MIFACE INVESTIGATION: #03MI098

SUBJECT: Farmer Dies When Pinned by Flail Mower

Summary

Figure 1. Incident scene

On July 17, 2003, a 73-year-old male cattle farmer was killed when he was pinned beneath the front of a flail mower. He had been clipping pastures on a Farmall International 706 fast hitch tractor with a MC rotary sythe (flail mower) attached. When moving from the field he had just cut, he placed the flail mower in a locked upright position. The next pasture he was going to cut was protected by a ribbon electric fence. He traveled along a two-track road, through a wooded area and approached the field he was preparing to mow. To enter the field protected by the electric fence, the victim normally dismounted the tractor, pulled up the fence posts, laid the posts on the ground, and drove the tractor over energized wire. On the day of the incident when he did not return home, his wife went looking for him. When she found him, she drove home and called for emergency responders. Emergency responders found the tractor contacting the electric wire approximately eight feet from the fence line. The fence posts were not pulled up. The flail mower was locked in the upright transport position. The tractor was in neutral, the parking brake was not set, and the PTO was not activated. It is unknown how the victim became pinned beneath the mower. The victim was declared dead at the scene.

RECOMMENDATIONS

- All tractor operators should follow safe equipment shutdown procedures as described in the operator's manual.
- Owner/operators should maintain equipment in good operating condition.

Key Words: Agriculture,
Machine-Related, Tractor

INTRODUCTION

On Thursday, July 17, 2003, a 73-year-old male cattle farmer was killed when he was pinned beneath the front of a flail mower. MIFACE researchers were informed of the farm work-related fatality by a newspaper clipping. On February 17, 2004 MIFACE researchers interviewed the victim's son. During the course of writing this report, the medical examiner's report, death certificate, and police department report were obtained. Figures 1and 2 are photographs taken at the scene by the responding medical examiner investigator. MIFACE has modified these pictures to not include the victim's body. MIFACE was unable to visit the incident site or take pictures of the tractor/flail mower.

The victim raised and owned 25-30 head beef cattle. His 160-acre farm included 40 tillable acres, 20-30 acres used for pastureland, and the remaining land was swampy and was not used for business purposes. 30 acres were out-farmed. According to his son, the victim was very concerned about performing tasks in a safe manner. The victim had hurt his left shoulder due to a previous fall that had occurred nine years ago.

The ground at the site of the incident consisted of heavy clay and pasture grass. The high temperature on the day of the incident was 78 degrees. Over an inch of rain had fallen within the previous week, but it had not rained for 2 days prior to the incident day.

INVESTIGATION

The tractor driven by the victim was a Farmall International 706 fast hitch tractor. He used this tractor because it was more comfortable to ride than his other tractors. The victim had added an extra step on the operator's left side to assist in mounting and dismounting. The tractor did not have a cab or ROPS.

The victim bought the hydroswing-style MC rotary sythe in "used" condition. The sythe, referred to in this report as a flail mower, was approximately 10-15 years old and was used specifically for pasture cutting. The mower did not have chains in front to catch debris. The victim did not normally use this piece of equipment; it was not his favorite piece of equipment and had not used it for possibly two years. The victim's son thought that the victim had used the flail mower only six times since he had purchased it. The mower was stored outside without protection and was rusty. The victim's son noted that the steel roller was approximately four inches above the ground.

The flail mower had a pin on its swing arm that was attached to a rope. This rope was attached to the tractor, on the operator's left. The pin locked the mower in a transport position behind the tractor.

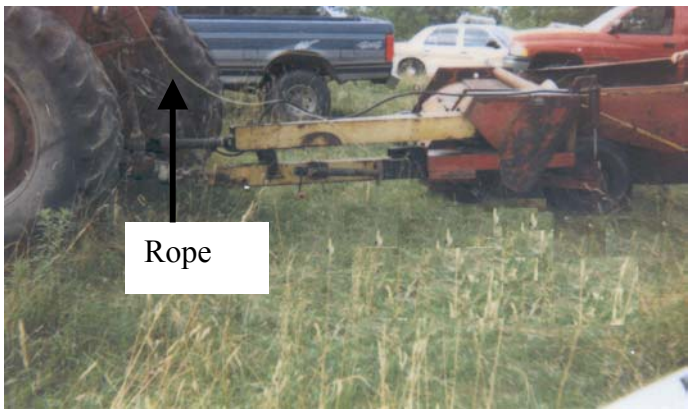

Figure 2. Rope attached to pin for flail mower

The rope was a part of the mower, not an aftermarket addition. The rope was attached to the tractor, according to his son, to allow the pin to be released directly from the tractor instead of having to dismount/mount the tractor. This pin was difficult to remove. (See Figure 2)

On the day of the incident, the victim cut one field. To travel to the next pasture, he traveled on a 2-track road through a wooded area. This 2-track road was narrow and he was required to raise the windrow wings and position the flail mower directly behind the tractor. He locked the flail mower in an upright position. After exiting the wooded area, the 2-track road continued to the next field he was preparing to cut.

This field was protected by a ribbon electric fence. According to the victim's son, the victim would usually set the parking brake, dismount the tractor, pull up the fence posts and lay them on the ground, mount the tractor and drive over the fence wire. It was not known when he would release the flail mower pin, before or after dismounting. To release the flail mower pin, the victim's son thought he would stand near the operator's seat and pull on the rope attached to the pin.

The actual sequence of events on the day of the incident is unknown. When he did not return home when expected, his wife drove the property on a golf cart to search for him. When she found him, she returned home and called for emergency responders and her son. Her son arrived before the emergency responders and indicated to them that the tractor was idling but was not in gear, and there was no power applied from the PTO to the mower. Emergency responders noted the following scene conditions: (a) the victim appeared to have driven over one of the electric fence wires which was still attached to the tractor and was still hot, (b) the victim's glasses were found approximately eight feet from the victim's body which could indicate the tractor traveled forward approximately that far.

The victim's son informed the MIFACE researchers that he believed that the tractor traveled forward farther than the eight feet indicated by the police based on the location of the victim's hat. He thought the tractor moved farther and that his father may have been holding on to the drawbar or the rope before being run over. Confirming the police report, the son told the MIFACE researchers that the tractor's parking brake was not set when he arrived at the incident scene, that he turned off the tractor, and that the PTO was not in gear. The electric fence ribbon and posts were not lying on the ground. According to his son, the mower was locked in the upright position and the slope of the property at the incident site was 5-10%.

It appears from pictures taken at the scene of the accident that the flail mower is off to one side of the tractor. He was found face down with the mower on top of him. The victim was pinned by the steel roller that was approximately 4" off of the ground. Emergency responders found the victim pinned face down underneath the wheel and mower frame.

Since the event was unwitnessed, the following incident scenarios, although speculative, may provide a possible sequence of events.

- The son felt strongly that the victim fell from the tractor while attempting to pull out the pin by the rope while standing near the operator's seat. It is unknown if he may have successfully removed the pin before falling. During the fall, he may have

struck the drawbar. After falling, the tractor vibration caused the tractor to move forward, the flail mower shifted, and he was pinned beneath the flail mower. The victim, according to his son was safety-conscious. When the victim would dismount the tractor, he normally set the parking brake. That is why the son thought that he was still on the tractor and fell from the tractor while attempting to get the pin out.

- The victim may have dismounted from the tractor and while standing on the ground, pulled up on the rope, or the pin itself in an attempt to loosen the pin. While attempting to release the pin, he lost his balance. The flail mower shifted and the tractor moved. He was caught under the moving mower and was pinned underneath.

CAUSE OF DEATH

The cause of death as stated on the death certificate was mechanical (compression) asphyxia. Toxicological studies were negative or alcohol or drugs of abuse. His medical history was significant for hypertension and he was taking blood pressure medication.

RECOMMENDATIONS/DISCUSSION

- All tractor operators should follow safe equipment shutdown procedures as described in the operator's manual.

Tractors will travel forward downhill if parked on an incline without an effective braking device and the vibration created by a running engine may increase the possibility of initiating the forward motion. Tractor operators can prevent tractors from rolling by disengaging the transmission, shifting the tractor into neutral, locking the brakes and turning off the engine before dismounting. General shutdown procedures for a tractor are: disengage the PTO, lower equipment attachments to the ground, place the transmission into neutral or park, set the brakes turn off the engine and remove the key. Whenever possible, the tractor should be parked on level ground. Although the grade was slight (5-10%), the tractor could still move downhill and did.

In this instance it is unknown if the victim fell from the tractor prior to tractor movement or was on the ground when the tractor began to roll. If the brakes had been locked prior to any action of the victim, this death may have been prevented.

- Owner/operators should maintain equipment in good operating condition.

The son indicated that the mower was old and rusty, and that it was possibly not used for two years. The equipment was stored outside. He stated that it was hard to pull out the pin. All machine components should be checked periodically to ensure that they are in proper working order. Maintenance and servicing equipment is a prerequisite to a properly working, functional machine.

REFERENCES

Record of Climatological Observations, National Oceanic and Atmospheric Association (NOAA).

MIFACE
Investigation Report # 03 MI 080
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Please rate the following on a scale of:

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1	**2**	**3**	**4**

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