DATE: December 22, 1997

FROM: Minnesota Fatality Assessment and Control Evaluation (MN FACE) Program
Minnesota Department of Health

SUBJECT: MN FACE Investigation 97MN043
Farmer Dies After Tractor He Was Driving Rolled Over On Him

SUMMARY

An 86-year-old farmer (victim) died of injuries he sustained when the tractor he was driving overturned. On the day of the incident, the victim was driving a farm tractor on a blacktop surfaced public road. The tractor was not equipped with a rollover protective structure or a seat belt. While the victim drove north on the road, the right wheels of the tractor gradually left the surface of the road. The right side wheels entered the ditch on the east side of the road and the tractor overturned. The first person to arrive at the scene was the owner of the tractor. A call was placed to emergency rescue personnel. They arrived at the scene shortly after being notified and pronounced the victim dead at the scene. 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; and

- operators of tractors should maintain safe operating speeds at all times.

INTRODUCTION

On November 3, 1997, MN FACE investigators were notified of a farm work-related fatality that occurred on September 23, 1997. The county sheriff's department was contacted and releasable information obtained. Information obtained included a copy of their report of the incident and copies of their photos of the incident site. A site investigation was not conducted by MN FACE investigators. 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 on a blacktop surfaced public road. The tractor was approximately 50 years old and was not equipped with a rollover protective structure or a seat belt. It had a narrow front wheel configuration and did not have dual wheels on either rear axle. The tractor was capable of traveling at a maximum speed of approximately 16-18 miles per hour. Since the incident was not witnessed, the approximate speed of the tractor at the time of the rollover was not known.

The victim drove the tractor in an easterly direction on a county road toward an intersecting fork with another road. The two main roads were connected (see Figure 1.) by a short roadway that created a triangular grassy area. He made a left turn off the county road and onto the short roadway. While the victim drove north on the connecting road, the right rear wheel of the tractor left the surface of the road and entered the ditch. The slope of the ditch in the vicinity where the tractor left the road was estimated from photographs to vary from approximately 10 to 40 degrees. The tractor overturned to the side two times and came to rest upside down. Photos taken at the site show that the tractor also rotated counterclockwise 90 degrees which seemed to indicate that excessive speed may have been a factor. The victim sustained fatal injuries during the rollover, but was not pinned beneath the tractor.

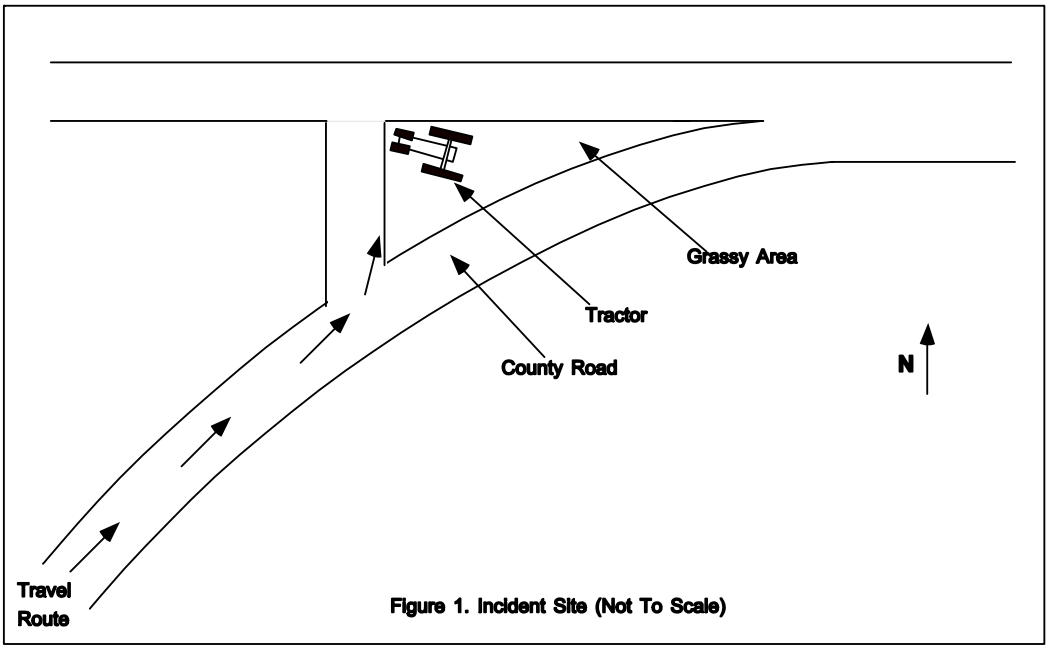

Figure 1. Incident Site (Not To Scale)

The victim was returning the tractor to a neighbor's residence after having done some welding on the draw bar of the tractor. The neighbor, who owned the tractor, had spoken with the victim several

minutes before the incident occurred. He was waiting for the victim to return the tractor and then he was going to give him a ride back to his residence. The neighbor heard the tractor running and then noticed that it stopped. The neighbor began walking down the road and discovered that the tractor had overturned. A call was placed to emergency rescue personnel who arrived shortly after being notified and pronounced the victim dead at
the scene.

CAUSE OF DEATH

The cause of death listed on the death certificate was tractor accident.

RECOMMENDATIONS/DISCUSSION

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

Discussion: Preventing 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. Although the exact speed that the victim was driving wasn't known, he may have been driving too fast during the turn since evidence at the scene indicated the tractor completely rolled over twice. Also, the photos showed that the tractor rotated counterclockwise 90 degrees which seemed to indicate that excessive speed was a factor. 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.

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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