Cooperative Extension Service

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Clark County Agriculture and Natural Newsletter

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A Word from the Agent . . .

Summer is definitely here, so that means to start enjoying everything outside. Just remember to have plenty of sunscreen and bug spray. The mosquitos and ticks have already shown to be a pain, and sunburns are never fun.

Here at the office, we are busy, but we are still here to help with your agricultural questions.

Also, we are sending hay samples and taking soil samples. Just give us a call if you need assistance, or need to borrow a hay or soil probe.

Be safe out there!

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https://www.facebook.com/ClarkCountyExtension

FYI

Forage Management Tips for July

- Continue grazing available summer annuals (millets, sorghum/Sudangrass, crabgrass, etc.).
- Apply 40-60 lb N/A to stimulate summer annual regrowth.
- Clip pastures late June/early July as needed to maintain vegetative growth and to reduce weed seeds, but don't clip lower than 4".
- Identify fescue pastures for stockpiling. Choose pastures that are well drained, have a strong sod, and have not been overgrazed.
- Soil test pastures to determine fertility needs.
- Using UK variety trial results, select varieties to plant in the fall and order seed.
- Use a designated sacrifice lot to feed livestock hay and supplements as needed if drought sets in and no forage is available for grazing.

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Agriculture and Natural Resources
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MARTIN-GATTON COLLEGE OF AGRICULTURE, FOOD AND ENVIRONMENT

Anaplasmosis in Beef Cattle-Frequently Asked Questions

Dr. Michelle Arnold, UK Veterinary Diagnostic Laboratory

What is Anaplasmosis?

Anaplasmosis is a disease caused by *Anaplasma marginale,* a bacterial organism that invades cattle red blood cells (Figure 1) and causes severe anemia, often resulting in death. In Kentucky, the disease affects adult cattle, typically in the fall of the year with most cases occurring from late September through the first 1-2 weeks of November.

What are the symptoms of anaplasmosis?

This organism causes anemia in adult cattle which means there is an abnormally low number of red blood cells circulating in the bloodstream. Lack of red blood cells results in oxygen deprivation to the vital organs, but symptoms are not noticed until 40-50% of red blood cells are destroyed. Infected cattle will show signs of weakness, lagging behind the herd, staggering, rapid breathing and sometimes foaming from the mouth. Affected cattle quit eating, have a fever and may appear to rapidly lose weight. Most become very aggressive due to lack of oxygen to the brain. Mucous membranes will appear pale early in the course of disease and progressively turn yellow in color due to jaundice. Death can be sudden, especially with exercise, or cattle may be found dead with no prior symptoms. Typically, several adult animals in a herd will die within a short (1-2 week) span of time. Pregnant cows that survive will often abort their calves.

Do all cattle with anaplasmosis show these same symptoms of disease?

No. Younger cattle, especially less than 6 months old, rarely exhibit signs of disease due to rapid and active production of new red blood cells (RBCs) in growing calves. Symptoms of anaplasmosis in animals from 6 months to 2 years of age are usually mild and may be mis-diagnosed as pneumonia because both conditions include fever and increased respiratory rate but most will recover. Older animals (> 2 years old and up) are at elevated risk for disease and death, especially if under stress such as calving or in early lactation. Others can mount an effective immune response without obvious signs of sickness.

How do you treat an animal showing signs of Anaplasmosis?

Treatment with antibiotics is essential for survival if showing signs of disease. A single subcutaneous injection of long-acting oxytetracycline at 22 mg/kg of body weight (BW) or 10 mg/lb BW will often stop the progression of anemia by slowing replication of the *Anaplasma* organism, allowing the immune system to take over and save the animal. Another option is Baytril® 100-CA1, the first fluoroquinolone antibiotic conditionally approved by the FDA for the treatment of clinical anaplasmosis associated with *Anaplasma marginale* in all classes of beef cattle except beef calves less than 2 months of age and beef bulls intended for breeding (any age). However, be aware that severely affected cattle may die due to stress when walked to the barn or going through the working chute. In an out-break situation, it is recommended to treat all adult cattle in the herd with injectable oxytetracycline (for example, LA-200®, LA-300®), then begin feeding chlortetracycline (CTC) at the control dose (0.5-2 mg CTC/lb BW/head/day) in medicated mineral or feed throughout the rest of the vector (fly) season which ends around November 1st. Many medicated free-choice mineral mixes are now available for anaplasmosis control. Alternatively, hand feeding Aureomycin® daily in feed to deliver 0.5 mg/ lb BW/ head/day will also control active infection.

If an animal survives the initial infection, then what? Will they get it again?

If an animal (regardless of age) becomes infected with *Anaplasma marginale* and survives, that animal will become a “carrier” of the organism for life. As carriers, they are never sick again due to Anaplasmosis but serve as reservoirs or a source of infection for other uninfected animals. Infected bulls that survive may be infertile for up to a year while pregnant cows that survive almost always abort during recovery from infection. Recovery takes at least 2-3 months to rebuild red blood cells and regain lost weight.

How is Anaplasmosis spread?

Anaplasmosis is considered a “tick-borne” disease because they can spread the organism through feeding on cattle. Although ticks are important for this organism to survive and spread, transmission can be by any method that moves affected red blood cells from infected to susceptible cattle. In addition to ticks, the *Anaplasma* organism may be spread by biting insects (mosquitoes, horse flies, stable flies) and/or using blood-contaminated tools such as dehorners, ear taggers, castration tools, and implant guns without disinfection between animals. Probably the most common way it is transmitted is using the same hypodermic needle on multiple animals when administering vaccines to the herd. Once infected, there is a 3-10 weeklong incubation period before the animal develops signs of a problem. Transmission may also be from cow to calf while pregnant although little is known about when this takes place in gestation.

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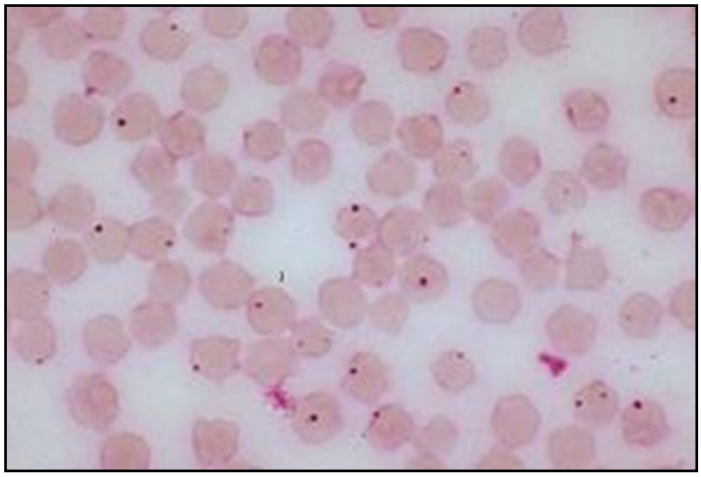

Figure 1*: Anaplama marginale* organisms (small purple dots) in the red blood cells (larger pink circles)

How is Anaplasmosis diagnosed?

If an animal is found dead and no more than 24 hours has passed since the time of death, the animal can be submitted to a veterinary diagnostic laboratory for necropsy or a veterinarian may perform a field necropsy to determine the cause of death. If an animal is alive and showing signs consistent with anaplasmosis, the UKVDL recommends a blood sample (both a red top and a purple top tube) be submitted for an accurate diagnosis. Whole blood (purple top tube) is needed for a complete blood count (CBC) to assess the degree of anemia, to potentially identify the organism in a blood smear and for a new PCR test now available to identify the *Anaplasma* DNA. The red top tube of blood is needed for a serum test (the Anaplasmosis cELISA) to detect antibodies indicating infection and/or carrier status. However, the serum test may be negative early in the disease process. Blood should be collected and transported to the lab as soon as possible (overnight ship with cold packs). Please visit the UKVDL web site for additional information at: http://vdl.uky.edu

Is an effective vaccine available?

Kentucky is among the list of states approved by the USDA for sale of the anaplasmosis vaccine marketed by University Products LLC of Baton Rouge, LA. Vaccination should keep animals from experiencing sickness and death but does not prevent infection and still allows development of the carrier state. The vaccine can be used during an outbreak and has been used in cows in all stages of pregnancy with no problems being reported. The recommendation is a two-dose regimen given 4 weeks apart with annual re-vaccination required. Immunity should develop within 7-10 days of the 2nd dose according to the manufacturer. Vaccination should ideally begin with yearlings. The downside to vaccination is that vaccinated animals will test positive for anaplasmosis which is unacceptable for most seedstock operations. More information may be found at:

http://www.anaplasmosis.com/home.html

What is the best way to prevent problems due to Anaplasmosis?

Preventing infection with *Anaplasma marginale* is difficult due to the large number of infected herds throughout the state, the frequent movement of cattle and the ease with which the organism is transmitted. In addition, antibiotic treatment and vaccinations do not prevent animals from becoming carriers. For these reasons, the goal is often to prevent disease and death loss when the herd is first exposed to the *Anaplasma* organism and as it spreads within the herd. One control option is to offer chlortetracycline (CTC) at the control dose of 0.5 mg -2mg/lb BW per head per day throughout the vector (fly) season to the herd (May-Nov). This is easily accomplished by purchasing a free-choice mineral with CTC added for anaplasmosis control. However, CTC intake varies greatly from cow-to-cow, so some eat too much and others not enough. Research has found it is equally effective to pulse feed CTC (offer CTC for 30 days, take a 30-day break then offer CTC for the next 30 days and so on) as to offer CTC continuously for control of the disease. To obtain CTC, a producer must have a written VFD from a licensed veterinarian to present to the feed store before purchase of the product. FDA states that "once a veterinarian has determined that anaplasmosis infection exists within a herd, whether or not clinical signs are apparent yet, he/she may write a VFD to direct the use of CTC for controlling the progression of the disease in that herd." FDA leaves how to make this determination to the discretion of the veterinarian. How long to use the product is also left to the veterinarian's discretion, based on his or her assessment of the disease risk. A VFD order can be issued for a maximum of 180-day duration of feeding; if needed for a longer period of time, a new VFD order must be written. On the actual VFD form for CTC, the veterinarian can only choose the #5 option (see example in Figure 2) for a free choice product. Remember, **feeding CTC will not prevent disease if the animals are not consuming sufficient amounts** so intake should be monitored. Even when feeding CTC throughout the vector season, some individual animals may still become infected and die if they do not eat enough. Using CTC or any feed additive in a manner not stated on the label is illegal and strictly prohibited for producers, veterinarians, and nutritionists.

If unable to obtain a VFD or feeding CTC is not an option, vaccination is another possible control measure available that can work but is a bit pricey at $8-10 per dose. To reduce the cost, if willing to draw blood and submit for anaplasmosis testing, the

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vaccine can then be targeted for use in only the individuals who test negative for antibodies. Animals that test positive will not need vaccination nor CTC therapy. This Anaplasmosis cELISA blood test (currently $9 per test) can be run on the same blood sample used for pregnancy testing, too.

Will Anaplasmosis always be a problem for KY cattle herds?

Maybe. The disease should reach a point of "endemic stability", meaning nearly all the animals in herds have been exposed to the disease and are immune to its effects. However, studies have found that herds in traditionally endemic areas such as Florida are not necessarily full of positive animals. In other words, there is no way to know the status of your own herd (how many cows are carriers and how many are uninfected) unless you blood test. Any new additions to the herd purchased from areas of the US without anaplasmosis and brought to KY will be at higher risk of disease and should be tested to determine their status. Similarly, new purchased additions may be Anaplasmosis carriers and can infect cows in your herd if there are many negative cows. Bottom line is to test new purchases and work with your vet to determine next steps.

Will carrier cows and bulls always have Anaplasmosis? Should they be culled?

Carriers in the herd are not necessarily bad even though they carry the organism in their blood cells. Once an animal is a carrier, it is protected from disease and will not develop anemia and die. However, carriers that consume a consistent, high dose of tetracycline over a prolonged period (called "chemosterilization") may inadvertently clear the organism and are susceptible to re-infection and sickness/death in subsequent seasons. Attempting to clear the organism or eradicate the disease is usually limited to high value seedstock and those that require international movement. Consult your veterinarian for further information about testing and disease control recommendations for your area.

Example VFD Form for Free Choice CTC

Beef and Non-lactating Dairy Cattle: As an aid in control of active infection of anaplasmosis caused by *Anaplasma marginale* susceptible to chlortetracycline when delivered in a free-choice feed.

Drug Concentration:

1. 8000 g/ton (to provide 0.5 to 2.0 mg/lb body weight/day) *[Must use a FDA-approved proprietary formulation.]*
2. 6000 g/ton (to provide 0.5 to 2.0 mg/lb body weight/day) *[Must use a FDA-approved proprietary formulation or formulation in 21 CFR 558.128(e)(6).]*
3. 5000 g/ton (to provide 0.5 to 2.0 mg/lb body weight/day) *[Must use a FDA-approved proprietary formulation.]*
4. 700 g/ton (to provide 0.5 to 2.0 mg/lb body weight/day) *[Must use a FDA-approved proprietary formulation.]*

RECIPE

What's Cooking?

Italian Chicken Summer Squash Skillet

1 red bell pepper, diced
1 yellow bell pepper, diced
1 sweet onion, diced
2 large tomatoes, diced
3-4 garlic cloves, finely diced
3 medium summer squash, sliced crosswise
1 cup whole grain rotini pasta, uncooked
1¼ pounds boneless skinless chicken breast
Nonstick cooking spray
1 (8-ounce) can tomato sauce
2 tablespoons dried Italian seasoning
½ cup shredded Parmesan cheese
Salt and pepper, to taste

Slice squash into ¼ inch pieces. **Combine** all vegetables, with garlic in a bowl. **Set** aside. **Cook** pasta according to package directions. **Cut** chicken into bite size pieces. **Spray** large nonstick skillet with cooking spray; **heat** to medium. **Add** chicken; **cook** 6 minutes or until no longer pink, stirring occasionally. **Add** vegetable mixture to the skillet. **Add** tomato sauce and dried Italian seasoning. **Stir** well. **Increase** heat, **cover** and **bring** to a boil. **Reduce** heat to medium; **cook** 10 minutes or until summer squash is tender, stirring occasionally. **Stir** cooked pasta into chicken/vegetable mixture. **Sprinkle** with cheese. Season as needed.

Yield: 8 servings

Nutritional Analysis: 200 calories, 4.5 g fat, 2 g saturated fat, 50 mg cholesterol, 300 mg sodium, 19 g carbohydrate, 3 g fiber, 8 g sugars, 20 g protein.

Buying Kentucky Proud is easy. Look for the label at your grocery store, farmers' market, or roadside stand.

I could bet around March, I can always count on at least 20 to 30 calls asking about seeding forages for livestock. However, the best time to seed cool season grasses and many legumes is actually in the fall. Each grass or legume species has different specifications on planting depth, seeding date, and seeding rate, but the first step to a great stand is a soil test. Remember the Clark County Extension Office offers free testing to residents of Clark County, and test usually take between one to two weeks to return.

After you have your soil test done and you know how much fertilizer or lime you need to add, it is time to start thinking about plantings. There are a few different ways to plant, either by preparing a seed bed by tilling or my favorite, a no-till drill. The no-till drill is extremely effective if it is calibrated to the proper seeding depth, and seed is planted with minimal disturbance to the soil. Tilling the ground, then cultipacking, then broadcast seeding, works well, but you may experience high amounts of erosion to your freshly tilled soil if rain occurs.

After having the soil tested, applying fertilizer, and knowing how you are going to plant, it is now time to start planting. Below is a list of common legumes and cool season grasses with planting dates, planting rates, and seeding depth, but also speak with your seed consultant because some varieties of the same forages could have different specifications for planting.

- **Alfalfa:** **Aug 1st-Sep 15th**, 15-20 lbs seed per acre, and plant ¼ - ½ inches deep
- **Red Clover:** **Aug 1st-Sep 15th**, 8-12 lbs seed per acre, and plant ¼ - ½ inches deep
- **White Clover:** **Aug 1st-Sep 15th**, 1-3 lbs seed per acre, and plant ¼ inch deep
- **Fescue:** **Aug 20th-Oct 1st**, 15-25 lbs seed per acre, and plant ¼ - ½ inches deep
- **Kentucky Bluegrass:** **Aug 15th-Sep 15th**, 10-15 lbs seed per acre, and plant ¼ inch deep
- **Orchardgrass:** **Aug 20th-Sep 20th**, 15-20 lbs seed per acre, and plant ¼ - ½ inches deep

If you have further questions ,please contact the Clark County Extension Office at 859-744-4682, and have a happy planting.

Information was obtained from UK Cooperative Extension Service publication AGR-18.

HPAI IN A GOAT HERD

By: Dr. Beth Johnson, DVM

A Stevens County, Minnesota, goat kid (juvenile goat) residing on a farm with a Highly Pathogenic Avian Influenza (HPAI) positive poultry flock tested positive for the same virus. This is the first U.S. detection of HPAI in a domestic ruminant (cattle, sheep, goats, and their relatives). All poultry on the property were already quarantined from the February HPAI detection. Following the confirmation of HPAI in the goat, the MN Board of Animal Health quarantined all other species on the premises. The MN Board is working with the U.S. Department of Agriculture (USDA) to investigate the transmission of the virus in this case.

"This finding is significant because, while the spring migration is definitely a higher risk transmission period for poultry, it highlights the possibility of the virus infecting other animals on farms with multiple species," said MN State Veterinarian, Dr. Brian Hoefs. **"Thankfully, research to-date has shown mammals appear to be dead-end hosts, which means they're unlikely to spread HPAI further."**

Earlier this month the owner notified the Board of unusual deaths of newly kidded goats on the property where a backyard poultry flock was depopulated due to HPAI in February. The goats and poultry had access to the same space, including a shared water source. One of the goat carcasses was taken to the University of Minnesota Veterinary Diagnostic Laboratory (VDL), where it tested positive for influenza A. The National Veterinary Services Laboratories (NVSL) later confirmed H5N1 HPAI, which is the same virus circulating in the national outbreak that began in 2022. Samples from the adult goats were negative for HPAI and all appear healthy; no more sick goat kids have been reported since March 11.

HPAI has been previously diagnosed in other mammalian species such as skunks, dogs and cats. Animals with weakened or immature immune systems, like the goat kids in this case, are at higher risk of contracting disease. There has been limited experimental data on HPAI infection in ruminants, and there are no prior reports of natural HPAI infection in goats. The USDA has tracked more than 200 detections of HPAI in mammals across the country since the start of the 2022 HPAI outbreak.

The risk to the public is extremely low, and any risk of infection is limited to people in direct contact with infected animals. To date, no people in the United States have become ill following contact with mammals infected with this virus.

Biosecurity is the first line of defense for anyone to protect their animals from disease which includes:

- **People and Equipment Movement**

1) Provide farm-dedicated boots and clothing for everyone working routinely on the farm.
2) Limit visitors to those essential to the operation.
3) Provide visitors with boot covers or access to farm-dedicated footwear.
4) Maintain a visitor log book that includes previous animal contact.
5) Do not share equipment that will enter animal housing areas between farms.
6) Disinfect equipment and housing regularly.

- **Animal Movement:**

1) Quarantining any new additions away from the rest of the animals on the farm.
2) When animals are moved on or off farms, ensure trailers arrive clean and without animals from other operations.
3) Prevent comingling of species if possible.
4) Feed and care for your healthy animals first, followed by those who appear sick and wear proper protective equipment (disposable booties, disposable gloves, etc.),
5) Acquire animals from known disease-free herds,
6) Separating livestock from wild animals,
7) Calling your veterinarian when animals appear sick or any unexplained sudden death occurs.

- **Wild Bird Control:**

1) Waterfowl are the highest risk, though other types of birds can also harbor HPAI.
2) Limit access to natural food sources like berries where possible.
3) Restrict farm vehicle access to areas with waterfowl feces.
4) Identify areas where birds congregate in buildings and install barriers or deterrents to limit access to these areas,
5) Eliminate areas that hold standing water longer than 24 hours, as this attracts waterfowl,
6) Fence livestock away from ponds,
7) Avoid unfiltered surface water,
8) Fully empty and disinfect water troughs frequented by birds.

For more information about this:
https://www.bah.state.mn.us/news_release/stevens-county-goat-tests-positive-for-same-influenza-virus-affecting-poultry/