

MIFACE INVESTIGATION: #04MI093

SUBJECT: Farmer Died When Run Over by Tractor's Rear Wheel and Chopper

Summary

On June 18, 2004, a 40-year-old male died while cutting a hay field for forage. He had attached a New Holland chopper to the rear of the Farmall 400 tractor and a forage wagon to the chopper to hold the cut hay. It is unknown how he came into the position of being run over by the tractor's rear wheel and the chopper. Several scenarios have been hypothesized. The victim was on his third pass in the middle of the field. After the victim was run over by the equipment, the tractor continued to travel forward in the field in an arc from east to west, finally coming to rest in a tree line adjacent to the hay field. When the victim did not return home family members went to search for him. They found him in the field and called for emergency response. Emergency Response declared the victim dead at the scene. Family members noted that all prior forage cuts the victim made were straight, except in the location just before where the victim was found. Family members noticed a very slight "zigzag", from west to east in this final cut.

RECOMMENDATIONS

The recommendations below are based upon the possible event scenarios described in the report.

- Ensure medical conditions are managed by all workers on the farm.
- Place cell phones on your body where they won't fall off or interfere with work activities.
- Stay seated on the tractor seat while operating the tractor.
- Do not try to retrieve items that fall from the tractor while the tractor is moving.
- Make sure you are rested when operating machinery – establish a work routine that includes adequate rest breaks and limits on continuous hours of work.
- Start tractor from the operator's seat.
- Follow safe equipment shutdown procedures as described in the operator's manual.

Key Words: Agricultural,
Machine-Related, Tractor

INTRODUCTION

On June 18, 2004, a 40-year-old male died while cutting a hay field for forage. It is unknown how he came into the position of being run over by the tractor's rear wheel and the chopper. He was chopping hay using a Farmall 400 tractor with an attached New Holland chopper and attached forage box wagon. MIFACE investigators were notified of this incident through a newspaper clipping. On October 19, 2004, MIFACE researchers interviewed the victim's family member who also accompanied them to the site of the accident. MIFACE investigators took pictures of the incident site and also reviewed the medical examiner's and police report of this incident. Figure 1 was taken by the MIFACE researcher at the time of the site visit months after the incident. Figure 2 and Figure 3 are police pictures taken at the time of the incident.

INVESTIGATION

The victim was driving a wide-front, diesel powered, 1950's model Farmall 400 tractor. He had attached both a chopper and a forage box wagon to the rear of the tractor. His family member reported the tractor was in good operating condition. The victim was cutting a 40-50 acre hay field that was flat but had fairly rutted terrain.

The victim worked third shift (11:00 p.m.-7:00 a.m.) at a local factory. After finishing his shift, he would normally return home and sleep. He had a side business of cutting and baling hay for both family and friends. He had to delay cutting and baling his client's fields due to wet weather. The family member interviewed stated he had been cutting hay for years and was very experienced operating the tractor and associated hay cutting equipment. On the day of the incident, according to this family member, he had returned home from his night shift work, and slept until around noon. He ate lunch, then visited a friend and borrowed his New Holland chopper to cut this field. The victim called the family member interviewed using his cell phone at approximately 3:00 p.m. while he was hooking up the chopper. He called her again using his cell phone at 4:30 p.m. and talked for about five to ten minutes.



Figure 1. Rutted field where victim was cutting at time of incident.

The victim cut the perimeter of the field. The hay was approximately mid-thigh in height. Dividing the field into thirds, he began his first cut to the north, then around the perimeter of this third of the field. The incident occurred on the third cut to the north. He cut approximately one-

third of the distance to the north edge of the field when the incident occurred. After he was run over, the unmanned tractor made an arc going east to west toward the tree line, which is consistent with the victim falling from the tractor on his left side.

The victim had not returned home as expected so his family and friends went to look for him. They found the tractor in first gear in a tree line near the field. The tractor had stalled but the radio that was sitting on the right fender of the tractor was still operating. Because the tractor and chopper had continued to operate after the victim was run over, the family members walked along the cut hay path from the tractor location at the tree line until they found the victim. He was found lying on his back with his arms extended over his head. The rear tractor tire ran over his arm and the right side of his body sustained injury from the chopper and chopper blade. The family called 9-1-1. Emergency response personnel declared him dead at the scene. His ball cap was discovered approximately 100 feet south of where the victim was found and his cell phone was found approximately 75 feet south of the baseball cap.

The incident was unwitnessed, and several possible scenarios have been hypothesized.

Scenario One: The victim lost consciousness and fell from the tractor due to a medical problem. The victim's family member indicated that the victim had "blacked out" approximately five years ago after he was snowmobiling and had entered an indoor environment. He had high blood pressure and high cholesterol but currently did not take medication for his high blood pressure. This was confirmed by toxicology results. His family member stated that his last doctor visit was in 2002 when he received a prescription for medication to control his high blood pressure but he had not been back to the doctor since that time for his high blood pressure.

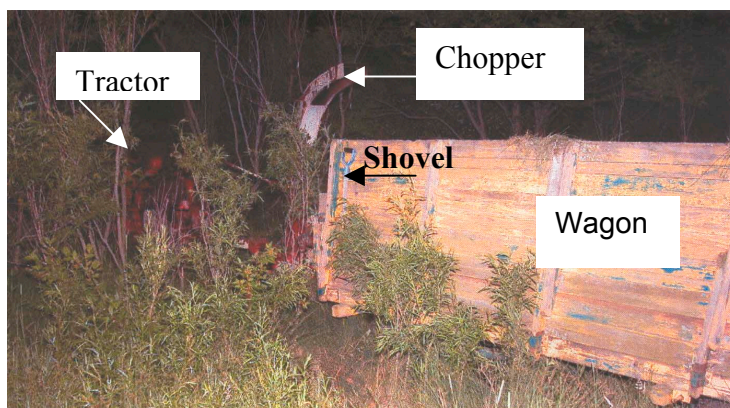


Figure 2. Tractor, chopper, trailer wagon stalled in tree line next to field

Scenario Two: The victim wore a flip-type cell phone clipped to his right hip pocket. Perhaps looking over his shoulder repeatedly to check on the equipment attached to the rear caused the cell phone to dislodge from his pocket and fall to the platform area of the tractor. He may have been attempting to reach his cell when he lost his balance, fell, and was run over.

Scenario Three: The victim may have been operating the tractor while standing up. Since the field was rutted, he may have lost his balance and fell while the tractor traveled on the rough terrain. The family member interviewed did not think that he operated the tractor while he was standing up, but did not discount that this scenario was possible.

Scenario Four: Wind may have played a role in this fatality. The victim was wearing a baseball cap, and wind speeds were high enough to cause the cap to be blown off his head. Unedited local

Climatological data from the NOAA, National Climatic Data Center for the day of the incident indicated that the maximum five-second-wind speed was 21 miles per hour and the maximum two-minute wind speed was 16 miles per hour. If his cap was blown from his head, he may have been trying to retrieve it, lost his balance, and fell from the tractor.

Scenario Five: The victim may have been tired and fell asleep at the tractor wheel. Although the family member interviewed indicated that the victim had taken a nap, he had slept at most, 4 ½ hours. (His workplace was approximately ½ hour from his home.).

Scenario Six: The victim may have dismounted from the tractor to either retrieve his cell phone, ball cap, check the chopping equipment operation, or to use the shovel hanging on the wagon (See Figure 3) to redistribute the hay in the trailer wagon. It is unknown whether he dismounted with the tractor running. He did not set the parking brake. If he had turned the tractor off prior to dismounting, he may have left the tractor in gear. Prior to mounting the tractor and while standing on the ground, he may have turned the key to start the tractor. (See Figure 4) Since the tractor was in gear, it began its forward movement upon starting. He was unable to get out of the way and was run over by the tractor and chopper.



Figure 3. Farmall Tractor and key location

Scenario Seven: The victim may have been attempting to dial a phone number on his cell phone. He attempted to clip the phone back on his pocket and didn't fully attach the phone to his clothing. The cell phone fell. He realized the phone was missing and looked to the floorboards and around the tractor. While he was looking, the baseball cap was either knocked off his head or the wind blew it off of his head. Not seeing the phone on the tractor floorboards, he stopped the tractor, and placed the transmission in neutral. Leaving the tractor and PTO running, he dismounted. As he was in the process of dismounting from the tractor, he unknowingly kicked the gearshift from neutral into first gear. The tractor began to move forward and the victim lost his balance, fell, and was run over by the wheel and chopper

CAUSE OF DEATH

The cause of death as stated on the death certificate was multiple blunt force and sharp force injuries. Toxicological tests were negative for ethanol, medication, and other drugs of abuse.

RECOMMENDATIONS/DISCUSSION

The recommendations below are based upon the possible event scenarios described in the report.

- Ensure medical conditions are managed by all workers on the farm.

The victim had been diagnosed with high blood pressure but was not being treated by a physician at the time of the fatal incident for this condition. Untreated blood pressure increases the risk of developing a stroke or heart attack. There was no evidence of either of these conditions on his autopsy. High blood pressure, in the absence of a vascular complication, is generally asymptomatic. Even if a person with high blood pressure has symptoms, the symptoms are usually mild and non-specific. Some people will experience symptoms such as headache, dizziness, blurred vision or nausea. It is unknown if the victim experienced any symptoms at the time of the incident. It is important to seek medical care and manage medical conditions such as high blood pressure to minimize the long-term impact on health. This is the least likely of the scenarios to explain the death.

- Place cell phones on your body where they won't fall off or interfere with work activities.

With the increased use of cell phones in the work environment, attention must be paid to where and how the cell phones are placed and attached to a person's clothing so that they don't interfere with or create a potential hazard to the individual's work activity or to the equipment that they may be working on or with. The victim's family member stated that he usually clipped his cell phone to his right hip pocket. His work activity (looking over his shoulder to check on the chopper/wagon) could have dislodged the cell phone if in fact it was clipped to his hip pocket. If the cell phone had become dislodged, the victim may have been trying to reach for it before it fell from the tractor platform. He may have lost his balance and fell from the platform and was run over.

When clipping a cell phone to clothing while at work, an individual should be cognizant of the types of activities he or she will be performing as well as how they will be interacting with equipment so that the cell phone is placed in a position that will not interfere or create an additional hazard.

- Stay seated on the tractor seat while operating the tractor.

Because tractors often operate on rough, rutted ground, it is important for the operator to stay seated in the operator's seat while the tractor is being driven. An unexpected bump could cause balance difficulties if you are standing up on the tractor platform instead of being seated. The tractor was not equipped with a rollover protective structure (ROPS) and seat belt. Although a tractor rollover did not occur in this incident, older tractors should have a ROPS/seat belt installed by an authorized dealer and the operator should be seated and wearing the seat belt to make the ROPS effective.

- Do not try to retrieve items that fall from the tractor while the tractor is moving.

A person's first reaction when something falls is to try to catch the object before it hits the floor. When a person is operating a piece of equipment, such as a tractor, on rough terrain, attempting to catch or retrieve an object that falls places that person at risk because he/she is preoccupied and not giving full attention to the equipment task at hand. Trying to maneuver around on the tractor to catch his cell phone or baseball cap may have caused the deceased to lose his balance, fall from the tractor and be run over.

- Make sure you are rested when operating machinery; establish a work routine that includes adequate rest breaks and limits on continuous hours of work.

The victim only had four hours of sleep after working his factory shift before he began his second job of cutting hay for forage. It is unknown if sleep deprivation played a role in this tragedy. The National Sleep Foundation indicates that most adults need between seven and nine hours of sleep each night for optimum performance, health and safety. When we don't get adequate sleep, we accumulate a sleep debt that can be difficult to "pay back" if it becomes too big. The resulting sleep deprivation has been linked to health problems such as obesity and high blood pressure, negative mood and behavior, decreased productivity, and safety issues in the home, on the job, and on the road.

Although the deceased had not been working very long, perhaps being tired coupled with the "monotony" of cutting the field caused him to fall asleep and fall from the tractor seat to the ground. Operating machinery when tired places a person at increased risk of an injury; take a safety break when you are sleepy, fatigued or mentally tired. Establishment of a work routine that includes adequate hours of sleep, rest breaks and a limit on continuous hours of work will allow an operator's body to perform optimally and decrease the risk of injury by not allowing an operator to ignore his/her body's "warning signals."

- Start tractor from the operator's seat.

The operator's seat of farm tractors and other machines provides a workstation from which the operator can maintain proper control of the machine. When a tractor engine is started in gear, it may move suddenly and run over anything in its path. Starting the tractor while it is in gear is an unsafe practice. Proper control is necessary not only during operation of a tractor or machine, but also whenever an engine is started. While seated in the operator's seat, an operator should check the engine throttle position, disengage the clutch and shift the transmission into neutral or park before the engine is started. Setting the brakes will prevent the tractor from rolling before the operator engages the transmission. Before starting a tractor engine, the operator should also ensure the power take off is disengaged. Performing these steps will reduce the likelihood of a tractor or machine accidentally moving forward or backward after the engine starts. In addition, if a tractor or machine does unexpectedly begin to move after starting, an operator seated in the seat will not be in danger of being run over and will be in position to maintain safe operating control.

Many modern tractor systems are equipped with additional safety interlock systems. Tractors equipped with neutral-start safety switches prevent the starter from cranking the engine if the

transmission or clutch is engaged. Many power-take-off levers contain neutral safety switches also. When using an older model tractor without these safety interlock systems, one must be particularly careful to follow safe tractor starting procedures.

- Follow safe equipment shutdown procedures as described in the operator's manual.

It is unknown if the victim attempted to dismount while the tractor and PTO were running. A safe work practice is to shut the tractor off 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, allow the engine to cool at a fast idle, turn off the engine and remove the key.

REFERENCES

National Sleep Foundation. Internet resource: www.sleepfoundation.org

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MIFACE

Investigation Report # 04 MI 093

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1 2 3 4

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