



# STATE OF NEW YORK DEPARTMENT OF HEALTH

## FATALITY ASSESSMENT AND CONTROL EVALUATION

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### Farm Worker Dies during Forage Chopper Entanglement Case Report: 03NY049

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#### SUMMARY

On Saturday, September 6<sup>th</sup>, 2003, a 24-year-old farm worker was fatally injured when he became entangled while putting hay bales through a forage chopper. At the time of the incident, the victim and a co-worker had been chopping hay bales to add to the total mixed ration to be given to cows that day. In order to feed the bales through the John Deere 5400 self-propelled forage chopper, the workers were separating the bales into flakes. As they were working, the victim asked his co-worker to go get another bale while he finished chopping the bale he had already started. The co-worker left to get another bale, and while he was doing this heard the chopper belts start to squeal. He and the farm owner returned to the work area and found the victim caught in the chopper. The farm owner immediately called 911 for help. Emergency rescuers worked for over 3 hours to extricate the victim.

New York State Fatality Assessment and Control Evaluation (NY FACE) investigators concluded that to help prevent similar incidents from occurring in the future:

- *Equipment should not be modified for purposes other than the original design;*
- *Workers should not work in close proximity to potentially severe hazards;*
- *Workers should not operate machinery with components missing.*

#### INTRODUCTION

NY FACE investigators learned of the fatal incident through referral calls and media reports on September 6<sup>th</sup>, 2003. The fatality involved a 24-year-old farm employee who was hand-feeding hay bales into a forage chopper at the time of the incident.

The farm worker had been employed for two months on a family-owned dairy farm where he was valued as a good employee. He had grown up on his family's farm that was no longer in operation and had considerable farm-related work experience. The dairy farm where the incident occurred milked approximately 340 cows with a total herd size of approximately 550. The farm additionally worked 1200 acres of cropland in order to feed the herd. According to the farm owner, the victim had been involved in tractor pulling contests in the past, and had injured his right leg during a contest 3 years prior to the incident. This injury resulted in permanent damage that left the worker

with a limp. The worker was observed at times using his left leg to kick things up from the ground, and the farm owner noted that the worker was very quick with his left leg.

A NY FACE investigator interviewed the farm owner in late September. Reports from the sheriff's department and funeral home were also reviewed.

## INVESTIGATION

On Saturday, September 6<sup>th</sup>, 2003, the victim and a co-worker were chopping four bales of hay using a 1970s vintage self-propelled 4-wheel drive John Deere 5400 forage chopper, one of the first models of this type of equipment (Figure 1). The hay was being added to the total mixed rations (TMR) given to the cows at the suggestion of a nutritionist in order to increase milk production for the herd. For the hay to be mixed properly into the TMR in a mixer, the bales had to first be put through a chopper. To do this, the bales were flaked into sections, and then hand fed through the intake rollers of the forage chopper. The intake rollers would then feed the sections of bales into the knives that were spinning at approximately 900 rpm. On the day of the incident, the forage chopper did not have a hay or corn head attachment in place as the head of the chopper had been removed specifically so that the workers could feed hay directly into the chopping unit.



The workers had already chopped two bales of hay when the victim sent his co-worker to get another bale. As the co-worker drove a skidsteer loader away to get another bale, the victim continued to feed a bale into the forage chopper by hand. The co-worker in the meantime had stopped by the farm shop to discuss another piece of equipment with the farm owner. As they were talking they heard the belts on the forage chopper begin to squeal and noticed smoke from the belts. The co-worker and farm owner returned to the site of the forage chopper and discovered the body of the victim entangled in the intake rollers of the chopper.

The farm owner reported that when they arrived on the scene the victim's left leg and lower torso were entangled in the rollers, with the victim's right leg remaining outside of the machinery. The machine had shut down completely, and it was later found that one of the drive belts had completely burned off, and the remaining belt was damaged. The position of the victim's left leg in the entanglement indicated the victim may have utilized this leg to assist in feeding the hay into the mechanism.

The farm owner, upon reaching the scene, immediately called 911. Being an EMT himself, he then assessed the victim for pulse and was unable to detect a heartbeat. Emergency rescuers worked for over 3 hours to extricate the victim from the machinery. Large agricultural equipment often presents a challenge to EMS personnel due to its large and complex nature. A representative from the local John Deere dealer was called to the scene for technical advice during the extrication process.

The farm owner stated that at the time of the incident the farm was under great financial stress. A few weeks prior to the incident, the farm owner had met with a nutritionist regarding increasing the farm's milk production. The farm did not have access to a bale chopper or tub grinder, and had no financial resources to obtain the equipment needed. The decision was therefore made to use the 1970s vintage JD 5400 forage chopper in order to prepare four large bales for adding to the TMR. It should be noted that the JD 5400 forage chopper was not designed to be used as a stationary bale chopper, nor to be operated with the head removed.

According to the farm owner, he talked with his employees daily about the dangers of feeding the hay into the chopper by hand. He also reported that they were in the process of building a separate piece of machinery that would chop the bales, thus eliminating the need of using the forage chopper, but that piece of equipment had not yet been completed.

## **CAUSE OF DEATH**

The cause of death per the coroner was sharp injury.

## **RECOMMENDATIONS/DISCUSSION**

**Recommendation #1:** *Equipment should not be modified for purposes other than the original design.*

**Discussion:** In this case the forage chopper had been modified by removing the chopping head from the machine. The chopper was then placed in a stationary position inside the bunker silo with hay being fed directly into the interior mechanism of the machine. The original equipment design is intended to be a self-propelled unit that travels through the field harvesting and processing material as it travels.

**Recommendation #2:** *Workers should not work in close proximity to potentially severe hazards.*

**Discussion:** In this scenario, the large rotating intake rollers presented an immediate hazard to nearby workers. These rollers were located at a waist high level in the vicinity of where the worker

was standing. These rollers are not normally exposed and would normally present no hazard since they would be effectively guarded by the chopping head; however the chopping head had been removed. Additionally, under normal machine operating conditions, workers would not be located near this mechanism since they should be located in the operator position in the cab of the chopper.

**Recommendation #3:** *Workers should not operate machinery with components missing.*

**Discussion:** In this scenario, the chopper was knowingly operated with components missing. The chopping head had been removed, exposing the intake rollers, thereby presenting a hazard to nearby workers. Guards and shields should be kept in place on all large machinery to ensure the safety of workers.

**Keywords:** *forage chopper, machinery, farm worker, caught in*

The Fatality Assessment and Control (FACE) program is one of many workplace health and safety programs administered by the New York State Department of Health (NYS DOH). It is a research program designed to identify and study fatal occupational injuries. Under a cooperative agreement with the National Institute for Occupational Safety and Health (NIOSH), the NYS DOH FACE program collects information on occupational fatalities in New York State (excluding New York City) and targets specific types of fatalities for evaluation. NYS FACE investigators evaluate information from multiple sources. Findings are summarized in narrative reports that include recommendations for preventing similar events in the future. These recommendations are distributed to employers, workers, and other organizations interested in promoting workplace safety. The FACE program does not determine fault or legal liability associated with a fatal incident. Names of employers, victims and/or witnesses are not included in written investigative reports or other databases to protect the confidentiality of those who voluntarily participate in the program.

Additional information regarding the New York State FACE program can be obtained from:

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[www.health.state.ny.us/nysdoh/face/face.htm](http://www.health.state.ny.us/nysdoh/face/face.htm)