets several times a year to review the status of projects,

develop new projects and seek new research funding.

The water quality concerns of south-central Florida motivated MAERC and their partners to establish in 1966, a 1,225-acre array of 16 experimental pastures, each as a separate hydrologic unit. In 1988, four cow/calf pair stocking rates of 0, 15, 20 and 35 were randomly assigned to a set of 8 summer improved pastures (each 50 acres in size) and a set of 8 winter native pastures (each 80 acres in size). Each test herd occupied summer pastures during May-November and winter pastures during November-April/May.

The stocking rate influence on growth and consumption of grasses in each pasture is monitored by IFAS personnel. The quantity and quality of forage available to cattle has economic bearing on cow calf production at the Ranch. Cattle conception rates, weaning percentage and weaning weights are determined by MAERC personnel and used to evaluate economic consequences of alternative management practices. Surveys conducted by IFAS personnel of birds, frogs, toads, and snakes in pastures provide an index of wildlife use relative to cow stocking rates.

The 16 experimental flumes and automatic water samples continuously measure the amount and quality of water draining from pastures, separately, during periods of flow. Water quality samples are analyzed at the Harbor Branch Oceanographic Institute Environmental Lab for total nitrogen and phosphorus, ortho-phosphate, ammonium and nitrate. Initial findings show that phosphorus loads in drainage waters are greater in summer than in winter pastures, but very little variation among stocking rate treatments. The nutrient information, combined with flow volumes, will help determine loading rates for P and N relative to stocking rates and will provide an understanding of nutrient loading from beef cow/calf operation, which are essential for calibration and verification of computer models. Weather data from the summer/winter pastures do provide information to estimate evapotranspiration and to calculate water budget.

Finally, the stocking rate study provides a means to monitor the health of a wide variety of wildlife populations in a pasture landscape. MAERC earnestly hope this research will help develop management practices for cattle industry that are both economically sound and environmentally sustainable. (Excerpts from [Archbold Biological Station Webpage](#))(MBA)

Newsletter Contributors

[Martin B. Adjei, Editor](#)

Extension Forage Specialist
Agronomy Assistant Professor

[Rob S. Kalmbacher](#)

Range Management and Forage Crops
Agronomy Professor

[Findlay M. Pate](#)

Beef Cattle Management
Animal Science Professor & Center Director

[Paul Mislevy](#)

Pasture - Forage Crops and Reclamation
Agronomy Professor

[John D. Arthington](#)

Assistant Animal Scientist