



Centers for Disease Control and Prevention
CDC 24/7: Saving Lives, Protecting People™

The National Institute for Occupational Safety and Health (NIOSH)

Promoting productive workplaces
through safety and health research / **NIOSH**

Farmer Dies After Being Run Over By A Tractor

Minnesota FACE 00MN008

SUMMARY

A 60-year-old male farmer (victim) died after he was run over by a tractor. On the day of the incident the victim and his sons were finishing planting their fields. Near the end of the day the victim drove to a nearby farm to get a tractor and digger to prepare a small field for planting. After he arrived at the farm he entered the cab of a four-wheel drive tractor equipped with dual wheels on both the front axle and the rear axle. He turned the ignition key but the tractor's starter failed to operate. On several occasions prior to the incident the starter failed to operate due to improper functioning of a safety switch in the transmission's shift lever linkage.

The victim used a two-way radio to contact one of his sons and told him the tractor would not start. The victim's son drove to the location of the tractor to help start it. They decided to activate the starter by contacting the shaft of screwdriver to the terminals of the starter. The victim and his son walked between the front and rear wheels on the left side of tractor. The victim's son stood near the side of the tractor while his father stood in front of the rear wheels and held a flashlight. The victim's son touched the shaft of the screwdriver to the starter terminals and the engine started.

The tractor moved forward and knocked both men to the ground. The victim's son rolled to the area directly beneath the tractor. The victim fell to the ground in front of the left rear wheels and was run over by them. The victim's son stood up after the tractor moved past him and he entered the cab of the tractor and stopped it. He used a two-way radio to notify family members of the incident. They placed a call to emergency personnel who arrived at the scene shortly after being notified of the incident. The victim was transported to a local hospital where he was pronounced dead approximately one hour later. MN FACE investigators concluded that to reduce the likelihood of similar occurrences, the following guidelines should be followed:

- machinery should only be started when a qualified operator is seated in the operator's seat; and
- machine components and safety equipment should be maintained in proper working order.

INTRODUCTION

On January 21, 2000, MN FACE investigators were notified of a farm work-related fatality that occurred on May 29, 1999. The county sheriff's department was contacted and a copy of releasable information obtained. Information obtained included a copy of their report of the incident. ♦ A site investigation was conducted by a MN FACE investigator on September 15, 2000. During MN FACE investigations, incident information is obtained from a variety of sources such as law enforcement agencies, county coroners and medical examiners, employers, coworkers and family members.

INVESTIGATION

On the day of the incident, the victim and several of his sons were attempting to finish planting their farm fields. Near the end of the day they had finished planting every field except a small five acre field. They decided to work into the evening hours and finish the last small field. They planned to use one of their tractors and a digger that was hooked to it to prepare the field for planting, however, a flat tire prevented them from using the tractor and digger. A digger is a machine with curved tines that is used to till soil and create a uniform seed bed for planting. After discovering the flat tire they decided to use another tractor that also had a digger hooked to its drawbar. The victim drove to a nearby farm site to get the other tractor and digger.

The victim arrived at the farm site and entered the cab of a large four-wheel drive tractor. The 280 horsepower tractor was built in 1984 and was purchased by the victim in 1996. It was equipped with dual wheels on both the front axle and the rear axle. It was also equipped with a combination "manual/automatic" transmission. The transmission provided the operator the ability to select a specific gear with each gear having a variable speed range that was automatically selected by the tractor based on the load being pulled.

A 46 foot wide digger was hooked to the tractor's drawbar. The digger was built in three sections consisting of a center section that was 14 feet wide and two 16 foot wide sections. The digger's frame was hinged at the ends of the center section to enable the width of the digger to be reduced to tow it on roads. The 16 foot sections were raised to near vertical positions at the time of the incident. The hydraulic cylinders for the digger had been released when the tractor was last used which resulted in the tines of the digger's center section contacting the ground.

The victim attempted to start the tractor by turning the ignition key but the starter failed to operate. The tractor was equipped with a safety switch in the transmission's shift lever linkage. The safety switch prevented the tractor from being started when the transmission was shifted into a specific gear. When the transmission was shifted into gear the safety switch created an open electrical circuit and prevented the starter from operating. When the victim tried to start the tractor, the transmission was not shifted into a specific gear but was in one of the variable speed ranges. On several occasions prior to the incident the tractor's starter failed to operate due to improper functioning of the safety switch.

The victim used a two-way radio to contact one of his sons and informed him that the tractor would not start. The victim's son drove a pickup to the site of the tractor to help start the tractor. They decided to use a screwdriver to bypass the ignition circuitry and activate the starter by contacting the screwdriver shaft to both terminals of the starter. This method of starting the tractor had recently been used on several occasions to start the tractor when the safety switch failed to function. The victim and his son walked between the front and rear wheels on the left side of tractor. The victim's son was near the side of the tractor while his father stood directly in front of the rear wheels and held a flashlight to illuminate the tractor's starter. The victim's son touched the shaft of the screwdriver to the starter terminals which engaged the starter and the tractor's engine started.

The tractor immediately moved forward and knocked both men to the ground. The victim's son was able to roll to the area directly beneath the tractor as he fell to the ground. The victim fell to the ground directly in front of the left rear dual wheels and was run over by them. The victim's son stood up after the tractor moved forward past the area where he fell to the ground and he was able to enter the cab of the tractor and stop it. He used a two-way radio to notify other family members of the incident. They placed a call to emergency rescue personnel who arrived at the scene shortly after they were notified of the incident. The victim was transported to a local hospital where he was pronounced dead approximately one hour after the incident occurred.

CAUSE OF DEATH

The cause of death listed on the death certificate was severe head and severe crush injury to chest.

RECOMMENDATIONS/DISCUSSION

Recommendation #1: Machinery should only be started when a qualified operator is seated in the operator's seat.

Discussion: The operator's seat of farm tractors and machines provides a work station from which the operator can maintain proper control of the machine. Proper control is necessary not only during operation of a tractor or machine but also whenever an engine is started. While seated in the operator's seat, an operator should check the engine throttle position, disengage the clutch, and shift the transmission into neutral or park before the engine is started. Before starting tractor engines the operator should also ensure the power-take-off is disengaged. Performance of these precautions will reduce the likelihood of a tractor or machine accidentally moving forward or backward after the engine starts. In addition, if a tractor or machine does unexpectedly begin to move after starting, an operator seated in the seat will not be in danger of being run over and will be in position to maintain safe operating control.

Recommendation #2: Machine components and safety equipment should be maintained in proper working order.

Discussion: All machine components should be checked periodically to ensure that they are working properly. Accidents are more likely to happen when worn or broken parts are not replaced and when shields and safety devices are not in place or working properly. Safety devices such as neutral-start switches, shields, and guards are designed to prevent operators from being injured. These devices should be kept in good condition through periodic inspections and maintenance. Devices that are defective should be immediately repaired or replaced. Maintenance and repairs should be done by following the procedures in operator's or service manuals provided by manufacturers.

REFERENCES

1. Agriculture Safety, Fundamentals of Machine Operation, 1987, Deere & Company, Moline, Illinois, Third Edition.

To contact [Minnesota State FACE program personnel](#) regarding State-based FACE reports, please use information listed on the Contact Sheet on the NIOSH FACE web site Please contact [In-house FACE program personnel](#) regarding In-house FACE reports and to gain assistance when State-FACE program personnel cannot be reached.

[Back to Minnesota FACE reports](#)

[Back to NIOSH FACE Web](#)

Page last reviewed: November 18, 2015

Content source: [National Institute for Occupational Safety and Health](#)