# Health and Human Science Matters Season 2, Episode 10: Sue VandeWoude

Sue VandeWoude: We've distinguished this facet of One Health, and we have expertise here at CSU that really puts us at the top of any university in the country. And that's this aspect of our companion animals, the ones that we're seeing primarily over in the veterinary teaching hospital often get diseases that are very similar to the diseases of people. For example, dogs very commonly give different kinds of cancer as they age, and the types of cancers they get are often very similar to the types of cancers people get. We can take advantage of that in a way by having the world's elite veterinary clinician scientists who recognize the facets of those diseases. And also being humans beings themselves, realize this is the same process that might occur in humans. But then partnering with experts in the human health side of those diseases to come up with new therapies or treatments that not only help the animal, but can be translated over to the human disease.

Avery Martin: Welcome to Health and Human Science Matters, a podcast by Colorado State University's College of Health and Human Sciences. I'm your co-host and digital media strategist, Avery Martin.

Matt Hickey: And I'm Matt Hickey, associate Dean for Research and Graduate studies. In our college, we make it our mission to optimize human health and wellbeing through discovery and innovation. Don't just take our word for it, each episode we sit down with people who fulfill that mission, our college faculty and staff. And on special occasions, we get to invite friends from other colleges. And today we've got a special guest, Dr. Sue VandeWoude, who's a faculty member in microbiology, immunology, and pathology. She's a university distinguished professor, a distinction that's worth mentioning. She's the director of the One Health Institute, and she's a longstanding PI in microbiology as well. And so we're going to talk about all those things and more in the next 45 minutes or so. Sue, thanks for coming and joining us.

Sue VandeWoude: Great.

Avery Martin: Welcome.

Sue VandeWoude: Yeah, thank you for inviting me.

Avery Martin: Of course.

Matt Hickey: We're tickled to have you. We want to start with this mix of, who is Sue, and who is Sue the scholar? But I want to start with a big problems approach. We were just talking about for you, the big problems fit in multiple buckets because you wear many hats on this campus. In terms of the things that drive your research agenda, I'd love to hear a little bit both about your One Health leadership activities, but also your work in your own lab.

Sue VandeWoude: Great. Well, thanks again for inviting me. It's a pleasure to be here, and very honored to be one of your external guests. And I've worked with many-

Matt Hickey: Our very first.

Sue VandeWoude: ... as many faculty and many students in your college over the 30-ish years that have been here. I appreciate it. In terms of my research in my laboratory, that has changed over the decades to meet different needs and different questions that are important for the day. But I am a veterinarian, I'm a veterinary researcher is my background. My work typically revolves around some issues that are relevant to animals. But of course, a lot of why we do research has a human-centric focus. There are big issues that you can answer questions for both humans and non-human animals. In my laboratory, I've studied primarily diseases of felines, both domestic and non-domestic cats. And particularly viruses that they're susceptible to.

And I've studied the pathogenesis of those viruses. How do they infect, and why do they cause disease or don't cause disease? How would you diagnose them? How are they spread from animal to animal? And what impacts do humans have on the ecology of their habitat that might change the dynamics of disease transmission? That sounds kind of esoteric, but when you think about now we're undergoing a global pandemic where not only humans are getting SARS coronavirus, but we know domestic cats and wild cats are very susceptible. And we've really studied the interaction between domestic cats and wild cats. And we know that diseases can transmit from one species the other, and so it's pertinent for what we're seeing today. And also, wondering about whether if domestic cats or wild cats get infections, can it spill back to people? And maybe even with new variants that have emerged in the new species that may cause more problems for us in terms of disease risk.

That's kind of in a nutshell. And of course, when you have a career that spans three decades, you do a lot of other different things. I have a student right now who's also studying a disease called ringworm that affects a lot of cats, but also zoonotics, so it can transmit to people. It's not a real severe disease, but it's very prevalent, and especially important in low income populations and also large populations of cats that are strays. We're using some of the same tools we use with the viruses, or we've developed with the viruses over the years, such as molecular diagnostics and looking at the genetics to relate one specific isolate to another. We're using that on this fungal infection that hasn't had much interest or study in the last 20 years. We fall into these interesting problems and try to apply what we know to them in different contexts.

Matt Hickey: What's neat is as you describe your own work, it's a natural precursor to me to the One Health role.

Sue VandeWoude: Exactly.

Matt Hickey: It's my lead in to tell us more about your One Health leadership roles.

Sue VandeWoude: Yeah. There's two components to the One Health definition, and it's problems that occur at the intersection of human, animal, and environmental health. You think of COVID, for example, it probably emerged from people being exposed to animals in a way that may be related to incursion into environments where typically humans weren't going. So into forested areas or something like that. And then once there was a spillover event, it rapidly transmitted across different communities. And you all know how it's been managed in different contexts, so there's been politics and communication, and social sciences involved in addition to public health and individual health. And then, as I mentioned earlier, it's spilling back into animals and that may have this cycle. So that is a very iconic One Health problem where environment, human, and animal health are all engaged.

And so by studying things at a higher level than one specific discipline, then you can look at things in a broader picture and try to anticipate unanticipated consequences, either of your interventions or of the events in the first place. The second part of One Health is not only it has these different elements, human, animal, environmental health, it requires interdisciplinary work. People that are studying all those types of sciences plus communications specialists, plus economists, plus you can think of any discipline here at CSU, any department, and it can contribute to study of a One Health problem. The institute that we have here at CSU considers many different kinds of One Health problems. Infectious disease is an obvious one. But agriculture, for example, has a lot of One Health issues because it's particularly around livestock. It has environmental consequences and environmental factors that would feed into animal health.

And of course, we're raising those animals in order to serve human health. Climate change is going to have big impacts on human and animal health. For example, in Colorado, the forest fires displace wildlife, they displace companion animals and livestock. At the same time, they impact human health, the air quality can impact everything. And of course, climate change really is resulting from environmental changes that is human-centric. Those are a few examples of the different things that we're focusing on in the One Health Institute. And we're bringing together teams of folks from across different colleges in an interdisciplinary center to facilitate their work however we can to make them more successful, or to have a bigger impact.

Matt Hickey: I love this notion of health as an interconnected phenomenon. It's counter-cultural in some ways because we tend to find ourselves in silos. And maybe because it's the only way we can ask questions that we can actually answer. But the reality is, this great big crazy world out there is not quite as siloed as you'd like to pretend sometimes. I'm excited about your work, for sure. Now, I had the pleasure of sitting with Sue on a number of different committees, usually it's talking to our respective laptops [inaudible 00:09:03]. I want you to talk maybe just a little bit more about the natural animal model story, because our shared work on CCTSI, I think our listeners would be interested in.

Sue VandeWoude: Yeah, that's great. We've distinguished this facet of One Health that is unique, and we have expertise here at CSU that really puts us at the top of any university in the country. And that's this aspect of our companion animals, the ones that we're seeing primarily over in the veterinary teaching college, or in the vet teaching hospital often get diseases that are very similar to the diseases of people without any induction of experimental animal models as we may think about animals and research. For example, dogs very commonly get different kinds of cancer as they age. And the types of cancers they get are often very similar to the types of cancers people get, with the same causative factors, the same type of progression, and often the same kind of therapies.

We can take advantage of that in a way by having the world's elite veterinary clinician scientists who recognize the facets of those diseases. And also being humans beings themself, realize this is the same process that might occur in humans. But then partnering with experts in the human health side of those diseases to come up with new therapies or technologies, or treatments that not only help the animal that might be suffering from that disease, but can be translated over to the human disease. For example, we have a group here that has done work in a mouse model with a type of bone cancer called osteosarcoma. And the mouse model is a basic science type approach for evaluating what types of therapeutics might effectively treat that disease.

When they came up with a candidate drug, it already had been used in animals for other purposes, so they started using it in dogs that were suffering from osteosarcoma. They saw very quickly that it had significant impacts in decreasing metastasis rate. So now they're partnering with physicians down at the Children's Hospital in Denver to see if that drug can be added to augment the course of therapy for children with the same disease. It's very exciting. Because of the attributes of the disease in our veterinary species, it often can be a more rapid way to translate these new discoveries into the human health field. And because we have this great partnership with UC Denver, it's a way for us to facilitate those interdisciplinary exchanges.

Matt Hickey: That's pretty cool. One more question if I can. I'm cheating, because I know Sue pretty well. Talk about the animals as environmental sentinels story, if you would.

Sue VandeWoude: Yeah, that's a great segue into a very interesting symposium that was held in the beginning of December at the National Academy of Sciences in Washington DC. And it had people from veterinary, human, environmental sciences, data scientists and many other specialists talking about how animals living in our environment. Our pets often sleep in our beds, they're eating our same foods, they are living on our couches. So they're exposed to the same kind of environmental factors that could initiate certain disease processes. Again, cancer being one, but also metabolic diseases that occur during aging, renal disease are sometimes caused by toxins, et cetera.

And because animals are often on the ground, maybe near higher concentrations of these chemicals, and because of their hygienic practices, maybe they're ingesting a few more of the toxins, they might develop symptoms and syndromes associations more rapidly than people. One thing that kept coming up at this meeting was the canary in the coal mine, which many people know about that. That story that miners would take birds, canaries into the coal mine because they were very sensitive to gases that they might be exposed to that cause toxicity. So by observing the health of the bird, they could tell whether or not the gases were accumulating that might cause detriment to their health. It's a very similar type of approach of thinking of, can we look at multi toxins or exposures that are occurring in our companion animals that can predict some diseases that we might want to be concerned about in humans in the same environment?

Matt Hickey: The beauty of this early warning system, of course, is it's twofold. And it's not that the animals are Guinea pigs for the sake of human health, it's an early warning for their health as well. It's a collaborative approach with our companion animals. [inaudible 00:14:03] amazing. It's kind of neat to see. Sue, I'm going to pull us off campus and out of the professorial role for just a little while, and we'll roll the camera back to your child. And we really want to talk about influences, mentors, significant moments along your pathway. We can sit here and say, "Wow, we get to talk to a university distinguished professor," but there's a pathway there. And I want talk a little bit about the pathway, if you don't mind sharing some stories.

Sue VandeWoude: Sure. I guess when I was 12, my mom and dad decided to move to a farm in rural Virginia. And my parents grew up in New York City, and I had three younger sisters. And my dad actually was also a scientist, and he was working National Institute of Health. When he got this position there, they made this decision they wanted to do something different. And so we moved to rural Berryville, Virginia, bought a farm, and started raising cattle and pigs. Like a Green Acres type story. And we were very unusual because it was a pretty conservative old school type of community. There weren't a lot of girls and women running farms and working on the weekends. And especially people with New York accents coming down. So we were a bit of an anomaly. But that was really transformative for me.

In looking back at it I think, how brave and crazy were my parents to do that, and then actually really make it work? But that affiliation with animals and that agricultural lifestyle just really influenced my course of appreciation, and certainly influenced my career to go into something that had to do with animals. And I also love cats, we had a ton of barn cats and we would play with them for hours. That probably had some impact on that choice of species to actually study. But then I was also a nerdy kid and went to science engineering school. And right about the time that molecular biology was getting started, and had the fortune of working in a lab that was doing work on human condition called beta thalassemia, and they were looking for the gene defects associated with that blood disease in different populations in Europe. And so that was just fascinating because you got to associate this molecular anomaly with a syndrome that occurred in people, and it was unraveling the molecular mechanisms of disease.

That was really exciting. I ended up after that going to vet school, where I then was really from the beginning trying to figure out how to combine these two interests of mine, of the molecular attributes of disease, why do diseases occur, and what you could observe in animals in their disease processes. And then just did a postdoc later on at Johns Hopkins, which was in comparative medicine. That really allowed me to start thinking about the differences and similarities between animal and human diseases. And I think most veterinarians end up thinking that way because we learn about the animal diseases, but as I mentioned before, we're all people. So we're always thinking, oh, I wonder if that's what my grandma got, or what I have? It's just a natural way to start doing that comparative type of thinking, which in my case led to pursuing that in a research career.

Matt Hickey: I have to ask you, did you have any moments as an undergrad where you struggled? By the sounds of it, you brought with you an interest in veterinary medicine, even if it was nascent in some ways, right? And then you get into the interesting cellular molecular biology world, did you have the, I'm not sure if I want to do the PhD or DVM route? And what was that like? And if it wasn't, that's fine too. I'm just curious about that undergraduate trajectory a little bit before you got into vet school.

Sue VandeWoude: Yeah, I wasn't a traditional veterinary student, that's for sure. And I was also would not recommend how I got into veterinary medicine to many people. I had this approach that if a student comes through my lab, or that I'm interviewing now, would say what I would've said when I was interviewing, I would've not accepted them the to lab. Because my approach was, well, I'm going to apply to medical school, veterinary school, combined programs, and graduate school, and I'll just see where I get in and what feels like a good avenue for me. Which in a way is not such a bad way to be thinking, but it's probably not something you should say in the middle of an interview. I did apply to all those different places. I got into one of each, or at least one of each. When I visited the veterinary school I went to, which was at Virginia Tech, since I was still a Virginia state resident, that was my school where I could get a state tuition.

Matt Hickey: I have to interrupt again and say, go hokey [inaudible 00:19:02]-

Sue VandeWoude: Yes.

Matt Hickey: I went to graduate school there myself.

Sue VandeWoude: So you know that it's a little bit off the beaten path to get to Blacksburg, Virginia. It's beautiful. As an undergrad, I was in Pasadena, California. So Berryville, Virginia to Pasadena to Blacksburg. But I just felt comradery, and I felt like I fit in Virginia Tech with the people I met with better than the graduate schools that I visited, or the medical schools. It just was a more familiar, a little bit more relaxed environment. And one of my sisters was going to undergrad there too, so I knew somebody. Again, it was maybe not the most logical decision, but it's what felt right for me at the time. And I think it was a great decision for me because it's opened just phenomenal number of doors over my career to have [inaudible 00:20:04]-

Matt Hickey: Blacksburg is one of my favorite places. I can still say that after... It was 30 years ago that I was there. It's quite a while. I want you to tell us a little bit about particular individuals that have been influential along your pathway. And if you'll indulge me, I'm going to start by asking about your dad, of course, because I think that's a great story. But I'm hoping there may be others as well whose fingerprints you still carry with you [inaudible 00:20:28]-

Sue VandeWoude: Sure. Yeah. My dad was a very distinguished scientist, he worked at the National Cancer Institute. He actually started out his career, got a PhD at Rutgers and then went to Plum Island and studied foot and mouth disease. And then came to the National Cancer Institute and was one of the early scientists looking at oncogenesis relating to oncogenes. And then the end of his career he went to Grand Rapids, Michigan and started a institute there. Besides being a farmer who would drive tractors and run around with the cows, once we moved to the farm he also was this distinguished scientist. And I always identify a lot, my interest in science was clearly tied to his. I think as I got older I realized I also had a lot of attributes of my mom in my personality. She was "the stay at home mom." But she really had been, in her early career, a very successful administrative assistant.

They called them secretaries at the time. But she had risen very quickly in a corporate position in New York City. And then when she got pregnant with me, she had to quit her job back then. But she was very organized and a logical thinker, and persistent. And I think as I got older I realized there were traits that she had that I had from her, and that my dad... Keeping things organized and getting things done. A lot of what I think is important components of my personality have been from her. I think beyond that, in my professional life, I had some great mentors in undergrad who really helped me to develop all the sides of my creativity and interest. One of them being a guy named Ray Owen, who was my freshman advisor. And he adopted me, because there weren't too many other kids from agricultural backgrounds at this [inaudible 00:22:33] college.

And he wrote me many letters of reference and was always a great mentor for me. And then when I was doing my postdoc, I had a mentor named Janice Clemens, who was a PhD infectious disease researcher at Johns Hopkins. Who was just great to have. She had a lab full of mostly women, she was a very successful administrator as well as scientist. In fact, she's still running her lab. And she was a great inspiration, great sense of humor, and just tough as nails. She was really great at being a shining example of a successful woman scientist.

Matt Hickey: And then at some point in time CSU was lucky enough to cross your radar screen, and we managed to recruit you out here. Tell us about that. Was this in the Jim Voss days, back in the good old days?

Sue VandeWoude: Yeah. My comparative-

Matt Hickey: I'm dating myself there. [inaudible 00:23:33].

Sue VandeWoude: Yeah. My comparative medicine training at Johns Hopkins led to specialty in lab animal medicine. I came here in the early 90s as a staff veterinarian in lab animal resources. Actually, hired by Don Mall, who was reporting then to Judd Harper. So that was-

Matt Hickey: [inaudible 00:23:55] I also remember.

Sue VandeWoude: And Ralph Smith was pretty influential, he was at the college of Vet Med at the time. He was influential in recruiting me here as well. I was a clinical veterinarian in the lab animal resources unit for a number of years. Joined the then Department of Pathology and started doing my cat research work on feline immunodeficiency virus. And then just bounced around. I've had a lot of different careers here at CSU, but managed to stay here. It's a great community, it's a collaborative environment, it's amazing place to live. And students are great. I've looked at other jobs, but I've just always found it more advantageous to stay here.

Matt Hickey: Same here. There's this name in the CSU hierarchy that comes from veterinary pathology, as I recall as well. Some guy named Tony.

Sue VandeWoude: Oh, yes. Yeah, that's a little disconcerting because Tony was recruited around the same time. He started just a couple years after I did. He had some animal experiments, so I was the veterinarian interacted with him a lot on that. And then he just had this meteoric rise. If I bump into him.It's like being at the high school reunion where you've got the president of Google and then you're working in the community or whatever. Yeah.

Matt Hickey: Couldn't help but mention. CV NBS course has seen some changes over the years. You just hinted at one, that pathology used to be its own unit. Of course, that reorganization is part of in the last 20, 30 years worth of history. Talk to us a little bit about memorable touchstones on your way to becoming a university distinguished professor. That doesn't happen to everybody, obviously.

Sue VandeWoude: Yeah. Well, I moved from my... I guess when I'd been here about four years, I'd been in these series of four year educational units and was thinking it's time for me to move on. But around that time I was in a career path that didn't really have a four year cycle. When I came to CSU, my oldest son was two, I had another child pretty soon after I arrived here. And had a third child within four or five years of that. I think I was looking for, how could I extend my career in this community? And started a training program in comparative medicine here at CSU. A way to recruit more people into the field of comparative medicine with an eye towards managing laboratory colonies and representing veterinary clinical researchers in that realm. So we started a program and we recruited an internal candidate for our first resident, and then we just started recruiting really outstanding folks who are now leaders in the field.

And that program is still here under the direction of Lon Kendall, it's one of the best programs in the country now. And it includes both experiential and didactic component, but also a research component is a piece that we built into the program that exists. That's an important component, whether it's for looking at pain relief in laboratory animals, or disease transmission, or more basic research that is conducted in the laboratory of one of our investigators. But that's been an important hallmark. And that really got me hooked really on training students, particularly veterinary clinician and researchers. How do we produce more veterinarians who can use their skillset in that particular realm? And that's been what's led a lot of the other positions that I've taken.

I ultimately was director of lab animal resources for a few years, and then moved into associate dean for a search position in the College of Vet Med. And that was a great opportunity to work across all four of our departments and build programs, help with infrastructure needs of our faculty, and also collaborate with people like Matt that were associate deans of other colleges, and develop these intercollegiate programs. And then after doing that for about a decade, had the opportunity to move into the One Health Institute. And since that's so interdisciplinary, I had this great networking capacity from people I'd met through the years to help build that. It's been fun.

Matt Hickey: And it's going to get better. Big future for One Health. Talk to us a little bit, Sue, about life off campus. We live in this great state of course, what do you do when you're not here?

Sue VandeWoude: Yes. Well, probably not enough things other than work. I've really got into biking, since the pandemic in particular. And I did live for about, well, over 20 years in the Foothills. Kind of just to the northwest of Loveland. And moved into Fort Collins in 2017. Since then I've taken up more of the "city sports". A lot of biking on the trails. I used to do more skiing, but now I've converted to snowshoeing because I think in a dollar per unit fund basis, it's probably more fun than skiing. Because it's so much less expensive and it's just something you can get to more easily. And I guess my latest hobby is we got some Turkey poults back in May, and so we've been raising them. And that's somehow attracted wild turkeys in our yard, so we have gobbling going on all over the place. We have wild turkeys looking into our windows. And we have one of our hen just laid five eggs, so that's my excitement for the current chapter of my life, I guess.

Matt Hickey: Multiple interests.

Avery Martin: Indeed.

Matt Hickey: That's great.

Avery Martin: A nice call back to your childhood as well.

Sue VandeWoude: Yes, exactly.

Avery Martin: That's awesome.

Matt Hickey: I want to talk just a little bit about connections, or maybe a better way to think about as opportunities you see for cross college collaborations. And since we're hosting this, I'll say let's just talk about health and human sciences, but obviously that broader view I think is important to both of us. But thoughts you have on scholarly opportunities that are untapped that we might work together on.

Sue VandeWoude: Yeah. I think there's a lot of opportunities, with your college in particular, related to the applied health sciences obviously, and how that relates to One Health. And whether that's in looking at family human development, human animal interactions. Or one area where we have one person, Lorianne Stallone, she's working with One Health Institute, is coordinating some of those efforts in how the human/animal bond, we think about it with companion animals as being something that can really facilitate wellbeing and health of humans in a number of different ways. And really thinking about that from the standpoint of, what's the mechanism behind that and how can we promote that as an interesting field of study? And Lorianne is actually looking at that too in terms of human interaction with agricultural species. And also, we have folks on campus that are doing work on human wildlife interactions for the better or for the negative, on the negative side of things. I think that's a real unique niche we have here at CSU in terms of having pockets of these different interest areas and activities across campus.

Matt Hickey: That's great.

Sue VandeWoude: We work closely with the Center for Healthy Aging, and a lot of folks in your college are working on that. That's a really interesting area to look at in the translational natural animal model space because, again, our pets are aging in our households and getting a lot of the same diseases. And can we learn from them? Because they have reasonably long lifespans, much longer than a typical laboratory animal, but not as long as humans. So they're disease processes are accelerated. We can observe something over the course of a one year of a lifespan of a dog or cat that might represent multiple years in human. So that-

Matt Hickey: Seven in dogs.

Sue VandeWoude: Yes.

Avery Martin: I know that much.

Sue VandeWoude: Just everything from the aging process at the cellular level to imaging, to physiology. And so there's lots of opportunities there. And then the One Health Institute employees went to the Richardson Design Center last fall to have a session there with Laura Mellinin, and that was amazing to see that facility and the interdisciplinary work going on there. And just, all these light bulbs went off about how possibly post-pandemic in particular we could work with that group in terms of identifying solutions that can help with One Health problems and actually fabricating and manufacturing them there in that space. Those are just a few things that come to mind, but there's [inaudible 00:33:22] lots of opportunities.

Matt Hickey: ... great work. And she's in our queue, we'll be talking to her for season two as well. That's great. These observations fit naturally into the segue about all of us having the opportunity to work at a land-grant institution. Much of what we've talked about in the last 40 minutes or so reminds me that we can look across the state of Colorado for things like chronic wasting disease, you talked about the environmental impact of the wildfires of course. Domestic animals are part of our economy for a lot of people, as it was for you. This is my roots.

Sue VandeWoude: Right.

Matt Hickey: It's part of our identity in many ways. I wonder if you might share some reflections on the privileges, opportunities of working at a land-grant institution?

Sue VandeWoude: Yeah. I haven't really been a faculty member at any other university, so it's hard for me to really have perspective on what it's like to be here versus another college. But I can say that no matter where I've gone to interact with, or where I've had opportunities to interact with faculty in different areas, or our extension group, or even folks in administration, it's such an open door for everybody to be able to learn and find opportunities for collaboration. I don't think there's as much siloed and unilateral type of laboratory research. I'm saying that is with a negative connotation, but I do feel like there's still a lot of need for that type of individual based research. But I think collaborative research is the way of the future, not just for One Health, but in many realms. There's just too much to know for one laboratory to be the expert in everything.

I don't know whether it's our environment of Colorado promotes that, because I think the medical center down at Anschutz, I've found the same kind of openness, which is even more rare I think in a medical institution.

Matt Hickey: I think you're right.

Sue VandeWoude: Yeah. And so, that just plus walking from building to building, or driving from campus to campus, it's just hard not to relax when you're in such an amazing environment. It's really important for me, and I think it really helps us to recruit people that appreciate that same kind of environmental ethos.

Matt Hickey: I was just going to use the same word, appreciation's a great word. I don't think we can use it too often. It seems, I'm not a social scientist, but living in Colorado, enjoying whether it's skiing or biking or snowshoeing, you get the stewardship piece impressed upon you in a very non-abstract, tangible way. And I think that helps inform our interest in serving the community. Even if we are a bench scientist, there's still this sense of one eye looking out the window. This environment, this great state we live in, it's pretty neat.

Avery Martin: Absolutely.

Matt Hickey: Well, Sue, I want to say on behalf of the entire college, thanks a ton.

Avery Martin: Yes, thank you so much. It was a pleasure to meet you.

Matt Hickey: Thank you.

Avery Martin: And that's the show. Thank you for listening to another episode of Health and Human Science Matters.

Matt Hickey: Be sure to listen to the rest of season two, as well as our episodes from season one. And if you want to learn more about our College of Health and Human Sciences, go to www.chhs.colostate.edu.