

Episode Title: March Mudness

Summary: In this episode, we discuss the hazards of mud on the farm and provide practical tips that farmers can use when working in mud or extracting farm equipment from mud.

Our guest this episode is Dr. Fred Whitford from Purdue University Extension.

Expert: Dr. Fred Whitford

Episode Quote:

“A lot of it is just experience and knowing there comes a time that you have to say, ‘I don't need to go in there.’ We do. And that's when we get stuck.”

– Fred Whitford, Purdue University Extension

Transcript

00:12 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 firsthand stories and real-life tips for making safer and healthier decisions while on the farm.

Today we are talking about mud on the farm, what hazards to expect when working with mud, and how to get equipment unstuck safely from mud. Our first speaker is Josh Ventling, who is working towards his Master of Public Health here at the University of Iowa.

00:37 J. Ventling

Hi, my name is Josh Ventling. I am a MPH student here at the College of Public Health in the Occupational and Environmental Health Department. From 2020 to 2021, I worked as a volunteer then Farm Apprenticed with Grow Johnson County, which is located at the Johnson County Historic Poor Farm.

During my time there, mud was pretty common. I would say that the most frequent way I encountered mud was through walking in the fields, harvesting crops. There were certainly times where it was deemed to be too muddy to walk in the fields and crops were not able to be harvested at the time that we wanted them to be harvested. And then there were times where we did go ahead and harvest in slightly less muddy situations when we were in the fields during those muddy conditions, it was often difficult to stay balanced with the shifting ground and the heavy feet that you would get after a while of walking in the mud with the accumulation of mud. And they would get stuck to my shoes.

01:37 J. Ventling

From food safety perspective, also, you don't want to get off balance, so then end up wiping your mud from your shoes on the crops because there might be feces or microorganisms that are transferred from the mud to the plants. At Grow, the policy was that if that sort of thing happens then we opted to not harvest that crop or at least not distribute it to one of the partners that Grow has, so mud definitely got in the way of harvesting.

There were also times where we weren't able to use any sort of equipment in the fields due to the muds and so a lot of times the equipment is mainly used to keep weed pressure down and so if we couldn't keep weed pressure down because of muddy conditions, then fields where it's very weedy and then the crops wouldn't get as much nutrients as they need, and therefore we wouldn't get as productive of a crop or as much yield as we wanted. That was also buried at the mud cost.

02:33 A. Proctor

Our next guest is Dr. Fred Whitford. He has been with Purdue University Extension for 31 years. We have linked Purdue's guide on extracting stuck equipment safely, which Fred is an author on, in the show resources. His work encompasses incidents on the highway to pulling out stuck equipment to measuring chemicals and everything in between to spread practical facts to help people do their job.

Would you mind explaining what are some of the obvious and maybe less obvious hazards of mud?-- Specifically working with mud or in muddy conditions.

03:06 F. Whitford

Let me ask you this. So, most farmers are used to working outside-- snow, ice, mud, working around dangerous areas, and it just becomes part of the background noise. What's obvious is that, lots of people that get stuck in mud every year are either hurt seriously or actually killed because they don't give mud enough credit in terms of what it can do when we're pulling out stuck equipment.

03:30 A. Proctor

Mud is just sort of a given when working in agriculture, it's gonna be there.

03:35 F. Whitford

It's the same thing as working around fire lines. I'm working on a publication now that talks on what happens when you get stuck in the fire lines.

What do you do? Well, this power line is all over. We work around it. We get used to it, and it's the same thing with all these other sort of environmental factors. But obviously when we're in mud, we need to get whatever stuck in mud pulled out. And then we begin that process of trying to get it out without having to use a wrecker.

04:05 A. Proctor

Is it safe to operate farm equipment in mud?

04:09 F. Whitford

Well sure. If you think about it, we've got the power, we've got the greases that should resist the water. We typically don't like to work in mud because we're basically compacting the soil, especially if we're planning. In terms of working in it, it's no different than water and sand and anything else, dirt.

04:30 A. Proctor

What recommendations or what steps can farmers take to protect themselves when working farm equipment in a muddy area?

04:37 F. Whitford

A lot of it is just experience and knowing there comes a time that you have to say, "I don't need to go in there." We do. And that's when we get stuck. So, the whole idea is be a little cautious. But we've all been stuck in mud. We've all been stuck in snow and sand. It's one of those hazards that happen, especially when we're trying to get work done. And so, when we're trying to get the work done, we have limited time. We're hurrying up, trying to get it done, and that's when we get stuck.

05:09 A. Proctor

That makes sense. What is this "stuck zone"?

05:13 F. Whitford

If you appreciate the fact, and if we were talking to your readership and I was to ask them "how many of you have ever had chains and straps bust?" Probably 30 to 50% would say they have.

And then you ask the follow up questions, which is the sad question, "which is how many of you know of someone who's been hit and killed or hit and put into a nursing home." And it's a lot less, but there's enough of those examples when people say no, they didn't come back home, they were killed their onsite. Unfortunately, that's what helps us as human beings when other tragedies occurs.

That's when we become now conscious of the fact that pulling up stuck equipment is something we all do. It's part of life. But then sometimes you just have to be kind of smart about it.

There's, I always call it "the 4 zones". The first one is the **tow zone**. One of the things is, you have to be large enough to pull whatever is stuck. And it is usually a weight to weight. If I've got a piece of equipment that's 15,000 lbs that's stuck, then I need something that's at least that heavy to be able to pull it out. People will oftentimes try to pull things out with too small of equipment and what happens? That's where the chains, the straps actually break. If you've got a tow zone, what you'd like to be able to do is to, if you can, get a little bit higher so you're pulling up instead of into the mud because that ground's not gonna give. If you think about what wreckers have, and they have that arm and they're actually pulling up. So, if you could get up on a little bit higher ground, that would be a whole lot better.

Then you'll appreciate it when you are stuck in mud and you often ask people, how many of you've ever walked out of mud and left your boots behind. And the answer? They always laugh about that. But what happens is there is a suction. Mud has a suction, and that's the one thing that we normally won't account for.

All of our straps and chains are rated to pull a certain amount. If you pull beyond that amount, then things are going to break. With mud, we always say, and this comes from the tow industry, you want to have whatever's stuck, make your best guess and then multiply that. You double that up. Doubling up is going to account for the mud. If I had something that was 40,000 lbs, I would need straps and chains that would be double that-- 80,000 lbs to accommodate the suction and the weight.

Once you appreciate that mud has got this huge suction, then the next thing is what I call the **danger zone**. And we've got plenty of examples where people have been killed or hurt seriously when chains and straps and ropes have come back into windshields and have hit people in the head and have killed them. We can use chains, but we're not supposed to jerk on chains. And if you've ever watched anybody pull, they always jerk on chains. I back up, I pull, and if whatever's stuck kind of comes out, then I say "I just need to go back and I need to gas it. I'm almost there." Well, that's a mistake.

Same with what we call cables. Many people will use cables. And you're not supposed to jerk on cables. Alright, then the last one is to know that there is a huge difference in something called a **recovery strap and a recovery rope**. If you've ever seen somebody on the highway pulling another car with a rope, they break very easily because they're meant to roll. When we're pulling out stuck equipment and trucks and those kind of things, we want something that's called a recovery strap or rope. Those have high ability to not break, and they look the same. But if you ever have a rope or strap that has a connection on the end, automatically put on it, that's going to be a **tow rope** you put on the road, not a recovery strap. When people use the wrong equipment here, then that's where we call it the danger zone. Things will break.

10:03 F. Whitford

The last one to bring up has to do with using a **clevis**. I was at another state not too long ago where they were out there recovering and if you know what a clevis is, it's just hooked on with the pin. When that pin snaps, it comes apart and sends that piece of metal flying and that is what goes into people's windshields. This guy lost his arm when he was out in the field, and it broke. And again, it had broken and flew through the air, and these things they're like missiles. Hit him in the hand and took his whole hand off. Instead of using a clevis, what we'd like to say is that every farmer should always use something called **a shackle**. That shackle is totally different than a clevis, and that's what would be the recommendation.

10:55 A. Proctor

How do you recommend inspecting materials to make sure they're suitable for use?

11:01 F. Whitford

Nobody does. Again, that's part of the problem. You look in the back of anybody's pickups or if you looked on the tractors, they have chains that they've had forever and they've worked forever, and they keep using them forever. Some of them are grandpa's chains.

The key thing here with the chains is to know what the breaking strength of that chain is. That is based on the diameter of the link and the grade. It's a lookup table; you can look up see what you got. If I have a 40,000 piece of equipment and I'm using something that breaks at 20,000 lbs., that chain is underrated for the job at hand.

If I'm looking at chains, if the links are stretched, then that chain needs to be replaced. If I'm looking at the straps and I see serious cuts in them, that is a strap that needs to be replaced.

11:59 A. Proctor

Once you use chains or equipment for an excavation, can you use it again or is it a one time?

12:05 F. Whitford

Nope, you use em again, as long as they're not stretched and they look bad with the chains, there's nothing. But the straps, we try to get people to clean them when you're working with dirt, mud and sand, it gets into the fibers. And it can actually erode some of the fibers that's in it. So, we just ask people to clean them and then take care of them just like you would any other piece of equipment.

12:29 A. Proctor

What goes into choosing the proper connecting equipment?

12:32 F. Whitford

That's where we talked about the clevis, not using a clevis, but using a shackle. It's a much better piece of equipment to do that connection, because there is going to be tremendous pressure when you're pulling two things apart, and you want something that's strong. The more difficult part is actually not hooking up to a hitch. So, if you have a truck, anything with a hitch and a ball, never hook up to the ball because those things can break relatively easy.

There's a couple of tips that I always spend more time on. It's pretty simple. One is, we have people that protect the windshields when they can. If you imagine having a toolbox in the back, just raise the lid up to protect that back. We have more people killed and injured when they're using these recovery straps and ropes, and they pull apart and they don't stop before they start jerking on things.

When they pull apart, if the bumper is sharp or there's a bolt or something that it's on, it's like taking a pair of scissors and cutting it. We always say "stop, when you just pull it tight, and go back before you really put the pressure on" to make sure that strap or rope is not on something sharp. Because that will cut.

And then the last one is: always put something over the middle of a chain or recovery rope for strap. And it can be a floor mats, boots, a heavy jacket, anything at all. You put it over the middle between what's stuck and what's being pulled. So that if it ever breaks, it pushes it down instead of flying up and putting in things into the windshield.

And then the last one is just the clear zone, and we just have a habit, me included, that when somebody stuck, we always want to be there either to help and/or to watch. You need leave! If something breaks and you're in the direction of-- you can't forget how it's gonna fly. People are killed like that. Get away from it. I realize it's unmanly to have to leave, but it's better to leave that because you're not hurt. You see all the activity and then what they do is go back to one of their cars, open up the door in the event that something breaks.

14:53 A. Proctor

It sounds like if somebody's stuck in the mud, the immediate danger might not necessarily come from trying to get them unstuck but it could be sort of a byproduct.

15:05 F. Whitford

It could be a byproduct. That's a good point. Getting stuck in the mud is getting stuck in the mud. It's no big deal. It's the aftereffects of not having a heavy enough vehicle to pull it out. Not having the right chains and the right recovery straps. It is not having the right connecting devices. We need to get unstuck so that we can continue to get our jobs done. And so yeah. Yeah, that's a good point. It's an after effect. The mud is what produces the negative things that we will read about or hear about at the coffee shops.

15:38 A. Proctor

If you were driving a tractor right now and you got stuck in a muddy field, what procedures would you go through to get unstuck?

15:46 F. Whitford

If I would do things correctly, I would hope that I would know what my chains are rated for. I would hope that I could calculate the weight of whatever I'm pulling out. I would double that up to make sure now that I have the right chain. I would find the best place to hook up, and that's not always easy. I would hook it up. I will pull it tight. I would get out and look at it, to make sure there's nothing cut for straps. I would put something over the middle, and I would hope that I would be able to maybe get a shovel and dig around the tires. If I can make a little ramp for that tire to go on it will come out a lot easier. I would probably make a phone call to whoever knows where I'm at and to have them give me a call in 5 minutes, because it should happen pretty quickly, in the event that I don't call or can't be reached, somebody would be able to come and help me because something bad has happened. Then I would get out and then I would inspect it just to make sure there's nothing been torn during that being pulled out.

16:58 A. Proctor

Do you have any advice or recommendations to any farmer who may unfortunately get stuck this planting season? Any advice on how to prevent them from getting stuck?

17:08 F. Whitford

Even the most experienced people out there will tell you they get stuck. It's called bad luck. It's called being in a hurry. It's called making a decision that it looks solid, but it's not. These wrecker services are extremely expensive, relatively speaking. If your gut tells you that this is beyond your scope, beyond your experience, then a wrecker service may be the best thing to do it safely and to get you back to your work quicker than tearing up your equipment or getting hurt.

I would wish that every farmer would think of their heaviest piece of equipment. I would double that weight as if I was stuck in mud and I would love to see them purchase the recovery straps and ropes. These things are meant for that, they have the right attachments. I can have something to pull my biggest piece of equipment out. It too then will pull all my littler stuff. I buy one that's going to pull out my heaviest which can pull out my smallest. It's just a much safer way of doing things than the chains that we all typically use.

18:21 A. Proctor

Fred, thank you so much for sitting down with us and talking about the dangers of mud as well as how to go about working with mud a bit safer. This was very helpful. And again, thank you so much for your time.

18:34 A. Proctor

The Great Plains Center for Agricultural Health would like to remind you to take 5 minutes to breathe and calm yourself before working on an extraction. Taking time is crucial to having success in mud and rushing to lead to serious injury or death.

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.

Original music for the FarmSafe podcast was written and performed by Ben Schmidt.

This work was funded by the Centers for Disease Control and Prevention as part of the National Institute for Occupational Safety and Health's Great Plains Center for Agricultural Health.

Episode Resources

- [Safety Tips: What to do when you're stuck in the mud](#)
- [Extracting Stuck Equipment Safely](#)

Photo

