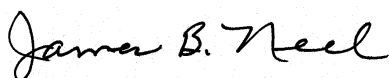


**JULY UPDATE
ANIMAL SCIENCE
UT Extension
University of Tennessee
7/07**

This Animal Science Update contains timely information on beef cattle, horses, sheep and related 4-H programs. Use this material as you determine it would compliment your Extension educational program. This material can be used for local news articles, radio programs, newsletters and formulating recommendations. Be sure and circulate a copy to appropriate members of the county Extension staff.

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If you have questions or need assistance on topics in this issue, contact the appropriate author.



James B. Neel, Professor
Animal Science

COW-CALF MANAGEMENT TIPS FOR JULY

Following are some excerpts from the introductory statements of Animal Science update of the July 2006 issue.

“Over half of the weather reporting stations reported precipitation being below an inch while some were 6 inches below normal. Around Knoxville, precipitation is more than 4 inches below normal. At the end of 2005, precipitation was below normal.”

In the 2005 issue, it was written, “it has been dry in lots of areas of the state the past month or so.” Some stations reported rainfall being 6 inches below normal.

Some climatologists have reported that this part of the country may be looking at a “long-term” drought. A historical review of the July Animal Science Updates could result in the conclusion that Tennessee has experienced 3 years of dry weather and/or drought already.

The Knoxville area is 11 inches behind normal precipitation. At the end of 2005, rainfall was also below normal and the same occurred in 2006. These data also indicate that we have already experienced drought conditions for 3 years. If these trends continue, as predicted by some weather forecasters, the area’s cattle industry and total agriculture will be severely affected.

It will rain again, the question is when? However, there are management practices that should be carried out to ensure doing the best job possible with cow-calf herds. Following are suggestions for both late winter-early spring calving and late fall-early winter calving as well as practices appropriate for both groups.

Late Winter-Early Spring Calving Herds

- The breeding season should be terminated July 1. Reproductive success will be limited during these hot and limited feed supply months. Remove the bull(s) from the herd July 1.
- Pregnancy check the cows as soon as possible after the bull is removed. If open, decide how they are to be managed. Strongly consider culling of cows with limited profit potential to reduce feed needs.

- Monitor first calf heifer's body condition. Heifers that have high milk production potential and size are ones that are likely to be in a poor condition. If possible, provide extra energy. With the dry weather, they have probably lost condition.
- Early weaning of calves would contribute to improving the dam's condition.
- Allow cattle access to harvested hay fields to give pastures a rest. Be aware of potential poisoning that could occur from consuming toxic plants in fence row. See next article.
- Evaluate marketing alternatives for the calf crop.

Late Fall-Early Winter Calving herds

- These cows should be dry and pregnant and as a consequence, their nutrient and management needs are lowest than any time in their production cycle.
- Calves should have already been weaned and marketing plans finalized. Consider cooperative marketing. Healthy, uniform feeders that are "bunk broke," marketed in 48,000 to 50,000 lb. lots are more valuable. Data from Tennessee alliance sales and those in other states continue to demonstrate the added value.
- If not already completed, pregnancy check all females that were exposed to a bull during the breeding season. With the limited feed supply, consider marketing the "open" cows.

Both Groups

- With the "first harvest" of hay being 45-50% below normal and a second harvest essentially non-existent, producers need to evaluate winter hay supply and marketing cattle.
- Evaluate feed alternatives. There are some "hay stretchers" being produced and marketed by feed companies.
- Compare the cost of hay with that of feeds that can be purchased. Reports of prices paid for imported hay indicate that hay is expensive and can be expected to increase.
- Grazing or "rolling" drought stricken corn is a feed alternative. Nitrate toxicity could be a problem.
- Consider stretching the forage supply with supplementation. Corn and commercial feeds

may not be expensive as a source of nutrients compared to low quality hay that is expensive when compared to nutrient yield and cost per unit of nutrients.

- With the dry weather, the only “green forage” may be toxic plants. Check pastures for possible poisonous plants.
- Manage the hay supply to reduce spoilage during storage and waste during feeding.

Submitted by Jim Neel

CATTLE ARE MORE LIKELY TO CONSUME POISONOUS PLANTS DURING DROUGHT

During dry weather when little or limited pasture is available, cattle are more likely to consume poisonous plants.

Poisonous plants are likely to be in pastures most of the time. When forage is available and cattle are in good nutritional shape, they are not apt to consume the toxic plants.

In addition, wilted cheery leaves can be a source of cyanide poisoning. This is likely to be present following a wind storm. Emphasize to producers to check the pastures for broken limbs or trees that were “blown over.”

Submitted by Jim Neel

MID-SOUTH STOCKER CONFERENCE SET FOR FEBRUARY 12-13, 2008

The 2008 Mid-South Stocker Conference is scheduled for February 12-13, 2008 at the Ward Agriculture Center in Lebanon, Tennessee. The conference is a cooperative educational program between UT Extension and the UK Cooperative Extension Service in partnership with allied industries.

This will be the third conference and will consist of an excellent educational program of topics presented by nationally recognized industry professionals, a tour and a trade show of the latest technologies available to the stocker cattle industry.

Mark your calendar and inform your producers of the conference.

Submitted by Jim Neel

**GILL NAMED DIRECTOR OF AGRICULTURE AT
MIDDLE TENNESSEE STATE UNIVERSITY**

Dr. Warren Gill will assume the Director of Agriculture position at Middle Tennessee State University August 1, 2007. In this position, he will provide leadership to the teaching program as well as the laboratories and farm.

Dr. Gill joined the then UT Extension Animal Science Section in 1985 after serving as a Beef Cattle Specialist in Kentucky. He has provided leadership to nutrition and management beef cattle Extension educational programs for 22 years.

We express appreciation to Dr. Gill for his Extension educational programs and his contribution to the state's cattle and sheep industries.

We wish Dr. Gill the "very best" in his new role.

Submitted by Jim Neel

BIF CONFERENCE CAN BE ACCESSED ON WEB

Coverage of the 39th Annual Beef Improvement Federation (BIF) Research Symposium and Annual Meeting is available at www.bifconference.com. Additional summaries and photo galleries have been posted to the site within the last two days.

Visit the site, developed by Angus Productions Inc. (API), to access reports and discussions regarding the latest advancements in the beef industry. Coverage includes session synopses, PowerPoints, audio files, proceeding papers, award winner coverage and recently updated photo galleries.

API's BIF coverage, at www.bifconference.com, is sponsored by Biozyme Inc.

Submitted by Jim Neel

NEW TYSON LINE 'RAISED WITHOUT ANTIBIOTICS'

In response to what it said is "broad-scale consumer demand," Tyson Foods Inc. Announced that it is producing all of its Tyson brand fresh chicken from birds "raised without antibiotics."

Tyson started selling 100% All natural, Raised Without Antibiotics chicken last week.

As part of its commitment to animal well-being, Tyson said it will continue to use antibiotics on its birds when necessary and only for therapeutic reasons. Products from treated flocks will continue to be produced to the most stringent Tyson quality standards but will not be included under the new Raised Without Antibiotics label, the company said.

Tyson is the first major poultry company to offer fresh chicken raised without antibiotics on a large-scale basis and at an affordable price for mainstream consumers.

The chicken industry and animal health manufacturers were quick to react to the announcement by Tyson that it was launching an antibiotic-free product line. In response, the National Chicken Council (NCC) put out a reminder that “antibiotics are used safely and responsibly in the broiler chicken industry to improve bird health, prevent or control microbial infections or to treat sick birds. Usage is sparing, in keeping with principles of judicious use.”

Richard Carnevale, vice president, regulatory, scientific and international affairs for the Animal Health Institute, noted that decisions by companies to provide products raised with no use of antibiotics give consumers marketplace choices about price and the type of production system they choose to support with their food dollar. It does not, however, indicate that consumers must make a choice about safety, he said. “Studies show that meat raised from animals without the use of antibiotics is not safer than conventionally raised products. Recent studies have demonstrated the public health benefits of using antibiotics to keep animals healthy,” Carnevale said.

Source: www.FeedstuffsFoodlink.com Submitted by Jim Neel

VALUE OF PHARMACEUTICAL TECHNOLOGIES IN BEEF PRODUCTION

Iowa State University scientists, John Lawrence and Maro Ibarburu, have conducted an economic analysis of the value of pharmaceutical technologies in U.S. beef production. Their analysis combined information from 170 research trials that involved pharmaceutical technologies in the cow-calf, stocker, and feedlot segments of beef production. The technologies evaluated in the analysis included implants, ionophores, subtherapeutic antibiotics, dewormers, fly control agents, and beta agonists. Using 2005 prices and production levels, the estimated

direct cost savings to producers from using these technologies was over \$360 for the lifetime of the animal. Furthermore, if the technologies were eliminated, cattle selling prices would have to increase by 36% to cover the increase in production costs. There are a small number of producers that will pay more for the added cost.

Source: Beef Cattle Research Update, Summer, 2007. Michigan State University.

Submitted by Jim Neel

FOOD SAFETY A GROWING CONCERN FOR SHOPPERS

According to Food Marketing Institute's (FMI) 2007 survey of U.S. grocery shoppers, foodborne illness outbreaks are significantly changing consumer shopping behavior and attitudes. The percentage of consumers "completely" or "somewhat confident" in the safety of supermarket food declined from 82% in 2006 to 66% in 2007—the lowest percentage since 1989. At 71%, spinach topped the list of items that shoppers stopped buying, although beef (8%) also made the list.

The FMI reports also revealed that the high cost of fuel is causing other changes in consumer behavior. For example, 69% of those surveyed said they cook more and eat out less. Other findings included: 1) Fifty-six percent said they now purchase more store-brand items as opposed to national brand items; and 2) Thirty percent said they buy more canned, frozen, or boxed foods as opposed to fresh food (Ann Storck, *Meatingplace.com*).

Source: Beef Cattle Research Update, Summer, 2007. Michigan State University.

Submitted by Jim Neel

E. COLI OUTBREAKS DUE TO GROUND BEEF ARE DECLINING

The Centers for Disease Control (CDC) recently reported that foodborne illness caused by *E. coli* 0157:H7 spiked last year based upon data from ten participating states. However, meat was not the major problem. CDC also investigated illnesses resulting from salmonella, listeria and campylobacter, but found that the greatest development was the presence of *E. coli* in vegetables. In addition, they found that *E. coli* cases derived from ground beef are declining due to industry-wide food safety reforms, including implementation of HACCP programs (John

Gregerson, *Meatingplace.com*).

Source: Beef Cattle Research Update, Summer, 2007. Michigan State University.

Submitted by Jim Neel

CONSUMER RATINGS OF RESTAURANT CHAINS

Even though it trails McDonalds and Burger King in sales, a recent survey of consumers revealed that Wendy's is the most popular quick-service restaurant chain. Wendy's was also rated top in food and top in facilities. Subway was rated top in service.

In the full-service restaurant category, Outback Steakhouse won most popular and top in food. Cracker Barrel, a Tennessee based restaurant, was rated top in facilities and top in service (John Gregerson, *Meatingplace.com*).

Source: Beef Cattle Research Update, Summer, 2007. Michigan State University.

Submitted by Jim Neel

COST OF ORGANIC VERSUS CONVENTIONAL FOOD PRODUCTION

Economist Dr. Thomas Elam, President, FarmEcon.com, recently compared the costs of organic food production versus the costs of conventional modern technology food production. The following table provides selected price comparisons made for various food items on Dec. 29, 2006. These figures are a reflection of the kind of prices needed to cover all costs of production, processing and marketing of organic foods.

Item	Organic price	Modern technology price	Price ratio
½ Gallon 2% milk ¹	\$3.39	\$1.69	2.0:1
1 lb Beef tenderloin ²	\$41.50	\$9.99	4.2:1
1 lb 90% lean ground beef ²	\$7.00	\$3.44	2.0:1
1 doz. large eggs ¹	\$3.29	\$1.44	2.3:1
1 lb celery hearts ¹	\$3.49	\$1.99	1.8:1
1 Head iceberg lettuce ¹	\$2.99	\$1.19	2.5:1

¹Local chain grocery store, Indianapolis area.

²Source: <http://www.genesevalleyorganicbeef.com/>.

As indicated above, organic products cost from about two to four times as much as conventional products. Although not shown here, some other organic foods cost more and some

slightly less than those listed above (22nd Annual Southwest Nutrition & Management Conference Proc. Feb. 22-23, 2007, Tempe, Ariz.).

Source: Beef Cattle Research Update, Summer, 2007. Michigan State University.

Submitted by Jim Neel

DEVELOPING NATIONS WILL BECOME BIGGEST BEEF CONSUMERS

A Brazilian study indicates that developing nations will become the greatest consumers of beef in years to come. The study projects that by 2030, developing countries will consume about 350 million tons of beef annually, as compared to 100 million tons consumed in developed countries. Arab nations will be among the big buyers (John Gregerson, *Meatingplace.com*). This is a message to the U.S. beef industry. For us to compete, verification will become the key to the world market. We are arguing about it and other beef producing countries are moving forward.

Source: Beef Cattle Research Update, Summer, 2007. Michigan State University.

Submitted by Jim Neel

NEW OWNER OF SWIFT & COMPANY TO EXPAND BEEF OPERATION IN BRAZIL

The company, JBS of Brazil, that recently purchased Swift & Company has indicated that it plans to expand its Brazilian cattle operation. Media reports indicate that JBS plans to build a \$15.2 million cattle farm in San Paulo. The company plans to breed about 150,000 cattle to supply some of its slaughter facilities.

From Meatingplace.com 6/8/07. Submitted by Clyde Lane, Jr.

KENTUCKY DIAGNOSTIC LABORATORY HOPES TO EXPAND

The Kentucky Diagnostic Laboratory located in Hopkinsville, Kentucky is seeking funds from Kentucky State Government for a major expansion. The current laboratory was constructed in 1960 and remodeled in the 1980's. The goal is to receive the funding so the new laboratory will be up and running by the end of 2009.

From Meatingplace.com 6/8/07. Submitted by Clyde Lane, Jr.

RFID TECHNOLOGY IN LIVESTOCK TRANSPORTATION TESTED

Researchers in Kansas are testing the feasibility of using RFID technology to individually identify cattle on multi-deck commercial trailers. Researchers found that in laboratory conditions that approximately 75% of tags were read while 50% were read in a real-world environment. Areas needing improvement included improving durability of readers, improving available software, improving the ability of various systems to communicate with each other and truck drivers need to be better trained. Researchers concluded that RFID in cattle commerce was feasible.

From: Cattle Network.com June 8, 2007. Submitted by Clyde Lane, Jr.

NEW FMD VACCINE SHOWS PROMISE

A new vaccine being developed by scientists with ARS, the Department of Homeland Security's Targeted Advanced Development unit (TAD) and GenVec, Inc., a biopharmaceutical company based in Gaithersburg, Md. shows promise for preventing foot-and-mouth disease. This is the first molecular based vaccine developed for FMD. The new vaccine has shown effectiveness within seven days and has been effective for at least 21 days. Scientists expect future studies to reveal that the vaccine will be effective for at least six months. The vaccine can be made without using infectious FMD materials.

Source: ARS News Service. Reported by Drover's 6-8-07. Submitted by Clyde Lane, Jr.

BIODIESEL BYPRODUCTS MAY SERVE AS CATTLE FEED

University of Missouri - Columbia researchers are evaluating glycerin, a byproduct of biodiesel production as a feed for cattle. The study is to determine if the biodiesel products have a positive or negative effect on calf growth and also determine the effects on carcass quality. Animals are being fed levels from 0% to 20% of rations. Researchers are very interested in determining how the glycerin compares to corn. Originally the biodiesel plants were concerned with just getting rid of this material. Now it appears that they have a product that has potential as a feed and will cost less than corn.

Source: University of Missouri - MU Asian Affairs Center, May 24, 2007. Submitted by

Clyde Lane, Jr.

**COW CALF: HERITABILITY ESTIMATES OF FERTILITY
IN REPLACEMENT HEIFERS**

“Heritability” is that portion of the difference in the performance of cattle that is due to genetics. The remainder of the differences are presumed to be due to differences in the environment (management). Previous estimates of the heritability of pregnancy rates in heifers ranged from 0 to .28. Iowa State University scientists studied records of 3144 heifers from 6 herds in 5 states. In the Iowa State study, the heritability of pregnancy rate was .13. Pregnancy rate is the percentage of the heifers exposed to artificial or natural breeding that were diagnosed pregnant after their first entire breeding season. First service conception rate is the likelihood that the heifer became pregnant on the first attempt to breed her.

The heritability of first service conception rate was even lower at .03. This implies that 97% of the differences in the first service conception rate are due to the management environment in which the heifers were raised. These low heritability estimates suggest that only slow progress could be made by selecting sires that produced heifers with greater pregnancy rates. This data also reminds us that management is still the key to successful pregnancy rates in replacement heifers. Source: Minick and co-workers. 2004 Iowa State University Beef Research Report.

Source: CattleNetwork Today, 6/08/07. Glenn Selk, Oklahoma State University.

Submitted by F. David Kirkpatrick

**ANIMAL SCIENCE
CALENDAR OF EVENTS**

Date	Event	Place
July 9-13	Tennessee Junior Livestock Exposition - Beef Events	Tennessee Livestock Center, Murfreesboro, TN
July 30- August 3	Tennessee Junior Livestock Exposition - Sheep Events	Hyder-Burks Pavilion, Cookeville, TN
February 12-13, 2008	2008 Mid-South Stocker Conference	Ward Agriculture Center, Lebanon, Tennessee