

Hardee Rancher Beef and Forage Newsletter



Hardee County Extension Service
507 Civic Center Drive
Wauchula, Florida 33873
(941) 773-2164
Fax (941) 773-6861
E-mail Lgary@ifas.ufl.edu

March / April 2001

Calendar of Events

February	
19-24	Hardee County Fair, Cattlemen's Arena - Wauchula
27	Johne's Disease Meeting - Hardee County Agri-Civic Center, 4:30 p.m.
March	
7	Beef Cattle Herd Health Seminar - Okeechobee
April	
3,5,10,12	Beef Cattle Management Short Course, Hardee County Extension Office
21	Marketing Florida Cattle - Sebring
24-26	Reproductive Management School - Wauchula

Over the last few weeks I have heard of at least three cases of nitrate poisoning in Hardee county cattle herds. What little grass may be available quickly accumulates nitrates after even a small shower so this is something to be keenly aware of during the drought. Be especially careful about reintroducing cattle onto pastures recently fertilized with nitrogen. This short but timely article by Dr. John Arthington at the Ona Range Cattle REC should be of interest to all cattle producers.

- 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.

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.			

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. **Dr. John Arthington, Range Cattle REC Newsletter, October 2000**

- Beef Cattle Management Short Course -

By popular demand the Beef Cattle Management Short Course will be offered at the Hardee County Extension Office again this year. This course is designed to cover a wide range of topics of interest to beef cattle producers. It is offered on Tuesday and Thursday evenings from 7-9 PM for two consecutive weeks. We have had about 55 ranchers take the course. Some have a lifetime of experience and some are just getting started. We have a good time and some lively discussion. Most of all we learn from each other. One thing life is teaching me is that there is more than one way to accomplish the same thing and what works for one person is not right for the next. Come join us. You'll be glad you did!

- Beef Cattle Herd Health Seminar -

Plan on attending the next Beef Cattle Herd Health Seminar sponsored by the South Florida Beef Forage Group. We put this program together with the drought in the back of our minds and have asked the folks at the Ona Range Cattle REC to speak to us about getting our cattle through a tough winter. There will be several veterinarians from the Okeechobee area available to answer your questions about herd health. We are expecting a good turn out.

- Marketing Florida Cattle -

The South Florida Beef-Forage Program group of agents are hosting a comprehensive marketing seminar for Florida's cow-calf producers. The meeting will be on Saturday, April 21st at the Highlands County Agri-Civic Center from 10:00 AM to 4:00 PM. Please come and plan on learning more about increasing options which you have to sell your products. Mr. Tony Yeomans, Livestock Market owner/manager, will be discussing marketing your cattle through local auctions and speciality sales. Dr. Jim Gibb, eMerge, business director, will be discussing " A Better Way to Buy and Sell Your Cattle". Dr. Mark Wade, UF Agribusiness Professor will have a representative present to discuss marketing cattle through their program. A spokesperson from the satellite/internet auction company will discuss how your cattle can be seen by thousands thanks to modern

technology. Mr. John Rule, IBBA Member Services, will be discussing "Value Based Marketing and the Gold Star Marketing Options". We look forward to seeing everyone on April 21st. Should you have any additional questions please feel free to contact James Stice at 352-521-4288.

STAFF CONTRIBUTORS

Lochrane A. Gary - County Extension Director

Mary Alderman - Administrative Secretary

For questions or comments regarding this publication contact



[Lochrane A. Gary](#)



[Back](#) Back to the Cooperative Extension Newsletters Page



[Back](#) Back to the South Florida Beef-Forage Program HomePage

