

<h1 style="text-align: center;">NURSE REPORT</h1>	<p style="text-align: center;">OCCUPATIONAL HEALTH BRANCH DEPARTMENT OF HEALTH SERVICES STATE OF CALIFORNIA</p>
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NURSE REPORT #23 RAISIN PICKER BREAKS LEG WHILE RIDING ON BIN TRAILER CDHS(COHP)-FI-93-005-23

Summary

Raisin pickers were riding bin trailers from the vineyard to the road. These trailers carry bins of raisins and are pulled by tractors. They have narrow platforms for workers to stand on and sort raisins while a tractor slowly pulls the trailer down the row. When the tractor leaves the field, other workers sometimes climb onto the platforms and catch a ride.

After a few hours of work, the platforms get slippery with dirt and raisins. As a raisin picker was riding the bin trailer out of the field, he slipped, and his foot hit a moving tire. The tire pulled his foot into the gap between the tire and the edge of the platform. His leg was crushed. No crew member had been trained in first aid. A co-worker tried to free the leg of the injured worker by backing the trailer up, which might have resulted in further damage to the leg. He spent forty-three days in the hospital while doctors tried to save his leg.

How could this injury have been prevented?

- Equipment should be designed with safety in mind.
- Workers should not ride on equipment that is not designed for transport.
- Employers should not purchase/use equipment that can easily catch a foot or clothing with a tire or moving parts.
- Every field work team should have a person certified in first aid.
- Workers and employers should call 911 if someone has a severe injury.

CASE 192-382-01 January 7, 1993

The NURSE (Nurses Using Rural Sentinel Events) project is conducted by the California Occupational Health Program of the California Department of Health Services, in conjunction with the National Institute for Occupational Safety and Health. The program's goal is to prevent occupational injuries associated with agriculture. Injuries are reported by hospitals, emergency medical services, clinics, medical examiners, and coroners. Selected cases are followed up by conducting interviews of injured workers, co-workers, employers, and others involved in the incident. An on-site safety investigation is also conducted. These investigations provide detailed information on the worker, the work environment, and the potential risk factors resulting in the injury. Each investigation concludes with specific recommendations designed to prevent injuries, for the use of employers, workers, and others concerned about health and safety in agriculture.

BACKGROUND

On September 2, 1992, NURSE staff identified an injury in a vineyard while reviewing records at a Level I Regional Trauma Center. A 54 year-old Hispanic male raisin picker fractured his lower left leg on August 29, 1992 while riding on a bin trailer. His left foot slipped off the trailer and was caught between a moving tire and the trailer's stationary work platform.

A nurse from the NURSE Project interviewed the injured worker in the hospital on September 4, 1992. On October 19, 1992, the senior safety engineer and the nurse from the NURSE Project discussed the incident with the farm co-owner and conducted an on-site investigation. NURSE staff also reviewed the medical records of the injured worker.

The farm co-owner notified the California Occupational Safety and Health Administration (Cal/OSHA) of the incident on August 31, 1992, but Cal/OSHA did not investigate the incident because it was not a fatality.

The farm's Injury and Illness Prevention Program was not available for review by NURSE staff. However, the farm co-owner stated that he had a written program, as required by Title 8 California Code of Regulations 3203 -- Injury and Illness Prevention Program, and was considering hiring a full-time safety person to carry out his written program. (As of July 1, 1991 the State of California requires all employers to have a written seven point injury prevention program: 1. designated safety person responsible for implementing the program; 2. mode for ensuring employee compliance; 3. hazard communication; 4. hazard evaluation through periodic inspections; 5. injury investigation procedures; 6. intervention process for correcting hazards; and 7. a health and safety program.)

The incident occurred on an 1,800 acre farm that has been in operation since the early 1940's. The farm grows cotton, grapes, and almonds. It is co-owned and operated by two brothers. The number of employees depends on the season. During the year, this farm usually employs 11 full-time workers (working 38+ weeks per year), 100 casual workers (working 1-12 weeks per year), and 10 seasonal workers (working 13-37 weeks per year). The injured raisin picker was a seasonal worker, and had been hired by the farm co-owners five days before the incident to pick and box raisins. He had previously been hired in past seasons by a farm labor contractor to pick grapes in this same vineyard. The injured worker had been migrating to this region from Mexico for the past 20 years to harvest raisins.

INCIDENT

At approximately 10:15 a.m. on August 29, 1992, a 54 year-old male Hispanic raisin picker sustained an open fracture of his left tibia and fibula, and a large laceration to his groin. (An "open" fracture is one in which the broken bones protrude through the skin.) The worker broke his leg when he slipped between a stationary work platform and a moving tire on a bin trailer. Bin trailers have work platforms on each side. This is a narrow ledge about 12 inches wide and 12 inches above the ground. Workers stand on the work platform while the bin trailers are slowly pulled down the rows by a tractor. These bin trailers

carry raisin bins, 4 feet by 4 feet square containers for the raisins. One group of workers walk down the rows and roll the paper trays of raisins and throw them into the bins. Another group of workers stand on platforms and reach into the bins to separate the paper trays from the raisins. These paper "trays" are actually sheets of paper holding sundried grapes.

This particular bin trailer was built at a local high school as a student project, from a design suggested by a local agricultural manufacturer. During the manufacturing, the tires were moved three inches back from the original design. The co-owner said his workers had suggested this because moving the tires back would make the bin trailer more stable. However, moving the tires created approximately a three-inch gap between the trailer tire and the work platform.

It was three hours into the work day, when the work platforms of bin trailers were covered with slippery debris, including dirt, leaves and raisins. The bins were full, so the raisin pickers jumped on the work platforms to ride the trailer out of the field, instead of walking. The raisin picker slipped on the work platform and his left leg became caught in a gap between the edge of the platform and the moving tire. The moving tire dragged his leg deeper into this gap and crushed it between the tire and the edge of the platform, breaking both bones in his lower left leg.

The injured raisin picker cried out. His son was standing on the same work platform and yelled at the tractor driver to stop. After the tractor driver stopped, the crew told him to reverse the tractor to release the injured worker's leg.

A co-worker drove a private vehicle two miles to the farm co-owner's home and notified him of the incident. The co-owner, certified in first aid and cardiopulmonary resuscitation (CPR), went to the scene with bandages and applied pressure to the bleeding leg. At 10:45 a.m., 30 minutes after the injury occurred, he called 911 from his truck phone. The Emergency Medical Services (EMS) arrived on the scene 26 minutes after the 911 call. EMS paramedics immobilized the injured worker's leg, started an IV for hydration, and gave him oxygen. At 11:13 a.m., EMS transported the worker to a road junction, where they requested air evacuation to the Regional Trauma Center. The injured raisin picker was transported by helicopter and arrived at the trauma center at 11:21 a.m.

The trauma center staff diagnosed a fracture of the left tibia and fibula with a large open wound. The wound was contaminated by debris. The injured worker was admitted and taken to the operating room, where his wounds were flushed with fluid and cleaned, and damaged skin removed. His broken bones were surgically realigned and pinned to an external rod to hold them in place.

After his surgery, the wound was treated by administering pure oxygen under high pressure to his leg (hyperbaric treatment). Five days after admission to the hospital, he underwent a second surgical procedure for further wound treatment. All of the infected skin around the injury site was removed and the area was thoroughly irrigated with antibiotics and saline.

This second debridement (removal of infected skin and tissue) left a large open wound in the leg, which required a third operation for a skin graft. Healthy skin was taken from the worker's upper thigh and transplanted into the area of the open wound on the lower leg.

On October 13, 1992, the injured raisin picker told the nurse from the NURSE Project that he had been released after 43 days of hospitalization. He also said he was moving to another area of the state with another son, because he could not properly care for himself in the farm labor camp where he had been living. The hospital had given him a copy of his medical records and an appointment for follow-up care with a doctor in the area he was moving to.

PREVENTION STRATEGIES

1. Workers should not ride on moving equipment that is not designed for transport.¹ In the past year, NURSE staff have investigated two severe leg fractures caused by workers riding on bin trailers. Bin trailers are not designed to carry workers out of the field. Workers should ride on the work platforms only when they are performing the task of pulling the raisin trays out of the bins, and the trailer is being pulled at a very slow rate of speed. If this worker had not ridden on this trailer, his leg would not have been caught between the moving tire and the trailer.
2. Equipment should be designed with safety in mind. Employers should only use professionally designed equipment or have a safety professional verify that the equipment will be safe. This trailer had been manufactured as a project at the local high school and the original design of the trailer had been altered. This alteration, which moved the tires of the bin trailer three inches away from the edge of the work platform, created an opening large enough to catch a person's leg. If the design of the bin trailer had not been changed, the gap between the tire and the edge of the work platform may not have been large enough to catch the worker's leg. A fender over the tire would also have prevented the worker's leg from contacting the moving tire. (After this incident the farm owner/operator welded a piece of metal over the gap.)
3. Employers should keep the work environment free of hazards. In this incident, the workers stood on a platform covered by slippery debris. If the work platform had been periodically cleaned, the injured worker's leg might not have slipped into the open area between the platform and the moving tire.
4. Employers should hold tailgate safety meetings at least once per week and preferably before each work shift. The foreman should re-emphasize the importance of safety procedures at the work site before starting the workday. Foremen should point out specific hazards related to tasks and ensure that employees understand that safety procedures must be followed to prevent injuries. If this employee had been told not to ride the bin trailers, this injury might have been prevented.
5. Every field work crew should have a person certified in first aid and cardiopulmonary resuscitation, who is always present at or nearby the work site. In this incident, the co-owner was certified but not present at the site of the incident. If a person certified in first aid and cardiopulmonary resuscitation had been present, the worker would have received first aid more quickly and risk of complications from the injury could have been reduced.²
6. Injured workers should not be moved by anyone other than Emergency Medical Service (EMS) personnel, except in a life threatening situation. In this incident, the crew at the scene attempted to extricate the worker from the trailer without having the training needed to first assess the worker's condition. In their attempt to free the injured worker, the crew had the tractor driver reverse the tractor to pull the injured worker's leg out. This action may have caused additional damage or contamination to the worker's leg. If the crew had waited for arrival of EMS, the raisin picker would have been extricated by trained EMS personnel, thereby minimizing further damage to his leg.

1. Title 8 California Code of Regulations 3441a(2): "Permit no riders on agricultural equipment other than persons required for instruction or assistance in machine operation."

2. Title 8 California Code of Regulations 3400(b): "In the absence of an infirmary, clinic or hospital, in near proximity to the workplace...a person or persons shall be adequately trained in first aid."

Title 8 California Code of Regulations 3439(b): "There shall be at least 1 employee for every 20 employees at any locations with training for the administering of emergency first aid."