



FINAL KY FACE 95KY12201

Date: 13 February 1996

Subject: Farm worker Killed When Caught In Power Take-Off (PTO)

SUMMARY

A 32-year-old male was killed when he was caught in a rotating power take-off (PTO) shaft. He had been involved in farming for many years and often helped his friends who owned a dairy farm. The farm worker was helping one of the owners of the farm load corn from the silage wagon into the feeding trough. Both the farm worker and the owner were experienced in operating the equipment on the farm and had worked together on this type of task before. However, the owner had always operated the equipment controls. The PTO connecting the tractor to the silage wagon was not covered by a safety guard. Recent heavy rains had made the area slick and muddy. The owner was nearby when he heard the victim yell; he found him wrapped around the rotating PTO. The farmworker suffered severe damage to the spinal cord, skull, and left leg, killing him immediately. In order to prevent similar incidents from occurring, FACE investigators recommend:

- PTO shafts should be covered by a protective guard
- Workers should avoid wearing loose or frayed clothing which can get caught in machinery
 - Workers should be provided with training to safely operate equipment

INTRODUCTION

On 16 November 1995, FACE investigators were informed of the death of a farmworker on 14 November. An investigation was initiated and FACE investigators traveled to the site on 29 November. Interviews were conducted with the county coroner and the dairy farm owner who had been present at the scene. Copies of the coroner's report and photographs of the scene were obtained, along with the death certificate and autopsy and toxicology reports. Measurements and photos were taken of the site and equipment involved. An equipment dealer was consulted via phone at a later time.

INVESTIGATION

Two brothers owned the dairy farm and had been involved in farming all of their lives. They had bought the 240 acre farm in 1991 and raised about 100 head of dairy cattle as well as a few acres of tobacco.

The victim in the incident worked full-time as a glass handler at a glass plant but had several years of experience farming and operating farm equipment. He was single, weighed 135 pounds and was 5'8" tall. Often after working the day shift at the glass plant, he would go to the dairy farm to assist the owners with the evening routine. Tasks included hauling silage, repairing of fences, and milking.

On the day of the incident, the victim arrived at the dairy farm about 5:00 pm following a day of work at the glass plant. Upon arriving at the farm, he began to assist one of the owners with the task of unloading the corn from the silage wagon for cattle consumption. The other owner was working elsewhere on the farm at that time.

An International tractor, Model 574 (52 hp), manufactured in 1976, was used to pull the silage wagon and supply power for emptying the wagon. The silage wagon was manufactured by Gehl. The PTO shaft was 24 inches from the ground and it was not covered by a protective safety guard. Operating at full power, the PTO ran at approximately 540 RPM. Safety decals were intact and visible on the front of the silage wagon where the PTO was attached.

To unload the corn, the tractor and wagon were located parallel to the feeding trough (see Figure 1). Recent rain had made the area slick with 3-4 inches of mud, water, and manure. Weather was cold and the victim was wearing coveralls. The farm owner related that he had last seen the victim standing near the grain elevator that carried the corn from the silage wagon to the feeding trough. The process was nearly complete when the owner heard a yell and turned around to find the victim caught in the PTO shaft, which was operating at full power. The shaft continued to rotate, causing severe damage to the victim's head, spine, and leg, killing him immediately.

The owner shut off the power and then called 911. Rescue crews and the state police responded after receiving the call at 5:40 pm. The coroner was dispatched at 5:51 pm and arrived at the scene at 6:12 pm. The estimated time of the incident was 5:35 pm; the victim was pronounced dead at the scene at 6:22 pm.

CAUSE OF DEATH

Cause of death was determined to be traumatic injuries to left leg; fractures of skull, ribs, cervical spine; lacerations of brain, brainstem, and spinal cord.

Toxicology report was negative for any blood alcohol or drugs.

RECOMMENDATIONS/DISCUSSIONS

Recommendation #1: PTO shafts should be covered by a safety guard.

Discussion: It is not known exactly how the victim became caught in the PTO shaft; it is possible that he slipped in the mud and fell into the PTO or his clothing became caught as he stood too close to the machinery. With either possibility, a guard covering the PTO could have prevented the victim from becoming entangled in the moving shaft. This model tractor can be retrofitted with a PTO guard, costing approximately \$65. An equipment dealer should be contacted for further information.

Recommendation #2: Workers should avoid wearing loose or frayed clothing which can get caught in machinery.

Discussion: Although the victim in this case was wearing coveralls, it is possible that his clothing became entangled in the PTO during operation. Loose-fitting clothing, jackets with drawstrings, and shoes and boots with long laces should be avoided when working around machinery.

Recommendation #3: Workers should be provided with training to safely operate equipment.

Discussion: Workers need to be aware of the potential hazards of PTOs and other machinery with moving parts. Training in operating equipment safely can help reduce the risk of injury and death.

REFERENCES

Snyder K, Bobick T. Safe Grain and Silage Handling. National Institute for Occupational Safety and Health;

October 1995.

NIOSH Warns Farmers of Forage Wagon Hazards. National Institute for Occupational Safety and Health (NIOSH), DHHS (NIOSH) Publication No. 95-118; September 14, 1995.