

<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 #25 TRACTOR DRIVER'S HEAD CRUSHED BY MOVING TRACTOR CDHS(COHP)-FI-93-005-25

Summary

During the raisin harvest a farm owner noticed that one of his tractor drivers seemed sick. He was shaking and looked like he had a fever. The farmer asked the driver if he felt sick, but the driver wanted to keep working.

The next day the farm owner and five workers drove a line of tractors from one vineyard to another. The tractors traveled along a county road at about 12 miles per hour. One of the tractors went off the road and into a field. The driver was the worker who had seemed sick the day before. It looked as if he was having a seizure as his tractor crossed the field. He fell to the ground when his tractor ran into a row of grape vines. The tractor continued moving forward. A rear wheel crushed the tractor driver's head. He died instantly.

How could this death have been prevented?

- All tractors should be equipped with seat belts and rollover protective structures (ROPS).
- Workers should not try to work when they are feeling sick.
- Tractors should be equipped with safety devices which stop them from moving forward when the driver is not in the seat.

CASE 192-459-01 March 15, 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 29, 1992, NURSE staff identified a fatality in a vineyard while reviewing the county coroner's log. The death occurred on September 17, 1992, when a tractor was being driven from one vineyard to another about one mile away. The tractor was part of a six tractor convoy. The tractor ran off the paved county road into a plowed field, and continued into a vineyard through a row of grape vines. The driver fell off the tractor when it struck the second row of vines. His head was crushed by the left rear wheel of the moving tractor. The tractor driver died at the scene.

A nurse from the NURSE Project was unable to interview the other tractor drivers in the convoy because they had returned to their homes in Mexico. The Senior Safety Engineer discussed the incident with the vineyard owner and employer of the tractor driver on October 20, 1992. This employer witnessed the incident. The Senior Safety Engineer also examined the tractor involved in the incident. NURSE staff reviewed the Medical Examiner/Coroner report, the California Highway Patrol report, and the Emergency Medical Service patient care sheet.

The Senior Safety Engineer reviewed the employer's written injury and illness prevention program and noted that it did not address all points required by Title 8 California Code of Regulations 3203 - Injury and Illness Prevention 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. provide safety training and instruction.) Only five of these seven points were covered. The written injury and illness prevention program did not have the hazard evaluation and the safety training components.

The California Highway Patrol responded to the scene and investigated the death. The employer reported the fatality to the California Occupational Safety and Health Administration (Cal/OSHA) on September 22, 1992, but Cal/OSHA did not investigate the incident.

The incident took place on a 270 acre grape vineyard which produced raisins. This vineyard was owned by two brothers, and located on two pieces of land approximately one mile apart. The farm owners usually hire a farm labor contractor who recruits, hires and manages 150 raisin pickers in the late summer and 20 vine pruners in the winter. They also hire 3-4 casual workers (working 1-12 weeks per year) to box raisins and move machines and equipment.

The fatally injured tractor driver had been hired by the farm owners two days prior to his death. For the past three years, however, he had been hired by a farm labor contractor to work on this farm. Although he had previously driven tractors, the owners gave him verbal instructions on safe tractor driving at the time he was hired. **INCIDENT**

On September 17, 1992, at approximately 5:00 p.m., a 48 year-old Hispanic male was driving a tractor which pulled a raisin bin trailer. Earlier that day he was boxing raisins. His tractor was part of a convoy of six tractors led by a pickup truck, traveling between two vineyards on a paved county road. Five of the tractors in the convoy were driven by farm workers. One farm owner drove the last tractor in the convoy and the other owner drove a pickup truck in front of the convoy. The tractors were traveling at

approximately 12 miles per hour. This was a cloudy, relatively cool day. A toxicology test showed no alcohol or drugs in his blood at the time of death. (There was no recorded spraying of pesticides in the vicinity of the vineyards during September, 1992.)

The tractor driver was driving a low profile tractor, that is, a tractor with a low center of gravity and a wide wheelbase. Low profile tractors used in vineyards are not legally required to have rollover protective structures (ROPS) and seat belts. The farm owner driving the lead pickup truck told NURSE staff that he saw the victim's tractor leave the convoy and run off the county road into a plowed field, creating so much dust that he lost sight of the tractor. The driver appeared to have a seizure as the tractor traveled through the plowed field. The tractor continued into a vineyard, passing through one row of grape vines and striking a second row. The tractor driver fell off the tractor. The tractor continued traveling forward and its left rear wheel ran over and crushed his head.

The farm owner in the lead pickup truck called the Emergency Medical Service (EMS) from his truck phone at 5:04 p.m. EMS arrived at 5:14 p.m. and found the tractor driver's head crushed. They pronounced him dead. The coroner stated that the cause of death was a crush injury to the head due to blunt force impact, with death occurring immediately.

One of the farm owners told NURSE staff that the day before the fatality, he and the foreman noticed the tractor driver was shaking and appeared to have a fever. However, when asked if he felt sick, the tractor driver said he felt good enough to work. The autopsy report noted that the deceased tractor driver had advanced cirrhosis of the liver. His lungs were congested and his abdominal cavity contained 1,500 cubic centimeters of fluid. These findings suggest that the tractor driver may have been extremely sick at the time of his death.

PREVENTION STRATEGIES

1. Tractors should be equipped with seat belts. The use of a seat belt would have prevented the tractor driver from falling off the tractor when it hit the row of grape vines. Tractors with seat belts must also be equipped with rollover protective structures (ROPS). Although the California Code of Regulations has a special section that exempts low profile tractors used in orchards and vineyards from the ROPS requirement, the safest alternative is to equip all tractors with seat belts and ROPS. (A low profile tractor is 18 inches or less from ground to chassis, with the front wheel spacing equal to the rear wheel spacing.) This is the third incident the NURSE Project has investigated in which workers have fallen off low profile tractors because a seat belt was not available. If the tractor involved in this incident had a seat belt and ROPS, the driver would not have fallen off the tractor when it ran into the rows of grape vines.¹

2. Workers should be encouraged to state when they are feeling ill. Likewise, employers should ensure that workers are healthy enough to perform assigned tasks safely. In this incident, the exact cause of the seizure prior to death will never be known. One of the farm owners noted that the driver was in poor health, but allowed him to continue working. If the tractor driver could have alerted co-workers as to his ill condition, or the farm owner had realized that the tractor driver was too sick to drive a tractor safely, his death may have been prevented.

3. Employers should have a comprehensive written injury and illness prevention program.² In this incident, the program was incomplete, and lacked written safety training procedures. The fatally injured tractor driver received verbal training on safe tractor operation when he was hired for the season. However, safety training should be reviewed at the beginning of each day. This is especially important if the work tasks change. In this incident, the tractor driver was going to drive the tractor down a public road instead of in a field. This involves a different procedure and skills than driving a tractor in a field.

Tractor drivers who operate agricultural machines on public roads should receive training comparable to drivers licensed to operate motor vehicles on public roads.

4. Agricultural machines and equipment should be designed with safety in mind. This death occurred when the driver fell off the tractor and the tractor continued to move forward, crushing his head. If the tractor had a mechanism that would stop it when the driver was not in the seat, this incident might not have occurred. Some tractor manufacturers have already incorporated this safety feature.

1. Title 8 California Code of Regulations 3651: Agricultural and Industrial Tractors.

Title 8 California Code of Regulations 3653: Seat belts. "Seat belt assemblies...shall be provided on all equipment where rollover protection is installed and employees shall be instructed in their use."

2. Title 8 California Code of Regulations 3203: Injury and Illness Prevention Program. See Background.