

Fatality Assessment and Control Evaluation Project

Public Health

KY FACE #98KY056

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SUBJECT: 66-year-old Male Dies in Tractor Overturn While Mowing

SUMMARY

A 66-year-old male (the victim) was killed while mowing his farm land. He was driving a Case tractor model 1212 with a front-end loader and 4-foot rotary mower attachments. The tractor had a homemade canopy attached for sun protection but it was not intended to function as a Rollover Protective Structure (ROPS). Tracks in the field show that he had made several passes and had likely worked for about three hours when the incident occurred. It was about 1 p.m. when he began mowing along the edge of the woods that bordered the field. Although the field was relatively flat, the ground sloped slightly upward along a line of trees. As he drove along the tree line, the right rear tire fell in a sink hole causing the tractor to become unbalanced while on the incline. Marks in the grass show the tractor moved forward a few feet then flipped over and landed upside down. When he did not come home that evening, his wife called the sheriff's department and a search party was sent out at 1 a.m. The rescue squad found him about 4 a.m., crushed under the tractor. The county coroner was called and the victim was pronounced dead at the scene. In order to prevent similar events from occurring, FACE investigators recommend that:

- ▶ Older model tractors should be equipped with a Rollover Protective Structure (ROPS) and seatbelt.
- ▶ Front-end loaders should be kept in as low a position as possible; when lifted, they change the balance and handling properties of the tractor.
- ▶ Tractor operators should consider removing unnecessary attachments from the vehicle.

INTRODUCTION

On August 3, 1998, KY FACE was informed through a call from the county coroner that a 66-year-old farmer had been killed in a tractor rollover on July 31, 1998. An investigator traveled to the site the following day. An interview was conducted with the coroner who accompanied the investigator to the site of the incident. Photographs and measurements were taken of the site and tractor. Copies were obtained of the death certificate, coroner's report and toxicology report, as well as the photographs taken by the coroner at the scene of the incident. An equipment dealer was consulted about the tractor specifications.

The victim had been involved in farming throughout his life. He owned 90 acres of land that was located about 20 miles from his home. After retiring from a full-time manufacturing job a few years ago, he kept up the land as a primary occupation.

The tractor was a Case (David Brown) model 1212 which was manufactured during 1971-1975. A front-end loader attachment had been added to the tractor (this model was not originally equipped with this feature) and the victim used a 4-foot rotary mower attachment to mow the farmland. The tractor had a 4-cylinder diesel engine, a PTO horsepower of 65, and a weight of 6270 pounds (without the front-end loader attachment). It appeared to be in good condition for a tractor of this age. This model was not originally equipped with a Rollover Protective Structure (ROPS). The victim's tractor was equipped with a homemade canopy for shade purposes, although it was not intended to function as a ROPS.

INVESTIGATION

On the day of the incident, the weather was warm and pleasant. The victim left his home that morning and made the 30 minute drive to the farm as he did several times each week since retiring. Neighbors living on the road near the victim's land reported that he passed by about 10 a.m.

Upon arriving at the field, he attached the rotary mower to the tractor and proceeded to the field to mow the grass. He was working alone that day as usual. The land he owned was mostly hilly with a lot of wooded area; however, the field he mowed on the day of the incident was relatively flat and was bordered by woods. After arriving in the field he apparently spent some time cutting wood with a chainsaw he had brought with him. Tracks in the field indicated he then made several passes with the rotary mower. It was estimated to be about 1 p.m. when he began mowing along the edge of the woods that bordered the field. Although this field was relatively flat, the ground sloped slightly upward along the edge of the trees at approximately 15 degrees. Because of the tall grass and brush along the trees, it appeared that he did not normally mow as close to the woods as he did on that day. As he drove along the tree line with the bucket of the loader in the up position, the tractor's right rear tire fell in a sink hole about 12 inches in diameter that was covered by tall grass. The tractor became unbalanced while on the slight incline and began to tip over. Marks in the grass show that the tractor moved forward a few feet then flipped over and landed upside down.

When he did not come home that evening, his wife called the sheriff's department and a search party was sent out at 1 a.m. At approximately 4:30 a.m., the rescue squad found him crushed under the tractor. When the tractor flipped upside down, the canopy collapsed under the vehicle. The victim had remained in the seat of the tractor so that he was crushed between the steering wheel and the canopy. The county coroner was called at 4:58 a.m. and arrived at the scene at

5:39; he pronounced the victim dead at 5:55 a.m.

CAUSE OF DEATH

Cause of death as listed on the coroner's report was asphyxiation due to compression of the chest by the steering wheel of a farm tractor in a rollover.

RECOMMENDATIONS/DISCUSSION

Recommendation #1: Older tractors should be retrofitted with a Rollover Protective Structure (ROPS) and seatbelts.

Discussion: A Rollover Protective Structure (ROPS) is designed to protect the tractor operator in the event of a turnover. A ROPS is most effective when used with a seatbelt which ensures that the operator stays in the protected zone of the ROPS. A ROPS kit is available to retrofit the Case 1212 tractor in this incident for approximately \$439, plus possible shipping and installation charges.

Recommendation #2: Front-end loaders should be kept in as low a position as possible; when lifted, they change the balance and handling properties of the tractor.

Discussion: Lifting the front-end loader to maximum height changes the tractor's center of gravity. It is not intended to be used in an upright position during transport. In this case, the bucket was in the upright position while the victim was mowing which may have contributed to the tractor's loss of balance when the rear tire fell in the sink hole.

Recommendation #3: Tractor operators should consider removing unnecessary attachments from the vehicle.

Discussion: Attachments on a tractor such as a front-end loader change the vehicle's center of gravity and its handling properties which could increase the risk of the tractor becoming unbalanced and overturning. Removing attachments that are not necessary for the job tasks can help to maintain a more balanced weight distribution on the vehicle. In addition, attachments such as this one can obscure an operator's view. In this case, the front-end loader attachment was apparently not being used that day but it may have contributed to the overturn by altering the tractor's center of gravity and possibly obscuring the operator's view of the terrain.

References

Official Guide to Tractors and Farm Equipment. St. Louis, MO: North American Equipment Dealers Association; 1994.

A Guide to Agricultural Tractors Rollover Protective Structures [On-line]. National Farm Medicine Center, Marshfield, WI. Directory: www.marshmed.org

During 1994-1997, 53 farmers were killed in tractor overturns in Kentucky. It is likely that all of these farmers would have survived if they had been operating tractors equipped with a Rollover Protective Structure (ROPS) and wearing a seatbelt. Most older tractors can be retrofitted with a ROPS and seatbelt. Contact your local farm equipment dealer or KY FACE (1800-204-3223 or 606-257-4955) for details on ordering a ROPS kit for your tractor.