Episode Title: Safe Practices around Overhead Power Lines

Topic: Electrical Safety on Farms

Episode Summary: Electricity is one of the "silent killers" in agriculture. There are many ways to come in contact with it, and without an understanding of common electrical hazards, farmers can get hurt. Libby speaks with Ann Augspurger from Safe Electricity on these hazards. We also hear from Cody and Bailey Conrady. They share the story of Cody's electrocution and the surgeries and loss of limbs that followed.

Expert: Ann Augspurger, Safe Electricity; Ashleigh Sommer, NP; Dr. Brian Mailey, MD; Josie Rudolphi, University of Illinois Outreach

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Episode Quote:

"If you witnessed someone being electrocuted, as hard as it is to stand by, you have to call 911 right away. There may be another fatality if you try to help."

– Ann Augspurger, Safe Electricity

Transcript

00:10 E Presnall

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.

00:32 E Presnall

An essential component of modern farming operations is electricity. Grain dryers, automated feeding systems, milking machines, irrigation systems, and other machinery are all powered by it. On the other hand, there is a serious risk to safety associated with using electricity on farms. Electrical hazards cause a significant number of accidents and fatalities on farms every year. The first step in preventing these risks is to be aware of them.

Today's shared story is the Cody Conrady story. Cody was working his second-to-last day as an assistant manager for an ag fertilizer company when an accident changed his life. This story contains voices of Cody and his wife Bailey, along with the treating nurse practitioner and physician, followed by an ag safety specialist and former line worker. This conversation came from Safe Electricity and can be found at safeelectricity.org/farm-safety.

01:44 Cody Conrady

It was my actually second the last day. So, we were working on training the guy to take my position.

01:52 Bailey Conrady

I was at work. Actually. I was sitting in a restaurant in Champagne, eating lunch when I got the phone call from his mom.

01:58 Cody Conrady

We're short staffed today, so I end up jumping in the truck just to keep ahead of the sprayers.

02:06 Bailey Conrady

Sprayer pulled in. Cody wants to load them as the operator unfolded the sprayer booms, he unfolded into the power line and as he was doing that, Cody hit an alligator clamp to load the sprayer and took 7400 volts.

02:27 Ashleigh Sommer, NP

I assumed right of way that he would probably lose 1 if not two limbs and digits, so that he presented in a very severe manner.

02:36 Dr. Brian Mailey, MD

His hand was charred in a flex position. His elbow was held in a flex position. This was his entrance wound. He had a number of exit wounds, including his bilateral feet and his head.

02:49 Ashleigh Sommer, NP

You know the higher voltage with electrical injuries, the more likely internal injuries will be externally or there are things that that happen and that you can see. However, an immense amount of the damage is internal.

03:00 Dr. Brian Mailey, MD

Our goal was to get rid of the tissue that was destroyed and to maximize: one- his life to make sure that he didn't die from the injury to make sure that his kidneys didn't suffer a severe insult from the amount of muscle damage that was done and to get him to be as functional as possible.

03:20 Josie Rudolphi (University of Illinois, Ag Safety and Health)

In the United States, approximately 1000 people are killed each year from an electrical incident and upwards of 30,000 are injured. The key to prevention is to, first of all, know where the hazards are and be aware of the environment. A lot of these injuries are preventable if we just slow down, we realize the capacity for an electrical hazard and we're aware of where those are and to stay away from them.

03:40 Kyle Finley (Farmer, Former Line Worker)

As farmers, a lot of times it's multi-generational that we've stayed on the family farm. Grandpa was never in a safety meeting. Dad was never in a safety meeting. So now the son that's taken over, he was never in a safety meeting. And on the farm, I think we take too much of that for granted, that everybody knows what to do.

03:59 Josie Rudolphi (University of Illinois, Ag Safety and Health)

Daily meetings of, you know, reminding where the hazards are, orientations for new workers, safety trainings for new for new workers are all really recommended.

04:07 Kyle Finley (Farmer, Former Line Worker)

If you're in any type of a vehicle and that wire comes in contact with the vehicle, whether it's a crane, whether it's a piece of farm equipment, your pickup truck that vehicle could be energized, and you would not know it because you can't hear or feel or smell the electricity. And right now, the rubber tires could be giving it a resistance to going to ground. In other words, it can't flow yet past that clean, dry rubber tire. But yet when your moist body takes one step from the platform down to the ground, you're that path, and it will take it at the speed of light.

04:48 Josie Rudolphi (University of Illinois, Ag Safety and Health)

The only reason we would really advise somebody to leave a cab if they have hit an overhead power line is if the cab or the piece of equipment is on fire. In that instance it's recommended that the individual make a clean jump from the piece of equipment that means both feet and arms jumping from the equipment all at the same time, not stepping down, and allowing yourself to be part of the electrical current to ground.

05:10 Kyle Finley (Farmer, Former Line Worker)

You cannot step off of that piece of equipment. You must jump free and clear. The best way is to land with your feet together and Bunny hop as far away as possible.

05:29 Bailey Conrady

It'll be seared into my brain for my life. I think walking around the corner and seeing him and thinking how small he looked.

05:39 Cody Conrady

There are sometimes talking with Bailey that I just was trying to figure out what happened. Why did it take my leg, or they thought it would just be my thumb and index finger they'd have to take, and the pinky. Tissue is actively still dying over the course of two weeks. So, they just kind of kept moving up.

05:56 Bailey Conrady

What they were able to do and salvage and give Cody in terms of quality of life is just amazing. And we knew life wasn't going to be the same. The normal before was not going to be the normal after.

06:08 Dr. Brian Mailey, MD

He was in the burn Intensive care unit for weeks. He underwent over a half a dozen surgeries, a lot of them reconstructive. Overall, he did excellent, which I attribute to his perseverance, his, you know, strength of his as an individual and how hard he fought.

06:27 Cody Conrady

Just driving around during the spring and fall watching sprayer operators operate for the fertilizer trucks, with the auger sticking out close to power lines. I mean, pay attention a little more. Just keep an eye on your surroundings. Just take that extra second to look at things.

06:57 E Presnall

This story from Safe Electricity discusses the consequences of contacting an overhead powerline with equipment and provides advice on how to safely exit a vehicle if the vehicle itself, or an implement, makes contact with an overhead powerline. While this is just one of many electrical hazards on farms, it is an important one. For more information, visit safeelectricity.org.

This week, we are joined by Ann Augspurger to discuss electrical hazards on farms and some tips when working around electricity.

07:32 A Augspurger

My name is Ann Augspurger, and I'm the communications director at Safe Electricity. And we are a nonprofit safety organization. And we have more than 500 electric utility members from across the country. And here at Safe Electricity, we create messaging to get the word out about how to stay safe around electricity. While it's safe, probably 99% of the time, there are certain circumstances when electricity is not safe. Often times, that happens when electricity's path is disrupted. But there can be other causes like unsafe wiring or overloaded outlets or circuits. But because electricity is a silent killer, it's important to increase awareness about potential hazards surrounding electricity.

08:20 E Presnall

What are some of the major electrical hazards that you may encounter on a farm, for instance?

08:27 A Augspurger

The first hazard comes in the form of overhead power lines. The location of overhead power lines and how they might be encountered as work is getting done on the farm, that should be discussed at each morning safety meeting so that those overhead power lines do not become a hazard as farmers go about their daily work. Because anything that extends any equipment or, say an auger or a spray or tip for example, can easily get into a overhead power line or touch a pole if you get too close. And then, speaking of overhead power lines, sagging power lines, or damaged electrical equipment like a broken or damaged guy wire or a damaged power pole can turn into a hazard. So, always contact your electric utility if there's damaged utility equipment.

Other hazards on the farm might include irrigation systems and transfer switches that are connected to backup generators. These are only two examples that I mentioning, but all electrical systems on the farm should always be wired to code inspected often and working correctly, otherwise they can have a fault and there can be a problem.

09:32 A Augspurger

A lot of times overhead power can be too close to a grain bin. You definitely want to work with your electric utility on that because there's electrical code mandates. Distances have to be between the grain bin and the power lines, but if there is a power line, even if it meets the letter of the law, if there's a power line that runs on one side of a grain bin, always load and unload on the other, just so that you're not getting too close to that. And then, as I mentioned, always contact your electric utility before having a grain bin raised or moved, just so that those electrical code clearance requirements can be met.

And then just as a PSA, please don't store anything under power lines like hay or equipment or irrigation pipes. You go to lift up an irrigation pipe if the wind gets a hold of it, it could easily go right into the power line. And we had an electric utility member of ours in Kalona say, “could you please get the word out not to put hay under lines, and don't put tarp on it,” because all it takes is a really high winds to get a hold of that get up underneath that tarp and then that can blow into the power line and then there's an outage. Be aware of where those power lines are and don't store things underneath them, equipment or otherwise.

11:02 E Presnall

Are there factors that may increase the risk of electrical accidents?-- personal factors, are there environmental factors?

11:11 A Augspurger

Factors such as fatigue, severe weather and the rush to get more and more done in a day can play a role in any type of accident, including those that involve electricity. As you know, fatigue makes our thinking slow down and it can cause us to be impaired in our judgment and trying to rush to get the day's tasks done or even beat a storm can cause us to move too quickly or take safety shortcuts. But as a safety organization, we encourage farmers to get proper rest and take care of themselves, especially during the busy times of the year.

11:45 E Presnall

When there are hazards present, what are some of the measures for preventing contact with electricity, or if something were to happen from protecting you from injury?

11:59 A Augspurger

Although it's not an inclusive list, the first tip would be to educate everyone on the farm about potential electrical hazards. And this would include educating family members of all ages, even kids. You might have young kids or grandkids around the farm. It would also include seasonal workers or ag-related providers or contractors, such as those who come to spray your crops or load or unload. And also, be proactive in preventing accidents, and teach what happens when equipment does make contact or comes too close to a power pole. People may not be aware that that electricity, the voltage, can spread through the ground and that it doesn't have to be arcing and sparking, and that even electricity can jump. So, if you're within 10 feet of a of a power line, it can arc or jump over to the object.

The second safety tip would be to always use a spotter. The vantage point is limited in the cab, right? If you're sitting in a cab, you can't see above you very well at all. Someone on the ground with a better vantage point can direct you and keep you out of that hazard. Keep you away from that overhead power line.

And then the third tip would be do not complete tasks on the edge of the field. So, if you're folding or unfolding, make sure you go well into the field because as you know, power lines run across the road that are near fields often or even sometimes through the fields. Instead, just pull into the field before unfolding extensions or raising truck bed.

13:28 A Augspurger

And then I think maybe the biggest take home message, the 4th tip would be if you are having an issue where you notice you're too close or your equipment has made contact with the overhead power lines, stay in the cab. Don't get out to assess the situation and warn others that might be approaching the scene. And that's because, in that case, the path of electricity is disrupted, so it'll find any way it can to get to the ground, including going through equipment or your body. Stay in the cab, call 911. And wait for the electric utility crew to come and wait till they tell you it's safe to get out. They will properly and safely deenergize the power. The only time you would try to exit the cab is if you’re in imminent danger. We never recommend it unless you really have to do it to save you own life. But, say there’s a fire, equipment’s on fire and you have to get out. You would make a solid stance in the door of the cab. You would cross your arms and make a solid jump out of the cab and try to land solidly. And then you would bunny hop with your feet together

as far away as you can, at least 50 feet away. And if you're not able to bunny hop, you could shuffle, but always keep your feet together. And that way you don't have one foot and the other foot in different voltages, and that's called step potential. There's also something called touch potential. If you were in your truck, for instance, and you had to exit because the engine was on fire or something similar to that where you knew you had to get out. If you touch the side of the truck and jump and touch the ground at the same time, that's called touch potential and you can also get electrocuted in that way.

15:07 E Presnall

If someone happens to be electrocuted and someone else is around and witnesses it, what should you do?

15:16 A Augspurger

If you witnessed someone being electrocuted, as hard as it is to stand by, you have to call 911 right away. There may be another fatality if you try to help. But there have even been instances where volunteer firefighters have stopped on the side of the road to help an accident and die because it was their instinct to run toward and help.

There's two instances. So, if someone struck by lightning that does not store in the body. If someone's been struck by lightning, certainly give CPR. But if someone is an electrical accident and they are being electrocuted, as hard as it is, whether it's a car accident or an accident on the farm, no, you are not supposed to approach the scene.

15:59 A Augspurger

I invite all your listeners to visit safeelectricity.org to learn more about safe electricity and to see electrical safety tips there.

16:09 E Presnall

This week, we covered only one aspect of electrical safety, but one associated with severe outcomes on the farm. Thanks to Ann Augspurger from Safe Electricity who provided great tips for working and storing equipment around power lines, including (1) educating everyone on the farm about potential electrical hazards; (2) always using a spotter; (3) not completing tasks on the edge of the field and instead making sure there is sufficient space between overhead power lines and unfolding equipment; and (4) staying in the cab and calling 911 if your equipment makes contact with an overhead power line.

16:48 E Presnall

In addition to the tips that Ann mentioned, an important part of enhancing electrical safety on farms can be provided by technology. To help prevent electrical accidents, modern electrical equipment, for instance, often includes built-in safety features like ground fault circuit interrupters and circuit breakers. Likewise, a plethora of technological solutions are currently accessible to assist farmers in better monitoring and managing the electrical systems on their farms. These include remote monitoring systems that allow farmers to keep a close eye on their electrical installations from anywhere and smart sensors that can detect electrical faults in real time.

17:32 E Presnall

Anytime you are preparing to do a project on your farm that requires digging, call 811 first, and consider posting reminders around the farm, such as in your office, shop, or milk barn. We will discuss additional electrical safety tips in future episodes, but with the story of Cody Conrady fresh in your mind, we want to ask our listeners to review where overhead powerlines are on your farm, including near your home, and consider what equipment or materials could come into contact with that line. Develop a strategy to minimize incidental contact with power lines using information you learned in this episode. We have included several electrical safety resources on our web page for you to learn more.

18:17 E Presnall

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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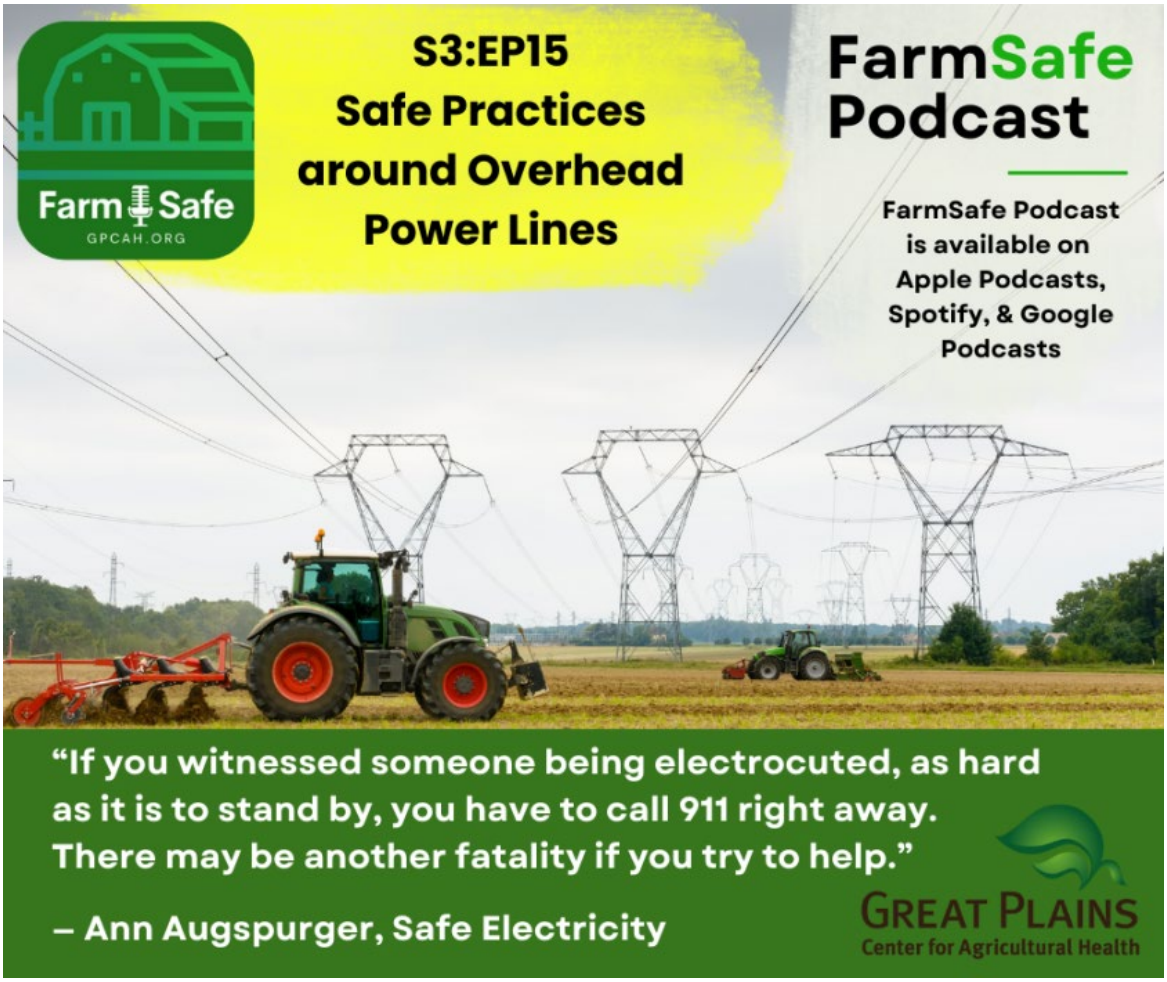
Episode Resources

- https://safeelectricity.org/
- **Electrical Hazards During and After a Storm:** https://safeelectricity.org/public-education/videos-library/
- **The Cody Conrady Story:** https://safeelectricity.org/farm-safety/
- **Infographic on Electrical Safety during Spring Planting** (in resources folder)

Photo

Promotion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