



The National Institute for Occupational Safety and Health (NIOSH)



Farmer Dies After Tractor He Was Driving Rolled Over On Him

MN FACE Investigation 01MN049

Date: February 27, 2002

SUMMARY

A 79-year-old farmer (victim) died when the tractor he was driving overturned. On the day of the incident, he was driving a farm tractor equipped with a front-end loader on a public road. The tractor was not equipped with a rollover protective structure or a seat belt. The loader was equipped with a small general purpose bucket that was empty at the time of the incident. Although the tractor and loader were maintained in operating condition, photographs indicated general maintenance and repair was less than optimal. The speed that the tractor was being driven at the time of the incident could not be determined.

Shortly before the incident occurred, the victim stopped at a stop sign at a T-intersection of a gravel road and a blacktop road. He briefly spoke with a local resident who had turned onto the gravel road. The victim and the local resident visited briefly as the victim indicated he was in a hurry. The victim made a left hand turn onto the blacktop road and proceeded south. After travelling a short distance on the blacktop road, the tractor suddenly entered the ditch on the west side of the road. For some reason, the tractor rotated 180 degrees during the incident and came to rest with its front end pointing to the north. It also rolled three-fourths of a turn to its left and came to rest on its right side.

The local resident who had briefly talked to the victim happened to look in his rear view mirror and saw the tractor disappear from the road. He stopped and drove to the scene where he found the victim lying next to the tractor. He placed a call to emergency personnel who arrived at the scene shortly after being notified and pronounced the victim dead. MN FACE investigators concluded that to reduce the likelihood of similar occurrences, the following guidelines should be followed:

- all tractors should be equipped with a rollover protective structure and a seat belt;
- operators of tractors should maintain safe operating speeds at all times; and
- machines and equipment should be adequately maintained and serviced to keep them in safe and proper operating condition.

INTRODUCTION

On December 18, 2001, MN FACE investigators were notified of a farm work-related fatality that occurred on November 18, 2001. The county sheriff's department was contacted and a copy of their report of the incident was obtained. A site investigation was conducted by a MN FACE investigator on January 18, 2002. Also, a first responder who was at the scene

shortly after the incident occurred was interviewed on January 18, 2002. Photographs of the incident taken by the first responder were examined and provided additional details of the incident. 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 was driving a farm tractor equipped with a front-end loader on a blacktop surfaced public road. The tractor was approximately 40 years old and was not equipped with a rollover protective structure or a seat belt. It had a wide front wheel configuration and did not have dual wheels on either rear axle. The loader was equipped with a small general purpose bucket that was empty at the time of the incident. During the investigation it was apparent from photographs of the tractor that it had been extensively used and showed signs of significant wear. Although it was maintained in an overall useable operating condition, general maintenance and repair appeared to be less than optimal. The tractor was capable of traveling at an estimated maximum speed of approximately 15-17 miles per hour. However, the speed that the tractor was being driven at the time of the incident could not be determined.

Shortly before the incident occurred, the victim was driving west on a gravel road toward a stop sign at a T-intersection with a blacktop road. He stopped a short distance from the stop sign and briefly spoke with a local resident who had turned onto the gravel road and was travelling toward the east. The victim and the local resident only visited for a moment as the victim indicated he was in a hurry to return home. The local resident then began to continue down the gravel road while the victim made a left hand turn onto the blacktop road and proceeded south. After travelling about 100-150 yards on the blacktop road, the tractor suddenly left the surface of the road and entered the ditch on the west side of the road. For some reason, the tractor rotated 180 degrees during the incident and came to rest with its front end pointing to the north even though it had been travelling south on the blacktop road. It also rolled three-fourths of a turn or 270 degrees to its left and came to rest on its right side at the bottom of the ditch.

The local resident who had briefly talked to the victim happened to look in his rear view mirror and saw the tractor disappear from the road. He turned his vehicle around and drove to the scene where he found the victim lying next to the tractor. He used a cell phone to call emergency personnel who arrived at the scene about ten minutes after being notified. The victim had sustained multiple traumatic injuries when he was struck by the tractor as it rolled over. He was pronounced dead at the scene by emergency personnel.

CAUSE OF DEATH

The cause of death listed on the death certificate was multiple traumatic injuries due to tractor accident.

RECOMMENDATIONS/DISCUSSION

Recommendation #1: All tractors should be equipped with a rollover protective structure and a seat belt.

Discussion: Minimizing death and serious injury to tractor operators during tractor rollovers requires the use of a rollover protective structure and a seat belt. These structures, either a roll-bar frame or an enclosed roll-protective cab, are designed to withstand the dynamic forces acting on them during a rollover. In addition, seat belt use is necessary to ensure that the operator remains within the "zone of protection" provided by the rollover protective structure.

Government regulations require that all tractors built after October 25, 1976, and used by employees of a farm owner must be equipped with a rollover protective structure and a seat belt. Many older tractors are in use on family farms and do not have, nor are they required by government regulation to have, such structures to protect their operators in case of

a rollover. All older tractors should be fitted with a properly designed, manufactured, and installed rollover protective structure and seat belt. If the tractor involved in this incident had been fitted with a rollover protective structure and a seat belt, and the seat belt had been in use, this fatality might have been prevented.

Recommendation #2: Operators of tractors should maintain safe operating speeds at all times.

Discussion: Tractors should always be driven at speeds which allow the operator to maintain complete control of the tractor. Operators need to maintain control at all times to avoid all types of accidents including rollovers. This requires that the tractor speed be kept slow enough to allow the operator to safely react to unexpected situations and hazards. Safe operating speeds may vary slightly between operators because of such factors as the operator's age, years of experience, and familiarity with the specific tractor or farm machine being operated. Farm youths should maintain slower operating speeds because of their overall lack of experience with all types of motorized vehicles.

Recommendation #3: Machines and equipment should be adequately maintained and serviced to keep them in safe and proper operating condition.

Discussion: The risk of serious injury or death to workers can be reduced if machines and equipment are maintained in proper operating condition. The tractor and loader associated with this incident had been used extensively and although maintained in basic operating condition, some aspects of their maintenance were less than optimal. Various reasons for the tractor and loader being poorly maintained may have included uncertain and fluctuating financial conditions in the agriculture industry. Although it could not be determined whether or not the general condition of the tractor and loader directly contributed to the occurrence of this incident, as a general safety rule, it is recommended that machines and equipment be properly maintained to reduce the risk of injury to workers.

REFERENCES

1. Office of the Federal Register: Code of Federal Regulations, Labor, 29 CFR Part 1928.51 (b), U.S. Department of Labor, Occupational Safety and Health Administration, Washington, D.C., April 25, 1975.

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