FACT SHEET

Farm Safety Association
Agriculture • Agribusiness • Horticulture • Landscaping

HANDLING BIG BALES SAFELY

PRE-HARVEST PRECAUTIONS

Those big round bales weigh 1,000 to 2,000 pounds. Developing safety awareness begins with the operator's manual. Take time to read through it when the machine is new, and make sure each operator reads or re-acquaints himself with the manual at the beginning of each season. Make sure that all employees are trained and know how to operate the equipment.

- Before starting, inspect the tractor-baler combination. Make sure all shields are in place, especially the Power Take-Off (PTO) shields. Pull hard on the PTO shaft to ensure it is properly locked on the splined shafts. Check the PTO speed range to be certain 1,000-RPM isn't used where 540 may be specified.
- Check the maintenance records of the baler prior to starting a new baling season. Excessive grease or grass buildup on moving parts may cause a fire hazard that should be removed periodically.
- A 5 lb. A: B: C fire extinguisher is recommended as part of your tractor equipment.
- When working on this equipment, chock the baler wheels, lock the tractor brakes, and remove the ignition key. Removing the key may prevent a hasty helper from starting something he shouldn't have.
- Thoroughly clean the baler to remove any accumulated field trash or other debris.
- Lubricate all parts according to manufacturer's recommendations. Proper lubrication can reduce unnecessary wear on parts and prevent overheating that could cause a fire.
- Carefully check for loose or missing nuts, bolts, screws, guards or bent teeth.
- Replace missing guards to prevent accidental contact with the components they guard.
- Replace bent or missing pickup teeth to ensure effective feeding of material into the feed rolls.
- Inspect all belts or chains for evidence of wear or breakage.
- Maintain belt tension according to the manufacturer's recommendations.
- Belt lengths should be matched to prevent slippage that can cause plugging and heat build-up.
- Belts that must be spliced should be trimmed and laced squarely.
- New belts should be checked periodically until they are broken in and length has stabilized.
- Before replacing a belt or chain, consult the operator's manual for instructions on securing the upper chain or moving load from the belt tension springs.
- Make sure the hydraulic hoses are clean and in good repair and hooked up correctly.
- Check the twine feeding and cutting mechanisms to see that they are working properly and that your twine is in good condition.
- Also check the slip clutch, roll scraper and rear gate latch to make sure they are adjusted and functioning according to the manufacturer's recommendations.

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- Finally, check all lights and warning reflectors, and clean your slow-moving vehicle emblem. Check your fire extinguisher to see that it is in proper operating condition.

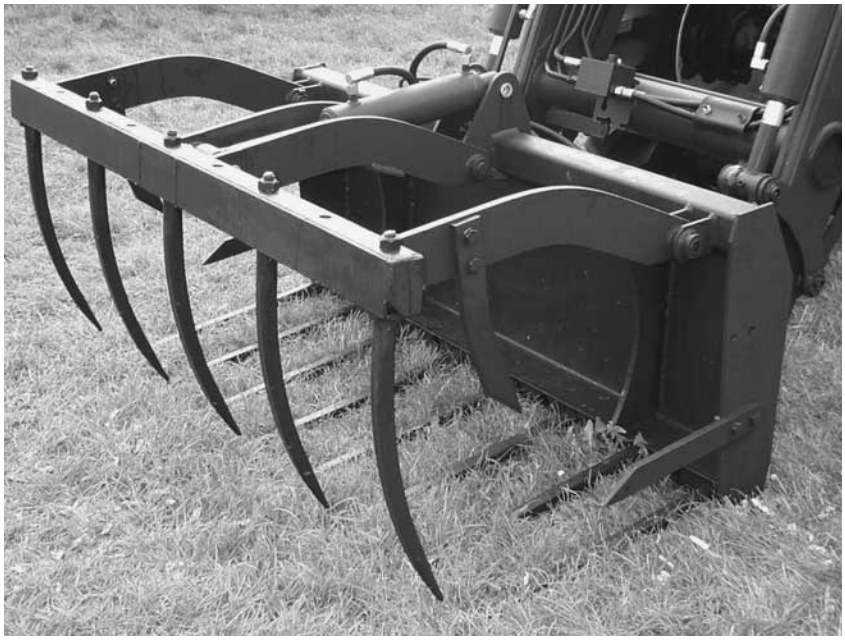
CROP PREPARATION AND BALING

The terrain and the density of the crop determine the windrower speed.

- 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.

The more often you must unplug the machine, the higher the chances for an accident.

- If clogs must be removed, always turn off the machine.



Repeated plugging of the baler may tempt the operator to try unplugging the baler while it is running.

- Never try to unplug the baler until you have disengaged the power take-off and shut off the tractor engine.
- Also, never attempt to feed the material into the baler by hand or feet. One slip could be deadly.
- Never attempt to hand feed or remove twine from the machine while it is running.

READY TO MAKE HAY

You've completed your preliminary safety checks, and now you're ready to make hay.

- Before transport to the field, make sure the two independent brake pedals are joined together.
- Pump the brakes lightly to be certain the brakes are working.
- Clean the SMV symbol.
- Make sure the baler and tractor tire pressures are correct. Remember, when loaded, soft tires cause equipment to drift on slopes.

Children should be kept away from the baling operation at all times.

- Riders should never be allowed on the tractor or baler.
- Moving machinery is much faster than human reaction time, so keep your body and clothing away.
- Do not hand feed any material into the baler, for your natural tendency is to grasp harder as the machine pulls.
- Never leave the tractor seat with the engine running, even if the PTO is disengaged. PTO's have been known to self-engage due to vibration, or mechanical problems.
- When ejecting a bale, always make sure the area behind the baler is clear before raising the tailgate and don't eject on a downward slope as the bale may continue to roll.
- If the tailgate must be opened for maintenance or repair, install a mechanical hydraulic cylinder lock out device to prevent accidental gate closing.

BALE HANDLING AND TRANSPORT

The center of gravity is important in handling large round bales:

- The load should be kept as low as possible to prevent backward or side overturn of the tractor.
- When traversing even slight embankments with a heavy load, tractors can overturn, so brake gently when necessary.
- As you transport the bale down a steep grade, never push in a tractor clutch pedal.
- Disengaging the clutch often causes the tractor to speed ahead, then engaging the clutch or braking may cause a load shift or overturn.
- When picking up a bale on a steep hillside, work on the downhill side.
- Lifting round bales with a front-end loader is discouraged unless proper bale restraining devices are used.

Movement of agricultural equipment on highways and roads requires special care. Moving a number of large bales at one time can cause braking problems.

- Always make sure that the load being pulled is no heavier than the pulling unit. Also, use the same gear going down a hill as you would go up a hill.

Keep in mind that most tractors have only two wheel brakes. Five or six bales on a trailer may weigh 9,000 to 10,000 pounds.

- Make sure the load you are moving is not too wide.
- Finally, be sure that your slow moving vehicle emblem, reflectors, and lights are in proper working order and meet legislated requirements.
- For your own protection, check with the local police force or Ministry of Transportation concerning the movement of agricultural equipment and bale loads on public roads.

CONVENTIONAL BALERS

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 completely stopped.
- 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.

ROUND BALE HAZARDS

Big round bales can weigh over 1000 pounds.

There are some key points to consider when harvesting and handling large round bales.

- Equipment used to handle the big bales should be fitted with rollover protective structures.
- Never attempt to carry a round bale in a loader bucket.
- All loaders should be equipped with a spear or grapple that is specifically designed for the size of the round bales being handled.
- Loaders should be equipped with a restraining device that will prevent a loose bale from sliding backwards.
- Loaders must be large enough and equipped with sufficient counterweight to handle bales safely.
- Set wheels at maximum width to increase stability.
- Avoid steep slopes and rough terrain when moving bales with a loader. If it is impossible to avoid sloping land, approach bales from the downhill side.
- Avoid sudden stops, starts or changes of direction. Be very cautious and travel at low speed when carrying a bale.
- Always keep bales as low as possible for maximum stability. The risk of a bale breaking free is greater when loader arms are raised because the load is less stable.
- Wagons used to haul bales should be of sufficient width and have end racks to prevent bales from moving off the ends and sides during transport. There are wagons designed specifically for transporting round bales.
- Use good judgment when stacking bales in storage. High stacks make efficient use of available space, but removing the bales could be hazardous.
- Carefully transport round bales from the field to storage.
- Do not travel too fast and make sure that there is adequate ballast on the front and rear to counter balance the load.

SQUARE BALERS

- Always disengage the PTO and shut off the tractor before working on equipment.

The flywheel supplies a uniform momentum for operating parts and will continue to turn even after the PTO is disengaged.

- Always allow time for it to stop turning before working on the baler.

Knotter operation can usually be viewed by a hand turning the flywheel.

- Be watchful for co-workers when two or more are working on/adjusting equipment.
- Extra caution is needed when bale throwers are used because of potential energy in the unit.

As always, caution is needed when loading small bales by hand onto wagons. The experience of the stacker and the person driving the tractor or truck pulling the wagon are important elements for safely loading and hauling wagons from the field.

The newer large square balers pose an even greater risk because of the larger tractors needed for operation and the weight of the bales produced.

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