

**Episode Title:** Pilot Spotlight – Job Demands and Health Outcomes for Beginning Farmers

**Summary:** We've been talking to pilot grant recipients about their projects to learn how they got their ideas, what they learned, and what recommendations they have for other people who are interested in applying. Today, I'm talking with Maya Ramaswamy who received a pilot grant for a project titled, "Identifying job demands and health outcomes among Iowa beginning farmers." Maya talks about how her interests in farmworkers' safety, musculoskeletal health, and understudied populations led to a pilot grant.

**Expert:** Maya Ramaswamy

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**Episode Quote:**

*"I had lots of different ideas, and not all of them were practical for either a pilot grant, or for research in general, because developing a research question that you can actually measure or assess is different from just having a very abstract idea or an interest in a population."*

– Maya Ramaswamy, PhD, 2015 GPCAH Pilot Grant Recipient

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## Transcript

00:04 K. Crawford

Welcome to the FarmSafe Podcast brought to you by the Great Plains Center for Agricultural Health. The Great Plains Center awards academic track pilot grants to students, staff, and faculty of academic institutions who are creating new agricultural safety and health knowledge or assessing best safety and health practices to prevent illness and injury resulting from agricultural work exposures. We've been talking to grant recipients about their projects to learn how they got their ideas, what they learned, and what recommendations they have for other people who are interested in applying.

Today, I'm talking with Maya Ramaswamy. Maya is currently a health scientist with the CDC. She graduated with her PhD in Occupational & Environmental Health from the University of Iowa in 2018. Thanks for being here today, Maya! In 2015, you received a pilot grant for a project titled "Identifying job demands and health outcomes among Iowa beginning farmers." Could you tell me a little about that?

**M. Ramaswamy**

Sure. So, this project was looking at physical and psychosocial exposures and their associations with musculoskeletal symptoms, injury, and general health outcomes in beginning farmers. It was a cross-sectional study administered online with farmers that ended up being not just Iowa farmers; it expanded from the Midwest into the rest of the US.

**K. Crawford**

Can you talk a little more about that? What are some examples of physical and psychosocial exposures?

So, when we talk about physical exposures and psychosocial exposures, we're looking at the exposures that people have in their work setting. So, with physical demands, we're thinking about things like awkward posture, or vibration, or heavy lifting. So, if we imagine that we're like out on a farm, lifting up really heavy boxes full of vegetables, or operating a tractor and being exposed to vibration, or like bending over and picking things up. Farmers pick up lambs and carry them across to a barn, so that would be an example of a physical demand or a physical exposure.

For a psychosocial exposure, we were thinking about how much control do people have over their job decisions, and what kinds of demands do they have. The way that we often describe it is like a nurse has many demands on their time, and they may not have a lot of control over how they do the work that they're being asked to do. A park ranger may have very few specific demands laid out specifically for them, but they might have a lot of control over those demands. So, that's the type of thing that we're looking at with psychosocial demands.

And then with musculoskeletal health, because this was a cross-sectional study, we're asking people, "have you experienced musculoskeletal pain, specifically, low back pain or elbow pain, or neck pain, or shoulder pain in the last 2 weeks?"

**K. Crawford**

Got it. The big picture goal is to understand how we can prevent injuries resulting from agricultural work exposures. And you were looking at two different types of exposures with the physical and psychosocial. Interesting. So, how did you get the idea for this project?

**M. Ramaswamy**

Yeah. So, I started to put this grant proposal together and put together ideas in the fall of 2014, and before that I had been working with Dr. Nate Fethke, my PhD advisor, on different ideas that we might explore around farm workers' safety, musculoskeletal health, and understudied populations. It was a very broad search for ideas, but I had an interest in farming specifically, and I just wanted to get to know more about the different farm workers in Iowa.

So specifically, we started to put together ideas after I gave a presentation on ergonomics at the Practical Farmers of Iowa Conference, "Intro to Ergonomics." And many of the people in the audience were beginning farmers. They were new farmers, young farmers, people who were interested in alternative versions of agriculture, people who had worked in non-ag industries for a really long time. Some of them had never farmed before, and they were sitting in the audience, and some of them had begun farming and kind of reported anecdotally that this resonated with them—that injuries and thinking about how work was designed—it all was of interest to them. So that was kind of the first thing that we thought about.

The other way that we came to this project is that Nate, at the time, was funded to study physical and psychosocial exposures and their association with the onset of musculoskeletal symptoms in this prospective study, and I was helping on that study. And his research had farmers that were reporting, in average years, working in agriculture between 32 and 45 years. So, really long experience in the agricultural industry. It implied older farmers and really established farmers.

So basically, we found that in this study we were looking at a very specific population, and at this conference we were encountering workers who were not at all part of that population. So, we thought, "Okay, this is an understudied population, but they seem to be interested in very similar exposures and health outcomes. So why don't we take the methodology from the study that Nate had already developed and try to apply it to this new understudied group of workers?"

**K. Crawford**

What did you find? Was there anything impactful or surprising in your results?

**M. Ramaswamy**

So, we found that it was varied across many different farmers, and it totally depended on what type of operations they had. And I think in general we found that people did report musculoskeletal symptoms and high physical demands.

What I would say is with these beginning farmers, we often saw that they are in very different operations. So, in Iowa I worked on some vegetable farms, where it was extremely manual labor. Not a lot of big equipment involved. They might have a tractor, but it might be an older tractor, whereas with older established farmers in the Midwest, they might be using these really new and just much more capable tractors or combines for their work, and it changes the types of exposures that they have in that work setting. So yeah, in general, we saw when people were operating these like large vegetable farms, that it was a lot more manual work being done.

**K. Crawford**

And what were some of the study outcomes? What were you able to do with this information?

**M. Ramaswamy**

Before we did the study, there was no beginning farmer health research, and even now there is very limited information on beginning farmers' health. But a large proportion of farmers are beginning farmers now. So, it's important to know what their health is, and this information can be used to kind of target interventions for them.

One of the outcomes that we did immediately with this study was put together a bunch of flyers on physical exposures, and how to approach redesigning workspaces, or like how to prevent some of the adverse physical exposures that are associated with musculoskeletal symptoms. We know that awkward posture can lead to things like low back pain. So, if we want to reduce awkward posture, here are some ways to do that.

#### **K. Crawford**

As a student, was the pilot grant helpful to you?

#### **M. Ramaswamy**

The pilot grant was really helpful in terms of doing this specific research because I needed funds to be able to both design the study and then to provide incentives to farmers to participate in the study. One of the challenges of the study was that participation was pretty limited, and if I had nothing to offer, I think it would have made it even more challenging to increase participation. So, the grant really helped with that. It also helped fund my time towards the study, and I was able to put that grant towards my time, so that I could focus, specifically on this research.

Outside of the specific "this helped me develop and implement this study," this pilot grant helped me learn how to write a grant application and helped lead me towards writing other pilot grant applications that were successful outside of the Great Plains Center. So, after this grant application, I wrote three other grants and was funded to do all of my PhD dissertation research. And that's not always common for PhD researchers. A lot of times at universities where they don't have these types of pilot grant opportunities a student might work on their professor's grant the entire time they're there and not have the ability to do primary research. So, this was a really amazing opportunity to do primary research, and it's helped my career since I've graduated from the University of Iowa.

#### **K. Crawford**

It's cool to hear you say you had ideas about what you were interested in, and this was an opportunity to pursue that research. Can you talk about how you developed those ideas into a project? And perhaps what the application process was like?

#### **M. Ramaswamy**

In the in the development of this pilot grant, I had a committee that helped me think through designing the specific questions and just the study design in general. Nate also helped me make connections with people, but then also let me take the lead on contacting outside organizations, which I think made my grant application stronger. So, I partnered with the Practical Farmers of Iowa organization, and they helped me with recruitment. I also partnered with Iowa State— the Extension program. So, I reached out to those organizations. I had a lot of people to support me.

The application process— basically, I put together my study design, I developed my protocol, and then I submitted my protocol to the application process. After reviewers had a chance to read through the application, they scored it and said that my study had a high enough score to be funded, but it was contingent on me addressing certain parts of the study design to make sure that the study would move forward successfully. So, I went back and redesigned parts of the study and submitted a new protocol, and that was approved.

So, I felt like it was an iterative process. I had this idea. It wasn't the perfect idea to begin with, we worked on it. I applied for the grant, and then I continued to work on it and make changes to the actual study. So, it wasn't like a one-time, one-shot kind of thing.

#### **K. Crawford**

Do you have any recommendations for students thinking about applying for a pilot grant?

#### **M. Ramaswamy**

I would recommend reading about populations and topics that you're interested in and try to identify some gaps in the research. Just in general it's really helpful to kind of have an idea of the lay of the land. And then at the same time talk to your advisor or your committee members about the different topics that you're interested in, and they can help you identify what might be feasible. That was kind of a key issue for me, as I have lots and lots of different ideas, and not all of them were practical for either a pilot grant or for research in general, because you know, developing a research question that you can actually measure or assess is different from just like having a very abstract idea or like an interest in a population.

What are you doing with the data that you're collecting? Because it's really important to know how you're collecting data and why you're collecting that data when you're designing a study. And then it's really important to understand how are you going to analyze that data? If you don't understand each of those 3 pieces, then you're not going to have a good study design.

#### **K. Crawford**

As we wrap up, do you have any final thoughts?

Yeah, I was going to say one other thing. My recommendation is to volunteer with partners— just volunteer with organizations that seem interesting to you. So, I became part of Practical Farmers of Iowa. It may have been at the same time that I was trying to write this grant, or it might have been right before it, but that led me to volunteer on farms. I worked like every Saturday at a small vegetable farm, and I don't mean to say small, it was a pretty large one. But that really gave me some insight into issues that people were experiencing, and to some of the exposures that people had. I got to tell people what I was working on, and they would give me like informal feedback. That was really helpful when I was putting together this grant, and also just going through the actual study process, and evaluating some of the results that I had.

#### **12:05 K. Crawford**

Thanks for talking about your experiences with your pilot grant, Maya, and for giving us insight into this process.

We have provided a link to the Pilot Project page on the Great Plains website. Check out this page to find out more about pilot projects and opportunities for funding. There's contact information on the website, so please reach out if you have any questions.

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## **Episode Resources**

- [GPCAH Pilot Grant Opportunities](#)

## Photo

