- Also kind of interesting that people consider themselves farmers even if they don't actually sell anything. So that was kind of interesting as well. You know how people self-classify, so.

- Right. That is interesting. I like that. I mean, as a research challenge, I like that. You know, having to figure out, like, just because I give my zucchini away doesn't mean I'm a farmer. Right?

- [Announcer] You're listening to Further Together the ORAU podcast, join Michael Holtz and his guests for conversations about all things ORAU. They'll talk about ORAU storied history, our impact on an ever-changing world, our innovative scientific and technical solutions for our customers and our commitment to the communities where we do business. Welcome to Further Together, the ORAU podcast.

- Welcome to Further Together, the ORAU podcast. As always, it's me your host, Michael Holtz in the communications and marketing department at ORAU. And Matthew, welcome back as my co-host, Matthew Underwood. Good to see you.

- It's good to see you too, Michael. It's a rainy day here in East Tennessee, but we needed the rain, so I guess I'll take it at this point.

- We definitely did need the rain. We are talking today and I'm always excited to talk about our research, but specifically our ORU Directed Research and Development programs. And so we are talking about one of those projects today. And for folks who may be new to the podcast, we talk about ODRD projects on a fairly regular basis. But for folks who aren't aware, ODRD grants are a research and development program through our research and university partnerships office. And basically, we support collaborations between ORAU researchers and faculty at our member universities. Every year we have topics of specific interest that an ORAU subject matter expert, along with a subject matter expert from one of our university partners can apply for. They put a proposal together to conduct research, often pilot studies, things to, you know, that maybe there's research or data that's lacking or an idea that can start to be developed, and hopefully, get more funding down the road. So that's just a quick overview of what ODRD grants are all about. And we have two guests on the show today who are gonna talk about their ODRD project. And we've got Amanda McHale, who is a research associate here at ORAU in the Public Health and Healthcare Department for ORAU. And then Jen Russomanno, who is an associate professor of practice. She's the Masters of Public Health Program Director at the University of Tennessee Department of Public Health. Amanda and Jen, welcome to Further Together. So glad to have you both here.

- Thanks for having us, Michael.

- Thank you so much. Happy to be here.

- If you would, just very quickly, I know I've sort of, I rattled off your titles, but if you would tell us a little bit about who you are and kind of how you got into the world of public health. And I know that could be a long journey. So kind of just briefly a little bit about who you are and Amanda, I'll start with you.

- Okay, sure. So thanks again for having us. Like Michael said, my name's Amanda McHale and I'm a research associate in our public health and healthcare program. And specifically, I'm in our emergency preparedness and response group. I'm relatively new to this field, but my background and training is in public health, which closely aligns with this subject area. So I feel pretty equipped and eager to learn about this field which part of that is doing this ODRD project. Like I said, my background is in public health. I graduated from the University of Tennessee with my master's and doctorate in public health. How I wound up in that field, I really just stumbled upon it. Originally, I wanted to be a veterinarian, I wanted to help animals. It didn't work out for me. And that translated into helping people at the population level. And so I've been addicted to public health ever since.

- Awesome. Jen, how about for you?

- Yeah, thanks again for having us. This is really exciting to be here. My journey, like you said, I'm not gonna go into it for, you know, 20 minutes 'cause that's kind of the roundabout way of how I got to where I am. But I actually have an undergraduate degree in film and worked in the film industry for a little while, segued into producing and meeting planning. And then when I moved to Tennessee, started working at the University of Tennessee as an event planner for medical events essentially. And through that I started to see how things really played out, like social determinants of health, community impacts on health, things of that nature. And then decided to go back to school to get my master's degree in public health to kind of see what is this field, right? Like what are we actually doing here in public health? Once I got into the field, Amanda and I were actually in the same cohort, which is how we met. Just really fell in love with it and then decided to pursue onto the doctorate of public health, just like Amanda, we followed the same kind of path and really just decided that I needed to learn more about the field and just segued into public health that way. And like, same as Amanda, masters and doctorate in public health from UT. And this is definitely where I'm supposed to be. This is the field that I love and the field that I'm really, really passionate about.

- I'm already feeling like we need to do a part two episode just to talk about how you got to public health with, for both of you, from veterinarian on one side to film on the other. So it sounds like a really interesting journey, so we may come back and ask you to do that. I wanna talk specifically about your ODRD project. So Amanda, if you would just kind of kick off what your project focuses on. And it sounds like because you were in the same cohort, that seemed like a logical way for you all to work on this project together. And is that how things kind of came about? How did you get to collaborate together on this project?

- Sure. And you're exactly right, Michael. So we're collaborating on a pilot study focused on emergency preparedness and response, particularly looking at how small family farms in East Tennessee manage extreme weather events and in turn how that affects their health. And again, the study is funded through the ODRD program and one of the program requirements is to collaborate with the university from one of ORAU's university consortium members. And I know Jen from our studies and I reached out to her to see if she was interested in pursuing an ODRD in emergency preparedness and response. She actually teaches a class at the University of Tennessee on this subject, and she was interested. We grabbed some coffee, we had a brainstorming session, and that led to our research topic and our research questions.

- Awesome. So talk more about, Jen, the research questions and sort of what you're trying to answer, what you're trying to get to. It sounds like a really important topic in terms of how small family farms deal with climate change and health issues.

- Yeah, absolutely. And as Amanda said, I teach a course at UT for master's level students about emergency preparedness and response. So my interest has really started to hone in on that area, especially with the climate change that we're experiencing, the tornadoes in December, you know, things of that nature. And then secondarily, I actually own a small farm, so I own a small farm in Jefferson County and I have owned it for over a decade at this point. And what we've noticed really is that when these things happen, right, high winds or droughts or tornadoes or whatever it might be, when you're thinking about the small family farm, there's really not a lot of support. There's not a lot of money out there that supports small family farms. We really don't know how people are responding to extreme weather events. We don't know how they're paying for damage, right? That happens potentially to their farm. We don't know how it affects their stress level, their income, things of that nature. And really when we started digging into the existing literature, there wasn't any, there was only maybe a little bit of data surrounding like the big farms, right? The commercial farms that get support from the government, subsidies, things of that nature. But when it came to the small farms, we found nothing. And small family farms actually make up about 90% of all of the farms in the United States. And in the state of Tennessee, they're actually more like 95%.

- Wow.

- So we had this huge cohort of small farms, but we don't actually know what's happening when we have, again, these tornadoes in December or people lose their entire crop because of a drought that we have. We had no idea. So essentially, because we had no idea, we really had to start with qualitative data because we had to ask, we had to ask the questions we don't know the answers to. So that's pretty much how it came to be. It really came to be from an inherent interest in emergency preparedness, both on my side and Amanda's side, in addition to just personal things that I've faced as a small farmer and to say like, you know, I don't know where to go, I don't know what to do in these situations. But you know, we've had thousands of dollars of damage on our farm due to mostly high wind events. So that's really how the idea got born and how the research questions came to be as far as who we were gonna look at, how we were going to address this. And then to add one extra layer, we decided to really focus on rural farms, rural counties, mainly because, again, the support really isn't there a lot of times in these small rural communities. So that was kind of how it all came together.

- You talk about, you know, you didn't really know a lot beforehand going into this because there wasn't a lot of data. So what kind of have you learned through the process? What have you kind of discovered throughout your research?

- Sure, I'll kick us off, and Jen, you can follow on. So we conducted in-depth interviews with farmers residing in five East Tennessee counties. And we had the opportunity to go out to some of the farms, which was a lot of fun, but it also provided another layer of insight to see like what kinds of challenges that these small farmers are dealing with. And so some of the things that we're learning, we're in the middle of analysis right now, but some of the things that we're learning is majority of participants in our study when asked about changes in weather over time in Tennessee, responded that the weather patterns are changing. And the most common changes we've heard so far are milder winters and stronger winds. Which if you can, I remember back, or I think it was earlier this year when schools closed because of high winds. Another finding that emerged from the data is community support. So participants in our study gave examples of how others in the community have helped them overcome challenges when dealing with extreme weather events as well as themselves helping other farmers during challenges in dealing with extreme weather events. And you know, this kind of makes sense because rural communities are tight-knit, they're close and they have a strong sense of belonging to their community. One farmer from our study said it best, I'm gonna quote this when referring to their neighbor, they said, "We have sort of an agreement to scratch my back, I'll scratch yours." And so, you know, they have each other's backs and participants described other ways of, or they described a variety of sources where this community support came from, including neighbors, including friends, family, being a part of associations and groups, getting information from the county extension offices. And then another question we asked participants is if they had one wish that could be granted to better manage extreme weather events, what would that be? And most farmers told us that they would like more localized weather forecasts. I'm not sure if that can be done, but they described how their terrain is very different from someone 20 miles away. And so, you know, a farm close by could be hit with extreme weather, but it misses their farm. So having more localized weather forecasts could help them better prepare and respond to these extreme weather events. And I'll pass the baton to Jen to discuss some of the other interesting findings.

- Yeah, thanks, Amanda. So as Amanda said, we're kind of still in the analysis phase, so we're kind of sorting through everything at this point. But one thing that I think was really interesting to us is that every single farmer that we interviewed had an off-farm income, every single one. So none of them were completely reliant on farm income. And they all expressed the fact that if they were reliant on their farm income, that their responses to our questions might be very different. They all really talked about how they farm because of the love of farming, how they really loved their land. A lot of the farmers that we interviewed had legacy farms where the farm has been in their family, you know, for many, many generations and many years. And they had planned it to leave to their kids and things like that. But they did say that if they relied on their farm on a full-time basis, their responses to extreme weather could be very different. It also affected the way that they prepare for extreme weather events because any sort of infrastructure changes to a farm are going to require money. So they're not really willing to put the time and the money into making any real substantial changes to their farm because they're not completely reliant on the income. So again, that kind of gave Amanda and I a little bit of pause because again, with 95% of the farmers in Tennessee being small farms, what does that mean for sustainability, right? Like if we're having mostly part-time farmers, mostly hobby farmers, you know, in our state, what does that mean kind of moving in the long term for what is a small family farm? And then the last one that we just wanted to highlight because it's really interesting is this kind of piece of resiliency. One of the questions that we ask in the interview guide is, you know, would you ever consider selling your farm or giving up your farm? Some people did say yes if the challenges got too much, but a large majority of them said no. And the main reason they said no is again, because of that love of the land. Because they love what they do and they're passionate about whether it be just kind of being one with the land because it's been in their family or because they're retired and it gives them something kind of to do. But really, those were two really interesting things to come out of it, is that every single farmer, whether it be from a pension income, a retirement income, a spouse job, something, every single one had another form of income beyond the farm itself.

- That's really interesting that, you know, A, they all have another form of income and that most would not give up the land. And I guess I understand that from a, you know, I don't want to be the farmer that gives up, right? On the legacy farm, I don't wanna be the person that lets the land go. So a lot of emotion tied to small family farms.

- Yeah, that is interesting. Just, you know, the families, a lot of those are legacy farms and you know, it's been passed down for so many generations, they just wanna keep that tradition going and, you know, I'm sure they grew up, you know, on the farm, which is where that love probably originates from too, which is a fascinating thought as well.

- We did have a few farmers that said that if the challenges became too much, they would consider giving up farming. But again, what Jen was speaking about, having this off-farm income, if you have another source of income, you know, it's a bit easier to, well, I don't know if it's easier, but you have another option to consider, if it's affecting your health, like your mental health, your physical health, the challenges become too much. You kind of have a way out. So that's also something to think about.

- Absolutely.

- And maybe that line gets moved a little bit, right? This was a challenging year, but I'm not ready, next year's a more challenging year, you know? Right. So if your life isn't reliant on the farm, you know, you can be resilient longer, I suppose.

- Yes. And that makes me think too, some farmers said that based on past experience, we've made it this far, let's see how far we can keep going. Like we went through this devastation, we recovered, we can keep going.

- So what was that initial reach-out process like? How did y'all do the call out for farmers and how did you kind of first coordinate all those interviews that you got eventually in your research?

- Do you want me to take that one, Jen, or you wanna take it?

- Yeah. 'Cause you had a really fun experience, so you please talk about that.

- Yeah, so we coordinated with the, first, we coordinated with UT Extension to help identify counties where we may have a better shot at interviewing farmers who'd be a little bit more open to talking to researchers who are on the outside. And so we really worked with these county extension offices to advertise this study. And we also advertised via social media. And the social media piece is probably the biggest surprise for me because I received a lot of spam, a lot of almost like bots, you know, kinda all in my email that weren't necessarily real people, which made it difficult to decide, you know, is this person real or are they not? So we really relied on our county extension offices because of that really that human connection. And we knew that we were getting to the population that we're trying to reach, but the county extension offices were crucial in our recruitment. That's where we found majority of our farmers. We did a little bit of direct recruitment too, like reaching out to farms. We got a couple that way as well. But the county extension offices were the biggest piece. And it also shows that they're a trusted organization within the community. The farmers trust their extension office, well, I don't wanna put a blanket statement, but most do, that's where they go and get their information. So really grateful that we had that inlet to get to our population.

- And just to add to that too, when it came to the counties that we picked, we actually also worked with extension to vet like how many farmers were in the different counties, how many were considered small based on income? 'Cause that's pretty much, you know, the distinction is your net income. One of the challenges I think that we ran into kind of early on is people were considering themselves a small family farm even though they weren't actually selling their products. So essentially whether they were having like a home garden, they were like, yes, I own a farm. So we actually had to kind of go back in and do like a secondary vetting process to make sure that the people that we interviewed were actually selling the products that came off of their farm. So that was a little bit of a challenge within the recruitment to make sure that we had, you know, the appropriate terminology and then also kind of interesting that people consider themselves farmers even if they don't actually sell anything. So that was kind of interesting as well, you know, how people self-classify, so.

- Right. That is interesting. I like that. I mean, as a research challenge, I like that, you know, having to figure out, like just because I give my zucchini away doesn't mean I'm a farmer. Right?

- And we worked with IRB to navigate recruitment when we changed our eligibility screening, adding those questions, and they were great in helping us navigate that challenge.

- Awesome. Jen, I wanted to ask you, since you are a small farmer, the weather question, you know, you heard some of the responses were getting more localized weather forecasting. How do you get your weather forecast? I mean, is it from TV like the rest of us or?

- It is, it is from TV. Yeah. I try to really hone in, you know, I actually live in New Market, so I live in Jefferson County.

- Okay.

- But interestingly enough, when it comes to the localized forecasting, you know, when the tornado came through, and I think it was 2011, I actually lived in Jefferson City at the time. And the tornado that came by, it was determined to be an EF-0, but strong enough that I never wanna see anything higher than that except in a movie. It literally came through my front yard. Like we had multiple thousand dollars of damage both to my home and to the farm when we were over in Jefferson City, but here in New market, like we actually know our neighbor. And he said it never even came here. And I literally live 15 minutes away from where I used to live. So I think, you know, that's really challenging, especially when it comes to something, you know, like a tornado or something that's completely unpredictable, you know, how do we know which direction it's gonna turn, and things of that nature. So I do, I get it from TV and I just get it from the apps that everybody else gets. I do have a NOAA Weather Radio, so if my power goes out, you know, I'm able to still get the weather. But essentially, you know, I really appreciated what people were saying. The terrain in East Tennessee is really weird and, you know, you could have it pouring rain 10 minutes away and you could have 70-mile-an-hour winds in one town and the next town over has nothing. So it is a really challenging thing. And as far as responding and preparing for it, a lot of people were like, well, it is what it is. Right?

- Right.

- Like, we just deal with it when it happens, which is kind of what we do as humans, right? Like we can't control the weather, but you know, from a farming perspective, it could literally wipe out your whole season. So it goes a little bit beyond, you know, oh, well, my fence fell over, right? It's like, oh, well, now I have zero income for the rest of my growing season. And that's where it becomes a little bit more challenging.

- So Amanda and Jen, what happens next? I know you're in the process of, you know, analyzing your data and what happens next with your data and the next steps for your study?

- So I'll touch on this and then I'll let Jen follow on. So we have a lot of exciting things coming up. So our research was accepted for an oral and poster presentation at the International Association of Emergency Managers Conference in November. And this is the first time ORAU has been accepted to present at this conference. So we're very excited to present there. We also have an oral presentation at a local conference called Tennessee Public Health Association. So we're looking forward to presenting there as well. That's more of a local focus, which is great with our study, since we're looking at a specific region in Tennessee. We will be presenting at the Knoxville Knox County Food Policy Council in September, thanks to Jen and her connections. One of the outcomes of our research too is to develop an emergency preparedness guidebook that's specifically for farmers. And it's comprehensive, and it's statewide, and we're in the final stages with this guidebook. And we will be attending a Farmer Resource Fair that's hosted by Nourish Knoxville in August to advertise our guidebook and to distribute our guidebook as well. And then lastly, we are writing a manuscript for publication.

- Awesome. Jen, anything else to add?

- Yeah, I think just kind of for future directions, you know, beyond what we're doing with this particular pilot study, one of the things that we really want to do is expand what we have found out about in our small little qualitative study. So we're hoping to get some additional funding and maybe some additional partnerships to reach a larger network of small farms, more on a nationwide scale. And this obviously would be a quantitative study, a survey rather than a qualitative study. But the cool part is that what we learned in our qualitative study can really inform the questions that we put on our survey moving forward. So hopefully, we're actually in the process of exploring those partnerships and those funding opportunities right now. So hopefully, we'll get that going in the next little bit and be able to expand our results either to very different regions or potentially looking at comparing weather events in the Midwest versus like the Tennessee kind of Appalachia area, and kind of see how things differ and response differs and programs differ and things of that nature. So I think, obviously, it's not totally fine-tuned yet, but I think that's the direction that we're going is really looking at potentially two different regions that might suffer from different consequences of different types of weather and go from there and then take that and potentially go more nationwide with it. So kind of a three-step approach, but we definitely think that there's enough really kind of cool information to take it a little bit further and find out what other farmers are doing, you know, beyond our East Tennessee area.

- I love it.

- That's awesome.

- Exciting days ahead. Lots going on. That's really great.

- Well, it'll be interesting to see, you know, you've kind of studied this region, but you know, you hop, you know, a couple hundred miles west or east or north, the climate completely changes too. So it'll be interesting to see how, one, how the climate changes in those areas, and two, how they are responding differently. So sounds like a fascinating challenge and interesting research ahead.

- Thank you. Yeah, and one other thing too is, you know, when we potentially look at the Midwest, you know, they've been dealing with tornadoes for a long time. It's kind of newer to like the East Tennessee area. So I think that would be kind of an interesting dynamic to say we've been dealing with this kind of forever, right? Tornado sirens are just a background noise. My friend who lives in Nebraska tells me that, it's a background noise and I'm like, I'd be hiding under something somewhere. So I think that's really interesting too. Like, you know, where you are, how does that affect your response and preparation?

- Absolutely. Is there anything we haven't talked about that you want to make sure we cover before we wrap things up?

- I don't think so. I feel like we've covered the major points that I was hoping to communicate.

- Awesome.

- Yeah, same for me. I think just one last thing just to retouch on what Amanda said. I think, you know, I mean, one of the things I'm most proud of with this study is that resource guide. It's really comprehensive and as someone who owns a farm, I don't know where to go most of the time. Like who to call, who to look to, what programs cover which type of farm, that sort of stuff. And our research assistants that worked on this project with us did a fantastic job putting that together. And I think, and I hope that that's gonna be a really great tangible piece that we can hand to farmers digitally and printed and basically say here, if you don't know where to go, start here, right?

- Right.

- And a lot of the work that I love to do in public health is very community-oriented. So to me that's a really big part of this piece is to tangibly have something that we can give and say here we designed this to make your life easier, right, as a farmer.

- Absolutely. I think I can speak for Matthew, when I say when your guidebook is published, we would love to help spread the word through, you know, ORAU's website and through our social media channels to help make sure that everyone who needs to see that guidebook can get their hands on it as well. So let us know when that publication is ready.

- Awesome. We will, we're getting close.

- Awesome. Alright, last question for both of you, Amanda and Jen, what brings you joy?

- Wow. I feel like lots of things, sitting on the porch outside drinking the first cup of coffee.

- Oh, I like that.

- Yeah, same. I'm a big and I know Amanda is too. I'm big into the outside, so put me out, I mean it's raining right now, right? But put me outside in a kayak or on the water or anything and I am definitely at peace there. And then the last thing that brings me joy really is going to like live music events. I was actually at the Opry last night in Nashville.

- Nice.

- So I love going to see live music and just kind of getting out of my head for a little bit. So anything that I can do that with is really what brings me joy.

- Fantastic, I love that. Matthew, how about for you? Oh, sorry, Amanda.

- Go ahead, Amanda.

- No, no, no, no. Matthew.

- You know, I would say, you know, I do love, enjoy being outside, especially at sporting events. I'm a huge sports fanatic so anytime I can get my hands on some tickets to go see a live sporting event, I'm gonna take advantage of it. I like to travel around and see baseball games. It's one of my lifelong goals I guess you would say to see every MLB stadium, that's like one of my lifetime goals. So definitely being outside and if I can tie a sporting event into it, that's even better.

- Awesome. And I will just add, I was outside this weekend in the Smokies hiking the Ramsey Cascades trail and even though I didn't get as far as I would like to, it was awesome just being outside. So I'm with you all, I'm all about the outdoors and just, you know, being grounded in nature. All right, everybody, thank you so much, Amanda and Jen, thank you for being with us and for talking about your research and again, we look forward to the guidebook being published and seeing further publication and hopefully, more research into this really interesting and I think important topic. So thank you both for being here.

- Thank you both for having us. And Matthew, my Dad's goal is the same as yours, by the way, to visit all the MLB parks.

- Oh, well, there you go.

- You have the same, in a park somewhere.

- Awesome.

- All right. Well, thank you both and everyone have a great day.

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