



Cooperative Extension Service

Institute of Food and Agricultural Sciences



RANGE CATTLE REC NEWSLETTER

October 2000 - Vol. 3, No. 3



Calendar Of Events

October

- | | |
|----|---|
| 27 | Beef Forage Field Day-STARS, Brooksville, FL Ph:352-796-3385. |
| 28 | Southeast Brangus Breeders Female Sale, Marianna, FL Ph:850-482-9904. |
| 30 | Southern Beef Breeders Bull Sale (Charolais), Arcadia FL Ph:863-993-4846. |

November

- | | |
|----|---|
| 2 | SE Horned-Hereford Sale-Polk County AG Center, Bartow, FL Ph:863-465-5729 |
| 3 | Hardee Farms Black Bull Sale, Chiefland, FL Ph:352-493-4472. |
| 9 | Florida Angus Sale, Bartow, FL Ph:863-533-0765. |
| 10 | Lemmon Angus Sale, Okeechobee, FL Ph:863-763-6469. |

29	Stargrass Fertilization Field Day, Okeechobee, FL Ph:863-763-6469
30	Hardee County All Breed Sale, Wauchula, FL Ph:863773-2164.
30	FCA/FCW Winter Quarterly Meeting, Lakeland , FL Ph:407-846-6221.
December	
4	ABC Bull Sale - Arcadia Livestock Market, Arcadia, FL Ph:863-494-3737.

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The Fate of Excess Phosphate Fertilizer on Flatwoods -

A greenhouse experiment was conducted at the Range Cattle Research and Education Center, Ona, to determine the fate of Phosphate (P_2O_5) fertilizer when applied in excess of improved pasture grass requirements on a flatwoods soil. Phosphate fertilizer was applied twice, 145 days apart, at three rates of 0, 52 and 104 lb P_2O_5/A each time, to the topsoil layer (Ap horizon) of an Immokalee fine sand in pots. As part of that study, four soil amendments were used to evaluate their effect on P retention in the soil. These were mined gypsum, phosphogypsum, lime (calcium carbonate) and dolomite, each applied to supply 714 lb/A of calcium (Ca). All possible combinations of phosphate rates and soil amendments were studied in three replications.

After the application of treatments, the potted topsoil layer (Ap horizon) was leached 8 times over a period of 220 days. For each leaching, 1000 milliliters of deionized water was used per pot. The leachate from the Ap horizon was applied to the potted next lower soil profile (E horizon) and the E horizon leachate was in turn applied to the potted spodic layer (Bh horizon). This was done to simulate natural water solution movement

down a flatwoods soil profile. At each step of the experiment, soil and leachates were sampled and analyzed for Phosphorus (P) concentration.

The results showed that P retention capacity of flatwoods soil horizons was in the order Bh>Ap>E, with the pure sandy E horizon having almost zero retention. As much as 99% of soil plus fertilizer P in the Ap horizon was retained in the whole soil profile, most of it in the Bh horizon.

The liming materials (lime or dolomite) applied at 714 lb Ca/A significantly increased leachate pH, but equally importantly, reduced P losses through leaching from the Ap horizon by 32, 38, and 40% at one application of 0, 52 and 104 lb P₂O₅/A, respectively, compared with either the zero treatment or the mined gypsum treatment. Leachate P from Ap horizon was also reduced by lime at two applications of 52 and 104 lb P₂O₅/A, by 32 and 37%, respectively. It is believed that P precipitation on undissolved lime particles was responsible for reducing P leaching from the Ap horizon.

Two conclusions were drawn from this study. First, the high P retention in the subsoil (Bh horizon) provides credible explanation why most deeply-rooted permanent pasture grasses grown on flatwoods soils do not respond in yield to fertilizer P applications. Secondly, the study indicates that surface runoff is the primarily cause of P losses and these losses can be reduced by lime or dolomite amendment applied to the Ap horizon, which also improves soil pH. (ISA, JER and MBA)

Redeem R+P Herbicide -

This is a new herbicide from DowAgroSciences LLC that has recently received a label for use on range and pasture in Florida. It contains 3 lb/gallon of active ingredients which are a mixture of the active chemicals in Remedy (triclopyr at 2.25 lb/gallon) and Stinger (clopyralid at 0.75 lb/gallon) herbicides. Redeem costs \$65/gallon compared with \$62/gallon for Remedy when the latter is purchased in 30 gallon containers. Redeem may provide less control on woody plants, but more control on herbaceous plants compared with Remedy. The inclusion of clopyralid may give Redeem some soil activity, which will be helpful for dogfennel and tropical soda apple. We have included Redeem in small plot tests on dogfennel at the Range Cattle REC and in 10-acre blocks on blackberry briars at Bright Hour Ranch. It is too early to tell about control at this time. **(RSK)**

Evenia and Stylo Compared -

In a 3-year trial at the Range Cattle REC, mixtures of bahiagrass and *Aeschynomene evenia* (evenia) or Savannah stylosanthes (stylo) were compared with bahiagrass alone. In the first year, pastures were continuously grazed (1.2 acres/head) from 2 July to 24 September by yearling steers and in the second and third years by pregnant heifers. There was no difference between legumes for available forage which averaged 600 lb dry matter / acre at each 28-d sample date and ranged from 260 to 830 lb/acre between July and September, respectively. Pasture treatment did not affect total live-weight gains (LWG) of individual cattle over the 3, 84-day periods, but year effect due to rainfall was

significant averaging 100, 75, and 46 lb LWG/head in 1996, 1997, and 1998 periods, respectively. Evenia did not appear to be as palatable as stylo, but cattle readily ate its leaves and fine stems. Hand-plucked leaves (simulating what cattle ate) of evenia ranged from 22% to 19% crude protein and 68% to 58% digestibility from 2 July to 24 September, respectively. Stylo was 17% to 13% crude protein and 68% to 56% digestibility for the same period. Evenia was flowering and setting seed when the trial began in July, while stylo flowered in October. We removed cattle early in order to allow stylo to produce seed so that it could reseed itself. Evenia seems to be a practical legume for Florida pasture. (RSK)

Ryegrass Forage Production Results at Ona -

Annual ryegrass (*Lolium multiflorum* Lam.) is a cool-season bunchgrass which can be an important source of forage during winter and early spring. Ryegrass, seeded alone after a vegetable crop or used in a pasture renovation program or in a perennial grass sod, can provide high quality forage which is quick to establish, provided adequate moisture is available. Ryegrass seeded in cultivated areas establishes more rapidly than with sod-seeded ryegrass. Cultivated areas seeded to ryegrass can be grazed within 6 to 8 wk after seedling emergence, and grazing may extend for 90 to 120 days. Sod-seeded ryegrass normally requires twice the nitrogen rate and produces half the yield of ryegrass seeded in cultivated soil. Ryegrass responds well to nitrogen fertilization, which leads to more rapid growth, higher crude protein concentration, and improved digestibility. Ryegrass stockpiled for 30 to 40 days during late February and March can be harvested as a hay or silage crop during early April yielding about 1.0 to 1.5 ton/acre dry matter (DM) with crude protein concentration and in vitro organic matter digestion averaging about 15 and 76%, respectively.

Since new ryegrass cultivars are continually being released from public and private sources, it is important that cultivars be tested under south-central Florida conditions. In this investigation, ryegrass entries were evaluated for DM yield, seasonal forage distribution, and crown rust resistance.

Twenty six ryegrass entries were seeded at the Range Cattle REC, Ona, on 18 Nov. 1999. Seeding rate for all ryegrass entries was 20 lb/acre. Prior to seeding, the clean tilled soil was fertilized with 0-30-60 lb/acre N-P₂O₅-K₂O, plus 1.5 lb/acre Mn, Zn, Cu, and Fe (sulfate form), 0.15 lb/acre B and 6.0 lb/acre S. Nitrogen was applied at 50 lb/acre after seedling emergence, and at 35 lb/acre following each harvest. The experimental plots were irrigated using an overhead irrigation system.

Total seasonal yield for the 1999-2000 winter season ranged from 3.4 ton/acre for Smith Seed Services 'Jumbo' to 2.6 ton/acre for Pennington Seed Co. 'Passeral'. The total seasonal DM yield for Jumbo (3.4 ton/acre) was 31% higher than Passeral (2.6 ton/acre). Yields during the 1999-2000 season averaged 3.1 ton/acre DM which was considerably higher than the 2.3 ton/acre obtained during the 1998-1999 season.

Earlier research at Ona indicates low ryegrass yields when seeded in a perennial grass sod. In fact, seeding ryegrass in bahiagrass sod is very risky since rainfall is unpredictable. Even with irrigation, studies have demonstrated sod-seeded ryegrass yield is less than half when compared with ryegrass grown in a cultivated seed bed. Therefore, seeding ryegrass on cultivated land following a vegetable crop or as part of a pasture renovation program is more successful because it requires less total moisture and fertilizer to produce a ryegrass crop, and double DM yields are obtained when compared with sod-seeded ryegrass.

Crown rust was only observed on Marshall and Passeral ryegrass during the 1999-2000 growing season.

To determine the true agronomic performance of a ryegrass variety, testing must be conducted over several years. Average yield of ryegrass grown at the Range Cattle REC, Ona, over a 2- to 9- year period, ranged from 2.7 to 3.3 ton/acre. These data indicate that there are greater differences between years than between the better cultivars.

Conclusion

The cultivars Jackson, Gulf, Big Daddy, Jumbo, FL 80, Surrey, Rio, and Marshall all have consistently produced good yields. When selecting Marshall, caution must be used, since it always has a higher incidence of crown rust. Commercial growers in central Florida should consider price per pound of seed and performance over several years as selection criteria. For further information on recommended varieties call Dr. Paul Mislevy at 863-735-1314. **(PM)**

Value Added Molasses Supplements - for the Brood Cow Herd -

A major expense in cow/calf production is winter supplementation. The most expensive component in a supplement is crude protein. The two broad classes of crude protein are non-protein nitrogen (urea) and natural protein. Natural proteins include feedstuffs such as cottonseed meal, soybean meal, and feather meal. Per unit of crude protein, urea is much less expensive than natural proteins and much easier to mix into a liquid supplement.

We compared different molasses supplements fed during the winter to brood cows grazing bahiagrass pasture and stargrass hay at the Range Cattle REC. The herds contained animals ranging in age from first-calf heifers to 15-year-old cows.

Cows fed a molasses-urea (17% crude protein) supplement for 130 days at 3 pounds per cow per day produced 39 pounds more calf per cow than cows fed molasses only. Cows fed molasses-cottonseed meal-urea slurry (17% crude protein) produced 18 pounds more calf per cow than cows fed molasses-urea.

It cost \$7.00 per cow to add urea to molasses and produce 39 pounds more calf. It cost an additional \$5.00 per cow to replace most of the urea with cottonseed meal and produce 18 pounds more calf. With feeder calves now at \$80 to \$100 per cwt, feeding the cow herd molasses supplement fortified with urea or natural protein results in very positive returns.

The Range Cattle REC trial further showed that the greatest response to supplemental crude protein in molasses, as either urea or natural protein, was by first-calf heifers. Older cows fed molasses-cottonseed-urea or molasses-urea also performed better than cows fed molasses only, but there was no advantage of feeding molasses-cottonseed meal-urea slurry over molasses- urea. Thus, a good production practice would be to manage first-calf heifers and older brood cows in separate herds, supplementing younger cows with molasses-natural protein slurry and older cows with a molasses-urea mixture.

There are other factors that should be considered when selecting a molasses-based supplement. Molasses-natural protein slurries are very palatable to cattle and they must be limited-fed to brood cows and first calf heifers, usually with twice weekly feeding. In contrast, urea is unpalatable to cattle and serves as an intake limiter when added to molasses mixtures fed free-choice in many situations. However, over or under consumption of molasses-urea supplements are problems at times and intake should be monitored.

The long term benefits of feeding brood cows adequate amounts of a good quality winter supplement must be recognized. Feeding brood cows during the winter not only means heavier calf weaning weights next fall, but a higher calf crop the following year. Remember, cows bred this winter conceive calves that will be marketed in the fall of 2002. The calf market is predicted to be strong for the next few years. Now is the time to spend money on practices that promote better calf production. Better cow nutrition through winter supplementation is one of the most important of these practices, and one that will return dividends down the road. **(FMP)**

Nitrate Poisoning in Grazing Cattle -

Nitrate poisoning in grazing cattle occurs following the consumption of plants that contain excessive amounts of nitrate. Nitrate is naturally converted to nitrite and then to ammonia by microbes in the rumen. Acute or chronic nitrite poisoning occurs when the amount of nitrate consumed exceeds the rumen's ability to convert into ammonia. This excess nitrite is then absorbed into the bloodstream where it complexes with hemoglobin. Bound with nitrite, hemoglobin is unable to bind and transport oxygen causing a buildup of methemoglobin in the blood. Methemoglobin has a chocolate brown color, which is a telltale sign of acute nitrate poisoning in cattle. By blocking the transport of oxygen to peripheral tissue, acute nitrate poisoning results in suffocation.

Plants take up nitrate in normal growth and developmental processes. During photosynthesis the plant converts nitrates into amino acids and proteins. Nitrate accumulation will occur most readily in the structural components of the plant closest to

the ground. Plant leaves are usually low in nitrate. Nitrate problems are most common in young growing plants, which are rapidly taking up nitrate to fuel growth.

Excessive plant nitrate accumulation may occur in at least two ways:

1. Cultivated crop forages (typically annuals) which are grown on heavily fertilized and cultivated soil tend to be the most common accumulators of nitrate. Problems with excess nitrate accumulation may be most common in soils heavily fertilized with poultry or livestock manure. Typically, commercial fertilizers applied at recommended rates are not contributors to excessive nitrate accumulation.
2. Plant stress and environmental factors which decrease the photosynthetic ability of the plant will also contribute to nitrate accumulation:
 - (a) Hail or wind damage that may decrease plant leaf cover will decrease photosynthesis and increase nitrate accumulation.
 - (b) Drought-stressed plants will rapidly accumulate nitrate after a rainfall. In these situations, the harvesting of suspect pastures should be delayed by several days.
 - (c) Multiple cloudy days following a rain, especially in newly fertilized forages, will contribute to nitrate accumulation.

Cattle consuming excessive amounts of nitrate will often exhibit difficulty in breathing, rapid mouth breathing, bluish skin color around eyes and mouth, and muscle tremors. Although not readily visible, blood with a chocolate-brown color is a classic symptom of acute nitrate poisoning. Animals experiencing acute nitrate poisoning may die within 4 hours, therefore response time is critical. Effective treatment is achieved by an intravenous injection of methylene blue (1 to 2 % solution). It is important to note that methylene blue is not an approved drug for use in food animals. Please consult your veterinarian for more information.

If you suspect your forage may be high in nitrate it is a good idea to have it tested. Many commercial laboratories offer nitrate testing in forage crops. It is important to note that laboratories vary in their method of reporting nitrate concentrations. Results may be reported as nitrate (NO₃), potassium nitrate (KNO₃), or nitrate nitrogen (NO₃-N). The values provided are commonly accepted ranges for determining the safety of forage nitrate concentrations (Table 1). There is a great deal of variability in the range of susceptibility between cattle and these ranges are provided only as general guidelines.

Table 1. Ranges in safety of nitrate in forages.			
%NO ₃	%KNO ₃	%NO ₃ -N	Recommendations
0 to .50	0 to 1.0	0 to .15	Generally considered safe

.50 to 1.5	1.0 to 1.5	.15 to .45	Caution - should dilute intake
>1.5	>1.5	>.45	Danger - Do not feed
*Values are reported on a dry matter basis. (JA)			

Biological Control of Pasture Mole Crickets - with Nematodes

Foreign mole crickets cause serious damage to bahiagrass pastures in Florida. There are three pest mole crickets found in Florida; the Southern, Tawny and Short-winged mole cricket. Of these three, Tawny is the most damaging. In a 1998 survey conducted by the South Florida Beef and Forage Program, 64% of cattle producers reported approximately 290 acres of their bahiagrass pastures as being damaged by mole cricket infestation. At an estimated cost of \$200 per acre for pasture renovation, this amounts to \$3,712,000 for every 100 beef cattle producers in south central Florida. These estimates do not include losses in revenue from reduced forage and hay production. While chemical control strategies can be effective, they provide only short-term relief and may leave harmful residues in the environment.

Fortunately, the UF/IFAS patented mole insecticidal nematodes (*Steinernema scapterisci*) carry bacteria (*Xenorhabdus* sp.) that kill pest mole crickets within a few days after infection. These nematodes are selective for pest mole crickets and generally do not affect other insects or animals. The special nematodes may provide long-term protection by multiplying inside dead mole cricket bodies and then spreading to other mole crickets nearby. We are hopeful that these mole cricket nematodes will become commercially available late next year.

The insecticidal nematodes are marketed in a moist porous-foam formulation. Nematodes are delicate living organisms and must be properly handled, stored and applied in the field. The product should be stored ideally in refrigeration (39 °F), or at least under air-conditioning until application. Since nematodes tend to lose viability with time, storage should not exceed 6 weeks. These nematodes are sensitive to high temperatures and UV light, so the nematode product should be transported to the field under air-conditioning, or in chest coolers, and not be exposed to direct sunlight or prolonged heat.

An injection sprayer is required to place the nematodes 1 to 2 inches below the soil surface in order to protect them from direct sunlight. An ordinary sod-seeder can be modified into a sprayer by adding a tank, pump, hoses and nozzles. The nematode product is premixed in a pail of water before adding it to the sprayer tank containing water. The spray mixture is injected into the ground at 800 million nematodes in 100 gallons of water per acre. These nematodes were shown to persist and continue to infect pest mole crickets 8 years after being applied to a pasture in Florida. There are on-going

studies to evaluate the effectiveness of strip-field application of nematodes for mole cricket control. If effective, strip-field inoculation will reduce the cost of applying insecticidal nematodes to pastures considerably.

The nematodes enter the body of mole crickets through all natural body openings such as the mouth, anus and spiracles (breathing holes). Therefore, nematodes are more effective on adult mole crickets, which have larger openings, than on nymphs. This also implies that the best time to apply nematodes in south-central Florida is in the fall (September to November) or early spring (February to March) when adult Tawny mole crickets are most abundant. There is little soil surface activity by mole crickets in December and January, as they "overwinter" deeper in the soil so this is not a good application time. Fall field-application is preferable because it allows for a longer period of infection before egg laying by Tawny mole crickets which occurs from March to May. Following infection with nematodes, the mole crickets die within a few days, and young nematodes emerge from dead mole cricket bodies in 10 to 14 days. These fresh nematodes will infect other mole crickets to repeat the cycle and provide long-term control.

Another easy method of spreading nematodes on small areas is to trap, infect and release mole crickets during the early spring mating flights. Sound emitters, that may become commercially available soon, mimic male songs and attract adult mole crickets to traps. Trapped mole crickets are incubated in a nematode solution for several hours and then released on heavily mole cricket-infested areas (hot spots) of a pasture to spread the nematodes to other pest mole crickets. **(MBA)**

Featured Ranch: **Barthle Brothers Ranch, Four Generations of Cattle Ranchers**



Twin, sandy-lines haphazardly cut the rugged Palmetto and tree-studded terrain in two. These trails are remnants of one of Florida's early stagecoach lines, from a time gone by. Removed from the crowds and development so typical of Florida, you can imagine the jingling harness and sweating horses lugging a stage through the deep sand.

This ranch has been home to the Barthle family since the 1930's. Joseph Albert Barthle Sr. was born in North Dakota. His family settled in San Antonio, FL in 1897 when he was 12 years old. In time, he became a versatile businessman whose enterprises included a sawmill, a grocery store, a road construction company, and a cattle herd grazing Florida's open range.

He purchased 7,500 acres in the 1930s, sensing an end to Florida's open range era. He eventually acquired additional parcels to make up the 18,000 acres that formed the J.A. Barthle and Sons Ranch. This wilderness area contained native pasture, cypress strands, oak scrubs, palmettos, cabbage palms, ponds and lakes. It was a land abundant with a variety of wildlife, some beautiful and some quite dangerous. In later years the vast ranch would be split into more manageable portions. Today, many others from the original Barthle clan are still ranching in adjacent areas as well.

His son Joe Barthle Jr., his wife Jeanette and their four children, formed the Barthle Brothers ranch from their share of the original ranch. Four generations of this family have called the ranch home, and made their living from its bounty. Joe Jr. inherited his father's love for the land and cattle. He worked hard to maintain the ranch's original state, while improving ranch practices. These efforts helped the operation remain profitable even in volatile economic times.

After the passing of Joe Barthle Jr. last year, the ranch is now managed by Jeanette, sons Randy, Larry, and Mark, daughter Jan, and their spouses and children. Each has a particular area of expertise within the corporation. Jeanette Barthle serves as the matriarch of the family. Besides being a mother of seven and grandmother of 13, she is a well-known business leader, industry spokesperson, community leader, and journalist. Randy and his wife Patty specialize in Quarter horses. Jan, married to Ed Dillard, is heavily involved in water management and conservation issues for the ranch. She also managed greenhouse operations for the ranch through the 1990s. Larry and his wife, Lynn, are heavily involved with the purebred-Brahman operation. Mark, married to Tammy, handles all of the field operations. Although each has special responsibilities, everyday operations require that they all work together as a team. When the cattle are worked in the spring, or calves are shipped in the fall, the entire family works together. Spouses and children pitch in to accomplish these important tasks.

According to Larry Barthle, the first Brahman cattle came to the ranch in 1942. "The family originally ran native Florida cattle after they first fenced the ranch," he said. "A little later in the forties they bought a set of cattle that had two Brahman bulls in them and they just fell in love with the calves." Brahman bulls were in short supply then, so the family decided to get registered heifers and produce their own bulls.

The Barthle family involvement in the purebred Brahman business goes back nearly as far as the Brahman breed itself. Various members have held leadership roles in state and national breed associations and served as international Brahman judges. They have established a reputation in the "Brahman business" and are known internationally, from Thailand and the Philippines, to many countries of South America.

The commercial cattle share time between pasture and native woods pasture while the registered Brahmans are run on improved pasture only. The ranch currently has about 3,000 acres of improved pasture and 4,500 acres of native woods. The family has no plans for any future clearing. They are willing to take the lower productivity of the native pastures to keep the land in a more natural state. Increased hay production has allowed

them the freedom to leave more of the land natural. They first experimented with hay in the forties. Now they harvest and feed almost one thousand bales each of round and square bales, annually, cut from their own pangolagrass and bermudagrass fields.

The ranch is modern and uses the latest industry technology, however, the cattle are still worked the old-fashioned way; by horseback. Joe Barthle Jr. had a penchant for raising Quarter horses and kept a broodmare band on the ranch for years. Because of his "eye" for a quality horse, and the hard work required of these animals, Barthle Quarter horses have developed a reputation as strong work horse. These horses have also been marketed internationally. Many times customers have come to the ranch looking for cattle and have discovered the Quarter horses and become customers.

Since the 1940s, they have run about 20 mares in the broodmare band. While the emphasis has been placed on producing working cow horses, these horses perform admirably in many other disciplines as well. Today the ranch is a diversified purebred Brahman, commercial cattle, Quarter horse and timber operation.

The family is active in many other facets of their community, beside food and agriculture production. They are involved in church, school activities and sports, they continue to hold local, state and national leadership positions in the National Cattlemen's Association, National Cattle Women's Association, American Quarter Horse Association, Future Farmers of America, Florida Cattlemen's Association, Florida Cattle Women's Association, Florida Farm Bureau, Professional Rodeo Cowboys Association and many local interest groups. The accomplishments of the family have been recognized by many local, state, national and international organizations.

The ranch is also important for its abundant wildlife and green space. The Barthles' have found unique ways of blending the best of their heritage with modern technology. This allows them to make a living and enjoy a special lifestyle at the same time. Through perseverance, faith and determination this lifestyle has been passed on to four generations. **(Adapted from Stephen Monroe) (JS or MBA)**

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