Fact Sheet
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Farm Safety Association

AGRICULTURAL MACHINERY HAZARDS

Introduction

The most severe farm accidents often involve machinery. Missing guards and shields, failure to recognize hazards and careless operation are common factors in a majority of farm equipment accidents.

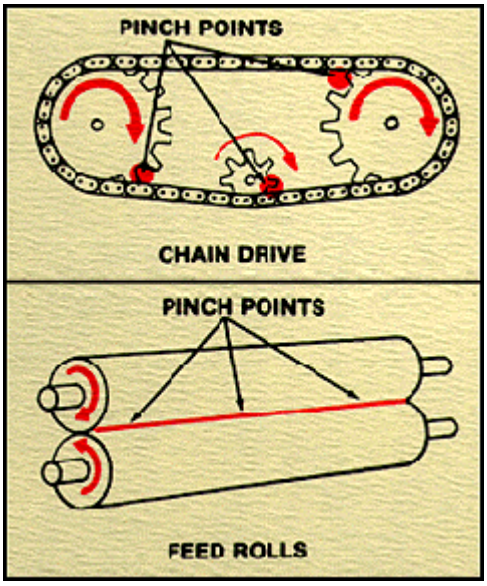
Manufacturers attempt to build safety features into equipment. Some potential hazards can't be completely eliminated without interfering with machine function. For example, if the blades on a rotary mower were completely shielded, they would not cut material!

Timely maintenance programs keep equipment in good operating condition--a proven factor in accident prevention. It is the responsibility of machinery operators to recognize hazards and take the necessary steps to protect themselves and others.

Shear points

Shear points are created when the edges of two objects move toward or next to each other closely enough to cut relatively soft material. Shear points are found on many types of crop cutting equipment. Typical examples include forage harvester heads and sickle bars on a variety of harvesting machines.

Other pieces of farm equipment-not specifically designed for cutting-also harbour shear points. Grain augers fall into this category. **Stay clear** of shear points when machinery is in operation, and shut down all power when cleaning or adjusting equipment.

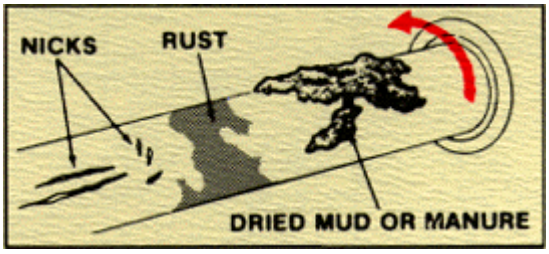


Pinch points on rotating parts can catch clothing, hands, arms and feet.

Pinch points

Pinch points are created when two objects move together, with at least one of them moving in a circle. This hazard is common in power transmission devices such as belt and chain drives, feed rolls, and gear drives.

Most pinch points are shielded on farm machinery. In the case of such devices as feed rollers, shielding is not possible. Hands, hair and clothing can be pulled into pinch points if caution is not exercised. **Always replace guards and shields.**

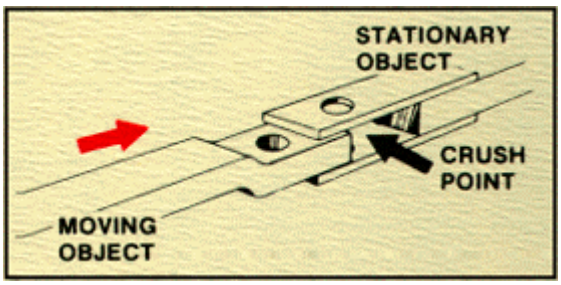


Even seemingly smooth shafts can catch and wrap clothing.

Wrap points

Any exposed, rotating machine component is a potential wrap point. Injuries usually occur when loose clothing or long hair catch on and wrap around rotating shafts. Protruding shaft ends can also become wrap points.

Shafts may appear to be smooth, but small nicks, mud, or rust increase wrap potential. It is almost impossible to escape once wrapping of clothing begins, because of the power involved. The more you try to pull away, the tighter the wrap becomes.



Hitches present typical crush points.

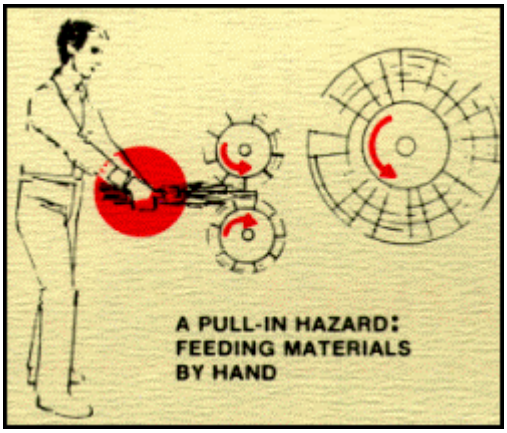
Crush points

Crush points are created when two objects move toward each other, or when one object moves toward a stationary object. Crushing accidents often victimize a second person, during such operations as hitching. Several crush point injuries and deaths are recorded every year. Avoid getting into a position that could lead to body parts being crushed by objects that are moving toward each other. **Constant alertness is vital.**

Free-wheeling parts

The heavier a revolving part is, the longer it will continue to rotate after power is shut off. This characteristic is called 'free-wheeling.' Rotary mower blades, baler flywheels and various other farm machinery components will continue to move after power is shut off--often for several minutes.

Injuries occur when operators shut off equipment, and attempt to clean or adjust a machine before components have completely stopped moving. Operator awareness is the key to safety around free-wheeling parts.

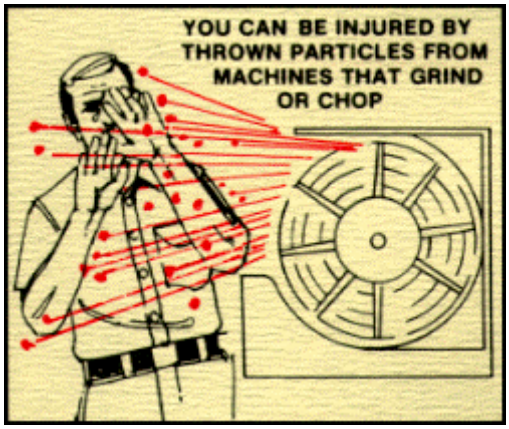


Machinery can pull you in faster than you can think to let go.

Pull-In points

Pull-in injuries usually occur when someone tries to remove plant material or other obstacles which have become stuck in feed rolls or other machinery parts. Many limbs have been lost by farmers who were trying to unclog an operating corn picker. Once the material is freed, it can pull a person into the machine faster than they can react. **Always shut off power** before attempting to clear plugged equipment.

Particles of ground or chopped grain may be thrown hard enough to cause injury.

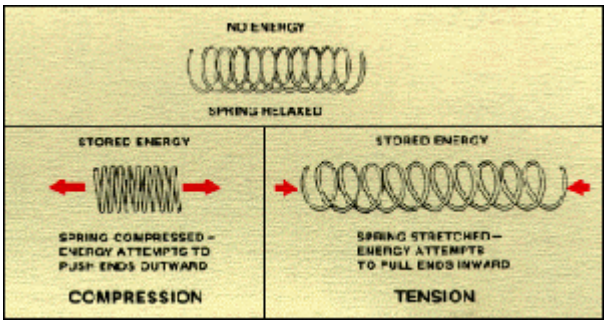


Thrown objects

Many farm machines throw material as a natural part of doing their job. Foreign objects, such as stones, sticks and other debris, may be taken into this equipment and expelled at tremendous speed. Bystanders or animals in the path of thrown objects could be seriously injured. If available, use guards or deflectors to reduce the hazard.

Compressed or stretched springs store considerable energy.

Springs



Springs are commonly used to help lift equipment, as shock absorbers, and to keep belts tight. **Springs may harbour potentially dangerous stored energy.** Always exercise caution when servicing springs.

Before dismantling equipment, release any tension on the spring (if possible). Position yourself away from the direction of spring travel if the spring is compressed in any manner.

Hydraulic systems

Hydraulic systems store considerable energy, often at pressures in excess of 2,000 pounds per square inch. Careless servicing, adjustment, or replacement of parts can result in serious injury.

High pressure blasts of hydraulic oil can injure eyes or other body parts. Follow instructions in the operator's manual to the letter when servicing hydraulic equipment. The following precautions are crucial:

1. Make certain the hydraulic pump is turned off.
2. Lower attached equipment to the ground.
3. Confirm that load pressure is off the system.

A pinhole leak in an hydraulic hose is a serious hazard. A leak may not be visible, and the only sign may be a few drops of fluid. Never inspect hydraulic hoses with your hands, because a fine jet of hydraulic fluid can pierce the skin. Use a piece of cardboard to check for leaks.

Slips and falls

Slips and falls are responsible for many farm workplace injuries. They become immensely more dangerous around equipment. A simple slip may result in your being thrown into the path of oncoming equipment, or into fast moving machinery parts.

Slips and falls often result from:

1. Improper machinery mounting and dismounting practices.
2. Slippery footing on the ground or the machinery.
3. Cluttered steps and work platforms.

The potential for slips and falls can be greatly reduced by using good judgement and practising good housekeeping on and around equipment.
