

Episode Title: Safe Operation and Maintenance of Tractors

Topic: Tractor Safety

Episode Summary: Tractors are costly, and preventing costly repairs can be as simple as taking the time to do a pre-operational check on your tractor. In this episode of the *FarmSafe* Podcast, we continue the conversation on tractor safety by focusing on practical tips for safely operating and maintaining tractors on the farm. We speak with Emily Krekelberg, Extension Educator in Farm Safety and Health at the University of Minnesota, who discusses common machinery hazards such as rollovers, pinch points, PTO entanglements, and roadway collisions.

Expert: Emily Krekelberg

Episode Quote:

“This is not a process that should take half an hour. Of course, if you find something that’s wrong, it might take some time. But wouldn’t you rather find it before you’re driving the tractor or in the field 10 miles away from the farm site?”

– Emily Krekelberg, Minnesota Extension

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

On this week’s episode of the *FarmSafe* podcast, we are going to continue the conversation on tractor safety. Today, we are going to dive into some safety tips for operating and maintaining tractors on the farm.

Operator safety is a top priority in the design and construction of tractors. However, the operator has full responsibility for safe tractor operation. Prior to operating a tractor, it’s important to become familiar with the machine as well as any attached implements. This includes: understanding each control, its location, and how it works; understanding how to immediately stop the tractor in case of emergency; and being aware that a machine should never be used unless it is properly maintained.

01:18 E Presnall

The Telling the Story Project is a collaborative effort of several NIOSH-Funded Ag centers across the Midwest. We will share this link in this episode’s resources.

The Telling the Story Project features injury prevention messages that highlight personal stories and first-hand experiences of farmers, agricultural workers, family and community members who have been impacted by injuries, fatalities, or close calls. Today, we will share Brian’s story to highlight his personal experience with making changes on his farm to improve safety of tractor operation.

01:56 S Presnall, Guest Speaker

Brian Egel and his wife Pam Finke run a diverse farm operation in Muscatine County, Iowa. Brian said that he now thinks about safety.

In 2005, Egel broke his tibia in a fall while dismounting his tractor. It was the second time he had broken that leg. Brian shared that he was bailing soybean stubble and was disgusted because the baler plugged. He got off the tractor going, in his words, a hundred-miles-an-hour. He climbed down the tractor the wrong way– face forward instead of backward with 3 points of contact. His foot caught between the bottom two steps when he pivoted to step off. He fell backward and had nothing to grab to break his fall, and his leg broke.

Whenever he gets on or off a tractor now, he's facing it. That injury required surgery and titanium hardware to repair the bone breaks, and it put him out of commission for over six weeks.

Since his fall, he's replaced the narrow steps on three of his five tractors with safety steps and grab rails. The steps he prefers for his older tractor are one-piece closed steps, which he finds to be safest. An after-market "service step" mounted on his 4020 now gives him better access to the fuel tank and radiator.

He's also made equipment and safety lighting upgrades as a result of roadway incidents when motorists struck his equipment in rear-end collisions or attempts to pass while he was making a left turn. He installed a wide auxiliary light bar to the back of his cab that extends beyond the sides of the baler to improve visibility of the tractor when he's pulling implements. With the addition of these swing-out lights, drivers on the road see two sets of flashers. His baler has lights and turn signals that coordinate with the tractor's.

Brian was asked what advice he had to share. He said, "think everything through before you do a job, it's the little things, everyday things you take for granted that can go bad and get you hurt."

04:29 E Presnall

Brian's injuries have required him to think differently about safety— including making changes and upgrades to agricultural machinery. In addition to improving the steps into tractors to reduce the risk of another fall, we talked with others to identify additional considerations to approaching machinery safety.

To provide our listeners with more information and tips on how to operate and maintain machinery safely, I talked with Emily Krekelberg, and extension educator in farm safety and health at the University of Minnesota. I asked Emily to share what some of the common hazards are when working around agricultural machinery.

05:10 E Krekelberg

First and foremost, a huge, I don't like to say cause of fatalities, but we see a lot of fatalities in incidents with tractor rollovers. So, I love to talk about how much equipment has evolved and how much safer it is. But the fact of the matter is, a lot of farmers still use older equipment because the equipment still works, right? I mentioned I grew up on a farm. My dad and my brother still farm. And yeah, most of our tractors we got before I was born, OK. And I'm in my 30s, right? So, because the equipment still works and we need to keep in mind that there's still a lot of older equipment out there and purchasing a brand new, completely safe, all the bells and whistles tractor is not an option for a lot of farmers. If they're using older equipment, that's what they're using. We think a lot about rollover protection. Older tractors that don't have cabs or don't have a rollover protection bar, getting those installed.

Other hazards you think about with tractors and kind of equipment machinery implements in general. Things like crush points, pinch points, rotating points, things like PTO's, things like augers. Back to the grain bin thing, that entrapment piece, that's really equipment based, a lot of the time. So yeah, we think about things like that and then even the roadway hazards of operating a tractor. I know the area I'm in, I'm located in southeast Minnesota, earlier this summer we had a person who was killed, in an accident involving a vehicle and a tractor on a public roadway. I really think roadway safety is an important component of tractor safety as well. When we are operating large equipment on roadways with drivers who may or may not be familiar or comfortable with this type of equipment.

07:08 E Presnall

Walking through a pre-operational checklist can help farmers develop a routine for safely operating machinery. I asked Emily to walk through some pre-operational checks that farmers or farm workers should complete prior to operating a tractor.

07:23 E Krekelberg

Yes, I love talking about this topic because, I think it's so important. And like you said, it's one of those things that maybe don't quite think about, but if we start doing it, it becomes pretty automatic. And so, when we're talking preoperational check, my big thing is this is not a process that should take half an hour. Of course, if you find something that's wrong, it might take some time, but wouldn't you rather find it before you're driving the tractor or in the field, 10 miles away from the farm site? The big things I remind people is think about, what they make you do when you take your driver's license test. You do a preoperational check on your car. Think about when you fly. They do kind of some pre-operational checks on the plane. This is the same concept. You know you really want to make sure your equipment and your safety equipment is in working order, standard things I remind people to check would be tire pressure, make

sure that's good to go. And then also checking fuel, checking the oil, making sure all your fluids are topped off and in good condition. And then checking systems. So that would be, the levers, your PTO all of that just making sure those are working. And most, most importantly, checking your electrical.

I cannot speak for everybody— I am going to use Minnesota State laws here, but in the state of Minnesota, if you are traveling on any sort of public roadway in a tractor, you need the triangle—the slow-moving vehicle emblem—visible. You also are supposed to have lights, flashing lights on the vehicle. This is really to warn drivers that you are there and that you are going slower than 30 mph so they understand they need to slow down. So, checking your electrical to make sure your lights work so that would be blinkers and also flashers in general for going down the roadway.

And then also checking to make sure if you have a load you're hauling or you're hooked up to equipment, in most situations you will be, making sure that your attachment is secure, making sure that you know you have the hitch pin in you have the lock pin on that. If you have chains that you can attach to the hitch as well, doing that double check that everything is in perfect working order.

09:42 E Presnall

Great to know, thank you for sharing that. I would like to go back to operating equipment on public roads, is there anything else? I know you talked a little bit about, you know, having the emblem and you're checking your lights and everything. Is there anything else that farmers need to keep in mind when driving on public roads to avoid any sort of accident or injury. I know you're only really in control of you and your tractor, but is there any safety tips for kind of sharing the road?

10:13 E Krekelberg

When I talk about sharing the road, I always like to look at it from both perspectives, you know, so you know as the farmer, yes, being mindful that all of your safety equipment that is meant to provide that visibility is in working order. Having your slow-moving vehicle emblem on having your flashers on. Even if it's daytime, still have those flashers on.

You know and yeah, like you said, it's sharing the road. So it's really, you know, I know farmers are busy. They have places to be, things to do. But, you know, for example, let's say you're turning onto a road rather that's a right turn or a left turn, you know, and you see a car is coming that's heading in the direction you're planning on going, you know, wait that extra 20 seconds and let them pass, because if you pull in front of them, they're going to try to pass you and probably not try to slow down while doing it. So that's creating a really unsafe situation for the farmer and for the driver of the vehicle, you know, cause drivers of vehicles. Again, you know I'm somebody that, and Libby, I know you are too, if you come across farm equipment on the road, you're probably going to step on the breaks, getting really slow, going to check if it's safe to pass. If not, I'm just, you know, tucked in safe and sound right here, you know. So just a reminder, 2 drivers and even if you are somebody who's familiar with farm equipment, it's always going to be moving slower than you realize it's going to come up really fast. A lot of roadway accidents we see are vehicles, rear ending farm equipment, which to me is really an indicator that you know they're seeing it, but they're probably not slowing down fast enough because they don't realize you know, these tractors are probably going half their speed or less. So they're going to reach them really quickly.

And so, yeah, just being mindful, you know, especially of that speed thing. So yeah, if you're in a tractor and you know, you need to make a turn and you see vehicles are coming, you know, maybe wait, just, just let them kind of get going on their way, you know, everything you can do to kind of avoid that situation where vehicles need to pass because that is where it gets dangerous, right? And obviously, farmers need to be on the roads too. They have every right to use them. They're public roads. But you know we do need to be mindful of, of how we're sharing and mindful that equipment is large is big and for some people they are not familiar with it, and you know it can be a little nerve wracking, or they get a little scared around it too. So you know, I don't want to put all the responsibility on farmers, but I think there is some responsibility there to be a mindful user of that roadway, you know for other drivers.

12:42 E Presnall

The likelihood of operating a tractor safely can be increased by following the safety advice in this episode and in the resources provided. Additionally, it is important to read the operator's manual and conduct a daily maintenance check on the machinery and implements you plan to use. Whether you have been farming for 50 years or 50 days, by inspecting your tractor prior to operating it, you could avoid costly repairs, downtime and frustration.

13:11 E Presnall

Always check to see if the tank is filled to the appropriate level. Potential problems can be identified by routinely checking the oil level as well. For instance, milky-brown oil suggests the presence of water, which could be the result of a damaged head gasket. Verify that there is no corrosion on the battery terminals. In addition to checking the air pressure, you should inspect the tires and make sure the lug nuts are secure. If you discover that your tire pressure is low, check for air leaks near the valve stem. If your SMV emblem is faded or distorted in color or shape, it is time to replace it with a new one to improve your visibility to others. Examine the ground beneath the tractor for any signs of fluid leaks. Check the fluid levels of the engine, hydraulic, and coolant as well. Examine the steps on the operator's platform to ensure that getting on and off the tractor is safe. Examine the area around the seat to make sure it is clear of debris or tools that could cause you to trip. Verify that the seatbelt is operable and fastened.

14:16 E Presnall

I understand that some farmers may think that a pre-operational check will take too much time out of their day. After all, as a farmer, your to do list is long, and there are only so many hours in a day. Think of it this way, a tractor is a substantial investment to make farm work more efficient. Even a mid-size tractor may cost \$40,000 or more. The tractor needs to be maintained in optimal working order. The cost of downtime for engine and tractor repairs is significant. Parts and labor for an engine rebuild might cost more than \$5,000. Harvest delays could mean the loss of a crop in the field. Increased expenses for replacing feeds or protein supplements may result from crop losses. Thus, it is an economic necessity to complete pre-operational checks of tractors and other equipment. These checks help both the longevity of the tractor AND of the farmer who drives it.

15:12 E Presnall

For this week's episode on safe operation and maintenance of farm equipment, I want to ask our farming audience to take a look at the "Tractor Pre-Operational Checklist" that I have included in the resources for this episode. Print off this checklist and try to incorporate it into your daily work routine to improve tractor safety on your farm.

15:35 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.

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

- [Tractor Pre-Operational Checklist](#)
- [Preventative Maintenance & Pre-Operational Checks, \(HOSTA\)](#)
- [Safe Tractor Operation, University of Missouri Extension](#)

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