FINAL KY FACE #94KY11501

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Date: 7 December 1994

Subject: Farmer Pinned When Tractor Over Turns Into Dry Creek Bed

SUMMARY

A 65-year-old farmer died after his tractor overturned, pinning him underneath. The victim, working alone, began mowing with a bush hog along the perimeter of a soy bean field. At approximately 12:30 pm, the victim was about 1/4 mile from the main road mowing blackberry briars along a creek bed. This area was between the bean field and a creek embankment. Having made two cuts into the brush about 30 feet apart for the purpose of marking the creek edge, he proceeded to make a third cut. He backed the tractor, bush hog attached, toward the embankment. The 3-point hitch bush hog extended over the embankment. The tractor continued to roll backward falling from the embankment into the creek bed. It turned over and pinned the victim between the ground and the tractor. Several hours later, his brother-in-law, worried because the victim had not returned, began a search. The victim was found alive under the tractor at about 5:30 pm. His brother-in-law called the rescue squad at 5:55 pm. They arrived at 6:06 pm and began extrication procedures. The victim was transferred from the field in the back of pickup truck to the main road. He was then transported to the local hospital, and later transferred to a larger medical facility. He died at 4:15 am the following day. The FACE investigator concluded that in order to prevent similar incidents, tractor owners and operators should:

- Retro fit older model tractors with Roll Over Protective Structures (ROPS) and seat belts.
- Keep equipment in good working condition.

INTRODUCTION

On Friday, September 23, 1994, a 65-year-old retired businessman and landowner was pinned under an over-turned tractor while bush hogging. On Saturday, September 24, 1994, the victim died as a result of the incident. On September 25, the FACE investigator learned of the fatality in the local newspaper and began an investigation. On November 1, 1994, the FACE investigator continued the investigation at the scene of the incident. Interviews with the fire and rescue squad provided vital information. A brother-in-law, and a prior business partner of the victim were also interviewed. The case was discussed by phone with the coroner. Photographs of the tractor and the scene were made for documentation.

The victim in this case had owned the farm for many years. He had acquired the farm as an investment and leased it out for corn and soybeans. He had owned the 1961 tractor for several years and had about 16 years experience in its operation. Non-tillable portions of the land were used for hunting. He had had no prior farm related accidents and was in reasonably good health.

INVESTIGATION

The victim was mowing the perimeter of a soybean field with a bush hog on the day of the incident. Briars, small cedars, and tall grass covered the relatively flat area. He had mowed this area in previous years,

however this was the first time this season. At approximately 11:00 am on the day of the incident, the victim began mowing. In this area the edge of the field was bordered by a thicket of blackberry bushes about 4 feet high and 15-25 feet wide. The briars bordered a ravine about 30 feet across and 12 feet deep. Large oak and ash trees dotted the ravine. The side of the ravine/creek bed was packed dirt, sloping 45 degrees for 12 feet and then became flat. It carried water during wet seasons, but was dry the day of the incident. The distance between the ravine edge and the soybean field varied between 15 and 25 feet, depending on the irregular lay of the land. Extremely thick briars hung into the ravine, obscuring the edge. Two paths had been mowed where the victim backed into the patch to mark the edge of the ravine. It was surmised from evidence at the scene that these cuts were made first to mark the ravine edge. Once marked, parallel passes would be made to complete the task. See Figure #1.

The 1961 Farmall 340 (39 hp pto, 4510 lbs gross weight) diesel tractor, with a 5 foot, 3 point hitch bush hog had 3973 hours, no Roll Over Protective Structures (ROPS), Slow Moving Vehicle (SMV) emblem, seat belt or Power Take Off (PTO) guard. The rear tires were air filled and spread to 5 feet. Front wheels were also spread to 5 feet. The wheel base measured 7 feet. Its brakes had moderate resistance when checked by the investigator but could be depressed completely to the floor. One-hundred fifty pound add on weights were attached to the brush guard on the front. The tractor was in fair to poor overall condition for a tractor of this age.

After making the two backing-in cuts, the victim initiated the third cut. Backing toward the ravine, he came too close and the weight of the bush hog on the 3-point hitch along with the rearward momentum, caused the tractor to continue over the edge. The tractor turned upside down and came to rest on the victim, pinning his right pelvic area and femur.

Five to six hours later the victim was found by a concerned brother-in-law, who became worried when he had not returned as scheduled. The brother-in-law phoned the rescue squad who responded to the scene in 11 minutes. Using a 3-ton rescue vehicle, rescue personnel were able to reach the scene. The tractor was attached to the front wench line on the rescue vehicle, with the simultaneous use of air blocks for safety, the tractor was lifted off the victim. Several tree branches were cut with a chain saw to facilitate access to the victim and tractor.

The victim was strapped to a back board, a Cervical Immobilization Device (CID) was applied and he was then hand-walked up the embankment to an awaiting pick-up truck. Severe terrain prevented the ambulance from getting to the scene. The victim was in shock but was coherent. He was transferred to the ambulance and arrived at the local hospital at 6:54 pm. He did not have any broken bones or open wounds, according to EMS personnel. At 8:57 he was transferred to a larger medical center where he arrived at 9:30. He died at 4:30 am the following morning.

CAUSE OF DEATH

The coroner listed the cause of death as probable pulmonary embolism due to crushing injuries from a farm accident.

RECOMMENDATIONS/DISCUSSION

Recommendation #1: Tractor owners and operators should contact their county extension agent, local equipment dealer or equipment manufacturer to see if retro-fit rollover protection and operator restraint systems are available for their equipment.

Discussion #1: The tractor in this incident, manufactured in 1961, was not equipped with a ROPS or an operator restraint system, which protects the operator in the event of a roll over. ROPS first became available as optional equipment on farm tractors 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. Since 1985, as a result of voluntary agreements by tractor manufacturers, all new tractors sold in the US have been equipped with ROPS and safety belts (MMWR Jan.29, 1993). On this 1961 tractor, retro-fit ROPS and operator restraint systems are available. Tractor owners should contact dealers, manufacturers or county extension agents for information on sources of retro-fit ROPS and operator restraint systems.

Recommendation #2: Equipment should be kept in good working condition.

Discussion #2: The 1961 tractor was not in optimum working condition. The brakes, when checked by the investigator, could be depressed completely to the floor. Preventive maintenance should by routinely completed on all equipment.

In Kentucky, during calendar year 1994, 23 tractor overturns have resulted in fatal injuries. In all but one case, the tractors were not equipped with ROPS and seat belts. Hazard control through this equipment modification could have prevented these 23 fatalities. In the one case where the tractor was equipped with a ROPS, no seat belt had been included in the equipment modification. ROPS without a seat belt is still a deadly combination.

REFERENCES

National Safety Council (1978). "Tractor Operation and Roll-Over Protective Structures." Occupational Safety & Health Data Sheets. I-622-Reaf. 85.

National Institute for Occupational Safety and Health (Jan 29, 1993). "NIOSH Reports on the Preventability of Tractor Rollovers." Centers for Disease Control and Prevention. DHHS (NIOSH) publication No. 93-119.

Effectiveness of Roll Over Protective Structures for Preventing Injuries Associated with Agricultural Tractors. *MMWR* 42(03); 57-59.