

MIFACE INVESTIGATION: #03MI066

SUBJECT: Farmer Dies When He Is Crushed Under Overturned Tractor in Ditch

Summary

On June 13, 2003, a 74-year-old male farmer was killed when his wide-front, Massey Ferguson model 65 Diesel tractor and 10-12-foot pull-type antique disc overturned into a 6- to 8- foot, steeply cut ditch that contained water. (See Figure 1) This was an unwitnessed event. It appeared that the victim exited a private drive after he completed turning over the soybean stubble in his field so he could plant corn. After exiting the private drive, he turned to his left and drove northbound in the southbound lane of a gravel road. He may not have completely straightened the tractor's front wheels. The tractor's gearshift did not work properly and he may have been having difficulty placing the tractor in a higher gear. He unknowingly drifted to his left and left the roadway because the wheels were not completely straightened and his attention was diverted to manipulating the gearshift. The tractor's left front tire contacted the soft dirt near the ditch edge, the tire entered the ditch, and the tractor overturned to the side, pinning the victim in the ditch. All four of the tractor tires were pointing in the air. A passerby found him and called for emergency response. Emergency response arrived and declared the victim dead at the scene.



Figure 1. View of ditch from 2-track road. Looking to operator's left.

RECOMMENDATIONS

- Equip older tractors with a roll-over protection structure (ROPS) and a seat belt; the local county extension agent, local equipment dealer or equipment manufacturer should be contacted to see if a retro-fit ROPS/seat belt system is available.
- Ensure farm equipment is maintained according to manufacturer specifications.

Key Words: Agriculture,
Machine-related, Tractor

INTRODUCTION

On June 13, 2003, a 74-year-old male farmer was killed when his wide-front, Massey Ferguson model 65 Diesel tractor and 10-12-foot pull-type antique disc overturned to its side into a six foot- to eight- foot, steeply cut ditch that contained water. MIFACE learned of this incident from a newspaper clipping. On November 3, 2004, the MIFACE researcher visited the brother of the victim and the brother's wife and the incident site. The tractor was not available. During the course of writing this report, the medical examiner's report, death certificate, and sheriff's department report were obtained.

The victim was the farm owner and, although he had retired from another full-time job five years ago and had continued farming, raising both dairy animals and corn. He had sold 110 acres of his working land and still had 97 acres of wooded land that he hunted and 15 acres of tillable land. He also cut and sold wood from his wooded property. The 15 acres was planted alternating between soybeans and corn. The 15 acres were to be planted with corn at the time of his death. After harvesting the planted crop, his practice was to leave the corn or soybeans standing to provide food and habitat protection for the deer and turkeys, which he would hunt. In the spring, he would "turn over" the land for planting the year's crop. According to his brother, the victim had purchased the tractor in new condition. The brother did not know if the tractor had an operator's manual. The family-owned farm did not have a written farm safety plan.

His brother stated that the victim had carpal tunnel syndrome and had trouble with his hands and that may have affected his ability to manipulate the tractor's steering wheel and gearshift.

INVESTIGATION

The victim was driving a wide-front, Massey Ferguson model 65 Dieselmatic tractor with a 10-12-foot pull-type antique disc attached to the tractor to turn over soybean stubble in the field so he could plant corn. The 20+ year-old tractor did not have a ROPS/seat belt. The tractor had weighted rear tires. The victim used this tractor primarily to pull the 10-12-foot antique disc.

Earlier in the day, a family member visited him around noon and the victim spoke about going out later that day to disc the soybean field. This family member left approximately one hour later. Sometime after the family member left, the victim traveled to the site of the field, which was approximately one-half mile from his home. This road was a dirt road with soft shoulders. On one side of the road was a 6- to 8- foot, steeply cut ditch that contained water. To travel to the field from the dirt road, the victim traveled a private "2-track" road. The width of the 2-track road was approximately 25 feet. See Figure 2.



Figure 2. View driving from field down 2-track road to main road

According to family members, the tractor's gearshift was not working correctly and it was difficult to place the tractor into the various gears. The event was unwitnessed, and based on the interview with the brother and his wife, the following scenario has been developed. Although the victim had not completed discing the field, he was heading home, as it was probably dinnertime. The victim would have been traveling slowly on the private 2-track drive and would have been trying to accelerate when he entered the road. He made a left turn out onto the main road from the private drive. His brother thought he may have been trying to manipulate the gearshift to place the tractor into a higher gear and was having difficulty doing so, therefore did not notice that he had not completely straightened the front tractor wheels and that he was drifting to his left. He was traveling northbound in the southbound lane of the road back to his house. He left the roadway. The edge of the ditch was approximately 4 ½ -6 feet from the edge of the road. The tractor's left front wheel contacted the soft dirt at the edge of the ditch, the tire entered the ditch, and the tractor overturned to the side, pinning the victim in the ditch. A passerby found him and called for emergency response. Emergency response arrived and declared the victim dead at the scene.

CAUSE OF DEATH

The cause of death as stated on the death certificate was multiple blunt force trauma. An autopsy and toxicological tests were not performed.

RECOMMENDATIONS/DISCUSSION

- Equip older tractors with a roll-over protection structure (ROPS) and a seat belt; the local county extension agent, local equipment dealer or equipment manufacturer should be contacted to see if a retro-fit ROPS/seat belt system is available.

Older tractors can be equipped with roll-over protection structures and seatbelts. Roll-over protection structures (ROPS) have been required by federal and state law for all tractors used by employees (with limited exception) in agricultural operations that were built after October 25, 1976. There are two basic types of ROPS for farm tractors: protective frames (two- or four- post structures attached to the tractor chassis) and protective enclosures (cabs or enclosures built around a protective frame).

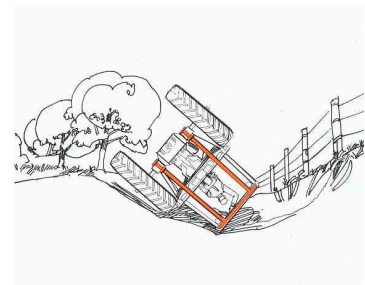


Figure 3 – Operator Zone of Protection

ROPS are designed to help limit a tractor overturn to 90 degrees and to provide the operator a “zone of protection” (See Figure 3).

The operator must stay within this zone. The operator may not be protected by the ROPS during an overturn if the operator is not wearing a seatbelt; the operator may be totally or partially thrown off the tractor. The seatbelt keeps the operator within the "zone of protection" provided by the ROPS. Even inside a cab, seat belts are important to keep the operator from being thrown against the frame, through a window, or out a door.

Therefore, when an older tractor is retrofitted with a ROPS, attention must be paid for ensuring approved seat belts are also installed. Seat belts may be included with the ROPS package.

Seat belts should not be used on tractors that do not have ROPS.

Many older tractors can be retrofitted with a ROPS/seat belt system by a qualified dealer. An Internet resource to obtain approximate costs for retrofitting an older tractor with a ROPS/seat belt may be found from the Marshfield Clinic:

http://research.marshfieldclinic.org/nfmc/resources/rops/default.asp?doc=ROPS_tractorRollovers.xml

This information resource lists manufacturers, models, and approximate costs of obtaining retrofit ROPS for tractors. Another option for owners of older tractors to obtain information about ROPS retrofits is to contact their local extension office or tractor dealership. ROPS should be certified to meet the standards and regulations of various agencies that ensure that the frame or enclosure is designed to provide overturn protection. ROPS should not be manufactured in the farm machine shop. Tractor owners should check the manufacturer's literature or look for a label on the frame or enclosure stating it meets roll-over protection standards.

Although the victim's farm was on flat terrain, a roll-over hazard was present near the area of the drainage ditches near the road to his fields. The addition of the ROPS/seatbelt system to the Model 65 Massey Ferguson would have cost approximately \$2000.00. The presence of a ROPS and the wearing of a seatbelt would probably have prevented his death.

- Ensure farm equipment is maintained according to manufacturer instructions.

It is important to read and follow the directions in equipment instruction and maintenance manuals and to conduct routine inspections of equipment so potential equipment safety hazards may be identified and fixed. Maintenance and servicing equipment is a prerequisite to a properly working, functional machine. The employer should provide regular preventive maintenance following the manufacturer's recommended schedule and retain complete maintenance records.

Preventive maintenance is an organized, planned program plan to prevent the gradual breakdown or sudden failure of machines and equipment. It includes periodic cleaning and lubrication as well as regular inspections of machine functions to detect faults. When defects are found, the parts are repaired or replaced. A preventive maintenance program includes maintenance schedules, procedures for keeping records of maintenance work, and procedures for ensuring the availability of spare parts.

Maintenance of equipment is an especially important means of anticipating potential hazards and preventing their development. Planning, scheduling, and tracking preventive maintenance activities provide a systematic way of ensuring that they are not neglected.

REFERENCES

A Guide To Agricultural Tractor Rollover Protective Structures. A publication of the National Farm Medicine Center, Marshfield, Wisconsin.

Internet

Address:

http://research.marshfieldclinic.org/nfmc/resources/rops/default.asp?doc=ROPS_tractorRollovers.xml

MIFACE (Michigan Fatality and Control Evaluation), Michigan State University (MSU) Occupational & Environmental Medicine, 117 West Fee Hall, East Lansing, Michigan 48824-1315. This information is for educational purposes only. This MIFACE report becomes public property upon publication and may be printed verbatim with credit to MSU. Reprinting cannot be used to endorse or advertise a commercial product or company. All rights reserved. MSU is an affirmative-action, equal opportunity employer.

7/26/05

MIFACE

Investigation Report # 03 MI 066

Evaluation

To improve the quality of the MIFACE program and our investigation reports, we would like to ask you a few questions regarding this report.

Please rate the following questions on a scale of:

Excellent	Good	Fair	Poor
1	2	3	4

What was your general impression of this MIFACE investigation report?

1 2 3 4

Was the report...	Excellent	Good	Fair	Poor
Objective?	1	2	3	4
Clearly written?	1	2	3	4
Useful?	1	2	3	4

Were the recommendations ...	Excellent	Good	Fair	Poor
Clearly written?	1	2	3	4
Practical?	1	2	3	4
Useful?	1	2	3	4

How will you use this report? (Check all that apply)

- Distribute to employees/family members
- Post on bulletin board
- Use in employee training
- File for future reference
- Will not use it
- Other (specify) _____

Thank You!

Please Return To:

MIFACE
 Michigan State University
 117 West Fee Hall
 East Lansing, MI 48824
 FAX: 517-432-3606

If you would like to receive e-mail notifications of future MIFACE work-related fatality investigation reports, please complete the information below:

Name: _____

e-mail address: _____

I would like to receive summaries for reports involving:

___ Construction	___ Agriculture
___ Manufacturing	___ All

Comments:
