

TIMELY TOPICS

OSU EXTENSION - NORTHEAST DISTRICT
June 2026 – Volume 46 – Issue 6



EXTENSION

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Theileria orientalis in Oklahoma

Barry Whitworth, DVM, MPH, Senior Extension Specialist, Department of Animal and Food Sciences

Over the past few years, *Theileria orientalis* has been detected in cattle in Oklahoma. Early cases were primarily diagnosed in adult cattle. However, more recent cases in Oklahoma have been identified in stocker cattle. All cattle producers should be familiar with the clinical signs of this disease and observe their cattle daily for any signs of trouble.

In the United States, the first case of theileriosis was identified in Virginia in August 2017. These cattle exhibited clinical signs of weakness and anemia. An initial diagnosis of anaplasmosis was made. Blood samples from the animals were tested for *Anaplasma*, *Babesia*, and *Leptospira*. Test results were negative for all three; however, a blood protozoan was detected. This organism was identified as *T. orientalis* genotype Ikeda. Since this initial herd outbreak, the organism has been detected in several states.

Cattle infected with and showing illness from *T. orientalis* genotype Ikeda may exhibit clinical signs such as fever, weakness, anorexia, and exercise intolerance. If forced to move, affected cattle may stagger and gasp for air. If stressed excessively, they may collapse and die. Upon examination, the gums, eyes, or vaginal mucosa may appear pale (white) or yellow in color. Reproductive losses, including stillbirths and late-term abortions, may occur, along with a reduction in milk production.

Clinical signs reported in adult cattle in Oklahoma include anemia, sudden death, weight loss, abortion, failure to thrive, and failure to calve. In stocker cattle, weight loss, anemia, poor performance, and sudden death have been reported.

Because *Anaplasma marginale* and *T. orientalis* genotype Ikeda produce similar clinical signs, distinguishing between the two can be challenging. One notable difference is that clinical signs are more commonly observed in young cattle infected with *T. orientalis*, whereas this is less common in cattle infected with *A. marginale*. Additionally, cattle with anaplasmosis often display aggression, whereas those with *T. orientalis* genotype Ikeda typically do not. A laboratory test is required to definitively differentiate between the two diseases.

Haemaphysalis longicornis has been identified as a possible vector of *T. orientalis* genotype Ikeda. In 2017, the United States Department of Agriculture's (USDA) National Veterinary Services Laboratories (NSVL) confirmed the presence of *H. longicornis*, commonly referred to as the Asian longhorned tick (ALT) or bush tick. In efforts to determine how the tick arrived in the United States, USDA officials discovered it had been present in West Virginia as early as 2010. The tick has now been confirmed in at least 26 states, including Oklahoma. There is also some evidence suggesting additional insect vectors may transmit *T. orientalis* genotype Ikeda. Needle transfer is another possible route of transmission.

The ALT has been identified in Craig and Mayes counties in Oklahoma. This tick thrives in areas with high humidity, such as wooded regions, brush, or tall grass. Ticks are often found where large numbers of wildlife congregate, such as along deer trails. Producers seeking more information about the ALT can visit the USDA website at:

<https://www.aphis.usda.gov/livestock-poultry-disease/cattle/ticks/asian-longhorned>.

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In other countries, treatments have been developed for *T. orientalis*. Unfortunately, no approved treatments are currently available in the United States, and no vaccines exist for this disease. The best defense is prevention: purchasing cattle free of the organism, avoiding blood transfer between animals, and implementing effective tick control measures. Producers should purchase cattle from reputable sources. Instruments should be cleaned between animals during procedures such as castration or dehorning, and needles should always be changed between animals. External parasites must be controlled using appropriate insecticide treatments. In addition to insecticides, pasture management strategies—such as rotation to avoid wooded or brushy areas where ticks thrive—are important. Patch burning may also help reduce tick populations.

Theileria orientalis remains a concern for some cow/calf and stocker producers in Oklahoma. Producers seeking more information about *T. orientalis* genotype Ikeda should contact their local veterinarian or Oklahoma State University County Extension Agriculture educator.

References

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Horticulture Tips for June

Laura Payne, Horticulture Educator, Payne County

It's already June! Where did spring go this year? Well, here are a few tips to get you through another month of gardening.

- Remain diligent for insect activity. Vegetable growers should be scouting regularly so you can maintain the upper hand. Remove the early insects by hand. Inspecting for and destroying eggs before they hatch should be a high priority. This will often eliminate/reduce the need for chemical control.
- Spider mites can also be a problem this time of year. Scouting these are more difficult as spider mites are extremely small and difficult to see with the naked eye. An easy tip for detection is to place a piece of white paper under a leaf and tap on the leaf several times to knock the mites on the paper. The mites will be easy to spot as they scurry around. Insecticidal soaps and neem oil offer some control of mites, but diligence is necessary to keep the populations low as they reproduce rapidly as the temperatures go up. Note that most all-purpose insecticides do NOT provide spider mite control, so product selection is somewhat limited. Even products that are labeled for control do not work well once populations become high and the mites protect themselves through webbing. Once webbing is evident, it is best to remove the infested leaves.
- June is also a good time to begin controlling the growth of select flowering plants. Educate yourself on the growth habits of the specific plants in your garden as it is important to prune at the proper time, so flowering is not adversely affected. In general terms, most annuals benefit from light pruning (pinching back) to prevent

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them from developing weak leggy stems and to encourage continued blooming. Many of the spring blooming perennials are now past their peak bloom and can be cut back as well.

- With all this rain we are having, make sure you are emptying containers, so you aren't giving mosquitoes a place to breed. Bt dunks/donuts are a great option for killing the mosquito larvae in birdbaths and other basins where you want standing water.
- Scouting for bagworms should already be on your radar. Early detection can help eliminate infestation later.

Contact your local OSU Extension Educator for more information.

Improving Herbicide Performance with Surfactants

Roy Grant, Area Agronomy Specialist

When it comes to pesticide applications, the product in the tank is only part of the equation. Adjuvants—including surfactants, stickers, spreaders, and drift-control agents—can play a critical role in improving pesticide performance. These products are designed to enhance the effectiveness of pesticides and are especially important when targeting difficult-to-control perennial weeds and brush species.

Why Surfactants Matter

Many plants have natural defenses that make herbicide uptake challenging. For example, species such as oak and greenbriar have thick, waxy leaf surfaces, while plants like common mullein and woolly croton are covered with fine hairs. These characteristics can prevent spray droplets from adequately covering the leaf surface and limit the amount of herbicide that enters the plant.

A common question is whether household soap can be used in place of a commercial surfactant. While soaps do contain surfactant ingredients and may provide some benefit on easier-to-control weeds, they do not perform as well as agricultural surfactants specifically formulated for pesticide applications. Agricultural surfactants are typically more concentrated and are designed to work effectively with both hard and soft water. In contrast, household soaps can create excessive foam and may react with minerals in hard water, producing scum or precipitates that can reduce pesticide performance.

Surfactants, short for “surface-active agents,” work by reducing the surface tension of water. Without a surfactant, spray droplets tend to remain rounded on the leaf surface, limiting contact with the plant. By lowering surface tension, surfactants allow droplets to spread across the leaf, increasing coverage and improving the likelihood that the herbicide will penetrate the plant's protective barriers. The result is often better herbicide absorption and improved weed control.



Figure 1. Comparison of water droplets on waxy leaf surface, with and without surfactant.

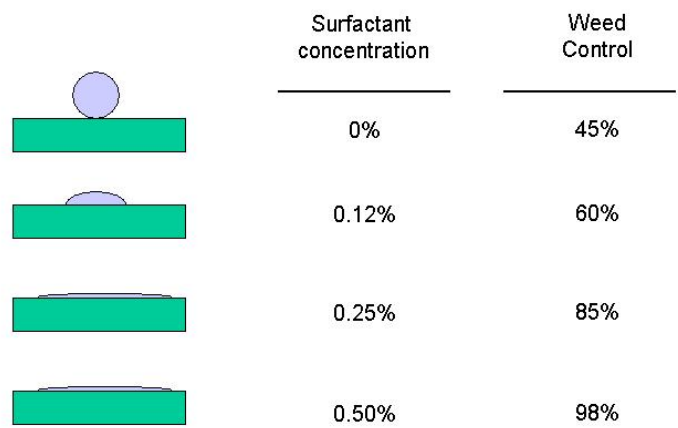


Figure 2. As surfactant concentration increases, spray droplets spread across a larger leaf area, increasing herbicide contact and improving weed control. The diagram illustrates the relationship between reduced surface tension and increased herbicide effectiveness. Adapted from Hartzler, B. (2001), *Role of Spray Adjuvants with Postemergence Herbicides*, Iowa State University Extension and Outreach, Integrated Crop Management Encyclopedia.

Importance of Water pH

Many modern surfactants also contain acidifying agents that lower the pH of spray water. This can be an important but often overlooked benefit. Many herbicides are formulated as weak acids and remain most stable in neutral to slightly acidic water. However, treated rural water supplies often have a pH between 7.8 and 8.5. In these alkaline conditions, some herbicides can begin to break down before they are applied, reducing their effectiveness. In certain cases, pesticide activity can be significantly diminished within a matter of hours. Using an acidifying surfactant can help maintain stability and protect your investment.

Read the Label and Ask Questions

Before adding any adjuvant to your spray tank, always consult the pesticide label. Labels provide guidance on whether a surfactant or other adjuvant is recommended and identify the appropriate type and rate to use. Selecting the right adjuvant can improve application performance and help maximize pesticide efficacy.

For more information on surfactants and pesticide applications, contact your local County Extension Educator.

Horse Flies
Earl H. Ward, Area Livestock Specialist

Agriculture is full of pain, but one of the most irritating pains is being bitten by a horse fly. Many people have shared this experience whether it is working cattle, riding horses, cleaning the barn, lounging by the swimming pool, or mowing the yard like I was this past weekend.

The horse fly is from the Tabanidae family, which I assume is like the O’Doyle family in the movie Billy Madison. They are a family of bullies and are not liked by anyone. For livestock they are a major pest that can cause extreme nuisance, pain, and blood loss.

Male horse flies feed on plant nectar and pollen. The female horse flies are the only ones that consume blood. Their sharp mouthparts are like scissors that cut into flesh and they then drink up the blood. Blood gives them the energy to

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manufacture eggs. The eggs are deposited on vegetation near ponds and streams. The larvae drop in the water or mud but move to land when they are ready to pupate. A certain species of the fly will pupate and emerge at the same time and throughout the summer then that species will be replaced by another species and so on. Causing discomfort all summer long to our animals.

Since horse flies are large and move from host to host quickly an insecticidal control is difficult especially for pastured animals. Pyrethrin sprays do repel the pest but aren't typically long lasting. Some recommendations are to apply the insecticide daily, but that is a lot of effort and could also cause a resistance to the chemical by other pests.

In confinement, using traps may be feasible. Horse flies are not attracted to smells like other flies are, they actually use their "thermal-like" vision to heat seek their prey. So traps typically work better if they are black in color and incorporate a hanging black ball that imitates a moving animal. There are several different versions of horse fly traps online and many DIY versions.

To minimize stress on our animals we need to do all we can to repel or eliminate these flying bullies. As I was being bit while mowing, I determined to wage war on horse flies and thought the same thing that Billy Madison told the oldest O'Doyle bully "O'Doyle, I've got a feeling your whole family's going down." For more information or help, please contact your local OSU Extension office.

The Most Important Farm Records

Scott Clawson, Area Ag Economics Specialist

Stating the obvious here, but everyone's ag operation is different. Just because there is a set of cows grazing on your place and on my place, the operations are not the same. They are not only different in resources and environment, but also the mission, goals, and management. Yet, each operation is the same in that there are questions to be answered or an area of the operation that the operator would like to improve, build on, or expand. The question is, does the operation have production, cost, and efficiency records to move the operation towards that improvement?

Spending the bulk of my time discussing the economics of decisions in group settings, it is common for me to use an example of a situation as a discussion point. At times, a producer will point out that the number I used (maybe a weaning weight, a cost, the productive life of a cow, or some other metric) does not align with their operation. Fair point, it may not. Many times, I will ask the producer what that metric is on their operation. Knowing the norms or having a baseline based on measures, not feelings, is pivotal in most improvements. Here is one example.

Hay season has kicked off in eastern OK. Tracking production is important. Recording the number of bales per cutting and per field is an easy example. It would be beneficial to pair that with cost data as well. There are expenses that are easy to track like fertilizer, herbicide, rent, net wrap, etc. Then there are some more difficult, but possibly equally important things like the time demands (acres per hour) of cutting, raking, and baling in each field. Time is always an interesting discussion in ag settings. It is a cost that is many times not considered. Yet, it tends to come to the surface in the decision making process on upgrading or replacing assets. We also know fuel continues to be a concern but knowing specifically how much is used in our hay operation is important.

So, as you run back and forth down the highway or make laps around the field this summer, shut down the podcast for a few minutes and consider what you might need to make decisions on your operation. Then, what decisions might be on the horizon? Is it equipment investments, retaining some heifers, or making a herbicide/fertilizer decision? The

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financial implications of our decisions continue to grow and while the dollars of these decisions are important, usually things like time and efficiency play a large part in the decision. Every operation is different which makes life both interesting and infuriating simultaneously. Developing production, cost, and efficiency baselines for your operation that can be plugged into the decision-making process will contribute to making the right management decision. There is no better time than now to start tracking what happens on your place.

Oklahoma Input Price Update			
Prices via OK Production Cost Report 5/29/26			
Item	Unit	Average Price	
DAP	\$/ton	\$ 925.23	
Urea	\$/ton	\$ 853.14	
Potash	\$/ton	\$ 485.75	
Diesel	\$/gal	\$ 4.53	
Prices via OK Retail Feed Cost Report 5/29/26			
Item	Unit	Average Price	
20% Cubes	\$/ton > 24 ton	\$ 334.93	
20% Cubes	\$/bag	\$ 10.57	
14% Creep	\$/ton > 24 ton	\$ 303.88	
14% Creep	\$/bag	\$ 8.83	
DDG	\$/ton	\$ 270.00	
What Midds	\$/ton	\$ 240.00	
Corn Gluten	\$/ton	\$ 268.13	
CS Meal	\$/ton	\$ 467.50	
Soy Hulls	\$/ton	\$ 223.00	
4 Way 14%	\$/ton > 24 ton	\$ 269.00	
5 Way 16%	\$/ton > 24 ton	\$ 295.71	

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Value of Gain Calculation

OK Weekly Auction Sumary 5/29/26

Weight	\$/lb	Value/hd	Added lb.	Added \$	\$/lb Added
367	\$ 5.9328	\$ 2,177.34			
425	\$ 5.3099	\$ 2,256.71	58	\$ 79.37	\$ 1.37
474	\$ 5.1884	\$ 2,459.30	49	\$ 202.59	\$ 4.13
515	\$ 4.9723	\$ 2,560.73	41	\$ 101.43	\$ 2.47
563	\$ 4.7039	\$ 2,648.30	48	\$ 87.56	\$ 1.82
608	\$ 4.3383	\$ 2,637.69	45	\$ (10.61)	\$ (0.24)
655	\$ 4.1695	\$ 2,731.04	47	\$ 93.36	\$ 1.99
729	\$ 3.7839	\$ 2,758.46	74	\$ 27.42	\$ 0.37
771	\$ 3.8054	\$ 2,933.96	42	\$ 175.50	\$ 4.18
824	\$ 3.6493	\$ 3,007.02	53	\$ 73.06	\$ 1.38
867	\$ 3.4664	\$ 3,005.37	43	\$ (1.65)	\$ (0.04)
971	\$ 3.2767	\$ 3,181.68	104	\$ 176.31	\$ 1.70

Long Stocker Run		Short Stocker Run		Heavy Stocker Run	
Starting		Starting		Starting	
367	\$ 2,177.34	367	\$ 2,177.34	655	\$ 2,731.04
Ending		Ending		Ending	
971	\$ 3,181.68	563	\$ 2,648.30	971	\$ 3,181.68
Total Gain	Δ Value	Total Gain	Δ Value	Total Gain	Δ Value
604	\$ 1,004.34	196	\$ 470.96	316	\$ 450.63
VOG		VOG		VOG	
\$ 1.66		\$ 2.40		\$ 1.43	



Roy Grant, Area Agronomy Specialist



Earl H. Ward, Area Livestock Specialist



Barry Whitworth, DVM, Senior Extension Specialist



Scott Clawson, Area Ag Economics Specialist

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