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Iowa Farmer Today

Study aims to understand and reduce rural crashes

By Mandy Archer Sep 8, 2023

University of Iowa researchers are working to better understand how to reduce crashes between farm and non-farm vehicles on public roadways.

Photo courtesy Central States Center for Agricultural Safety and Health

As harvest approaches, the crash rate of farm vehicles with non-farm vehicles will likely rise. This season, farmers and non-farmers alike should know and understand the data around farm vehicle crashes with passenger vehicles to avoid deadly consequences.

There is one especially important piece of data to note — passenger vehicles are often more at fault for crashes with farm vehicles on public roadways. Undoubtedly, farm vehicles are much larger than passenger vehicles and the person in a non-farm vehicle is more at risk of injury than the occupant of the farm vehicle regardless of fault.

Consequently, examining the behavior of non-farm vehicles as they share the road with farm vehicles is crucial to understanding where the problem therein lies.

SaferTrek is a research project funded by the Great Plains Center for Agricultural Health that aims to understand the reasons for more than 1,100 crashes between farm vehicles and non-farm vehicles each year in the Midwest. As stated by the Driving Safety Research Institute at the University of Iowa, SaferTrek studied passenger vehicle behaviors related to “speed, deceleration while approaching, following distance, number of passing attempts, and passing.”

Although the researchers, Dr. Cara Hamann and Dr. Michelle Reyes, are still processing data from the project, there are already some important takeaways for drivers that are evident at this stage.

Hamann and Reyes found that one major factor known as the speed differential makes crashes with farm vehicles unique from crashes between non-farm vehicles. The speed differential refers to the mismatch in speeds between two vehicles as they approach each other. Between farm and non-farm vehicles, this occurs when non-farm vehicles are approaching farm vehicles at the speed limit, or speeds above the limit, while farm vehicles travel much slower.

A farm vehicle could be traveling at around 25 mph or less whereas a passenger vehicle could be going 50 mph as they proceed toward the slow-moving vehicle. This speed differential can be especially important when a passenger vehicle approaches over a hill, or is already following the farm vehicle too closely, and does not have enough time and space to stop before rear-ending the farm vehicle.

Thus, combining speed differential with unsafe following behaviors of passenger vehicles can lead to crashes.

The research team also found "mixing zones" between urban and rural areas to be dangerous. Mixing zones refer to spaces where urban or suburban sprawl bleeds into rural areas. Because urban populations may be less likely to have encountered farm vehicles, their unfamiliarity with equipment on the road also leads to crashes.

Hamann and Reyes identified three types of driving behaviors that are especially responsible for crash incidents. These are when a farm vehicle is turning left, when a passenger vehicle attempts to pass, and when an automobile rear ends a farm vehicle.

In addition to collecting important data about the reasons for rural crashes, the project is also working to expand community members' knowledge of safe driving behaviors and increase positive behaviors through a promotional campaign.

Tactics for the campaign included SaferTrek's involvement in local parades and pep rallies, as well as handing out candy and car fresheners, and they had banners and other graphics designed. They had local residents directly involved with the campaign so they could give advice on better methods to reach their community with each marketing method. The overall messages developed by the team were "We're On This Road Together" and "Leave More Space, Avoid Passing, and Slow Down."

This project will not only help us understand the characteristics of rural crashes, but it will also assess the impact of community-wide campaigns on driving behavior.

Mandy Archer is the outreach specialist for the Great Plains Center for Agricultural Health at the University of Iowa College of Public Health. Check out the related SaferTrek podcast episode at gpcah.org under the resources tab.