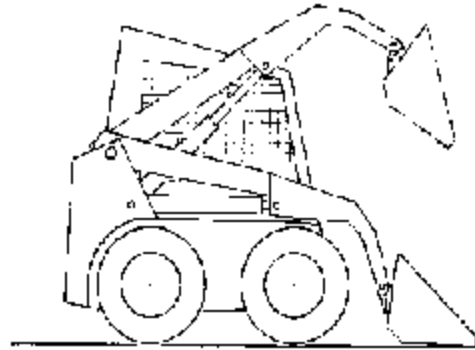


FACE INVESTIGATION

SUBJECT: Farmer Dies When he is Pinned Between Bucket and Frame of a Skid-Steer Loader

SUMMARY: An 87 year-old dairy farmer (the victim) was pinned between the bucket and frame of a skid-steer loader after the bucket lowered while he was entering the machine with the bucket raised. The victim had been working with his son and grandson (co-workers) on the family farm, using a skid-steer loader to haul rocks from a cornfield to the rock pile in a wooded area at the edge of the field. After the last load of rocks was loaded into the bucket of the loader, the co-workers left the field to deliver a truck to another field. They planned to meet the victim at the farmyard after he dumped the load of rocks. The victim drove the loader to the rock pile, and exited the loader for an unknown reason with the bucket raised. It was his habit to exit and enter the loader this way, because knee and hip pain made it difficult for him to climb over the bucket. While returning from the second field, the co-workers noticed the loader was still at the rock pile, with blue smoke rising in the area. They went to the loader and saw the victim on the ground in front of the loader, pinned between the bucket and frame. The loader engine was still running, so they turned it off and checked the victim for signs of life. Although he appeared lifeless, they left the bucket in place to avoid causing additional injuries. Then they drove to the farmyard to call for emergency services. They immediately returned to the scene and directed EMS responders and sheriffs to the victim's location. An EMS responder started the loader engine and raised the bucket so the victim could be removed. EMS workers called for air ambulance services, which arrived within twenty minutes. The victim was pronounced dead at the scene by a physician from the air ambulance. The FACE investigator concluded that, to prevent similar occurrences, farmers should:



- ! **enter or exit a skid-steer loader only when the bucket or other attachment is on the ground, or when lift-arm supports are in place.**
- ! **should seek and use the services of organizations and agencies that provide technical assistance and/or adaptive equipment to agricultural workers with physical impairments.**
- ! **carry personal communication devices when working in remote worksites.**

In addition, farm family members should:

- ! **develop an action plan for first response to emergencies.**

INTRODUCTION:

On May 4, 2000, an 87-year-old male dairy farmer died when he was pinned by a bucket on a skid-steer

loader at the family's farm. The Wisconsin FACE field investigator learned of the incident through the newspaper on May 5, 2000. The FACE investigator reviewed the death certificate and the coroner and sheriff reports, and interviewed a family member in August, 2000.

This incident occurred at a dairy farm owned and operated by the victim and his family. The victim had lived on the farm all his life, and learned to operate farm machines through on the job experience. He continued to assist with farm chores after his son took over primary operation of the farm. During crop season, the victim usually worked at field work, driving a tractor for planting and harvesting. He typically would work all morning, take a break at midday at the farmhouse for lunch and a rest, and return to field work for the afternoon. He was considered to be a safe tractor and farm machine operator by family members and farm neighbors, and had not been seriously injured during his lifetime of farming. He did have bilateral knee replacement and a hip replacement some years prior to the incident, and continued to have pain and limited strength in his legs.

The farm family owned a 20-year old skid-steer loader that was used for a variety of tasks on the farm. The victim used it occasionally for field work, and to spread animal bedding in the barn. The loader design required the operator to enter and exit the cab from the front. The manufacturer's instructions were to step over the lowered bucket and turn forward to sit on the operator's seat, then fasten the seat belt before starting the loader. However, when the victim worked alone he usually entered and exited the cab while the bucket was raised, due to the pain and decreased strength in his legs. At other times, family members would help him climb over the bucket. It is unknown if this skid-steer loader was equipped with lift-arm supports.

INVESTIGATION:

The farm field where the incident occurred is located about a half-mile from the family farmstead and about one-tenth mile from the road. A rockpile was located in a level, wooded area along the edge of the field. At about 2:30 on the afternoon of the incident, the victim, his son, and grandson began picking and hauling stones from the tilled cornfield. They would fill the bucket of the skid-steer loader with stones, and the victim would drive the loader to the rockpile and dump it. He did not leave the operator's seat to complete these trips. When the fourth bucket load was ready to be dumped at about 3:30, the victim's son and grandson left the field to drop a truck at another field a short distance down the road.

They planned to meet the victim at the farmyard after he dumped the load of rocks. The victim drove the loader to the rock pile, and exited the loader for an unknown reason with the bucket raised and the engine running. Either while the victim was exiting or re-entering the cab, the lever that lowers the bucket was pulled and the bucket came down, pinning the victim's chest against the cab frame. While passing the cornfield on their return from the second field, the son and grandson noticed the loader was still at the rock pile, with blue smoke rising in the area. They went to the loader and saw the victim on the ground in front of the loader, pinned between the bucket and frame. The loader engine was still running, so they turned it off and checked the victim for signs of life. Although he appeared lifeless, they left the bucket in place to avoid causing additional injuries. Then they drove to the farmyard to call for emergency services. They immediately returned to the scene and directed EMS responders and sheriffs to the victim's location. An EMS responder started the loader engine and raised the bucket so the victim could be removed. EMS workers called for air ambulance services, which arrived within twenty minutes. The victim was

pronounced dead at the scene by a physician from the air ambulance.

CAUSE OF DEATH: The death certificate listed the cause of death as traumatic asphyxia with thoracic and abdominal hemorrhage from entrapment under a farm implement.

RECOMMENDATIONS/DISCUSSION

Recommendation #1: Skid-steer loader operators should enter or exit the loader only when the bucket or other attachment is on the ground, or when lift-arm supports are in place.

Discussion: Most models of skid-steer loaders are designed, like the one involved in this incident, for operator entry and exit over the top of the lowered bucket. A raised bucket may lower unexpectedly, and pin or crush an individual who happens to be positioned under the bucket. Skid-steer loader should use the liftarm supports provided by or recommended by the manufacturer when it is necessary to work or move around the machine with the bucket in a raised position. Machines now being manufactured have either the pintype supports (which can be operated from inside the operator's cab) or the strut-type supports (which may also be operated from inside the cab or may require the help of a coworker). If the machine is not equipped with lift arm supports, contact the equipment dealer or manufacturer's representative for help in selecting proper support procedures.

At least one skid-steer manufacturer produces a model in which the operator's cab is entered from the side, instead of climbing over the bucket.

Recommendation #2: Farmers and farm workers with functional limitations should seek and use the services of organizations and agencies that provide technical assistance and/or adaptive equipment to agricultural workers with physical impairments.

Discussion: Farm machinery, including skid-steer loaders, is designed and manufactured for use by individuals with full functional capacity. Physically disabling conditions, such as illness or injury, can impair a farm worker's ability to operate a machine safely when carrying out his or her work duties. Technical assistance in designing and fitting adaptive equipment is available from agricultural safety specialists, including agricultural engineers, state vocational rehabilitation counselors, agricultural equipment and supply manufacturers, and Extension programs that serve people with physical disabilities. This incident might have been prevented if the skid-steer loader had been adapted, using manufacturer's recommendations, to permit easier and more comfortable entry and exit of the operator's cab.

Recommendation #3: Farmers should carry personal communication devices when working in remote worksites.

Discussion: A reliable system for promptly communicating messages to and from individuals working in remote worksites can provide a safer work environment. Farm managers and co-workers could use the devices to locate isolated farm workers for urgent messages, and the workers could quickly summon assistance if an emergency occurred at their worksite. In this case, the farmers would have been able to summon emergency medical services to the site more quickly if a portable phone had been available.

Recommendation #4: Farm family members should develop an action plan for first response to emergencies.

Discussion: Farmers and farm workers may need immediate assistance from individuals who have been trained to assist with emergency situations on farms. In addition, family members and other rescuers may be at risk for injury to themselves if attention isn't paid to safe rescue procedures. Farmers and their families can prepare to deal quickly, effectively, and safely with emergencies by becoming familiar with the steps to take when they are the first on the scene of an emergency situation. Farm families should contact their local EMS service, farm extension agent, or farm insurance provider for the location of emergency training resources in their community. Although the outcome for the victim in this incident would not have changed, the stress incurred by the family would have been decreased.

REFERENCES

NIOSH Alert: Preventing Injuries and Deaths from Skid-Steer Loaders. CDC-NIOSH, Publication 98-117, February, 1998.

Purschwitz MA, Safe Use of Skid-Steer Loaders on the Farm. Madison (WI):University of Wisconsin Cooperative Extension Publications; Publication A3674, 1999.