

Farm Safety and Adverse Health Conditions

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Introduction

Agriculture is often thought of as an idyllic occupation. The access to open spaces, clean air, and nature help lead to this view. Yet, agriculture has a dark side. Agriculture has one of the highest injury and fatality rates of any occupation. This beautiful place can also be deadly.

The agricultural industry involves hazardous tasks and situations that can put farmers and the people around them at risk. Many hazards in farming are unavoidable due to the nature of the work, but the risk that an accident can occur can be minimized by personal awareness, protective habits, and a culture of safety on your farm.

Importance

Historically, agriculture has been an industry centered on family and community. Prioritizing safety protects our workers, friends, and those we love from injury and ensures we are around for them in the times to come. In addition, safety management saves a farmer the financial fallout that occurs when an accident does happen.

In 2023, work injury costs in the U.S. were estimated at **\$176.5 billion**, averaging **\$43,000 per medically consulted injury** and **\$1,460,000 per death**.¹ These cost estimates include income not received, and expenses incurred due to preventable injuries. Between 2021-2022, agricultural production had 21,020 injuries that required days away from work. Many injuries often go unreported and nearly half are treated at home or by a family member, so the actual number is likely even higher.

On-Farm Fatalities

Over the past 50 years, the number of on-farm fatalities have decreased. Improved equipment and technology advances such as tractor rollover protective structures (ROPS), enhanced visibility and operator features, PTO shields, improved animal handling equipment, grain rescue tubes, sensors and smart technology, as well as improved training for farmers and EMTs, have aided in saving the lives of many agricultural workers.

Though farm safety has improved since the advent of these 21st century technologies, in the past 10 years agricultural deaths across the U.S. have remained relatively steady. Agriculture continues to remain as one of the most dangerous industries in America. In 2022, Agricultural had an average of 18.6 deaths per 100,000, compared to an average of 3.7 deaths per 100,000 across all U.S. industries.²

Age

It is important to note that older farmers are at greater risk of fatal injury. As the average age of U.S. farmers continues to increase, farm safety is becoming more and more important. Older farmers are more at risk of harm due to declining reflexes, balance, strength, range of motion, vision, and hearing. Despite challenges such as these, agricultural workers can mitigate injury and fatalities.

Youth are also vulnerable on a farm. Their limited strength, and lack of experience and awareness of the dangers increases their chance of injury. It is crucial to also teach

youth to identify and how to protect themselves from hazards on a farm.

Risk Prevention

Driving

Accidental harm due to vehicular accidents is one of the primary causes of premature death in agriculture across the U.S.

Incorporate the following principles to improve driver safety on private fields:

- Ensure tractors contain rollover cages and seatbelts.
- Wear seatbelts in tractors and other motor vehicles, such as ATVs and trucks even when on side roads.
- Avoid reckless or unsupervised underage driving even on private roads.
- Avoid driving tractors at dawn and dusk when light and visibility is poor.
- Communicate with others on a field using tractor hand signals, or via radio or phone.

Animals

In Utah, the single most dangerous activity for agriculturalists is working with animals, with the highest injury rate occurring when working with horses (15.7 injuries/100,000 hours of exposure).³ Being aware of bodily positioning and staying clear of animals with large force can greatly reduce the risk of injury. You never know when livestock will charge or kick from behind.

Setting up animal enclosures, and openings that allow for easy retreat can greatly reduce the chance of injury. Equipment such as calf catchers can help protect humans when checking calves.

Wearing assistive devices such as glasses and hearing aids also helps prevent injury on the farm and when working with large animals. Increased lighting and other adaptations to your physical environment can mitigate increased risk due to a decline in vision, hearing, arthritis, strength, motion, and reflexes around animals.

Equipment

The second most dangerous agricultural task in Utah is working with machinery other than tractors, with a rate of 14.2 injuries/100,000 hours.³ Equipment often has weight, moving parts, and sharp pieces that require attention and respect to prevent accidents. One example is PTOs (power take off attachment points), which can catch loose fabric such as the hood of a coat or sweatshirt and quickly pull in and kill an operator as it rotates (*Figure 1*).



Figure 1. Coveralls stuffed with straw demonstrates the power of a rotating PTO shaft catching loose clothing (BHHHC).⁴

BHHHC safety center notes that 7 feet of sweatshirt string is wrapped around a rotating PTO and driveline within 1 second. This highlights the importance of situational awareness and positioning, as well as appropriate attire. Metal rings are not recommended as they may also get caught in equipment and can tear through a finger. Always wear long pants and closed toed shoes on a farm to avoid injury.

Additionally, maintaining equipment is essential to ensuring safety. Never remove protective guards such as one covering a PTO, and securely cover electrical sources.

Avoiding Falls

Add reflective grip-tape to ladders, steps, and ramps and wear non-slip shoes to protect yourself from falls. Maintain 3 points of contact when climbing. Implementing these

tips on equipment and in buildings all around the farm.

Pesticides

It is extremely important to follow the label when applying chemicals pesticides onto a field. Wear all outlined personal protective equipment (PPE) and mix tanks in the concentration outlined in the label for the crop you are spraying. Do not apply outside of weather conditions permitted on the label.

Pesticides are an effective tool that involve hazard. The U.S. Food and Drug Administration only predicated a chemical to be safe for the applicator and consumer when the label is followed. It is illegal to apply pesticides in a manner inconsistent with its labeling.

Heat-related Illnesses

Heat related illness can easily occur when working outdoors. Heat-related illnesses include heat stroke, heat exhaustion, rhabdomyolysis, heat syncope, heat rash, and heat cramps. Agricultural workers can be isolated and at a distance from help throughout the day. Each worker should be familiar with the signs and symptoms so they can take preventive measures before it becomes an emergency.

It is important to keep fluids such as water or Gatorade on you at all times, as well as a charged cell phone or radio to call for help. Tell someone where you are and when you plan to be back if you are working alone. On extremely hot days, stay inside or take periodic breaks under shade or in air conditioning. Cool wet rags can also be used to reduce heat-related illness and improve comfort.

Fatigue

Though farming periodically requires long hours, being tired and overworked greatly increases the chance of mistakes and

accidents. In Utah, agriculturalists work an average of 66 hours a week which is more than 50% higher than the 40-hour work week of most other industries, likely leading to fatigue.³ Plan to work a manageable amount of time so that you can stay alert, and allow safe functioning. Working within your physical limits in sleep, stamina, and strength, is especially important for those who are aging or have adverse health conditions. Seek additional help during busy seasons.

Conclusion

Agriculture is crucial to feeding our families and societies, and it is not an easy job. Hazards on the farm can be avoided by using current safety technologies, adapting environments, implementing good habits, and creating a culture of safety. An ounce of prevention is worth a pound of cure.

References/Additional Resource

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