

PIE-Ep2-Food Systems_FINAL

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SPEAKERS

Ricky Telg, Phillip Stokes

Ricky Telg 00:04

This is science by the slice, a podcast from the University of Florida's Institute of Food and Agricultural Sciences Center for Public issues education. In this podcast, experts discuss the science of issues affecting our daily lives revealed the motivations behind the decisions people make, and ultimately provide insight to solutions for our lives.

Phillip Stokes 00:28

Hey, Phillip Stokes here, host of Science by the Slice and education coordinator at the PIE Center. We're back with part two of our series on food systems during the COVID-19 pandemic. And in this episode, you'll hear from two economists who are measuring the impact of the pandemic across the food supply chain, and how those impacts may vary geographically in the US. And leading this conversation is Michaela Kandzer, graduate assistant with the PIE Center, who you should already know by now, because you listen to part one of this series. Seriously, if you haven't listened to part one, you should do that. Anyway, I thought Michaela should introduce this episode. So here's our conversation where she does just that.

Michaela Kandzer 01:13

The ag industry in the food system really took a hit during COVID-19. And so we kind of talked about some of those changes to demand in the last episode. And we talked a little bit about, you know, a personal story of how producers had to change what they were doing in order to adapt to the pandemic. And so today, we're going to dive a little bit deeper into the supply and demand side of COVID-19 and the food system and learn a little bit more about those impacts, and how they really affected the food system during COVID-19.

Phillip Stokes 01:41

So you mentioned that COVID-19 impacted supply and demand, the producers, the consumers, what what played out during the pandemic.

Michaela Kandzer 01:50

Yeah, of course. So typically, when researchers are looking at the impacts that disasters have on the food system, they're looking at things like hurricanes, but researchers really had to shift their focus from looking at these traditional disasters to looking at the pandemic. So we were able to see that COVID-19 cause a major shock to supply and demand, which is part of what makes the COVID-19 pandemic so unique. Our food system had not previously been affected by supply and demand at the same time, and not to this magnitude. And so both sides of the food system faced extreme challenges. For example, the supply chain experienced challenges such as companies having to shift their focus due to those changes in supply and demand, they had to create changes in their packaging, they had to experience changes and how products were getting from the producer to the processor to the consumer, or as we heard in our last episodes, directly from producers to consumers. But as we know, the ag industry is overwhelmingly resilient. And industry was largely able to overcome most of these challenges due to their flexibility and their ability to adapt.

Phillip Stokes 02:51

As most consumers, you know, we don't see all of those things. We don't know what goes on always before the food reaches the shelves or the restaurants or wherever it's going. So I think that's a really cool thing to discuss today. And I'm looking forward to hearing your conversation with our two researchers. So can you tell us who you talk to and a little bit more about them?

Michaela Kandzer 03:15

Yeah, of course. So I was able to talk to Dr. Hikaru Peterson. She is from the Department of Applied Economics at the University of Minnesota. And she studies mainly demand and supply and food related choices. While we also talked to Dr. Christa Court, who is from the Department of Food and Resource Economics at the University of Florida. She has an expertise in regional economic modeling and disaster impact analyses for agriculture, natural resources and the ag industry. So if you keep listening, you can hear from Dr. Court and Dr. Peterson, as they talk about their research that they have been conducting on the effects of COVID-19 in the food system.

Phillip Stokes 04:08

And now Dr. Hikaru Peterson

Hikaru Peterson 04:10

So Dr. Court and I are on a 11 PI team, we're located in three regions of the nation. So one research study region is in Minnesota, Wisconsin in the upper Midwest, Krista is representing the Florida region. And then we also have a team in UC Irvine that is looking at the southern California region. And one of the things we're doing right now is that we have this supply chain survey that we're conducting. It's the same surveys, right but hosted by these three study regions. And we're really hoping to look at the impact of the pandemic across the supply chain, and whether there are differences in the study regions that really are very different in the food systems that we all have. We're also planning a consumer survey that will be launching in early April. This is national in scope and then we also have analytical work that is ongoing, that's looking at the capacities and structures of regional food systems, because one of our focus of our study is that these regional food systems which are shorter both geographically but also in terms of the number of transactions between the producer and the consumer, and how

those shorter supply chains can augment the mainstream supply chains, so that we are better prepared for future disruptions.

Phillip Stokes 05:30

And this is Dr. Christa Court

Christa Court 05:33

Hikaru covered it quite well. But the focus on the regional supply chains is very much on how they can augment the system in the future, like she mentioned. So it's not looking at Should we move all to regional food supply chains or local food supply chains, as opposed to the traditional makeup of the supply chain? But just how did these regional food supply change function to augment some of the impact that we were seeing initially, to those traditional supply chains? And should we be focused on boosting those up in the future or making sure that they are there in case something like this were to happen again? And then how do we use the the data and the insights that we're providing in this project to make that happen?

Michaela Kandzer 06:18

Can you help me personally and also help out our listeners and kind of understanding and explaining what that really looks like, as far as like from the whole supply chain from beginning to finish? Can you give us some examples and kind of explain what those interruptions look like and what they look like in normal times.

Christa Court 06:34

So I guess I can start that. So typically, you know, there was a lot of interest in where our food comes from, at the beginning of the pandemic, when people were seeing empty shelves at the grocery stores, while at the same time watching on the news, you know, crops being discovered in South Florida where we have, you know, there was a huge supply of vegetables and fresh fruits that weren't being picked, or were being plowed over, or were just rotting in the field. And it comes back to what Hikaru was talking about before where we were not prepared to move from a situation where multiple semi-truck loads of a particular product are leaving a farm are leaving a region every day, needing to split that up and get it to, you know, 1000s or hundreds of 1000s of consumers that were in need of food, you know, I can't take a semi-truck around and deliver to each one of those households that were in need. And, you know, to leave them in the field, knowing that there was not the traditional market in place would have almost cost more than trying to redo that system that gets it to the consumer. So that's why we were seeing a lot of that mismatch initially, typically, the producer between the producer and the consumer, there's several places are several different operations. So there's operations that are involved in packaging food, or involved in processing from a raw product to something like from tomatoes to spaghetti sauce, or to salsa. So there's, there's processing involved. And then there's typically multiple sites for distribution, you know, product might go from the processor to a warehouse, to another warehouse, and then finally get to the grocery store or be delivered straight to your home. So I think when there were interruptions in each of those links upon that supply chain, then things just bottled up. But you know, and got to the very end where we could not get the food from the field to the consumer in the form that they were expecting in a short amount of time that they are used to. So these regional or local supply chains that we're talking about have fewer links, and what I just described, and that might

mean that it goes directly from the producer to the consumer, or that might mean that there are fewer stops in that distribution chain, and just, you know, fewer miles from the farm to the final consumer. And the question is, where's the balance between that traditional supply chain and these regional supply chains so that we don't face the type of interruptions that lasted for weeks or even months in terms of getting a particular product that the consumer wanted to them

Hikaru Peterson 09:23

I'll just add the example of livestock sector. In Minnesota, there was a huge pork plant that had to shut down because there was a outbreak of COVID-19 among the employees. And so, you know, it's even though the plant is located in Minnesota, it actually aggregates a lot of animals from you know, neighboring states and neighboring regions to be processed in a large volume that gets you know, distributed again, across you know, wider part of the nation. And so once that the plant was shut down, then there are a couple of things that that What really happened like all these hogs that were ready to be marketed just didn't have a place to go. And that that's where like more of a smaller scale regional processing capacities, if they, if they exist, actually can really supplement you know, the in continue to process so that the hogs that are that are ready to be ready to processed can be processed in a in a timely matter. But one of the other things we know is that those regional capacities tend to be a lot smaller, there's no way that they can take over the entire, you know, capacity that the mainstream supply chains are handling. And so, again, like Christa was saying that the question is, like, how, how can How can two systems work better, so that the disruptions can be mitigated in a way that you know, we have we have this uninterrupted food supply?

Michaela Kandzer 10:51

No, I think you both bring up a really interesting point that during the pandemic, like we were seeing this really interesting dichotomy where we were going to the grocery stores and the things we wanted, were not on the shelves, and there were shortages at food pantries and food banks. But then at the same time, we were seeing on the news, all these sad images and stories and videos of farmers having to disk their fields or having to dump out there already milked milk. And so I think that was just something that was really hard for the public to understand that dichotomy. So I think it's important that there are people like you that are bridging that gap, and also finding ways to mitigate those issues in the future.

Christa Court11:26

I think the important thing for the public, though, was to understand that the food system was complex, but not necessarily complicated, right? It's, it's that a lot of what you know, we just both gave examples in who Hikaru brought up the point of labor and the pandemic is sort of impacting everything, right. So when a meat processing plant experienced an outbreak, or really any part of that system that we're discussing, experienced and outbreak, all of this is taking place within, you know, these other subsystems. So with within a political subsystem that had changing policies, changing regulations, with respect to what could and could not be open, what could and could not happen within a workplace that was open. And then just individual operations deciding, you know, how were they going to operate, some of them were allowed to be open, but decided they didn't think it was safe. So they closed down on their own accord, or some of them might have brought production levels down in order to keep employees spaced out. And, you know, you even see, something like an outbreak within management of a company makes it where the company can't go on at the same level of production that it was

normally facing, because none of the managers or none of the supervisors could be in place that they might be required to do so in order to operate. So I think just remembering the complexity of the system, not just the number of links in that chain that we're talking about, but remembering but that chain, I don't want to I don't like when people say that the food supply chain was broken during the pandemic, but you know, we had to remove links over here and put them in and reroute the chain. So there are a lot of different things going on all at the same time.

Michaela Kandzer 13:08

No, I think that's a great point. And I think it's also important to remember how different COVID-19 and this whole pandemic was from other natural disasters that have occurred in the past, because, you know, we see things of like food safety outbreaks, or, you know, like, the first thing came to mind is the swine flu. And so, you know, that specific industry was affected by that outbreak. And by that issue, but not all wasn't wide spanning. It wasn't all all industries, all food, and then also just even like natural disasters, like hurricanes or like that may affect a certain area, but it's not going to be nearly as widespread.

Christa Court 13:42

I always say this, the size and the scope of the disaster matters. And in this case, it was about a bat as wide of a scope as it could get and about as large of a size as could be. So I really impacted everything.

Michaela Kandzer 13:55

So how did you guys come together and decide to start working on this research together?

Hikaru Peterson 14:00

I have a working relationship with Laurie Baker at Florida. And also Cheryl Boyer at Kansas State, and the three of us have been working on issues that affect rural areas through Center for Rural Enterprising Engagement. And when when this grant opportunity came out that we knew we wanted to do something about the food system because of the impact. And then Christa got roped in right away, I think through through Laurie and also we brought in Angie Lindsay, who specializes in risk communication. And then in I also had other relationship with Michelle Miller at Wisconsin who brought in some of her colleagues as well. And so it was developing is like a two region things but then at the last minute, UC Irvine folks found us and our goals were aligned and it's actually really a fun group. It's a large group, I think, when when I when we're listening to other projects that we're funded by the same program, there were much smaller groups and, and here I am presenting like 11 different, you know, colleagues who are on this team. But really, it's really fun and it really worked well together.

Michaela Kandzer 15:11

Yeah, I think it's awesome for you to share kind of that behind the scenes aspect of the research. Also, because I know a lot of the general public probably doesn't understand how research really happens or understand how all of these connections are made. And I know I certainly didn't before I started grad school like I was, had no idea about anything related to research. And so it is really fascinating to see how researchers, they often are able to see a need out in the public that affects them or issues that they personally care about, but also that affect those around them. And then they're able to find other

people that have those same passions, and then able to work together to do some really awesome things. So do you guys are conducting the survey? And I know you guys haven't collected all of the data yet. But do you have any preliminary findings that you guys would like to share or any thing that you're seeing that's super interesting so far?

Hikaru Peterson 15:56

So one of the things that that we realize is that I think when 2021 started, everybody wanted to find out about the impact of the of the pandemic. And and we feel, really feel the survey fatigue among among the food industry and also agricultural sector in so we were really grateful for the producers and the businesses along the supply chain who actually responded to our, our survey. And I just, I've only looked at the partial results from the from the Minnesota Wisconsin sample. But one of the things that that we're seeing is that so I think the main question is like, we're asking them, how their sales revenues change from quarters in 2020, compared to like a typical year. And one of the things that that is coming out from the Minnesota-Wisconsin one was that production AG, so the upstream most upstream of our food supply chain was hit the hardest in terms of sales, like during the first quarter of 2020. Like that includes March when people are starting to feel the impact. But then as the year went on, then further down in the supply chain, so he would be the wholesalers that retailers and in the food services, the impact was a lot greater in magnitude and also seems to get greater the further down the supply chain that went. So I'm really curious to know whether that pattern really holds after we finish completing the collecting the responses, and whether we see this in our other study regions as well.

Michaela Kandzer 17:37

So what are you expecting to be some of the outcomes of your research?

Christa Court 17:41

So I think I think what we're hoping to find is, you know, what, what did happen. And the amount of detail that we can provide in what did happen in this situation, will give us those data and those insights that we need to stop the negative impacts from happening next time. But I think in in in many cases, there were things that helped an effective response or we've talked about being flexible, and being adaptable, strong relationships with suppliers was something that comes up often for businesses that did better during the pandemic, things like agile production, or being able to distribute in a different way than mainstream helped and just supply chain planning. So I think, you know, I mentioned before that a lot of people were looking for information on where their food comes from, when the pandemic first started. And another thing that everyone now knows or has in their vocabulary is Supply Chain Management. I will admit that I wasn't even an expert on Supply Chain Management at the beginning of this and now I feel like I have had to become an expert in order to explain a lot of these things. So it's, it's, I'm hopeful that that type of education is what we're able to provide at the end of this and just any, anything that we can say about how this situation unfolded, and what could be put in place so that it doesn't unfold in the same way the next time.

Hikaru Peterson 19:10

Yep, and another big piece of what we're trying to get from our overall project is to see like clearly, people adapted different behaviors in response to the pandemic, but they are things that we know is going to stick with us as well in I think, you know, the Zoom culture is is one of the things that we talk

about, like how do we there's definitely a benefit about the Zoom you know, things that we adapted but how is they gonna look once we start getting in person again in the same thing with the business practices. And so we are hoping that we have some ideas about what specific practices are gonna stick in kind of shape the supply chain for the next you know, 5-10 years in I think you would help us help the industry really see what that means. For the demand that is facing their business along the supply chain.

Michaela Kandzer 20:04

I think it's also interesting that you guys have mentioned a couple of times about people at the beginning of the pandemic, being really interested in learning more about where their food comes from. So I think as a science communicator, and as an agricultural communicator, that's kind of exciting. So have you guys had any opportunities to really share with people and educate them about their supply chain and about where their food comes from?

Christa Court 20:24

So one of the things that we did at the very beginning was put together a graphic, we worked with a graphic designer to try to communicate in a simple as simple as possible what that food supply chain looks like in Florida and communicating the fact that there is this intermediate processing and distribution channel that you have to go through. And one of the other things that we really needed to communicate here in Florida being the state that was showing the dumped milk on TV and showing the vegetables being discussed in the field, was the fact that there is this sort of fork at that final getting food to consumer stage where it's getting food to consume away from home, and something like a restaurant or a school cafeteria or theme park cruise ship, versus purchasing food to use at home. And, and I think just showing that those were two different roads, or two different paths that the food could go to, and that the processing and distribution looked very different, or, you know, supplying to one of those versus the other, I think was really helpful. And just, you know, doing things like this, where we can talk about our research in a little bit more of an informal way versus writing things up for an academic journal has been really helpful. So I A lot of us have majority extension appointments on this project. And I think that that's going to be a very important component of the project is not just doing research for academic sake, and, you know, obviously informing decision makers at our state and national levels. But educating the public is another big component of that.

Hikaru Peterson 22:03

One of the things that, you know, in addition to understanding where the food comes from, I think a lot of people have turned your attention to food security issues in our nation. And people really want to make sure that, you know, they're they're contributing and recognizing that folks really have to have good access to food and whatnot. But I also really want to impress, you know, when we when we're communicating about the food system is that it really serves two roles. It's true, it has to nourish our population, but it also has to support the livelihood of people who are actually in the supply chain. And, and so I really would like to, you know, bring up just awareness of people that food price, you know, sure, you know, lower the price, obviously, eating increases the food access, but at the same time, that double edged sword is that people need to be able to make, you know, livelihood from that from those food prices. And so there has to be a balance that that we all have to be thinking about

Christa Court 23:01

I'll add one more thing, because it's another important component of the project that we're working on together is, is that now this, this idea of educating the public, we're at this Cooperative Extension is a two way street, right? So at the same time, we're reaching out to individuals that are throughout the supply chain to ask, what are the issues that you're facing? What are the problems that need solving, so that we can focus our project in on those projects, instead of you know, Michaela, you mentioned multiple times to people not fully understanding the food supply chain are not fully understanding the supply chain management or not fully understanding how academic research works. And a lot of time, I think we get the bad rap, that we sit in our ivory towers and type on our computers and work with data and then produce things that are not useful in the end. And I think that they're the reason that I really enjoy being in an extension focused position is that I can listen, and then I could respond to problems, as opposed to just sitting here as an academic and talking about things that people may or may not even need in their lives.

Michaela Kandzer 24:12

I couldn't agree with that more. I think it is exciting for me to like do for you guys to have this platform to talk about these things, and for people to understand more about academia, more about research, but also be able to learn more things that are that they find applicable to them. And that, you know, the research that researchers at universities do is so important, and it is for the people, you know, it's to help them understand issues too. And so I think that's something that's overlooked a lot. And so I could get on my own soapbox about that. But I think it is really exciting to hear you guys talk about that, too. Can you talk a little bit about why this research is so important?

Christa Court 24:45

In this case, it impacted everybody. Right? So whether you were someone in the food supply chain that lost a job or lost some income, or maybe even we're doing great some of the businesses that we've talked to increase their business during the pandemic. On the other side of things everybody needs to eat, right? So determining the best way to get that food from the field to your plate in a format that you would like to consume it and at a price that you would like to purchase it at and is able to support all of those positions along the food supply chain effectively, then that's, that's really our goal. And I think that that impacts everybody, as opposed to just being a minority of the population involved in a particular problem.

Hikaru Peterson 25:33

Yes, and I can't agree more. And I think in a way, the spotlight that the pandemic has offered to grocery store workers and you know, food processing plant workers is, in a way, it's great that everybody's, you know, it's humbling to recognize how our supply of foods, food is supplied to everybody. It's not just like, where it's coming from, but like how, and there are all these putting, putting faces on the people who are involved in in giving us the food is very important and makes this project worthwhile.

Christa Court 26:07

And I hope that you can hear our enthusiasm for the project, because Carl mentioned at the beginning, the I don't want to say haphazard, but the way that the team sort of formed, we didn't all know each other, going into this proposal and going into this project. And most of us have actually never met in

person, we've met electronically and via zoom for the proposal stage and for the beginnings of the research stage and hope to meet in person someday when, you know, we are able to but the team actually, we all want to educate the public, we want to help the people involved in the food supply chain,

Michaela Kandzer 26:47

what do you hope we'll be done with this data that you guys are collecting?

Christa Court 26:51

I just hope that people use it. We're really hoping to communicate with decision makers. And we are not, you know, where we're academics, we're, we're doing unbiased research that we are not going to say this is what you should do during the next pandemic, or this is what needs to be done. But go back to that we are providing information and insights to decision makers so that they can be informed when they are making those decisions. So the more people that we can share the information that we come up with, that are in those circles, whether those are local decision making circles, whether those are decision makers for an individual business, or whether we're talking to people within the USDA or within the federal government making national level decisions, that that's my hope is that this information is informing the decision making processes.

Hikaru Peterson 27:46

Yes. And I think it's actually has a, like unprecedented opportunity right now with the passing of the Relief Act, that there's you know, large chunks of money that are distributed across the nation to help the food service secretary is one of the places that the money is intended for. And I really do hope that our work actually is used to inform effective distribution of those funds, where it really needs to go in and help strengthen the food system overall.

Michaela Kandzer 28:23

How would you like to see this research used in the future?

Christa Court 28:25

decision makers are deciding what can or should we do in order to make sure that this doesn't happen again in the future, so we don't end up in a situation where people are hungry, the grocery shelves are empty, but there's food in the fields. And I think that, you know, effective policy, it's going to require timely and commodity specific information. So that's one of the things that we can provide through some of the surveys that we've discussed today. But just that information, and any type of insight that we can provide on if and how those regional food supply chains can augment the traditional supply chain so that we move from a food system that is completely efficient to one that is efficient and resilient to the next disaster. And then I think that's cleared all of our goals. And we'll feel like we are a success at the end of this project.

Michaela Kandzer 29:18

Moving on to So what do you guys think that this will mean for the future of the agricultural industry?

Christa Court 29:24

So I think all of all of what we do on this project, and anything that our program does on disaster impact analysis is aimed at regional and national strategies for disaster risk reduction, right? So if we were in a place where a hurricane or another pandemic or any type of disaster hits, that affects the food supply chain, ideally, we've informed policy and decision making, again at the at the business level, also at the local, state and federal levels that design a more resilient food system. So We'd, you know, resilient means how quickly can you bounce back? Not that it's not going to affect you because of course, we can't necessarily design a food system that isn't impacted by a hurricane at all. But, you know, how quickly can we get back up and running the next time and, you know, maybe there were, there were some businesses that closed and they're not planning to come back, they closed permanently. So the fewer businesses that we can lose in the next situation like this, the faster that we can get food onto shelves or food into the hands of consumers that need it, then, again, we've been successful with this project, if we're more resilient than we were going into this particular pandemic, the next time.

Hikaru Peterson 30:43

Yeah, thanks for that Christa, and, and I would, I would add that I do want our work to be able to create, like an ag industry that's a little bit more ready to be creative, and more flexible in their thinking that they don't have to be, you know, be in a comfortable spot, but they're just ready to spring into action and think outside the box. Whenever the next disaster strikes. God forbid, you know, but but I do feel like this is an opportunity for us to realize that it's always fluid, and they might not be a pandemic next. But whatever comes our way, that they're really like, okay, we've done this before, let's, you know, shift our focus and see what we can do in in, I think it really does affect the mindset of everybody so that we're more resilient.

Christa Court 31:37

Yeah, I like that very much. Because, again, coming back to the fact that we want to inform both individuals and know policymakers, it's, it's about adopting strategies that counteract, you know, what we're facing the next time and we keep saying, God forbid, or we, you know, we know another disaster is coming, we just don't know what it is or what it looks like or what it's going to come right after, right, so that we want to strategize so that we can counteract any potential compounding impact that these things have on sector growth for the agriculture and food system. And that comes back again, to what I mentioned earlier, National Food Security. So we are in a place where we can quickly rebound, no matter what comes at us the next time, or how many disasters come at us the next time.

Michaela Kandzer 32:24

Yeah, I really like that you guys both use the word resilience. Because I think now more than ever, we're all able to really recognize how resilient agriculture the agriculture industry really is. And I think that's one of the greatest takeaways from COVID-19. What do you what would you guys say, are some of the most important lessons learned from COVID-19 that can be carried into these future potential disaster situations?

Christa Court 32:46

We'll come back again to the idea of being flexible and agile. So if you were a business that was just, this is how we do things, we can't do it that way during the pandemic, so we just won't do it didn't go so well. And I'm not at all discounting the fact that there are some components of the supply chain that

could not shift on a short timescale. So this is not just suggesting that it was personal decisions not to change that lead to a business closure or a significant decrease in sales revenues. But planning, planning for the fact that you might have to be flexible, even if you are traditionally not, would be one strategy that I think would help in the future.

Hikaru Peterson 33:33

Yes, and I think as an individual decision maker, whether it's your business manager, or you know, even a consumer trying to manage their household food situation and whatnot, I do think that it is I mean, pandemic, you know, if you're trying to count the blessings of it, is it really helps you prioritize what's really most important and what are things that you can get by in and if you have like an image of the priorities related to your food needs or your food business, I think it does allow you to more strategically respond to these pandemics. And I think it leads to greater resiliency and overall as a system, that it takes a shorter amount of time for everybody to be cared for.

Christa Court 34:26

Yeah, and I like the idea of sort of planning and preparation, right. And at all of these scales, the individual, the household, the business, and even governments. So there's an education component there, right and hopefully, we can fill that void. So if you are an individual saying, I have no idea how I could have been prepared for this, or I don't know how, you know, my life could have been flexible to get around some of these problems or my food system operation was not prepared for this and I don't know how to make it more flexible. I would say reach out to your Cooperative Extension agent. And if they don't know the answer, or they don't have resources for you, they will find somebody that does either within their own institution or, you know, throughout the community of practice that we're all involved in related to disasters. So just, you know, anything that we can do to boost those resources. And if we don't have an answer to a question that comes in, that feeds back to our research, and is the whole point that we're here in order to answer those types of questions.

Hikaru Peterson 35:26

And I should just add that that is actually one of the project outcomes that we're looking for as well is to develop not just resources in terms of knowledge base, but also training programs so that Cooperative Extension folks can be better prepared to help thing industry as well.

Phillip Stokes 35:52

That concludes part two of this series on food systems during the COVID-19 pandemic. I want to extend a very big thank you to Dr. Hikaru Peterson and Dr. Christa Court for being on Science by the Slice. Be sure to subscribe to Science by this Slice and be on the lookout for our next series. I want to thank the folks who make science by the slice possible, Michaela Kandzer, Rachel Raybon, Ricky Telg Sydney Honeycutt, Valentina Castano, Ashley McLeod-Morin and Alena Poulin. I'm Phillip Stokes. Thanks for listening.