

Horn Flies with Dr. Cammack

Dana Zook: [00:00:00] Welcome back to the Extension Experience Podcast. I'm Dana Zook. We are doing a two part series here on some external parasites, following up with internal parasite topics that we discussed earlier in April. We are talking about horn flies today, one of my favorite topics to discuss. And joining me again is Dr.

Cammack, our new Livestock Entomologist from Oklahoma State University. Welcome back, Dr. Cammack. So, Dr. Cammack, has come to us just very recently. Remind us a little bit about where you're from. For those people who maybe didn't catch that first episode.

Dr. Jonathan Cammack: Sure. Yeah. So I I recently joined the department of entomology and plant pathology at OSU at the end of, January. So we've been here for about three months at this point. And previously I was in pesticide safety education with Texas A& M AgriLife Extension in College Station.

Before that I was working academically and, kind of the research side of things at Texas A& M. So , that's where I've been for the past, [00:01:00] 10 ish years or so , is kind of in Central Texas.

Dana Zook: Very good. And you've, covered more than just pesticide safety education.

You've done. Lots of things with creepy crawly insects, notably flies.

Dr. Jonathan Cammack: Yeah, a lot of things with a lot of different groups of flies. So from a decomposition standpoint a lot of the flies that we think about, we see kind of carrion manure, rotting trash things like that. Essentially anything that's decomposing that bacteria and flies are consuming is a system that I've worked in.

But also during my time as a graduate student, specifically my Ph. D. at North Carolina State University. That lab was a livestock entomology lab. And so we did a lot of research and extension based projects, controlling pests in beef and dairy production as well as swine and different types of poultry production.

Dana Zook: So all the stinky, smelly things that we know flies really are attracted to for sure. So we just came from a meeting in Pond Creek and we, we both talked about [00:02:00] separate topics. He talked about ticks. I took a little

bit short part of the program to talk a little bit about flies. And so now I'm gonna get your perspective.

I'm going to turn all my questions back the other way that we had from the producers and get your perspective on it, Dr. Cammack. So flies are. A reality for livestock production. I think, some producers and myself included. I just think this is a natural thing. We're bothered by flies to a certain extent, cattle are too, but.

It can be a big deal. So tell us about the grand picture, Dr. Cammack, and how really detrimental hornflies can be to our beef herd.

Dr. Jonathan Cammack: Sure. Yeah. You know, unfortunately you know, as you mentioned, they're just kind of a reality of cattle production and, and that's, that's kind of the truth, right?

I mean, we've got, we've basically got these machines that are, You know, producing the resource out in the field, the manure that these flies love. And so as long as we've got the cows producing manure, we're likely going to have a lot of these flies that are pests. But horn flies are are particularly problematic for [00:03:00] cattle.

They're small and, You don't let their size fool you . They're causing a problem. They're blood feeding on the animals, taking about 40 blood meals throughout the day from the cows. So, , if you've got hundreds or even thousands of these flies on the backs, their sides and bellies of your cattle biting them, it's extremely irritating to the cattle and when the cattle are being irritated by those bites, they're investing time and trying to get those flies off of their body.

And when they're doing that, they're not grazing. So we see pretty significant losses in reduced growth and performance to the tune of about 2 billion a year. And this is an, in kind of dollar values from a few years ago. So we all see what has been happening with inflation and the value of the dollar lately.

So we're likely looking at, you know, maybe 3, 4, 5 billion worth of, of losses and also you know, damage to the U S cattle industry in terms of expenses on controlling them and also veterinary needs associated with them as well.

Dana Zook: When we talk about performance, performance can encompass a lot of things.

And I like to point out some of the specifics of performance, [00:04:00] and it's not just gain. It is weight gain, of course, but it's also several other things. Why don't you mention some of those, Dr. Cammack?

Dr. Jonathan Cammack: Sure, , weight gain is, is kind of the 1 that we can see when we're looking at the animal standing out there in the field.

You can tell which cows are losing weight or skinnier than others. But also you know, you see it when it comes time to sell that animal, right? You know, it's a, that's a loss at your pocketbook level at that point. If, if they haven't been able to convert that grass into their body biomass, , the, the muscle and fat that we need them to And then the other side of it is particularly for the cow calf industry or the dairy industry is if we have these flies that are, that are biting those cows that are producing milk it's stressing them as well.

And they're getting hit, , like a double whammy. They're, they're not able to produce as much milk as they, should be, which can result in downstream losses if we're talking about, you know, the dairy production. But if we're talking about a cow calf operation, , That mama cow is not going to be producing the same amount or potentially even the same quality of milk that she [00:05:00] normally would be with immense fly pressure.

So it's going to translate downstream and to reduce growth performance of that calf as well.

Dana Zook: So how are horn flies different than other flies and where can they be found on the animal and kind of in that describe their life cycle?

Because it all plays hand in hand, right?

Dr. Jonathan Cammack: Sure. So they're, they're going to be one of the most commonly encountered flies that we're seeing in cattle production. So if you're looking at your cows out in the Pasture and you see a bunch of small flies kind of all over their backs and their sides.

That's going to be kind of the telltale sign of horn flies. Some of the other species that we have will feed on different areas of the body. Face flies are going to be associated with the face stable flies typically associated with the lower legs. But horn flies are going to be kind of associated with the main body of the animal.

And they're almost entirely associated with cattle, which is Kind of why they're problematic. I'm usually going to see them on the sides and the backs of the cattle, except for when it gets really hot in the summer, they're going to move lower on the animal so they can get shaded as well. And really the only times we ever [00:06:00] see them leave the body of the animal are Either if the cow walks under a clump of trees or into a barn or something, the flies get a little disturbed by that.

So they'll jump off and maybe go fly and kind of rest on the branches or the sides of the barn, but then they're going to almost immediately go back to the animal. Or they'll leave when they go to lay their eggs in a fresh manure pat. So, I mean, that manure pat hits the ground, the flies are going to jump off, fly down, land on it.

Lay their eggs and then they're going to almost immediately fly back to the animals. So they have a very tight association with cattle.

Dana Zook: And, that can be good and bad. Right, and I like to say it's easier to control them when we know where they're at, but if we're not being very cognizant about what we're using to control them, then we can develop some resistance, right?

I mean, is that a, is that a simple way to say that, Dr. Cammack? ,

Dr. Jonathan Cammack: Yeah, so the you know, with with them resistance really occurs because they're, they're always on [00:07:00] the animal. And if we're always applying something to the animal, whether that's you know, like a walkthrough sprayer or a back rubber or an ear tag, right?

If that chemical compound is always present on the body of the animal, then this pest that we're trying to control that is Also always present on the body of the animal is constantly getting exposed to these chemicals. And if they're not being killed by those chemicals, that's basically the recipe for resistance.

I think it's kind of that low level exposure that doesn't kill them and then they survive it and they just eventually, you know, become more and more resistant to that compound where it's not going to work on a particular population of flies.

Dana Zook: So , what time of year are horn flies most prevalent? Yeah,

Dr. Jonathan Cammack: we're going to see them start to become a problem in the state. Typically, about the beginning of March. If we're in that Southeastern portion of the state, and then they're going to move across the state from Southeast to kind of Northwest as we progress through the spring.

So, at this point here, we're at the end of April. My guess would be that most [00:08:00] parts of the state are probably starting to see horn flies. You know, maybe kind of in the panhandle, far Western portion of the state. State the numbers might be a little low. And they also you know, I think that's, you know, still been getting pretty cold out there at night.

So, you know, we might might, they might be dying from that, that kind of freezing temperature at night but, but they're coming and they will be here soon. And typically fly season is going to go until about , , the end of October. So we've got a pretty significant portion of the year where we could see these pests present in the environment and they're typically going to peak kind of in the.

Late summer, right, when it's nice and hot you know, when the cattle are already stressed by those external factors in the environment. So the temperature of the sun, lack of rainfall. So right when we've got all of those problems is when we're going to have the most problems with hornflies.

Dana Zook: Are there certain type of cattle that they're more attracted to?

What characteristics attract hornflies to certain one animal or another?

Dr. Jonathan Cammack: So, we do know that there are some factors that make animals a little more attractive to horn flies than others. We know that animals that [00:09:00] have a darker colored hide or hair coat are typically going to be more attractive, but we don't know why.

And we just know that they are cattle breed also influences that attraction. So we see. Typically fewer horn flies on Brahman and Brahman influenced cattle and more horn flies on Angus cattle kind of regardless of, of that color of the, the animal's coat. And then if we look at some information that's come from the dairy industry, we see Holsteins that have more white coloration on their body with fewer horn flies than Holsteins that have more of those black spots present on their body.

Color is driving that a little bit. And so, you know, we, we don't exactly know why, but it probably has something to do with how maybe the light is reflecting off that animal and the flies are perceiving it because we also know that larger

animals are typically going to have more horn flies present on them than smaller animals.

So it's going to be some combination of color and size that makes them more attractive than others.

Dana Zook: Okay, so when do we want to treat these? Is it all the time? We [00:10:00] want to, do we want to blast them off the face of the planet? Or do we want to like, strategically try to control them?

Dr. Jonathan Cammack: Yeah, so this is going to be part of our you know, our integrated pest management program.

If you listen to the previous podcast we want to make sure that we're monitoring our herds to identify when horn flies are going to become a problem. And It's a problem essentially for the economics of the situation, not, you know, a problem for for you who might think that's, you know, 10 flies is too many flies.

You know, it's we're going to take about the perspective of the animal here. So we want to want to monitor them to make sure how many flies are present on the sides of those animals. Because again, they're biting the cow, causing that irritation, that blood loss. And there is going to be a point at which we start to see an economic loss Resulting from that number of flies.

And right now that's around the 200 flies on the side of an animal . So you can keep an eye on the flies on your animals. And once you see the flies hit that kind of 200 flies per side, Mark, that's when we want to [00:11:00] implement our control or management plan,

Dana Zook: and that is to target just the adult flies. So, Dr. Cammack, what about getting a jump ahead on some of these earlier stages of the hornfly? Yes. How can we control them? Is that important? Tell us about that.

Dr. Jonathan Cammack: Yeah, it's, it's, it's definitely important, right?

We've got to take kind of a two pronged approach to dealing with these. One target at the adults, and then the other targeted at those developing immature stages that are present in those manure pats.

You know, typically what we're dealing to control with the adults is using ear tags or sprays or back rubbers. And that's what we would want to implement at that kind of 200 flies per animal mark.

Dr. Jonathan Cammack: But we also want to be targeting those developing insects. So, yeah. Early on in the spring, when the the flies that survived the winter have started to emerge as adults, or also are moving north as it's starting to warm up. We want to make sure that those resources, i. e. those manure pats that are present in our pastures are already treated with these compounds that can kind of help, help us knock down their [00:12:00] population levels from the get go.

So you want to be providing your animals with a feed supplement. Containing an insect growth, insect growth regulator, or such as methadone or di flubenzirone. So the cows will eat that material. It's going to pass through their digestive system. It's going to come out in the manure so that way that manure that's already present in the field is going to be dosed with this chemical compound.

That's going to either kill those developing larvae or disrupt their development so that they don't successfully complete their development and become adults. So we would want to start that. Mid spring of March 1 is going to be a good recommendation for most of the state and then we can going to continue that through the end of October.

That way we can have as much treated manure present in the pastures as possible.

Dana Zook: Yeah, so getting a jump early in the season and you said hornflies start to be present early in March. So that's what we typically say here in my area. Get that IGR out late February, early March in, mineral is most common, but I think it's in a [00:13:00] lot of other products and it's for a lot of different species of livestock too.

Dr. Jonathan Cammack: Yeah, there's a that group of compounds. There are a number of different products that can be either mixed in with feed, or you can buy it as you said in a mineral block or kind of a liquid mineral type form that the animals are able to consume. I mean, yeah, I mean, there's products that are that are labeled for horses, chickens, cows, all sorts of stuff.

So, you know, make sure that you're, you're giving your animals the product that's labeled for them so that they can consume it and then help Help you out with the fly control.

Dana Zook: Yeah, we used that when, when I was growing up, we had a small dry lot. At my parents farmstead, and we would have cattle there occasionally we fed cattle, but then, , as I got older, we didn't do that as much, but we also had a greenhouse business on the farm, which that's not like the best thing have people come shop for flowers and then flies buzz them.

So , that IGR worked really well. Years ago to control kind of keep that flight [00:14:00] level down on the farm minimize all the flies that come along with livestock. Yes, that was really helpful. Just some insight into, how that really works, but it does work on a pasture situation as well.

And, and, and so let's talk about just some of the, we've mentioned a lot of these methods of control, but let's just go through and, and talk about them, how they apply to producers here in Oklahoma. I may jump in as we go. So let's start, let's start with back rubbers and oilers. How, how good is that control?

Dr. Jonathan Cammack: You know, if, say, if you've got a back rubber or the the side rubbers, you know, they can walk through, like, you know, between some posts, right? Using those to apply the compounds to the animals is definitely going to be better than doing nothing, but you've got to make sure that you're maintaining those, keeping them dosed with the compounds or full if they're the, the style that have a tank associated with them, because as soon as, , that compound is no longer present on that rubber, the animal is no longer going to be getting that compound.

On its skin, and [00:15:00] that's another reason why these products might not be as good as some others, because , the application method and also the animal are constantly exposed to the environment. So if they're out in the sun, right, they're going to be drying out or if they're getting rained on that compound is going to be washed off of off of that back rubber.

So we might not be getting the doses that we want. On the animals. And also, if you think about where the horn flies are present on the animal, typically going to be along the sides. If we just have a back rubber present, , in a pasture between the animals and their water trough or the feed trough, they're going to walk underneath that.

And most of that compound is just going to go right across the top of their back and not really get to their sides where those horn flies are actually present.

Dana Zook: So, it's convenient, but maybe not the best it's part of, it's, it's part of a total control. Our total plan, so then let's talk about maybe the next 2, let's talk pour on sprays.

I kind of put them in the same group. Is that okay?

Dr. Jonathan Cammack: Yeah, I think so. I mean, a pour ons and sprays. I mean, you know, again, both have their place and just think about in terms of [00:16:00] the, the amount of work that goes into it. So, if you've got a small number of animals that you don't mind working on a, you know, every couple of weeks or monthly basis, depending on what that, you know.

Pesticide label says, you know, you can be running them through a chute and putting those pour ons or or spraying them with these chemicals or repellents, you know, pesticides or repellents, whichever you're trying to use. But again, that's going to be determined by your ability to work those animals.

So if you're only doing this once in the spring, running them through a chute, putting a pour on on and maybe spraying a synthetic pyrethroid on their sides, you're You know, we might not be getting very much control, maybe a couple of weeks, maybe a month, because again, that animals exposed to the environment are gonna be rolling around on the ground, standing out in the rain, stand in the sunshine.

Those compounds are going to break down and no longer be present on their body.

Dana Zook: So. Look at the label, find out how many times , it limits you on how much you can control, apply to control flies and that sort of thing. So always follow the [00:17:00] label. And then let's talk ear tags. We've mentioned them a little bit.

So there's a variety of different ear tags and Seems like they're a good, good option. What do you think

Dr. Jonathan Cammack: Ear tags are a great option. I mean, if we look at the evolution of control methods for horn flies in general, you know, we, it moves , from back rubbers and oilers to to sprays to ear tags, because it's a a relatively long lasting product that we can give to the animals once early on in the year

and then we can get some residual control of these pests for a pretty long period of time in comparison to some of these other products. So, you know, again, we want to make sure that we're monitoring those herds. And once that, horn fly number hits about 200 flies on the sides of the animals. That's when we would want to put your tags in.

And these chemical compounds present, and then we're likely going to get about 3 months worth of control for these products because again, they're being exposed to the environment. It's hot in Oklahoma. So, despite what the packaging might say that you could get 4 months of control. We're probably not going to get that [00:18:00] here in Oklahoma, just because the summers are so hot.

There's a number of different ear tag, like compound chemistries that we have available to use. I mean, they kind of span the price range associated with this control, but it's still relatively cheap in terms of using this method for controlling flies on your animals.

Dana Zook: So we would say. Read your label, but typically 2 tags per animal.

Dr. Jonathan Cammack: Yeah, always read the label. Right? So some of these say 2 tags per animal or 1 tag. If they're under a certain weight, 2 tags. If they're over a certain weight, don't give to calves. If they're under a certain age or under a certain weight.

So always make sure you You're looking at that label. But yeah, if it's, if you, if it's labeled for one tag per year, I mean, definitely, definitely go for it.

Dana Zook: Yeah, absolutely. So yeah, it is a really cost effective method. I got some, some different prices and they're still really cost effective compared to the labor and some of the [00:19:00] things that takes maybe to run them through a chute to do others.

But everybody has their different way of doing it. So so that's the thing. So what about the chemicals in every one of these products? So the chemicals can range. We could have the same chemical in a tag as you do in a rubber and all those types of things. So, does it matter what we use?

Dr. Jonathan Cammack: You know, it that's kind of the million dollar question, right?

I mean, yes, it does matter. We have a lot of different compounds that are available for use. We have some newer chemistries that are on the market for a few years now that are a combination of a number of different chemical classes. So like TriZAP, for example, is a macro cyclic lactone and a synergized pyrethroid.

So we've got 2 compounds going there. And we've also got organophosphate tags, which have been around for a long time and are very effective. We've got synthetic pyrethroid tags, which have been around for a fairly long time. Long time period as well, but if we're using a pyrethroid tag, we want to make sure that it's a synergized pyrethroid.

So it's going to contain [00:20:00] piperoneal butoxide or PBO. You'll see that on the active ingredients. If you're using a pyrethroid tag that does not have PBO, the likelihood of developing resistance is extremely high, and that product's likely not going to work on the flies present in your herd. And then There's another tag chemistry that is just a macrocyclic lactone and, and nothing else.

So we've got these kind of four different classes and we want to make sure that we're, we're rotating through these classes and, and not just buy in a, buy in in bulk, right? Don't, don't go down to the, to the co op and buy a thousand tags and, you know, think you're good for the next 10 years with your herd of, you know, a hundred animals or something, because you're going to have resistance develop.

You know, we want to make sure that we're, we're using a new tag chemistry every year.

Dana Zook: So doing that rotation, and it can be kind of hard to tell what chemical class some of these are from if you don't do a little bit of research, a little sleuthing on what class the chemical is in.

So I would say reach out to someone who knows reach out to your Extension educator. We try to keep that information out [00:21:00] on, on the top of mind for a lot of people, just so we're aware and we have some good resources to figure out what chemical class some of these products are in. You mentioned resistance and on a previous episode, we talked extensively with Dr. Gilliam about resistance of internal parasites to dewormers. So are we seeing that same thing in horn flies?

Dr. Jonathan Cammack: Definitely, I mean, you know, we've been trying to control horn flies on cattle for a pretty long period of time at this point, you know, they were introduced into the United States in the late 1800.

so we've got about 130, 140 years of trying to get rid of them at this point. And if we think about it from a pesticide standpoint, a lot of our older chemistries that were very effective are some of the things like our organophosphates, those compounds have been around for a long time. So we've got these populations of flies that have.

Potentially, you know, they're great. Great. Great. Great. Great. , insert a 1000 great, you know, your grandparents have been exposed to these, you know, these compounds for, you know, long periods of time. So that's where we start to get , resistance being [00:22:00] problematic. But if we rotate through these different chemical classes, that can help reduce the amount of exposure to just one particular compound and, and can kind of help us attack the other part of that population that might be resistant to something like the organophosphate or that synthetic pyrethroid with a different chemistry so that we can knock that, that portion of the population down.

So, yeah, we want to make sure that we're, we're rotating every year, those different chemical classes to help prevent that resistance from developing.

Dana Zook: Yeah. And it's good to use several different types of products. , I say they're all tools in our toolbox. Just make sure you're rotating as needed.

Use those different things to kind of keep this hornfly population manageable. So Dr. Cammack, great information to round out your discussion. I'm going to surprise you. , I have just a short list of common fly control Disputes or assumptions and so I want to give you a short little opportunity to respond.

[00:23:00] So would you mind providing a brief answer solution or explanation to these assumptions? Okay. Okay. Listeners, he looks scared, but it's, it's going to be okay. It's kind of like a final buzzer round. Okay. So, all right, question one. I don't use fly control because it doesn't work.

Dr. Jonathan Cammack: Yeah, it definitely does.

Right? I mean, this is a pest or a group of pests that we're not going to be able to get completely rid of. So just because you're still seeing some in the field or on your animals doesn't mean it's not working. Because again, we want to keep those numbers as low as possible or under that 200. So, you know, if you're

under that, or, you know, maybe even a little over that, you're still going to be having a positive impact on your herd and its production.

Dana Zook: Yeah, because we can get. Six, 700, 800 flies per animal pretty easily. Yeah. All right. So question number two, I don't have room in my budget for the cost of fly control.

Dr. Jonathan Cammack: [00:24:00] You know, ear tags are relatively cheap. If we want to think , from, from that standpoint, it could be talking, , 1. 75 to maybe 3. 25 an animal, , for just that tag. And that's it. , kind of the , internet prices, that's not buying them in bulk , from a, co op. So controlling horn flies could result in your animals gaining 15 percent more weight, which, , is probably going to outweigh that, that dollar 75, , cost of that ear tag when it comes time to sell that animal,

Dana Zook: most certainly.

Number 3, to save money, I only put fly tags on my calves.

Dr. Jonathan Cammack: Oh, yeah , I, again, I preface it with saying, read the label, make sure that that product's labeled for calves or, you know, the, their weight. But, , we want to, We want to put it on all those animals in the herd that way a lot, as many of the flies are as possible are getting exposed to those compounds.

And we also want to be using an IGR that way, the manure that they're developing and it's going to to, , help kind of kill them. So, , if we're just putting ear tags on the calves, the calves might be fly free but the manure that they're producing and the manure that the the older animals are producing is basically going to be kind of that.[00:25:00]

That continual source for the hornfly. So it's likely not going to do too much.

Dana Zook: So number four, my neighbors don't use fly control. So IGR products won't work for me. So you preface this on the last one. Yeah.

Dr. Jonathan Cammack: Yeah. IGRs will, will work very well. You know, again, we're not talking about complete control or eradication of these pests.

We're talking about getting them below a level that's going to be causing an economic loss within our herds. So using IGRs is, is really good. You know, definitely going to be helping you out. So, you know, if you can get as much of

that manure in your environment treated with that IGR, it's going to help and be a very important, tool or weapon in your arsenal, if you will, of, , trying to deal with these flies being a problem.

Dana Zook: Okay. Final question. I want to make sure I have good fly control in August and September, cause I know that's the peak time. So I don't plan to put my fly tags in cows until late June, early July.

Dr. Jonathan Cammack: Right, so I'd have to recommend, you know don't wait that [00:26:00] long unless the fly numbers on your herd indicate.

So you know, we make sure we're monitoring and when we hit that 200 flies per animal, that's when we're going to want to tag. But also , if you are waiting that long to tag, I would hope that you started using an IGR within your, your production system back at the beginning of March. That way, we're already going to, , be Hitting those fly numbers from that angle but if we're already at an outbreak level where you've got 1000 flies per animal in June or July, the ear tags not going to do much.

You're going to see a little bit of a drop in their population numbers, probably in that 1st month, but they're going to overcome that pretty rapidly because that fly population is so big in that kind of local environment there.

Dana Zook: Very good. You did fine. Five questions. No big deal. I like to do that. So thanks so much, Dr. Cammack for, for allowing me to throw that curveball at you. And thanks for joining me today, Dr. Cammack.

Dr. Jonathan Cammack: Definitely. I enjoyed it.

Dana Zook: So listeners, if you have any questions about parasite control, definitely reach out to your local veterinarian, your local [00:27:00] extension office, Dr. Cammack, I'm sure is taking calls too.

And we can help you in whatever way you need to control some of these parasites on your beaver to kind of save you a little money this coming year. So if you have any questions, reach out with that, everybody have a great week and we'll catch you next time.