May 2003

Animal Industry News Update

from the LCES Animal Science Specialists

Animal Health (Dr. Steve Nicholson)

West Nile Virus (WNV)

Recent detection of the virus in birds and mosquitoes in most areas of the state means some cases in animals and people are likely to occur. Horses, mules, donkeys, etc. should be vaccinated for WNV, as well as eastern and western equine encephalitis and tetanus. Standard procedure from now on!

Does WNV infect livestock? The answer is yes but serious illness or loss is apparently uncommon. Vaccination is not recommended nor approved for livestock. The CDC should be reporting soon regarding WNV in dogs during 2002 in southeast Louisiana.

Value of a Necropsy

An autopsy on an animal is referred to as a necropsy. A necropsy provides the veterinarian an opportunity to view the various body systems. Presence of parasites, general body condition, anemia, stomach contents, and normal or abnormal appearance of organs can be determined. The information gained may be sufficient for a presumptive diagnosis and steps can then be taken to protect the herd. It may be necessary to submit specimens to the laboratory for pathological and toxicological evaluation. Decomposition proceeds rapidly during the summer so a necropsy should be done within 12 hours.

Sorghum Hybrids Not For Horses

Sorghum hybrids are not recommended forages for horses. In the 1960's a condition called equine sorghum cystitis syndrome was recognized and since then the label for sorghum seeds carries a warning. A nitrile compound present under some conditions is thought to cause spinal cord damage in horses. Cattle are rarely affected.

Horses May Slobber!

Clover infected with the fungus that causes brown patch in lawns causes horses to slobber. An alkaloid called slaframine produced by the fungus is responsible for this effect. Excessive salivation begins within hours after the animal eats a sufficient dose and the effect persists for several hours. Hay retains the toxin which gradually declines over several months.

Poultry (Dr. Theresia Lavergne)

Shrinking U.S. Chicken Industry?

From 1982 to 2002, the U.S. chicken industry grew every single year which resulted in a double in size (from 4 billion to 8 billion chickens per year). During those 20 years, chicken consumption in the U.S. increased 235% and exports increased 1,000%. However, for the first few months of 2003, the number of chickens slaughtered has decreased. It is possible that the total 2003 chicken slaughter may decline for the first time in 20 years.

The decrease in production can be attributed to a decrease in poultry exports (primarily exports going to Russia) in 2002 that resulted in an extra 700 million pounds of chicken on the domestic market. Furthermore, chicken production in 2002 increased by a billion pounds. Thus, the domestic chicken market was supplied with an additional 6% of chicken in 2002. The result was an oversupply of chicken and a billion dollar loss to the chicken industry.

Currently, the chicken industry has reduced production and prices have responded. The chicken industry is hopeful that 2003 returns will be better than the 2002 returns. (Source: Poultry USA, April 2003)

Egg Consumption May Reduce the Incidence of Breast Cancer

Recent Harvard University research, published in Breast Cancer Research (2003, 5(3):R59-64), shows that there is a direct correlation between egg consumption in adolescent girls' diets and a decreased incidence of breast cancer later in life.

A total of 843 women participated in this study. In 1986, the women (40-65 years of age) completed a food-frequency questionnaire about their diet between the ages of 12 and 18 years. The incidence of breast cancer then was confirmed by medical record review.

Other studies have shown that egg consumption does not increase heart disease. To illustrate this finding, Japan, Spain, and France are the top egg-consuming countries, and have some of the lowest heart disease death rates in the world.

Beef (Dr. Ron DelVecchio)

Virus May Help Clean Up Food Poisoning Bacteria

A virus that kills the food-poisoning bacterium E. coli O157:H7 has been discovered in sheep. The virus could help eliminate this bacterium in farm animals, greatly reducing the chance of human infections.

E. coli O157:H7, a toxic strain of the normally harmless gut bacteria, is a major cause of food poisoning. Three-quarters of cases can be traced directly to livestock, which harbor the microbe without becoming ill. Meat can be contaminated when the animals are slaughtered, and manure also can be a source of infections.

Researchers at Evergreen State College in Washington designed experiments to test different antibiotics to find those which would eliminate the O157:H7 from farm animals. As part of the experimental design the sheep were inoculated with the bacteria, but the bacteria kept disappearing from

the animals. The researchers re-infected the sheep three times, and every time the bacteria mysteriously vanished. Ultimately it was determined that the sheep harbor a bacteria-killing virus, or bacteriophage, that infects certain E. coli strains. When testing the actions of the bacteriophage against the food-poisoning E. coli O157:H7 in the lab, they found it kills 16 out of 18 toxic strains, including the strain responsible for an outbreak at Jack in the Box fast-food outlets in 1993 that killed four people. Researchers hope to use the bacteriophage to eliminate O157:H7 in herds and flocks. In a small trial in sheep, the phage reduced numbers of the toxic bacterium by 99% in just two days.

The use of bacteriophages also has other advantages. Bacteriophages are far more discriminating than antibiotics, so the natural microbial flora of an animals' gut should not be affected. Also, infecting just one animal with the bacteriophage is likely to be enough to pass the phage to a whole herd or flock - and the numbers of the phage will rise exponentially as long as there are host bacteria left to infect. Therefore the need to treat every animal (as in the use of antibiotics) is eliminated. In addition, the phage seems to persist in animals, suggesting it continues to replicate in a harmless E. coli strain after all the O157:H7 bacteria have been destroyed. Finally, while bacteria can develop resistance, as they do to antibiotics, the phage can out-evolve them so that resistance is not an issue. (Source: Adopted from FASS Track, April 28, 2003)

Nebraska Officials Investigate Apparent Cattle Poisoning

With the constant threat of bio-terrorism hanging over our heads, a recent report of the discovery of over two-hundred head of dead cattle raises more than a few questions. The following is an abbreviated version of the article.

The carcasses of 250 cattle that apparently had been poisoned were found at a feedlot in eastern Nebraska. Preliminary tests, conducted by the University of Nebraska's Veterinary Diagnostic Laboratory in Lincoln, of samples from four of the animals indicated the cattle were poisoned by an insecticide (most likely organophosphate). The carcasses were discovered at the feedlot near Richland, about 60 miles west of Omaha.

According to state officials, at this time it is not known whether the poisoning was accidental or intentional. However, the owner of the cattle, who also is a pharmacist, believes that the animals were killed by an act of deliberate poisoning with a neurotoxin pesticide. It was added that the only way it could have been an accident is if someone accidentally loaded the mineral bag at the factory with a neurotoxin. About 30 head of cattle did survive the incident and did responding to a drug used to combat nerve gas in soldiers. The loss is estimated to be about $138,000.

Although it is too early to tell whether this incident was an accident or a deliberate act, it does serve as a reminder that bio-terrorism is a real threat to the US agricultural enterprise. (Source: Adopted from FASS Track, April 28, 2003)

Dairy (Dr. Charlie Hutchison)

Milk Prices

The Class I price finally moved in the positive direction. Last Friday, the May Class I price was announced at $9.71 — an increase of 7 cents from April but still $1.55 less than a year ago. Producers who are eligible for Milk Income Loss Contract (MILC) payments can expect to receive a payment of $1.79/cwt for milk produced during May. That drops the May MILC payment 3 cents from April. The MILC payment has averaged $1.66 since the first of calendar year, and $1.60 since the first of the fiscal year, which started October 1, 2002.

Milk Output

The prospect of higher milk prices, possibly $13, as early as July were further diminished after the release of the March "Milk Production" report last Thursday. Milk production in the top-20 dairy states climbed 1.5% during March fueled largely by strong cow numbers. During March, producers in the top-20 dairy states milked 67,000 more cows than a year ago. Even though the latest "Livestock Slaughter" report from USDA shows dairy-cow slaughter up 14% during the first quarter of 2003 compared to year-ago levels; this is still not enough to jump start a milk-price recovery in the immediate future. This is especially true given the strong showing of cow numbers and production in the top-20 dairy states.

What is CWT?

According to a pamphlet from National Milk Producers Federation (NMPF), Cooperatives Working Together (CWT) is a multidimensional, farmer-led and farmer funded national program to address the supply and demand imbalances that are depressing milk prices. CWT will be operated within the structure of the NMPF, the membership organization for America's dairy cooperatives. Participation in CWT will be open to all coops (not just NMPF's current members) and to independent dairy farmers not affiliated with a cooperative.

CWT's objective is to help strengthen and stabilize producer prices for a minimum of 12 months, starting this summer. The goal during the next year is to balance supply with demand. In order to achieve this goal, national milk supplies will be reduced by 2.7% (4.6 billion pounds). This reduction will be achieved through export of finished product and from reduced milk output at the farm level. According to Elvin Hollon, Economist with Dairy Farmers of America, the CWT program would target the

elimination of 125,300 head of dairy cattle to eliminate 2.07 billion lb. of milk production. The program also would pay producers to reduce the amount of milk they are producing, and offer exporters incentives to move more dairy products off-shore.

The CWT program would cost about $210 million, and require an estimated 17.9 cents/cwt assessment from participating dairy producers. The hope is that the combined affects would generate 82 cents/cwt in higher milk prices. The National Milk Producers Federation board of directors will vote on the proposal May 9.

Swine (Dr. Tim Page)

Factors That Affect Pork Quality

Research has shown that pork quality traits [loin color, water holding capacity, incidence of pale, soft, exudative (PSE) pork] are affected by genetics, animal handling and pre-slaughter management. There has been very little information available about how farm-of-origin and slaughter plant may cause variation in pork quality under commercial conditions.

Recent research conducted at the University of Illinois indicates that farm-of-origin and slaughter plant can have a big impact on pork quality. For this research, 4,500 pigs, from four farms, were slaughtered at two slaughter plants on four different days. All pigs were from the same genetic line. One truckload of pigs from each farm was sent to each plant on the slaughter days. These researchers found considerable pork quality differences between the two plants. One plant produced pork with greater loin pH, improved tenderness and juiciness, and lower purge loss and drip loss. Pork from this plant was darker in color, juicier, and more tender. The product also had greater water-holding capacity. Researchers were surprised to find great pork quality differences between the farms, particularly in terms of loin pH and water-holding capacity. Results also suggested that the slaughter plant which generated the most desirable loin quality differed among the four farms. This research highlights the importance of optimizing conditions during the final crucial steps before slaughter. Implications for the farm are that pork quality can be greatly affected during handling and transport procedures and at the slaughter plant.

Iowa State University researchers recently reported that typical pork industry carcass dwell times – the interval between sticking and scalding during the slaughter process – may be too long. Previous recommendations suggested minimum dwell times of five minutes, and a maximum of 10 minutes. By reducing dwell times to a maximum of five minutes, carcasses can move to the chilling stage much faster and pork quality may be improved. Removing heat from the carcass early in the slaughter process can have significant pork quality implications.

Paylean

Should we feed Paylean to 4-H and FFA show pigs? Do we need to feed Paylean to youth project pigs? The jury is still out on these questions. Paylean is the trade name for ractopamine hydrochloride. This repartitioning agent causes a pig's metabolism to shift nutrients from fat growth to muscle growth.

Considering the type of show pigs that most judges now deem desirable (mobile, sound, high pork quality, volume, depth of body, etc.), indications are that if youth have a superior quality show pig, they do not need to feed Paylean. If 4-H/FFA members have an average quality show pig, feeding Paylean may help in terms of growth rate, increased muscle and reduced fat. If they have an inferior quality show pig, then nothing will help. However, commercially it has been shown that Paylean can be used as a management tool to increase profits in some operations.

Recent research conducted at Michigan State University indicates that Paylean may be used to improve growth rate and lean yield of Berkshire-sired pigs, without impacting their superior pork quality. These researchers compared Berkshire-sired pigs and Yorkshire-sired pigs to Berkshire-sired pigs fed Paylean (9 g/ton). The Berkshire-sired pigs not fed Paylean served as the controls.

The Berkshire-sired pigs receiving Paylean and the Yorkshire-sired pigs had 19% higher average daily gain and 18% better feed efficiency than Berkshire control pigs. Berkshire-sired pigs fed Paylean and Yorkshire-sired pigs produced carcasses with larger loin eye areas, heavier hams, and more total fat-free lean than Berkshire control pigs. Yorkshire carcasses had lighter bellies, less 10^{th} rib and average backfat, and a higher percent fat-free lean than both Berkshire control and Berkshire pigs fed Paylean. Researchers stated that Paylean helped the Berkshire-sired pigs improve loin eye area by 1 square inch, wholesale ham weights by 1.2 pounds, and increased fat-free lean by 5 pounds. Carcass backfat thickness was not reduced.

The Berkshire pigs receiving Paylean were similar to the Yorkshire pigs in average daily gain, feed efficiency, loin eye area, wholesale ham weights and pounds of fat-free lean. Feeding Paylean did not have any adverse impact on pork color, water-holding capacity, or cutability of Berkshire pigs. These results suggest that Paylean may be used as an effective management tool to improve growth rate and cutability of genectic lines with superior pork quality that have not been commercially accepted. If used appropriately, Paylean supplementation could allow pork producers the flexibility to utilize genetic lines with superior pork quality, explore niche markets and prevent sacrificing important production traits of growth rate and carcass muscle.