

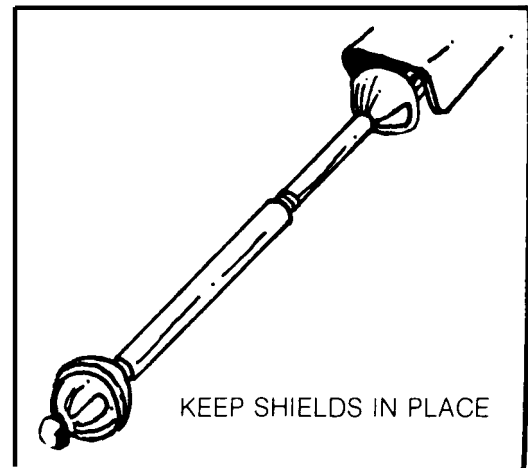
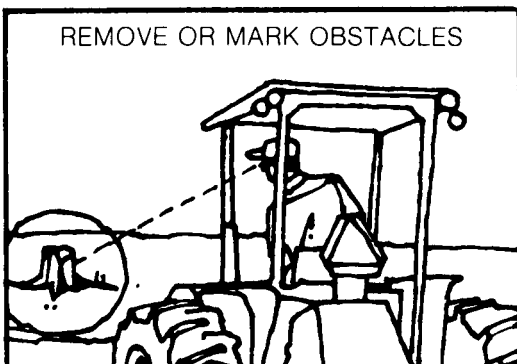
using hay and forage harvesting equipment safely

Hay and forage crops are grown on more acres in the United States than any other crop. Three major facts in hay and forage operations present special safety hazards—field terrain, equipment, timing of operations and crop conditions.

Field terrain

Often hay and forage crops are grown on ground too rough, steep or unsuitable for row crops. This makes field and machine preparations especially important for safe operation. Some steps to help eliminate potential hazards are:

- Remove stumps, stones and foreign objects, or mark them clearly to prevent upsets, breakdowns or dangerous driving conditions.
- Locate any dangerous ditches and inspect banks for undercutting.
- Plan harvesting so equipment travels downhill on steep slopes to avoid overturns.
- Space tractor and equipment wheels as far apart as possible when operating on slopes.



Hay and forage harvesting equipment

Most hay and forage harvesting machines have several moving components and one or more forms of cutting action. Check your equipment carefully. Know where the hazards are. Keep shields on parts that can be shielded and avoid the others.

Timing of operations

Weather and the stage of maturity and moisture content at which a plant is cut and processed are important considerations in forage crops. Often the need to beat bad weather, or to cut the crop at just the right stage can rush operators into disregarding safety. With today's modern equipment, a faster harvest is possible. But the operator must remember safety is more important than speed. Never get in such a rush that you neglect safety precautions.

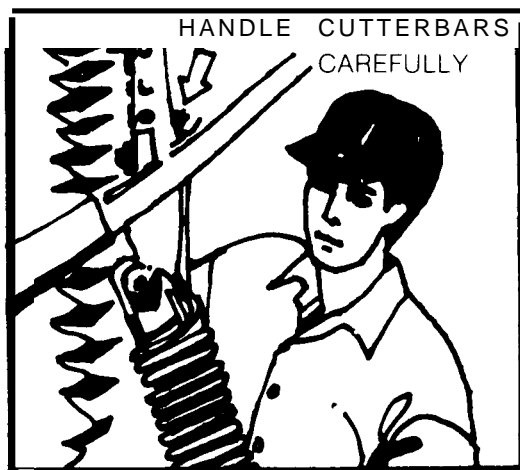
Types of Hay and Forage Equipment

There is a wide variety of machinery which

gets the job done quickly and, with a knowledgeable operator, safely. Each type of machine has unique safety hazards, and special cautions for safe operation.

Mowers and Conditioners

Power Takeoff When considering safe operation of mowers and conditioners, pto safety is vital. Always make sure the machine is hooked up correctly. Never attach a 540 mm mower or conditioner to a 1000 rpm pto tractor. Operating a mower or conditioner at the wrong speed can cause machine failure and possibly injure you. Be extremely careful when working near pto shafts. Make certain that all safety shields are in place before you operate the mower or conditioner, or any other pto-driven machine. Rotating pto shafts that are not properly shielded are potential killers.



Cutterbar— Even though precautions are taken to insure correct operation of mowers and mower-conditioners, plugging or trash build-up on cutterbars may still occur. To safely unplug the cutterbar or remove trash, follow these steps:

1. Stop the tractor and disengage the PTO.
2. Raise the cutterbar and back up.
3. Shut off engine and engage the parking brake or shift the transmission into park (or neutral).
4. Pull hay away from cutterbar.
5. Check the cutterbar for broken guards or knife sections.
6. Lower cutterbar.
7. Start engine and engage pto at low speed.
8. Ease mower into standing hay and resume operation.

Reels— Most of the safety precautions applying to mowers and cutterbars apply to mower-conditioners. However, in addition, mower-conditioners have reels located over the cutterbar to deliver the crop to the crimping rolls. The reel is an extra reason, in addition to the cutterbar, to shut off the engine and disengage the pto before going near it.

Crimper Rolls— Conditioners and mower-conditioners use crimping or crushing rolls to condition hay so it may dry faster. The conditioning rolls are pto-powered. They pull the hay between them, and throw the hay out the back of the machine. For this reason, never allow anyone to stand near the back of a conditioner, or mower-conditioner during operation. The crimping rolls may pick up a stone or other object, throw it out the back and injure someone. Never work on or around crimping rolls unless the engine is off and the pto disengaged. The rolls can easily grab your hand or clothing if you leave the machine operating. Don't take a chance.

Windrowers

Windrowers save valuable time in haying operations. They can mow, condition and windrow hay in one trip over the field in a similar way to mower-conditioners. But windrowers present two additional safety considerations:

- Windrowers use an auger or canvas draper to carry hay to the center of the platform.
- Windrowers may be self-propelled as well as drawn.

Auger platforms— The auger platform poses potential safety hazards, not only because it is an additional moving part, but also because it may get plugged up by crops. Operators often get careless when unplugging machines. The potential hazard of the auger lies in its shearing and pinching action. The same precautions in unplugging, servicing, repairing and inspecting mower-conditioners should be followed with windrowers. Never work on the platform, including cutterbar, reel or auger, without first disengaging the pto and shutting off the engine.

Windrower speed— Windrower speed is determined by the terrain and the density of

the crop. When operating over rough terrain or on hillsides, take care to avoid holes or obstacles that can tip a windrower or throw you from the machine. Crop density also affects the speed at which you operate the windrower. In heavy crops, high operating speeds cause frequent plugging. The more often you must unplug the machine, the higher the chances for an accident. Also, remember that by taking the crop in at the proper speed you'll save time. Frequent stops to clear the machine almost always consume more time than steady harvesting at a slower speed.

Steering mechanisms— Steering mechanisms on windrowers consist of steering levers and a steering wheel. The steering levers are for sharp turns at the end of the field. Adjust speed according to the type of turn to be made. Use the steering wheel to obtain trim and for transport. Make turns on hillsides with care. Reduce speed and make turns with caution to avoid overturning.

Platform height— The height at which you operate the platform will vary from crop to crop. When harvesting hay crops, the platform may be operated very near the ground. Keep a close watch for rocks or other obstacles that could be hit or picked up by the platform. Irregularities in the ground also present safety hazards.

Balers and Bale Handling Systems

Baling usually puts stress on the operator to get the job done quickly and efficiently. Weather conditions can change rapidly and the value of the crop may be cut by conditions that are too wet, too cool, too hot or too dry.

But, no crop, no matter how large or how good, is worth injury or death. Careless operation that saves time is foolish. Slow down and work steadily.

Rectangular-Type Balers— Balers producing rectangular bales use a pickup head and auger to feed the hay to the bale chamber for compression and bale formation. As the hay enters the bale chamber, two knives slice it and distribute it uniformly in the bale chamber.

These and other components can injure you

if you do not take all safety precautions during operation and servicing. Make sure all such parts are completely stopped before you get near them. A baler in good mechanical condition adds to your chances for safe and efficient operation.

Correct ground speed is important to safe baler operation. If you travel too fast, the baler can become overloaded. If operating over rough terrain, the knotter may miss tying bales if the baler is bouncing too hard. If the need should arise to adjust, inspect, or repair the baler, follow these procedures for your safety:

- Disengage all power
- Shut off the engine
- Wait for the flywheel and all other moving parts to stop

If you need to test the bale knotter, the proper procedure is to disengage the pto, shut off the tractor engine and then turn the flywheel by hand after tripping the knotter drive. With the flywheel turning slowly, you can observe the knotter going through a tying cycle in slow motion. But, be sure you just watch while the parts are moving. Keep hands away!

Round Balers— Although a different mechanism from the rectangular baler forms the round bales, practice the same safety precautions. Always be sure the pto is disengaged and the engine shut off before dismounting to service or adjust the baler.

Round bales are often left in the field for feeding, but if hauling them, take extra care when stacking and transporting them because they roll easily.

Bale Ejectors— Three mechanisms for bale ejecting or throwing are:

- Hydraulic ejectors
- High-speed belts
- High-speed rollers.

Never allow anyone to stand behind or work on the ejector while the pto and engine are operating.

Manual bale loading— Manual bale loading can be done safely if it is done carefully. The nature of wagons and bale

handling means the operator and bale handlers alike should take extra care. Be sure everyone is aware of these potential hazards:

- Starts and stops that can cause bale handlers to fall off the wagon or truck.
- Accidentally stepping off the wagon or truck while loading bales.
- Falls from the wagon or truck which result in getting run over as well as fractures, sprains and concussions.
- Tossing bales, that easily knock someone off balance.

It is just as important to practice safety while transporting bales. Travel at a safe speed and do not allow riders on top of the hay or on back of the wagon or truck.

Bale Accumulating and Handling Systems

Automatic bale handling systems rely heavily on hydraulics and chain conveyors; observe the following safety precautions:

- Keep hydraulic fluid clean and hydraulic system in good repair. Many of the problems and resultant safety hazards of hydraulic systems can be traced directly to dirty or contaminated hydraulic fluid or damaged hydraulic systems.
- Periodically inspect and check operation of hydraulic control valves, mechanically activated switches, and flow dividers. Repair or replace any faulty equipment immediately.
- Be cautious when operating bale accumulating and handling equipment on steep slopes. Avoid dumping clusters of bales on steep slopes because using a tractor loader to load bales where it is too steep could easily cause the tractor to tip over.
- Be sure tractor brakes or self-propelled bale handler brakes are uniformly adjusted to avoid uneven braking and a possible upset.
- Maintain the desired tension on all chains and conveying belts, as recommended in the operator's manual.
- Keep all shields in place to guard against injury.

Stacking System

Safety procedures for operating stackers include:

- To avoid falls, do not allow riders on stackers.
- Lower the pickup head when the stacker is not in use. The head could accidentally be lowered by someone and injure anyone under it.
- Place blocks under the pickup head when working under or around it. This will prevent the pickup head from falling on anyone under it.
- To avoid entanglement and injury, never lubricate, adjust, or clean the stacker while it is running.
- Always block the wheels when working on, under or around the stacker to prevent it from rolling on you or someone else.
- Reduce speed on steep hills or rough terrain. A full stacker is top heavy and could turn over.
- Be sure your tractor has enough front-end ballast. Some stackers with a full load may weigh approximately eight tons and could cause your tractor to tip backward if not properly ballasted.
- Before unloading, check to make sure no one is near the rear of the stacker. The door mechanisms could cause injury or someone could become pinned under the stack.

Stack Movers

Stack movers use chains or links revolving on beams to load and unload stacks. Hydraulically operated, the conveyor chains are in the open. Do not allow anyone near the mover while it is in operation as they could become entangled in the chains.

Take the same safety precautions with stack movers as with stackers. In addition, place an SMV emblem and proper reflectors on the back of a stack being transported because the tractor's emblem is blocked from view.

Big-Bale Balers

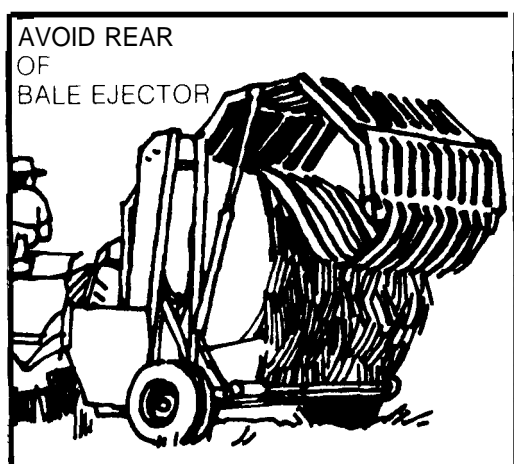
Big bale machines form bales weighing from 500 to 2,000 pounds or more. Do not eject large bales on slopes where they may

roll away. Because the bale is heavy, once it starts moving it has a tremendous force that can damage fences, other machinery, or injure people.

If you must move a large bale from a slope, be especially careful. Pick the bale up on the lower side of the slope. This will reduce the chances of upsetting your loader and will keep the bale from starting to roll down the slope.

Some suggestions for safe operation of the big-bale balers are:

1. Do not eject big bales where they might start rolling.
2. Observe all safety precautions applying to PTO and hydraulically operated machinery.
3. Do not let anyone stand near the rear of the baler when a bale is being ejected.



4. Stop the engine before dismounting to service, adjust or repair the baler.

The large bales may be transported by tractor loaders, 3-point with carriers or by trailing bale movers. Proper tractor weighing is important to avoid tipping backwards. Keep everyone clear of the area while loading and transporting the bale. Bales may roll from the front-end loader and crush operator if loader is raised too high.

Forage Harvesters

Both cylinder and flywheel types of forage

harvesters may have self-sharpeners. The use of self-sharpeners requires extra precautions from the operator because sharpening is done while parts are moving. You must be aware of these and other potential hazards of different types of crop heads. Except for flail-style harvesters most forage harvesters are available with different types of pickup heads:

- Direct-cut or mowerbar head
- Windrow pickup head
- Row-crop pickup head
- Corn head

All pickup attachments and the flail chopper have moving parts which are designed to cut and handle crops. Never approach them while the engine is running. They can also cut people. Treat them with care.

General Safety Precautions

Other safety suggestions for forage harvesters include:

1. Never stand behind or under the discharge spout while the harvester is operating. Hard objects become dangerous projectiles coming out of the spout.
2. Be sure the harvester is completely stopped before hooking up wagons to avoid being hit by objects from the spout.
3. Never clean, oil or adjust the harvester when it is running. Always make sure the machine has stopped to avoid injury.
4. Disengage power rear-wheel drive on self-propelled harvesters while driving on icy roads or highways to avoid losing control.
5. Remember, the auger, fan and cutterhead may continue to rotate for several minutes after power is shut off. To avoid injury, do not open doors or shields until these parts have stopped rotating.
6. Keep doors and shields latched tightly during operation. Objects are thrown from the cutter with great force. The shields must be in place to deflect these objects.

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