Episode Title: Using Technology to Prepare for Rural Emergency

Summary: This episode of the **FarmSafe** podcast is about rural emergency preparedness. We chat with Dr. Aaron Yoder about preparing for disasters and communicating with others so that they know where you are if you have to work alone. We also asked him about the Farm MAPPER project, and we discussed other technology that can be used in emergency situations or that can be used to communicate across large distances on the farm.

Expert: Dr. Aaron Yoder

Episode Quote:

"Letting people know where you're at, having a plan, and then being aware of your coworkers and what they're doing and making sure that we're responsible and checking in on other coworkers that we know are working alone."

– Dr. Aaron Yoder College of Public Health, University of Nebraska Medical Center

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Transcript

00:10 A. Proctor

Welcome to the FarmSafe Podcast brought to you by the Great Plains Center for Agricultural Health. In the blink of an eye, an injury can change your life and your farm forever. During each episode, we share first-hand stories and real-life tips for making safer and healthier decisions while on the farm.

We are here with Aaron Yoder to talk about emergency preparedness and the Farm MAPPER project. This will start out our Technology on the Farm series in honor of Dr. Paul Gunderson. Paul was always looking ahead to the future of agriculture and how technology would be incorporated into farming. This will lead up to a very special memorial episode for Paul on June 14th.

Farmer's Voice

My husband in northwest Kansas, driving a big tractor pulling a planter. He smelled smoke, got out and did use the fire extinguisher. But that didn't do it. The grandson was there close, and he did have him call 911. But it's important that people know what your actual address is because all he knows is Grandpa's farm. So that was a little tough and we do live quite a ways out in the country. Took a long time for the firetrucks to get there, but they did. And we have a skeleton of a tractor left, and luckily nobody got hurt.

A. Proctor

Now, let's talk to Aaron.

A. Yoder

My name is Aaron Yoder. I'm an associate professor at the University of Nebraska Medical Center and Environmental Agricultural and Occupational Health. And I also have a joint appointment with the University of Nebraska at Lincoln in their Cooperative Extension service through Biological Systems Engineering. My background is in agricultural engineering. I started off in central Pennsylvania growing up on a small beef farm where my uncle and grandfather were coal miners, and we farmed evenings and weekends.

I've been at the University of Nebraska for about 10 years, working in the area of agricultural safety and health, outreach, youth tractor safety is a project I've been working on for a while. And then now some emergency response and other issues related to disasters and everything else that's related to ag safety and health.

A. Proctor

You're busy!

A. Yoder

I try to keep myself out of trouble, right?

A. Proctor

Awesome, well thank you for explaining that.

What is unique about rural emergency preparedness and the importance of it?

A. Yoder

Rural areas versus urban areas, oftentimes we're more spread out. We're further away from some of the services that we need and oftentimes they don't have the same resources that urban areas or even the interface areas have between urban and rural. Depending on how rural you are and how far you are from an urban core, emergency services could be pretty far away. Communications could be a little bit different based on cell phone coverages or other communication tools that we're using.

A. Proctor

What is the importance of having an emergency plan for various farm tasks.

A. Yoder

It just helps people respond to them quicker. It gives us better survival rates if there is a serious injury. We know that those first few minutes, first hour is very important when it comes to different things. One example is we teach the Stop the Bleed class a lot now to our agricultural producers when we do safety trainings and being able to handle bleeds, get emergency services there, having that plan in place.

Lena

My name is Lena and I'm a nurse at Unity Point with the trauma Services department, and we are talking about external hemorrhage. Bleeding that is uncontrolled, squirting blood or pooling blood. And this can happen anywhere. It can happen on the farm, from farm equipment. We've had a patient that got stuck in an auger and needed the use of a tourniquet until they were able to get his leg free and even saved his leg by using that tourniquet. It's important to learn safety measures regarding bleeding because bleeding is the number one cause of death after injury. Making sure that you're aware of how to properly use a tourniquet and having it with you is good to have.

One other thing that's important is because rural hospitals are often very far away from where people may be farming, so we've had people who have said it's at least 20 minutes before somebody can get to me and you can bleed out from a serious arterial bleed in as little as 5 minutes, so having the skills to be able to help yourself or help somebody around you in that situation when emergency services may not be available to you. Luckily, there's a lot of education around the state of Iowa in regards to rural trauma and those critical access hospitals do a great job of using their resources and getting people to where they need to be.

A. Yoder

That's what emergency preparedness is, is being prepared to deal with an emergency, whether it's a small-scale injury the whole way up to a large-scale, natural disaster like flooding. Being prepared for all situations just helps with a lot of things. Sometimes having that security of knowing that I have things covered, even if they go bad, and makes you feel a little bit more secure. There's a lot of benefits to that emergency preparedness and planning ahead.

A. Proctor

Oh, absolutely.

A. Proctor

How are emergency responders disadvantaged when responding to an emergency at a private farm that they have not been to?

A. Yoder

A big part of emergency preparedness is being prepared to handle any situation that may arise. And if you've never been to a location before, there are things like gas shut offs, electrical shut offs. One advantage of that though is a lot of rural responders are farmers themselves. They understand how a typical farm would be laid out, what the hazards may be. But there definitely are disadvantages. If the first responders aren't familiar with where they're heading into.

A. Proctor

Sounds like there's a lot of variables that could impact the situation.

A. Yoder

For sure.

A. Proctor

What impact has farm consolidation had on responding to emergency situations in rural areas?

A. Yoder

We oftentimes hear a lot of negative things about farm consolidation in the Ag News and other places, but I think in emergency response, it might be the opposite because oftentimes as things are consolidated, they do get bigger, which oftentimes you're managing more stuff. But oftentimes, they require more communication, and I've already mentioned communication, but that being a key issue in emergency preparedness and even preparedness plans. Oftentimes when people consolidate, they have to have a business model or a business plan and more structure in place. And that helps us with emergency preparedness. As we get larger and larger and have more employees, then we have more requirements placed on us of how we need to prepare for things. Oftentimes, I see consolidation as helping with emergency preparedness in many ways because of that increased structure and increased communications.

A. Proctor

That makes sense. Thank you for explaining that.

What is the Farm Mapper project?

A. Yoder

Yeah, so I've been an advocate of the Farm Mapper project for a long time. It's not one that I personally have worked on, but I love the resources they have. It's a project that was started at the Marshfield Clinic, the National Farm Medicine Center in Marshfield, WI. And it's grown throughout the years, and I've participated in some of the activities and have advocated their resources for a while, but it's really connecting those rural responders to farms.

A lot of the background of it started when we had FFA and 4H groups going out and mapping farms on paper. They would put these maps in a tube, put them out at the mailbox so that if first responders got there, they could pull them out and see the layout of the farm and it sort of took that to the next level by digitizing it.

For a while they used QR codes to pull up the maps on mobile devices, and now they have an online platform that they can access, and producers can share that information with their first responders. That's something we always recommend doing. Invite the first responders out and let them see the layout of your farm. The Farm MAPPER takes that to a digital level, and I know more recently I think that project some of the funding for it has ended, but they've continued through RF Dash, using rural firefighters to teach ag safety, and there's a new online platform called saferfarm.org, which allows you to map your farm and actually do a hazard audit along with that mapping. It's really taking the old version of farm mapping to the next level, making it easier to share with first responders, and making it easier to update than when we had our paper maps.

A. Proctor

It sounds like it, absolutely. How has technology, specifically mobile devices and apps and projects like MAPPER and some of the ones that you mentioned earlier, impacted the agricultural workplace?

A. Yoder

Well, the first thing we think of with technology is the auto guidance in tractors. Most farmers are pretty technology savvy just because of the need of that in their equipment. Then automated systems with dairy parlors and other things. Then we can bring that into the safety and health world by using apps like sound level meters and other things that we can assess some of the hazards that are out there. We know that cell phones can be great for communication devices, other wearable type devices which I like to work with monitoring heat exposure, noise exposure, some other things like that. There's just endless possibilities of what we could do. It's just how much time does the farmer have and how much capacity do they have to use these types of devices.

Other things when we talk about lone workers and fall protection, somebody falls. We had an instance here in Nebraska where a farmer fell off a grain bin and their Apple Watch alerted the emergency response, and they came out and rescued him because of that. I think we can pull a lot of those things like the fall protection, sound level protection—my watch yells at me all the time when I'm in loud areas to tell me about it. So, I think we can use some of those to help protect our workers in agriculture.

A. Proctor

Absolutely. You mentioned time and money being some barriers to implementing these different technology options. Are there any other barriers to farmers specifically to using technology?

A. Yoder

We've done some surveys as far as how they like to use technology or their adoption rate of technology. Are they willing to use wearable devices? We've done that with first responders and truck drivers, and we're just starting to do a little bit more of that with agricultural workers and producers, and there are some adoption barriers. Most of the time, not too many. I have some people in my life that are still using flip phones, so that would be a barrier, the technology that you're using. But a lot of people, like I mentioned, because of the equipment they use and other things, they're pretty comfortable with technology. Although, I know people that can run all that stuff in their tractor and can't check their e-mail. There's different levels of technology savvy of what I need to know versus what I could do with the technologies. We're seeing less and less of that barrier to technology, but there are still some of those with people, either not knowing how to use it, not being interested in using it, but there are a lot of people out there that are willing and able, and those are probably the first people we need to target with these efforts and crack those other nuts a little bit later.

A. Proctor

Alright, so, jumping ship a little bit. Thank you for discussing technology and apps that are used in farming. Thinking about working alone on farms, would you mind discussing some of the risks to working alone in an agricultural setting?

A. Yoder

We know a lot of the tasks we do are hazardous tasks. I think of grain bin entrapments often happen when people are alone, a tractor roll over which we know is one of the leading causes of injury and death when you're working alone. And oftentimes those tasks don't really require two people to get the job done. But oftentimes, especially with grain bins, there's some requirements in certain situations and it's just safer to have an observer or somebody else there in case something does go bad. We know a lot of the stuff we do is hazardous. When we have to work alone, there's a few precautions we can take. Communicating with our other workers, with our family members, what we're planning on doing, when we're planning on doing it so if they don't see us at a certain time. Have planned check-ins on a regular basis, whether that be through a cell phone call or other types of communication that that might be necessary if we don't have cell phone service-- those type of things. Just communication, letting people know where you're at, having a plan, and then being aware of your coworkers and what they're doing and making sure that we're responsible and checking in on other coworkers that we know are working alone.

A. Proctor

Fantastic. You've touched on this a little bit with the importance of having good communication on a farm, but what precaution should someone take if working alone on a farm is unavoidable?

A. Yoder

Having that communication plan but having a communication device most of the time, it's not as practical for people to go out and visit you or have visual sight of what you're doing. Having some way that they can communicate with you quickly is going to make it more likely to happen if someone has to hop in a car and drive 15 or 20 minutes or longer, they're less likely to stay in communication with you. So, constant communication in case something does go bad is always a good suggestion.

A. Proctor

How can someone work alone on a farm without cell phone service?

A. Yoder

In this day and age, we think cell phones are the only way to communicate, but there really are many other methods. Before cell phones, we oftentimes would use two-way radios, CB radios. And those signals typically suffice, unless we're talking about a really large operation that those signals wouldn't be long enough. I know I've seen some feedyards and other cow operations here in Nebraska use different radio-based systems, even with repeaters and other towers and stuff like that. It is possible to set up a communication system. I have a good friend in Indiana that works on these type of systems and is working on modernizing systems that may use 5G signals just like our cell phones do but being a closed network or a private system- like oftentimes we do for some of our home internet- in remote areas or rural areas. There's other ways of getting a communication system in place. But just like any other type of safety feature, oftentimes there's a cost associated with that that some people aren't willing to pay for, but again, in my mind it's pretty cheap insurance. It's like having health or other types of liability insurance to buy something like that. Typically, not a huge cost, but it's something that's going to allow us to set up that system. There's other benefits even than safety when we have a communication system like that up, we can tell people it's time to eat or something. So, other types of communication systems, if we don't have good cell service, we may want to consider something like that.

A. Proctor

How would a farmer go about developing an emergency plan for their farm?

A. Yoder

Sure, there's some templates out there that you could follow from that oftentimes get developed after a natural disaster happens. But there's simple emergency preparedness stuff that we've been taught our whole life, like posting phone numbers in a place that everybody can get to them, having information readily available, developing those communication plans, but then, taking it a step further is practicing some of those scenarios.

Doing a regular training with employees or other people in the family so they know what to do. It's like how we do fire drills or tornado drills in school. Preparing, having a plan in place, but, like I said, to get started, just those little things like we remember doing in school, having those emergency numbers, having people first aid- and CPR-trained is always a good thing. I like working at the Medical Center because I know if I go down, there's lots of people around me that know what to do. That's not the case in a lot of ag operations. If something bad happens, maybe the person that got injured was the only one that had the CPR and first aid training. I like to surround myself with people that have that training, so I always suggest that to others as well.

A. Proctor

Those are great tips. Thank you.

My final question is, what would you say to a farmer who is on the fence about developing an emergency plan? Specifically, someone who keeps putting it off because they think an emergency, or an accident won't happen to them.

A. Yoder

One of the best successes we have, we can throw all the numbers we want out at as far as injury statistics, but as soon as you give them a little gap to identify with somebody that didn't get injured. That's what they're going to say, you know, in tractor safety, we say, “well, if you don't have a role bar, you have a 50/50 chance of surviving.” And they think, well, I'm in the 50% that would survive, so I don't need to worry about that. But the best way we found to convince people to do things is to tell them a story about somebody

that's similar to them. Find an instance where somebody being prepared or having an emergency preparedness plan, helped save someone's life or help them recover quickly from a bad event.

Saying that you should do it, and you know that sort of thing oftentimes doesn't convince people but telling them stories of people with similar agricultural backgrounds, similar operations that they have and how it's benefited them, I find as the most convincing way I can ask somebody to do something.

A. Proctor

Perfect, thank you. Is there anything else you would like to add?

A. Yoder

I can't think of it at this point but just being an advocate for being prepared and communication is key. Like we've always said, we've heard that through school, we've heard that everywhere, but good communication is good when it comes to safety and health, when it comes to emergency preparedness, when it comes to working with other people. Keep working on those communication skills.

A. Proctor

Thanks for your tips and insights about planning for emergencies. We also appreciate the tips about ways to use technology to improve our abilities to communicate when on the farm, an essential part of robust health and safety initiatives in agriculture. We will share resources on the Farm MAPPER project at saferfarm.org, which also has a library of hazard analysis tools to print and use. We also are linking to the RF-DASH, which shows how bringing farmers and emergency responders together to prepare for emergencies is beneficial to rural communities.

A. Proctor

Listen in on the FarmSafe podcast to join in on the conversation about keeping safe on the farm.

We want to hear from you. Share your stories about health and safety issues on the farm, about injuries that made you change the way you work, or about the ways you keep yourself and others safe on your farm. Also let us know if there's questions you have or topics that you want to hear about on the air. You can visit our website, gpcah.org, or email us.

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Episode Resources

- Safer Farm, an online tool with a library of printable hazard analysis tools
- Rural Emergency Response, USDA
- Stop the Bleed®
- Rural Firefighters Delivering Agricultural Safety and Health, RF-DASH

Photo