

Indiana State Department of Health
Indiana FACE 95IN03901

Date: April 1, 1995

TO: Charles L. Barrett, M.D., M.S.P.H., Medical Epidemiologist
Epidemiology Resource Center

FROM: Richard L. Warren, Indiana FACE Investigator

SUBJECT: Farm tractor overturns crushing part-time farmer/dentist

SUMMARY:

A 41-year-old male part-time farmer/dentist (the victim) was crushed when the borrowed vintage farm tractor he was operating flipped over while attempting to pull out recently cut sapling stumps out of the ground with a log chain. The vintage farm tractor was not equipped with a Rollover Protection System (ROPS) or seat restraints. The victim had used the borrowed vintage tractor many times before without incident. In this incident the rear hitch was missing and the victim preceded to secured the log chain around the tractor seat causing the tractor to flip end over end onto the victim when the power was applied. The FACE investigator concluded in order to prevent similar occurrences' farmers should:

1. Equip any age tractor with a Rollover Protection System (ROPS) and seat restraints.
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2. Only use equipment as intended by the manufacture.
Read, understand, and follow manufacture's information manual if one is available.
3. Only use the rear hitch to tow loads.

INTRODUCTION:

On March 30, 1995, a 41- year-old male dentist/part-time farmer (the victim) was killed when the vintage tractor he was operating flipped end over end and came

to rest on top of him. The incident occurred about 12:30 p.m. Two hours later the county coroner notified INFACE and agreed to secure the scene if we wanted to do the investigation. The FACE investigator traveled to the incident site on March 31, 1995, and met with the county coroner (not on the scene) and a deputy sheriff who responded to the call. Information was received and reviewed with the county coroner and deputy sheriff. It was mutually agreed the deputy sheriff and FACE investigator would conduct the investigation together.

Pictures and measurement were taken at the incident site and the owner of the borrowed vintage tractor was interviewed. The witness to the incident (the victim's spouse) was interviewed at a later time. The victim was a dentist/ part-time farmer who rented out most of his land.

INVESTIGATION:

On the day of the incident the victim began his work task about 12:15 p.m. using a borrowed 1952 vintage farm tractor as he has done many times before. The victim was attempting to pull recently cut sapling stumps (6" to 8" high and about 1 1/2 "wide) out of the ground with a 20 foot log chain. The condition of the ground at the time of the incident was wet with scattered tree limbs and relatively flat. The vintage farm tractor did not have a Rollover Protection System (ROPS) or seat restraints and the rear hitch was missing. As stated by the witness (the victim's spouse) the victim first attempted to secured one end of the 20 foot log chain around the tractor seat and the other end around the sapling stumps. As the tractor began to pull the log chain, it came loose from around the seat. The witness then went to the barn to look for the rear hitch. As the witness came out of the barn she saw the log chain had been reattached to the tractor seat and

was attempting to pull the saplings stumps out of the ground for the second time.

The tractor flipped over backwards (front over back) trapping the victim under the steering wheel crushing his chest. The witness immediately called 911 and the EMS ambulance arrived a short time later. A wrecker had to be called to remove the tractor from the victim. The victim was transported to the county community hospital where he was pronounced dead at 1:30 p.m.

The tractor's front wheels measured 55" from the center of one tire to the other tire. The front tire sizes were 600 x 16.5. The front tires were old and split to the cords and did not have fluid and counter weights. The rear tires 124 x 24, seemed newer, tread was good, and the tires were weighted. The rear tires measured 4 feet high and 4 feet wide across the middle. The owner of the vintage tractor stated he serviced the tractor about once a year but could not remember the last time it was serviced.

CAUSE OF DEATH:

The cause of death as listed on the certificate of death is crushed chest due to blunt force trauma.

RECOMMENDATIONS AND DISCUSSION

RECOMMENDATION # 1:

Owners and operators of any age tractor should have it retro-fitted with a Rollover Protection System (ROPS) and seat restraints.

DISCUSSION:

The borrowed 1952 vintage tractor in this incident was without benefit of (ROPS) or seat restraints. In this fatal injury it is not known if a Rollover Protection System and seat restraints could have prevented this fatality. From the standpoint of the investigation and the position of the tractor on the victim it would have certainly provided some protection and possibly saved his life. ROPS first became available as optional equipment on farm tractor in 1971. These safety

features were not required on tractors until 1976, when OSHA standard 29cfr 1928.51 went into effect. This standard required employers to provide ROPS and safety belts for all employee-operated tractors manufactured after October 25, 1976. However, this standard does not apply to family farms or farms employing fewer than 11 employees.

Tractors' owners should contact dealers, manufacturers or county extension agents for information on sources of retro-fitted ROPS and operator restraint systems. ROPS are particularly important on tricycle type tractors since the inherent balance is less than on spread front wheel type tractors.

RECOMMENDATION # 2:

Only use farm equipment as intended by the manufacture. Read understand, and follow the manufacture's information manual if one is available.

DISCUSSION:

Using farm equipment other than for intended use can do nothing but create unsafe work conditions. Evidence indicates the victim attempted to use the vintage farm tractor to pull out sapling stumps with a 20 foot log chain. Because the rear hitch was missing, the victim tied the log chain around the tractor seat. With counter weights on the rear tires and the front tires not having counter weights or fluid, the balance of the tractor under power was altered, might have contributed to the tractor flipping over. Weight distribution of a tractor is critical in most jobs on the farm. Perhaps if the front tires were weighted or had fluid in them the added weight might have maintain the balance of the tractor. Injury prevention specialist knowledgeable in agriculture hazards should offer classes related to tractor safety and handling. In this case evidence suggest the victim had no formal training on the equipment nor did he operate the equipment for which it was intended. Offering a course in the evening where individuals who hold other full time jobs could attend and may reduce the risk for fatal injury. Making the class accessible to the part-time farmer equipment operator is paramount.

RECOMMENDATION #3:

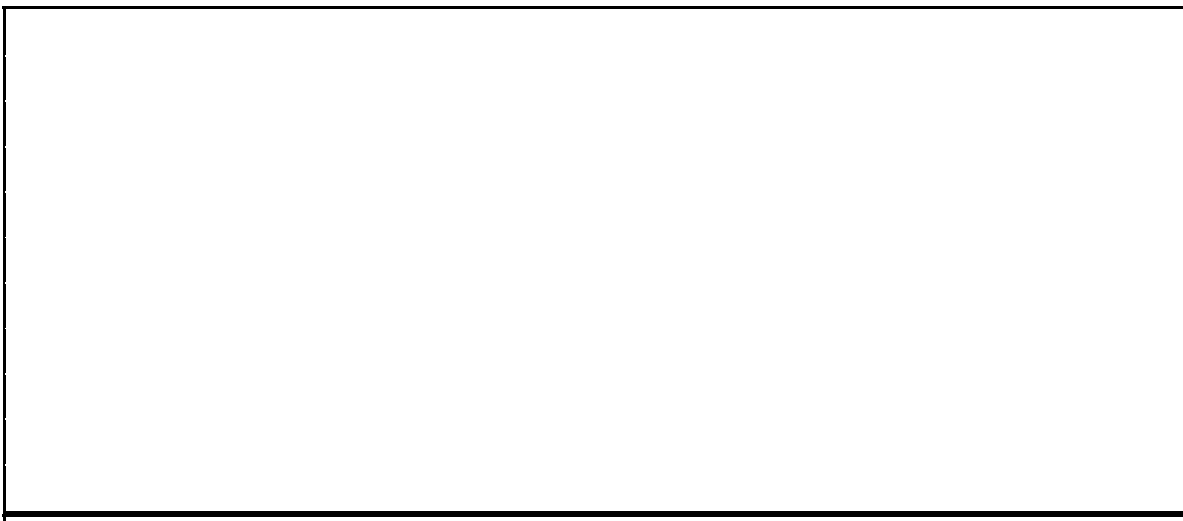
Only use the rear hitch to tow loads.

DISCUSSION:

Tractors are designed to tow loads only from the rear hitch. Use three point hitches for pulling heavy loads only when they are level with the regular stationary draw bar. Raising the hitch point or attaching a tow line to any tractor part above the draw bar may cause the tractor to rotate around the rear axle, ending in a backwards overturn.

Tow ropes or cables that store energy by stretching under load can generate special hazards. Making a running start to move a heavy stationary load can stress a nylon tow rope or steel cable to the breaking point. Connectors have failed and have been slung toward the towing tractor with fatal consequences.

Manufactures now offer sophisticated systems that permit quick, easy, one-man tractor-implement coupling. Mounted and wemi-mounted implements are attached to the three-point hitch and controlled hydraulically, thus reducing operator fatigue. Many features on today's tractors enhance operator safety and comfort and much of this equipment can be added onto tractors now in use.



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What is the FACE Program?

FACE is one of many prevention programs conducted by the Indiana State Department of Health (ISDH). FACE stands for "Fatality Assessment and Control Evaluation." The purpose of FACE is to identify factors that increase the risk of work-related fatal injury. Identification of risk factors will enable more effective interventions to be developed and implemented. The FACE Program does not just count fatalities. It uses information gained from each fatality investigation to develop programs and recommendations aimed at preventing future occupational fatalities.

Who can you contact for additional information?

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