MIFACE INVESTIGATION REPORT #12MI218

SUBJECT: Horse Breeder Falls 11-12 Feet From Hayloft When Throwing Hay Bale

Summary

In fall 2012, a male horse breeder in his 70s died when his coat became entangled in the twine of a bale he was physically throwing from the hayloft. He fell 11-12 feet from the loft onto hard packed dirt. The decedent was working alone up in the loft. His spouse was feeding the horses below. She heard a "thud" but thought it was a bale landing on the ground. She went to investigate a few minutes later. She saw her husband lying on the ground. She ran to their home to call emergency response. Emergency response arrived and transported him to a local hospital where he died the next day.

Figure 1. Overview of Incident Scene – Loft opening through which decedent fell

CONTRIBUTING FACTORS

Key contributing factors identified in this investigation include:

- Old, frayed clothing
- No fall protection while working near open loft door
- Work practices – throwing the hay bale instead of pushing the bale
- Hay on floor contributing to slip hazard
- Possible fatigue from throwing hay bales

RECOMMENDATIONS

- When possible, do not throw but rather push a hay bale out of hay loft to the ground.
- Install removable guardrail(s) across the loft door.
- Wear gloves to protect hands from cuts and abrasions while handling twine-baled hay.
- Use a bale cart to move bales in the hay loft.
- Wear a fall protection harness with appropriate anchor points to safely access each loft door.
- Do not wear frayed/torn clothing.
- Locate a broom in loft to sweep to avoid slips and falls.

INTRODUCTION

In fall 2012, a male horse breeder in his 70s died when his coat became entangled in the twine of a hay bale he was physically throwing from the hayloft. MIFACE was notified of this incident by a newspaper clipping. MIFACE researchers contacted the decedent's spouse who agreed to have a site visit. During the writing of this report, MIFACE reviewed the death certificate, medical examiner investigation report and the police report and pictures.

The decedent and his wife had bred horses since 2001 on 17 acres. At the time of the incident, 18 horses were at the farm. The decedent had grown up on a farm. His wife indicated he had cataracts in both eyes and had torn his rotator cuff several years ago.

INVESTIGATION

On the day of the incident, the decedent was at a friend's house when his wife called him home to help with horses. When he arrived home, they went to the barn.

The decedent was in the barn's second story hayloft while his wife fed the horses their grain ration on the ground floor. Each end of the loft had a door opening. The decedent was wearing his favorite old jacket (although he had a new one available). He was not wearing gloves. His wife stated the decedent was right-handed.

Figure 2. Standing in loft area, loft opening through which decedent fell

The hayloft could be accessed by stairs. Four lights were in the loft, two by each opening. Openings were located on each end of the hayloft by a sliding door. The door opening dimensions were 3 feet 9 inches wide by 7 feet high. The loft area was approximately 36 feet wide by 40 feet long. The door openings were approximately 12 feet above the ground.

The decedent had thrown three bales, each weighing approximately 50 pounds, out of the loft without incident using a bungee cord to assist. The fatal unwitnessed incident occurred while he was throwing the fourth bale. While grabbing the bale, his coat sleeve became entangled in the baling twine of the hay bale and the bungee cord (See Figure 3). Several incident scenarios have been developed which may have caused the fall: 1) unbeknownst to him, his coat sleeve was entangled. As he threw the hay bale out of the opening, the bale's momentum pulled him out of the loft, 2) he purposely pulled down the sleeve of his coat over the palm of his hand. As he threw the hay bale out of the opening, the bale's momentum pulled him out of the loft.

While distributing the grain, his wife heard a loud thump outside the barn. Thinking it was a hay bale, she continued her work. She went into a room in the barn for a few minutes and then decided to investigate the thump sound. When she went to investigate, she found her husband laying on the ground and unconscious. She immediately ran to their home and called 911. Emergency response arrived and assumed care. Emergency responders transported the decedent to a nearby hospital where he died the next day.

Figure 3. Decedent's coat sleeve entangled in bale twine and bungee cord

CAUSE OF DEATH

The cause of death as listed on the death certificate was multiple injuries due to a fall. No autopsy was performed.

RECOMMENDATIONS

- When possible, do not throw but rather push a hay bale out of hay loft to the ground.

A contributing factor to this incident is the decedent's work practice of throwing the hay bale out of the loft door. If the decedent had pushed the hay bale out of the door to the ground, the incident may have been prevented.

- Install removable guardrail(s) across the loft door when the loft doors are open.

Although the doors are normally kept closed when individuals are not in the loft, they may be open while work is being performed due to time of day, limited lighting in the loft, and work being performed. When the door is slid open and kept open for lighting or work purposes, MIFACE recommends that a removable guardrail be placed across/in front of the opening to prevent an unintended fall.

- Wear gloves to protect hands from cuts and abrasions while handling twine-baled hay.

The decedent may have pulled the sleeve down around his hands to protect them from cuts/abrasions while throwing the hay bales out of the open loft door. Gloves would have protected his hands from the twine and may have prevented this incident.

- Use a hand truck/dolly to move bales in the hay loft.

A hand truck/dolly (See Figure 4) can be used to reduce the physical exertion of lifting and carrying the bales to the open door area. The decedent may have been tired from throwing the previous three bales, which may have contributed to his loss of balance.

Figure 4. Example of hand truck to transport bales in loft to open door

- Wear a fall protection harness with appropriate anchor points to safely access each loft door.

Whenever work is performed at an elevation where the potential for a fall exists, fall protection equipment should be used. The decedent was working without using any type of fall protection at an elevation where the potential for a fall of more than 6 feet existed. Adequate fall protection equipment, such as lifelines, safety harnesses or belts and lanyards, should always be used whenever the potential for a fall exists. If the decedent had been using adequate fall protection equipment (i.e., lifeline, safety harness or belt, and lanyard) with an appropriate anchor point, this fatality would have been prevented. Both doors of the hayloft should be considered when using fall protection equipment.

- Do not wear frayed/torn clothing.

The decedent was wearing his favorite work jacket which was frayed and torn. This recommendation is a general safe work practice that should always be followed by where the risk of entanglement exists. The risk of entanglement in any work activity can be reduced if operators do not wear:

- ✓ Loose fitting, frayed clothing, including jackets and sweatshirts. Work clothing should be well fitting and zippered or buttoned, not open.
- ✓ Clothing that dangles, such as jewelry, scarves, jackets with drawstrings, and boots or shoes with long shoelaces.
- ✓ Long hair and braids that is not tied back.

- Locate a broom in loft to sweep to avoid slips and falls.

Work areas should be clear of slip, trip, and fall hazards. A broom was available on the barn floor, but not in the hayloft. To facilitate cleanup in haylofts to minimize the opportunity for a slip and fall injury, farm owners should keep a broom in the loft.

Key Words: Hayloft, hay bale, fall, Agriculture

RESOURCES

- Michigan FACE Investigation 07MI122: Farmer Killed When He Became Entangled in Implement Drive Line/Posthole Auger. http://www.oem.msu.edu/MiFace/07MI122.pdf
- Minnesota FACE Investigation 96MN08701: Farmer Dies of Injuries Sustained After Falling 20 Feet From Silo. http://www.cdc.gov/niosh/face/stateface/mn/96mn087.html
- Gempler's on-line catalogue. Milwaukee Convertible Truck. http://www.gemplers.com/product/WEB210499/Milwaukee-Convertible-Trucks

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