



Farm Safety Association

HARVESTING SAFETY BASICS



It's harvest time, and the pressure is on!

Good weather and daylight hours always seem to be at a premium when you are trying to gather nature's bounty in top condition. Planned maintenance and skilled equipment operation can minimize downtime and reduce potential for accidents during harvest.

This fact sheet does not provide a nuts and bolts description of every piece of harvesting machinery. Such information is detailed in operator's manuals. All individuals who operate field equipment should thoroughly familiarize themselves with the appropriate instruction manuals, so they will know how (and when) to carry out routine maintenance and operate the machinery in a safe, efficient manner.

We've attempted to focus on key factors most commonly associated with harvest time injuries and deaths. The point-form method of presenting this information provides farmers with a handy checklist

that can be used to train family members and employees who will operate specific machines. Anyone - from novice through seasoned operator - can benefit by reviewing this material before starting their engines!

The human factor

Safe completion of any task depends on knowledge, alertness and hazard awareness. It's natural for us to take pride in our ability to work long hours in pursuit of a goal. Nowhere is this more evident than in harvesting operations. However, fatigue, drowsiness and illness frequently contribute to mishaps in the field. Recognize when you have "had enough", and turn the operation over to someone else.

Adverse weather definitely adds to harvesting pressure. Don't rely on stimulants to keep you going, or take depressants to calm your nerves. Drugs and alcohol work against the keen awareness that is vital to safety.

Periodic breaks relieve the monotony of machinery operation. If you are going to eat in the field, at least climb down from the machine and relax for 15 to 20 minutes.

Equipment operators should be dressed for comfort and safety. Protective footwear and close-fitting clothes are essentials when working in and around machinery. Appropriate safety gear should be worn where noise, dust, or toxic materials pose hazards.

Universal equipment cautions

1. Equipment should be made 'harvest-ready' in the off-season, or at least several weeks in advance of

use. It takes time to get machinery into safe, efficient operating condition. You may also need lead time to obtain replacement parts.

2. All routine maintenance should be carried out on schedule. Evening fuel fill and lubrication ready equipment for the next day, and prevent condensation and corrosion.

3. All guards and shields should be secured before equipment is started. These protective devices reduce the potential for individuals getting caught up in moving parts.

4. Hydraulically-raised equipment should be securely blocked before anyone starts working around or under the machine.

5. Never attempt to clear plugged equipment by hand while power is engaged! The brain can't give us the message to let go of crop material quickly enough if the machine suddenly clears itself. With the power of modern equipment, dismemberment and/or death will be the likely result of entanglement. Alert operators develop a habit of always shutting off the power before leaving the driver's seat.

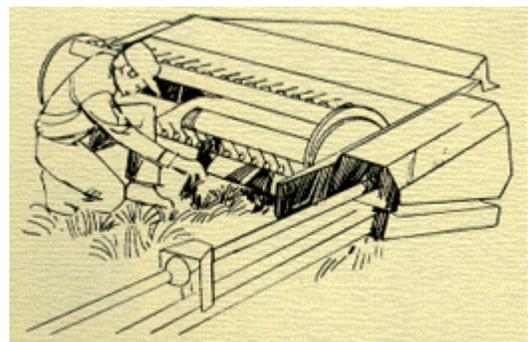
6. Fire is a hazard in the field, particularly during cereal grain harvest. Every piece of powered equipment should carry a fire extinguisher.

7. Kids are a 'no-no' around machinery. Far too many tragedies occur when youngsters end up in the path of equipment from which the operator's view is restricted.

COMBINE PRECAUTIONS

- Due to the large **size** of modern combines, extra room is needed for turning, passing through gates and general manoeuvring. It is important to know the physical dimensions of your machine. Novice operators - unfamiliar with rear wheel steering - must develop a sense of how quickly the back of the self-propelled combine swings around when turning. This is especially important when operating near obstructions or travelling on public roads.

- Cylinder speed changes usually have to be made with the machine running. No other adjustments should be attempted with the power engaged, even if it seems convenient. Lock all **guards and shields** in place before starting the machine.
- The **ladder and platform** should be kept clean to prevent slips and falls. Follow the 3-point technique for safe mounting and dismounting.
- Owners' manuals spell out correct procedures for **changing combine headers**. Equipment should be adequately blocked. Lock all hydraulically-raised equipment before working underneath it. Remember to release pressure from hydraulic lines before disconnecting them.
- Recognize the combine's **capacity limitations**, and operate accordingly. Excessive ground speed can result in overloading, grain loss and plugging.
- To clear a **plug**, first try reversing the header. If this doesn't work, stop the combine as quickly as possible. Shut off the engine and pocket the key before attempting to unplug the machine. The main drive shaft or cylinder should be turned with tools designed for the purpose. (No one should have their hands anywhere near the combine's mechanism while the drives are being turned!) Once the plug has been cleared, remove all tools and replace shields before starting the combine.



Make it a habit to always shut off power before working on equipment.

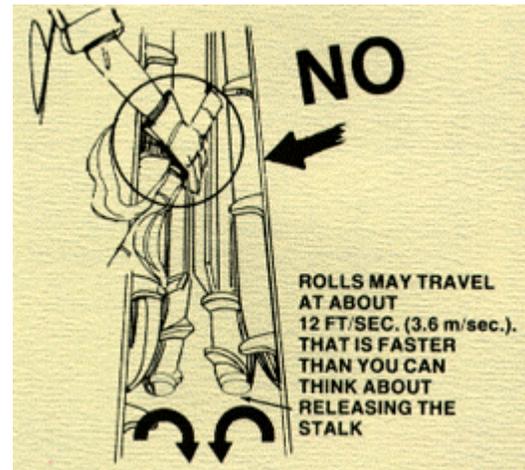
- Power to the straw spreader/chopper should

be disconnected before an assistant attempts to **check grain losses** behind an operating combine. Electronic grain loss monitors give a more accurate reading of losses, and eliminate the hazards of behind-the-combine checking.

- **Lodged** crops add to harvest time stress. Many growers only plant varieties with good standability characteristics. Growth regulators can be used to minimize the potential for lodging in some cereal crops. If a crop is down, special attachments - such as pickup reels, dividers and gathering devices - protect the combine and reduce operator fatigue. You'll have to travel slower in a lodged crop; just keep reminding yourself that you'll finish faster if you can avoid plugging!
- Combines have a high centre of gravity; don't make sudden changes in speed or turn sharply when operating on **slopes**.
- Stay a good distance away from **ditchbanks** that could shear under a combine's weight. It's best to maintain a grassed, buffer strip at the edge of all ditches that is at least as wide as your combine's wheel track.
- No one should be in the combine's grain tank or the receiving wagon/truck while **unloading**.
- Extra caution is essential when driving large, self-propelled combines on **public roads** - remember the large dimensions and high centre of gravity. Rear steering will cause the back of the combine to swing into the opposite traffic lane when you turn right. Keep brakes locked for straight-line stopping on the road.

Corn picker hazards

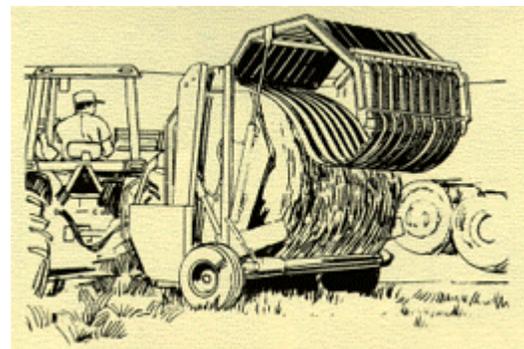
Operation of ear corn pickers and picker/shellers requires many of the same precautions as outlined for combine use.



Snapping rolls can pull you in faster than you can think to let go. Don't try it!

- *Never* attempt to clear **plugged snapping rolls** while the power is engaged. Countless farmers have lost fingers or hands as a result of trying to pull a stalk free from an operating picker. You simply can't think fast enough to let go in time if the plug clears itself!
- **Husking rolls** can catch gloves, fingers, or hands. Always disengage power before doing any cleaning or adjusting around the husking bed.
- Similarly, shut down the machine before attempting to clear a plugged cylinder on a picker/sheller.
- Take special care to avoid jack-knifing the trailed picker and wagon when moving down steep slopes.

HAY AND FORAGE EQUIPMENT SAFETY



No one should be near the rear of a large round baler while a bale is being ejected.

Timely harvest of high quality forages can be pivotal to the success of a livestock operation. A bad turn in the weather adds considerably to emotional stress - rushing to 'beat' the elements is often a factor in hay crop harvesting accidents.

A variety of equipment is used in the process of converting forage crops into stored feeds. Many of these machines are PTO-driven. Power shaft accidents are among the major causes of severe injuries and deaths on the farm. All PTO components must be **properly guarded** to minimize the potential for carnage! Power should always be disengaged before anyone attempts to make adjustments or clear a plugged machine.

Cutting equipment

- Never try to adjust or clear cutterbars, reels, or conditioning rolls without disengaging power. Even when stationary, these devices pose a threat because of sharp edges, points, etc. Avoid rushed movements when working close to the equipment.
- Flail mowers should be properly shielded to prevent a flail from becoming a lethal projectile if it happens to break loose.
- No one should stand near the rear of operating conditioner rolls, since a stone or other object could be thrown from the equipment with considerable force.
- Be on the lookout for stones, groundhog holes and uneven terrain when cutting forage crops. High speed contact with such obstacles can seriously damage equipment, or - in the case of a self-propelled windrower - cause the operator to lose control of the machine.

Conventional balers

- Balers should be thoroughly serviced well in advance of the major season of use. Check timing, operation of knotter, condition of knives, etc.
- The flywheel maintains the uniform momentum of a baler's working parts. It also

keeps the machine operating for a considerable time *after* power is disengaged. Never attempt to work on a baler until the flywheel has come completely to rest.

- The flywheel can be turned manually to permit slow motion observation of knotter function. However, it should never be turned while someone else is working on the knives, knotter, or other moving parts.
- Never allow anyone to ride in a wagon if a bale thrower is being used.

Large round balers

- Don't eject big bales where they could start rolling.
- No one should be near the rear of the machine when a bale is being ejected.
- Never attempt to service or clear a machine with the power engaged.
- Purpose-designed equipment should be used to handle and transport large bales. Proper tractor weighting and methodical operation will prevent overturns.

Forage harvesters

Large, modern forage harvesters have awesome power. Please don't try to work anywhere near these machines unless the engine is shut off and the key is in your pocket!

- Stay well clear of the discharge spout while the harvester is operating. To avoid being hit by objects from the spout, make sure the machine is completely stopped before hooking up wagons.
- Doors and shields must be tightly latched during operation to deflect objects thrown by the cutter.
- Components may continue to rotate for several minutes after the power is shut off. Don't open doors until all parts have stopped moving.
- Knives must be kept sharp and properly balanced for safe, effective operation.

Follow maintenance procedures specified in the owner's manual.

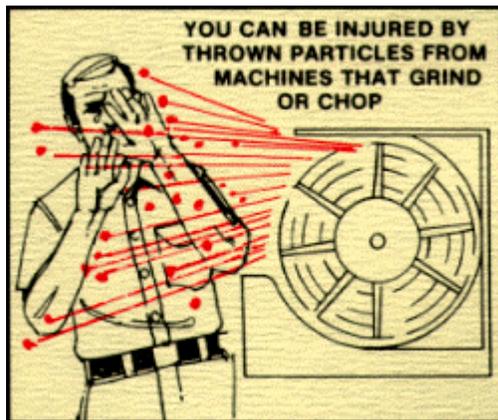
- To avoid loss of control, disengage power rear-wheel drive on self-propelled harvesters before travelling on icy roads or highways.

Safety with transport and handling equipment

Portable augers and elevators

- Entanglement with an auger 'screw' can produce devastating injury. Complete, cage-type shields must cover the intake of all augers.
- Portable augers and elevators should be transported in a lowered position, with safety locking devices in place. Manufacturers recommend use of a tractor for transport.
- Get help to move an auger or elevator into position.

Always check for overhead power lines!



- Condition of cables should be checked regularly. If a cable is frayed, determine and correct the cause, and replace the faulty cable.
- The cable crank must be equipped with a safety clutch to prevent serious injury from a free-spinning crank.

Farm wagons

- Maintain steering components, wheel

bearings and other parts of the running gear to ensure that all wagons can be kept under control during travel.

- Safety locking hitch pins should always be used. Safety chains are required on public roads.
- Don't exceed load limits of the equipment, or of bridges you may have to cross.
- Is the tractor heavy and powerful enough to control the wagon when fully loaded? This is particularly important when you have to go up and down hills. Large wagons should be equipped with their own brakes.
- Reduce speed on corners and rough terrain, and keep the tractor in gear when going downhill. A good thumb rule is to gear no higher than you would to pull the same load up the hill.

Forage wagons

- Emergency shut-off devices must be maintained in perfect operating condition.
- These wagons incorporate a myriad of hazards. Shafts, belts, pulleys, beaters, chains, etc. must be guarded and shielded, to the greatest extent possible.
- Some parts must be exposed to do the work. Keep hands and feet away from all moving parts.
- Stay at the controls while the wagon is operating. Never step over the power shaft.
- Don't enter a wagon while the tractor engine is running.
- Always shut the power off (and pocket the key) before attempting to unclog any part of the mechanism or make repairs. Replace all guards and shields before starting up again.

Self-unloading grain wagons

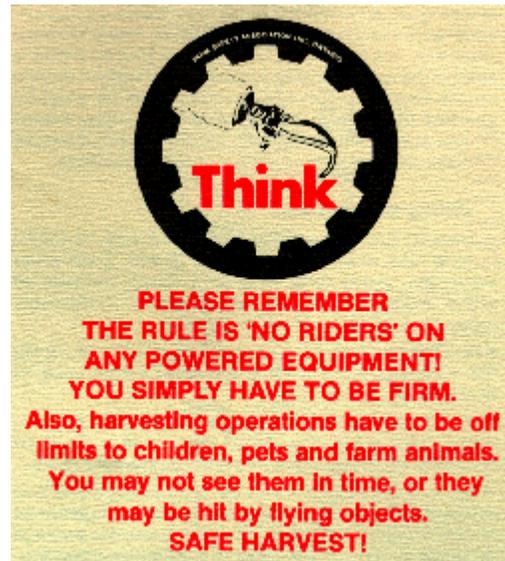
- Make grain wagons 'off limits' to children. Don't leave a wagon load of grain unattended if there is any danger of kids climbing in and becoming entrapped in the

grain.

- Unload wagons on a level surface. Don't drive up on blocks to try to make the grain run out faster.

Forage blowers

- Fasten a PTO blower securely to the tractor drawbar. Vibration could cause an unattached blower to move, thereby allowing the telescoping PTO shaft to come apart and rotate dangerously. Movement could also bring the blower pipe down on you.
- Never climb into the hopper or use hands or feet to force material into a blower.



PLEASE REMEMBER THE RULE IS 'NO RIDERS' ON ANY POWERED EQUIPMENT! YOU SIMPLY HAVE TO BE FIRM. Also, harvesting operations have to be off limits to children, pets and farm animals. You may not see them in time, or they may be hit by flying objects. SAFE HARVEST!

ILLUSTRATIONS ON PAGES 2, 3 AND 4
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