

Asian Longhorn Tick with Dr. Jonathan Cammack

Dana Zook: [00:00:00] Welcome back to the Extension Experience Podcast. I'm Dana Zook. I'm joined by Dr. Jonathan Cammack, OSU Extension Livestock Entomologist. Welcome back to the show, Dr. Cammack.

Dr. Jonathan: Thanks, Dana.

Dana Zook: Today we wanted to bring you a show focused on the Asian longhorned tick.

On a podcast earlier this summer, we noted that the Asian longhorned tick wasn't yet in Oklahoma, but it was in Arkansas and it had been there for several years. And we said, well, it may eventually come to Oklahoma, but it's not here yet. Well, The tide has changed. We have

Dr. Jonathan: it's here.

Dana Zook: It's here.

Right. So, why don't you give us a little bit background about, when that happened, Dr. Cammack and we'll just give, the listeners kind of a background

Dr. Jonathan: . Yes. So at the end of July, I believe the 31st, actually some animals from Craig County. So some of the initial reports indicated that it was first found in Mayes County.

That's just where the address or headquarters for that ranch was located. But the [00:01:00] animals were actually being kept in Craig County. So, you know, we have that bit of an update for now. But some animals ended up at sale barn in Joplin, Missouri. And the veterinarian that was there on site noticed ticks present on the animals.

Samples got collected and then, then sent into a national laboratory for identification that's handling Asian longhorn tick issues right now. And then they were confirmed to be that species.

Dana Zook: So by chance that veterinarian found them and, submitted them. And, in fact was, that tick? So, yep. So it is now here,

Dr. Jonathan: is now here. Yep.

Dana Zook: Let's give the listeners a little background on this tick. What are some aspects of this tick that make it such a concern for its presence here in the state and presence in the ag industry?

Dr. Jonathan: Sure. So there's a number of reasons why we need to be concerned about this. So I think one of the top [00:02:00] ones and it's one of the ones that's making it difficult to control the spread of this. This pest is that it has a really wide range of host animals. I think currently the number of species of animals that it's been collected from in the United States is somewhere in the 150 to 155 species.

Species range. So basically mammals and birds are what it's been found on so far. So there are a lot of animals in the environment that this tick can just be kind of, you know, catching a ride on and, and getting spread from, from one location to another. So that's been one of the likely the, the largest driver that is contributing to the spread of the species around the country.

Yeah. So they're getting on a lot of different animals being moved through the environment. They are a three host tick, like a number of the tick species that we have in Oklahoma. And typically with three host ticks, what we see is that those younger life stages, the larvae and the nymphs will typically feed on smaller animals.

And each [00:03:00] time they, they molt and, and seek out a new blood meal, they get on a little bit larger animals. So we might see something, you know, go from maybe like a squirrel to a raccoon to a deer. So just some kind of progression like that. And that's typically true with Asian longhorned ticks.

But right now what we're seeing is all life stages present on single animal species, namely cattle. So that's not, you know, completely unheard of. But, but it is one thing that makes it a challenge is that we see all of these life stages present on an animal, particularly cattle which they are a big pest of.

One of the reasons they their populations can get so large is because they reproduce asexually through a process known as parthenogenesis. So that means that there are only females present in the environment. They're able to lay viable eggs that hatch and develop into normal ticks. And so they don't have that added challenge of trying to locate a mate in the environment, you know, to be able to, to reproduce.

Dana Zook: That's that's a little, [00:04:00] that's a little crazy. I mean, yeah,

Dr. Jonathan: it's crazy, but you know, it's not completely unheard of in the arthropod world. I mean, there are, that's essentially how aphids reproduce. For the most part, they are parthenogenetic, which is one of the reasons that aphid problems can get so large in crops is because, you know, they can just lay viable eggs.

Dana Zook: Interesting. I guess my background grew up in a kind of a greenhouse landscaping business. And so I know the aphid for sure. So that's, that's interesting. I didn't know that.

Dr. Jonathan: Yep.

Dana Zook: Okay. So, there is a disease this tick carries that's of greatest concern. There are several diseases, but tell us a little bit about that.

Dr. Jonathan: Yep. The the biggest issue that we've got to be concerned about with this is *Tyleria orientalis*, particularly the Aikida genotype. It is a pathogen that is kind of a cattle specialist, if you will. And, it can cause a pretty wide range of symptoms in cattle that are very similar to anaplasmosis kind of, you know, At the beginning and on the [00:05:00] surface.

So, you know, you might see animals, you know, kind of weak reduced milk production. They might have fever or we might start to see kind of paling or yellowing of the gums and mucous membranes. But we could also see abortions in pregnant animals. And one of the biggest issues with it is that it causes mortality in about, one to 5 percent of the animals that get it.

So it's, you know, relatively high and it can be up to 50%. There's a lot of factors that go into this but there's currently no treatment for this pathogen that the tick is a vector of. So if you've got animals that are exhibiting signs of you know, anaplasmosis and you treat them with an antibiotic and they don't get better, that might be cause for concern.

That we could be dealing with something, something else.

Dana Zook: Yeah. And anaplasmosis, in my opinion, is kind of hard for producers to identify, you know, not from veterinarians, but just outwardly to notice something. off.

Dr. Jonathan: Yeah, I mean, I think, you know, most of the, [00:06:00] the pathogens of cattle all have similar, you know, symptoms, you know, early on runny nose, fever, right?

Cows lethargic, you know, milk production stops, right? It's, it's kind of the same thing with when we get sick, right? Everything basically starts out the same with, fever, chills, you know, runny nose,

Dana Zook: everything has a runny nose.

So there's a number of pathogens or causative agents of diseases, that the species has been found to be a competent vector of particularly in the laboratory.

Dr. Jonathan: Rocky Mountain spotted fever, Heartland virus and Powassan virus. And then just recently in field collected ticks in New Jersey there were some specimens that were positive for the causative agent of Rocky Mountain spotted fever, *Rickettsia rickettsii*. So that's the first report of that from the environment.

Dana Zook: Okay, so it is a concern for pretty much all species. It sounds like

Dr. Jonathan: yeah humans you know animals and that list of 150 plus host species humans are, one of the The cat of the species in that that list that the ticks have [00:07:00] been collected from.

Dana Zook: All right listeners, we have an excellent, map on the fact sheet and I'll share a link to it, but it, it shows kind of the track, the westward track of this tick across the United States.

So, tell us a little bit about how it, where it started or when it started in the United States and kind of its movement and, how it's moved and kind of tell us the background of that.

Dr. Jonathan: So 2017, the species was first reported in New Jersey. It was found on a sheep. But then there have been some subsequent identifications since that time that have revealed that this species was likely here a few years before 2017 and potentially as early as 2010.

So we've got some reports from West Virginia of, kind of archived samples that were processed later and identified placing Asian longhorned tick in West Virginia around 2010. But we don't know exactly how it got to. The United

States, right? West Virginia is not a coastal state. So it's, [00:08:00] you know, it's landlocked.

So it likely was here prior to 2010. We just don't know it at this point. It was probably moved by some sort of trade associated with agriculture. The ticks probably hitched a ride on, some package, and made the trip across the ocean. They are native to Eastern Asia.

So China, Japan, Korea, and then far Eastern Russia and about 100 years or so ago, they started spreading. So Australia and New Zealand were the first additional countries to where this pest spread to by, , human trade and transport, and There's a number of other Pacific islands that they are now present on.

And then, you know, 2010 ish, they made it to the United States and they have been since spreading from, the Northeastern United States both South and West. And as you indicated that map You know, it just shows the first occurrence of these different or different collections of, of Asian longhorned tick within a state.

There is some information that came out a few years ago [00:09:00] that used computer modeling based on the weather conditions of the, the native range of the species to try to predict where it might spread within the United States in central Oklahoma is about the far Western edge of where it's predicted to be able to, to spread.

So basically if we just draw a line, from I 35, its whole direction across the country, anywhere East of that is about where we would expect The species to be found because of the climatic conditions. It's going to have the right temperature and the right humidity and west of that, , we get across the Great Plains and then the Desert and then to the Rocky Mountains, it's going to be a little too dry or too cold.

And then there's a, a small pocket in the Pacific Northwest that has the right environmental conditions should the, the tick ever, ever make it there.

Dana Zook: So it sounds like it's pretty durable. I mean, do you think that it won't adapt? It seems kind of like a, Been transported all over the world and Australia seems pretty dry too, but maybe just kind of the, the outer regions of [00:10:00] Australia.

Dr. Jonathan: It's probably going to follow about the same range as, as a lot of our other, our other ticks to one of the reasons that. Lone Star ticks, things like

that aren't really found in the western part of the state, with the exception of areas that have high eastern red cedar populations, is because the environment doesn't quite have the the moisture or the humidity.

Necessary for the tick to be able to survive. They're going to spend 90 percent of their life off of the host and off of the host for them means down on the ground in leaf litter in an area that is typically going to be moist because of the decomposing leaves and grass and other things that occurs right at that interface with the soil in areas where there's not a lot of rainfall or humidity is, typically low that interface doesn't, kind of hold the, the moisture or the humidity that they need to be able to survive when they're not on the host.

Dana Zook: Okay, very interesting. When we think about this from a producer standpoint, do [00:11:00] products that they currently use for external parasites, including ticks, will that help control this new, this new tick or this Asian longhorn tick?

Dr. Jonathan: So from what we know so far, yes there have been a number of publications on just testing a lot of these products in the laboratory about, whether or not they're effective in basically anything that is labeled for ticks right now seems to be working, right?

So that's the key, something that's labeled for ticks. They seem to be effective but there are , a number of things that producers can do to, try to protect their animals. And that first one is make sure you are treating your animals with some sort of an acaricide or pesticide that is kind of targeted at ticks and, other external parasites make sure that if you already have a with that, because a lot of those dewormers also have some sort of, residual impact against external parasites like ticks as well. So if you're doing those, make sure you're continuing to implement those those control measures or those prevention measures for your [00:12:00] herds.

But we also want to think about things like, are there environmental modifications that we can make. To help make that area where, where we're keeping our animals a little less, habitable by the ticks. So, you know, if you've got an area that's got, that's kind of overgrown or has a lot of brush or something in it, if you can clear that out, we can reduce the amount of leaf litter in these areas where humidity can be maintained that can help you know, so if you have a, We'll say like a, , a large pasture and, and half of it is, , wooded and half of it is completely open like forage grasses, you might want to think about restricting the movement of those animals into that wooded area because they're going to

go in there where the humidity is going to be higher and it's going to increase the likelihood that ticks are going to get on them.

But one of the most important things right now, particularly for our producers that are on the eastern portion of the state, particularly with the border with Arkansas is to really limit the movement of animals, right? Don't bring new animals in right now. Unless you absolutely have to. And, [00:13:00] we'd recommend that if you do have to bring in animals, try to keep them separated from your main herd for, some period of time and really give them a good inspection to make sure that they're healthy.

And that they don't have any of these, these hitchhikers on them. But unfortunately Asian longhorn ticks the adult females are about half the size of brown dog ticks. So they're, they're relatively small and it can be very difficult to spot them. So it's not going to be easy, but it's going to be a necessary step to give them a really good inspection to see if, if they are carrying any of these ticks.

Dana Zook: And I think in general. Producers and, all of us in agriculture probably need to be reminded of this quarantine type situation. This isn't just for, big, bad, scary diseases. This is, I mean, these ticks carry diseases and, and, and so it's important to always quarantine your new animals that come into your operation.

Treat them if you feel like, that would help and keep them away from the other animals you have in your operation. I think that's an important thing to remind [00:14:00] everybody of, bring that to the forefront.

Dr. Jonathan: Yeah, biosecurity is something that we, we need to have in place all the time to make sure that we are limiting, the potential of, of issues like what we're, we're currently going through, right?

There's, it's not going to completely, you know, prevent it from happening, but we need to have some sort of, steps in place to be able to to inspect those animals and, and make sure that anything coming into our herd is healthy.

Dana Zook: So, we've talked a lot about cattle. What about the safety for producers themselves?

The Asian longhorned tick doesn't necessarily change how we feel about ticks and how we control ticks. I think it's good to remind producers on how we can protect ourselves.

Dr. Jonathan: Yeah, it's, it's just another tick that we have to deal with in the environment. Right. I mean, for, for a lot of the state, there are plenty of ticks that you could pick up just by going outside.

And this is, this is another one of those. It's just a, another one on the list. So make sure you're wearing repellents the synthetic pyrethroids or [00:15:00] permethrin that you could, , go down to, to the store and buy to treat your clothing is going to, to work really well.

Well, so if you do want to use one of those products, you certainly can and should just make sure you follow the instructions that's on that product. Typically, it's going to tell you to treat the clothing while you're not wearing it. So you'd want to lay your pants out on the ground or, a table, you know, not the dinner table, or, you know, you do this outside, right.

Spray them really good. Follow those instructions, let them dry before you put them on. So it's not. something that you're going to do at 5 a. m. and then, hop into your pants, you want to do this 5 a. m. and then put those pants on a day or two later. I give it plenty of time to dry so that it's going to, have time to adhere to that fabric and actually work.

So it's no different than, than what we're currently doing. After you come in from working with your animals, you make sure you take those clothes off, right? You don't want to bring ticks into the house if you've got them crawling on your pants. And you also want to make sure you have a friend or family member do a tick check to make sure that you don't have any that have gotten onto your body and are feeding on you.[00:16:00]

Dana Zook: Yeah, absolutely. I, I have done some of these listeners. I was out in the field quite a bit in June. And so I just decided that I was going to follow Dr. Cammack's recommendations. He makes me a little creepy about ticks. And so I did, I got some of that repellent and I put it on my pants. You are right.

You need to soak them. And it does take a little while to dry. So you don't want to just put them on because you really don't want that. chemical wet on your skin. It's a really strong chemical. And so it takes probably 12 hours for that to dry. And it did not prevent me from totally having ticks on my body, but I'm sure it prevented me from most of them.

And it's just another way we can protect ourselves. I myself do not want to have a red meat allergy or anything like that because I love beef and that would be very sad. But we do what we can, to prevent that it's, it's hard to avoid that

environment because of what we do. [00:17:00] And so those are good reminders, Dr. Cammack. So Oklahoma State University, based on what the fact sheet said, we're, we're taking in ticks if there's a questionable species out there. So tell us a little bit about that process.

Dr. Jonathan: Yep. So we are working in collaboration with the Oklahoma animal disease Diagnostic Laboratory that is housed within the College of Veterinary Medicine to deal with identifying you know, any potential ticks that the producers are looking for.

Or, or, you know, Oklahomans might think are Asian longhorn tick. So if you see a tick that's smaller than what you're used to, or doesn't quite have the, you know, the right shape definitely collect that and you can send that in. Dana, as you mentioned, there are some instructions in that fact sheet on some of the best ways to, to collect those, but we want to make sure that they, they get put into something that they can't get out of, right?

So maybe a Ziploc bag or, if you happen to have a small vial or something, they can go in that, right. But we don't want to just collect this tick and throw it into a box because [00:18:00] it's probably going to get out. So put it in something that is sealed. And then you can send that in the instructions for sending that in can be found in the fact sheet that Dana is going to provide the link to but you could also go to O A D. Edl. okstate. edu, that's the main website for the Oklahoma Animal Disease Diagnostic Laboratory, and there is a tab at the very top of that that says testing. Click on that, and it'll take you to a list of forms, and the one that you want to use is the general submission form, and then that form has all the other instructions on it that you need.

to be able to to send in samples. One thing that's really important if you do submit a sample is make sure you include what you collected that sample from, whether it's yourself, a dog, cow, because we need that host information. But also make sure you include where you collected it. We need that address of where that collection occurred, because if it does turn out that this [00:19:00] is an Asian longhorned tick, we need to be able to do some follow up to, to track the spread of it and also, you know, do some follow up testing to make sure that the animals that were the host for that, that, that tick don't have Tyleriosis.

Dana Zook: Yes, yeah, so I will put links to all that. I'll put a link to the submittal form and I will say that the disease diagnostic lab are the people that are just excellent. If you have a question, or you feel like you're not sure about how to submit, when I submit things or have producers submit things, I always just call and get like, Hey, I've got this dead chicken or I've got this bug.

How do you want me to submit it? And so if you need to be clear, or you can contact your extension office or myself. And so they're very great to work with. So This is really good information, Dr. Cammack. Is there anything else you'd want to add or just just close with before we wrap up?

Dr. Jonathan: No, I think we, we did a pretty good job covering everything.

You know, this isn't, something that we need to be, sounding the alarms about [00:20:00] or anything. But it is just one more thing that we need to be aware of in the environment. So, we need to make sure that everybody's kind of doing their part to, to help limit the spread of, of this new pest that we've got coming across the state.

Dana Zook: Yeah, it's just reinforcing everything we already were supposed to be doing, right? The control ticks. So thanks so much for taking the time. I know you've got a busy class load but I, I appreciate you taking the time to do that. Dr. Cammack wrote an excellent fact sheet on this and great references.

And so I'll take a link to that. That's pretty much all for now, listeners. If you have any questions about this tick, questions about submitting, definitely call your extension office, call me. We will be happy to help you and, and talk to your veterinarian if you have any concerns. Of course, we always want to direct you to your local veterinarian.

I hope you enjoyed listening. Thank you, Dr. Cammack, for joining us. Everyone have a great week.