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New Canadian safety standard developed for agricultural augers

Source: *CASA*

There's a new Canadian safety standard for portable augers used on farms. It could take a couple of years before producers see the results on the market but auger manufacturers are getting set now to work the new standard into their equipment designs.

The new CSA standard for portable agricultural augers was developed over several years by the Agricultural Machinery Technical Committee of the Canadian Standards Association. The committee includes farmers, manufacturers, regulators and researchers from Canada and the U.S. The group considered research results, member experience and similar standards in the U.S. and Australia.

Jim Wassermann, an engineer with the Prairie Agricultural Machinery Institute in Saskatchewan, is a member of the team that came up with the new CSA standard. He says most of the upgrades in the auger standards relate to the design of the intake guard and the auger driveline.

“Those are the areas where most

injuries take place,” he says. “The standards team has now come up with practical options to prevent a hand or foot from contacting the rotating flighting without restricting product flow.”

“For example,” Wassermann adds, “a retractable intake guard is now



Augers are second only to tractors in their involvement in machinery-related injuries on the farm.

an option in the new standard. It can stay in place for most operations but in unique situations, it can be retracted and alternative safety precautions put in place.” The new standard also references all recent standards that relate to guarding auger drivelines and PTOs.

The new CSA standard for portable agricultural augers is available for

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Farm safety tips

- Exposure to powerful farm machinery occurs most often during the harvest season. Be sure equipment operators are familiar with the machine before using it. This may mean taking an operator's course, or simply reviewing the owner's manual.
- It's a good idea to examine fields for any changes prior to harvest. Remove debris from the field or clearly mark it along with any holes or ditches caused by water run-off. This will prevent upsets or damage to equipment.
- Make sure hydraulic hoses are in good repair this fall. Keep fluids clean and check often for any damages. Use a piece of cardboard to check for hydraulic leaks, as the high pressure can penetrate skin.
- Farm workers should be dressed for comfort and safety this fall. Protective footwear and close-fitting clothes are essential when working in and around machinery. Also, wear appropriate safety gear if noise, dust or toxic materials pose hazards.
- Entanglements are one of the top causes of critical farm-related injuries and fatalities. Don't be a victim this fall. Always disengage power and turn off the engine before trying to manually clear a plugged machine.
- To reduce the hazards of falling, always keep platforms free of tools and other objects. Periodically clean steps and areas where workers stand to service, mount and dismount, or operate the machine.
- Fatigue, drowsiness and illness can lead to mishaps in the field this fall. Adverse weather can also add to harvesting pressure. Do not rely on stimulants to keep workers going or depressants to calm nerves. These drugs can impair judgment.

Fire prevention on the farm

Source: Ontario Office of the Fire Marshall

http://www.town.caledon.on.ca/content/townhall/departments/fire/Farm_prevention.pdf

A barn fire is a farmer's worst nightmare and often, it brings significant emotional and economic damage to a farming community. Past data indicate that dollar losses on farm properties affected by fire ranged from \$20 million in 2002 to \$29 million in 2004. There are many steps that can be taken to establish a good fire prevention plan to reduce the risk of fire on farm properties. The following information outlines simple measures to ensure farm buildings and livestock are safer from fire. These fires are largely preventable by following good fire safety practices.

Fires require three elements: oxygen, fuel and heat. Farm buildings are particularly susceptible to fast-moving fires because they are well ventilated. Barns and farm buildings provide a plentiful fuel supply for fires to start and grow; the buildings themselves are constructed of wood and house solid fuels such as hay, straw and grain. The final element, the heat source, can take the form of sunlight, friction, electricity, open flame, gas compression and/or chemical reactions. Measures on how to help prevent farm fires are outlined below.

Start with a plan

It is a good idea to contact your local fire department to find out how to effectively prevent fire on your farm. Most fire departments will visit your farm and point out areas where you can decrease the risk of a fire. They will also provide advice on access routes to all areas of your

property. Use this information to develop a plan for your farm. Introduce the plan to everyone who frequents your farm and ensure that procedures are up to date and practiced. If possible, make arrangements with neighbouring farmers to provide shelter for your livestock if the event they need to be evacuated from your farm.



It doesn't take long for a smouldering fire to erupt into a blazing inferno.

Absolutely NO smoking

There should be no smoking permitted in any barn or farm buildings at any time. Strictly enforce a no smoking policy by posting signs and informing people who work or visit with you. Make sure that any cigarettes are extinguished thoroughly in a safe location prior to entering the barn or farm buildings.

Practice good housekeeping in the barn

Keeping a clean, organized barn is not only crucial to farm life: it is an excellent way to prevent fires from occurring. Loose hay and straw should be swept up. After using hay

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Safe use of tow ropes, cables and chains

By George G. Maher

Source: North Dakota State University
<http://www.ag.ndsu.edu/pubs/ageng/safety/ae1051w.htm>

Stuck! The tractor won't go forward or backward, and you need help! Or, that stump or rock has got to be moved. While backing the tractor

used may break at 4,000 pounds. Whatever combination of these materials you select for a towing device, the weakest part always breaks first. When it breaks, the rest becomes a deadly projectile. Parts such as ball hitches, clevises, chains and even complete bumpers have broken loose, becoming dangerous missiles.

able. Use the strongest hooks that you have. Fasten them securely and be sure that the bumper or drawbar is secure.

Always hitch to the drawbar of the tractor doing the pulling (Figure 1). Hitching to anything other than the drawbar dramatically increases the chance of tipping the tractor.

When using more than one vehicle for pulling, do not hitch them single file, with the total effort exerted on only one chain, cable or rope. Instead, hitch each vehicle independently, otherwise too much power can easily be applied to the final towing device (Figure 2). Carefully coordinate the efforts when more than one towing unit is used.

How can you make towing safer? First, clear the area of people, both helpers and watchers. Second, always hitch to the drawbar. Third, make sure everything – bumper, drawbar, hooks, chain, cable or nylon rope – is strong enough to handle the load. Fourth, make sure that all attachments are secure. Finally, apply the power smoothly without jerking – do not attempt to use the elasticity of nylon rope to increase your pulling power. ☀

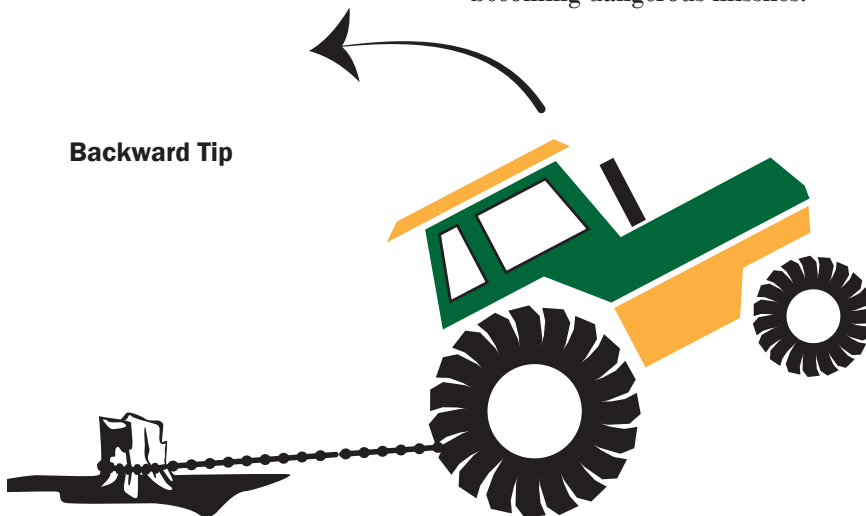


Figure 1. Hitching above normal drawbar height may tip a tractor backward

into position for pulling, do you ever wonder, “Is that weld repair on the hook good? What about the chain repair we made with a bolt? What’s gonna break first, the chain or the hook?”

Think about these questions when selecting a tow rope, chain, or cable for pulling something. A lot of power will be attached to whatever towing device you choose, easily stretching it to the limit. When that limit is reached, something will break. The hook, chain or cable will become a missile that could cause a terrible injury or death as it rebounds.

A new, one-inch nylon rope in excellent condition has a breaking strength of up to 25,000 pounds. New steel cable of one inch diameter in excellent condition may break at 10,000 pounds, and chain with links made of half-inch diameter material may break at 2,400 pounds. The type and size of hook that is frequently

Nylon rope tends to recoil straight back to the point of attachment. The broken hook is like a bullet. Steel cable whips about furiously as it recoils, and chain rebounds unpredictably, eventually winding around anything in its way. All towing materials are dangerous when recoiling from a stretched condition and most can go through tractor cabs and pickup windows. The result is often a serious, disabling injury or death.

Matching the right size of towing device to the vehicle doing the pulling is extremely difficult because of various surfaces, soil conditions and types. Always use the strongest and best tow rope, cable or chain avail-

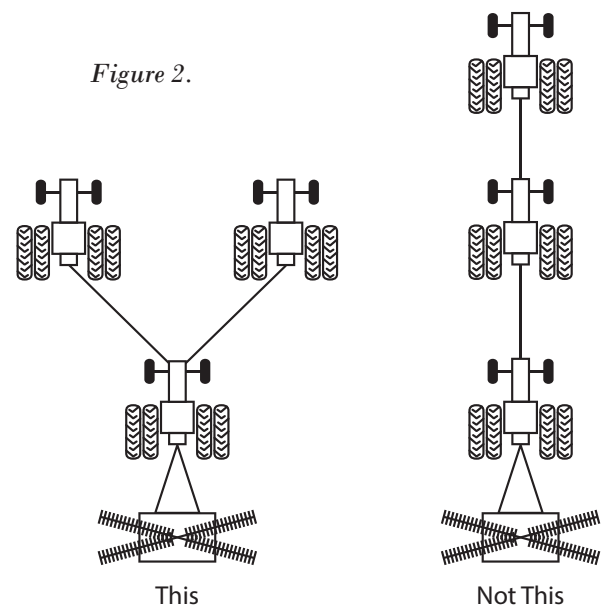


Figure 2.

Handle your grain harvest with care

By: Charles V. Schwab, Ph.D.

Source: Iowa State University Extension

Millions of bushels of grains flow safely from field to storage during harvest each year, but one person trapped in grain can stop the flow in a matter of seconds. All too often, farm workers or family members suffocate beneath the surface of grain. This tragedy is repeated several times a year, and poor harvest or storage conditions can increase the risks. The real tragedy is that many of these people did not understand the potential danger of handling grain.



Farm operators often overlook dangers of handling grain.

Seconds count in entrapments

Grain handling entrapments happen very quickly. Flowing grain can draw in a person within five seconds. That time is decreased with the use of high capacity unloading equipment, such as large wagons emptied quickly with large augers or legs. As farm equipment becomes faster, humans have less time to respond before they are helpless to the effects of flowing grain.

Children are at an even greater risk around flowing grain. They are shorter and become submerged

quicker than adults. They also do not have the physical strength to pull themselves out of grain before they become entrapped.

Grain traps like quicksand

A grain surface may appear solid, but it is not. A small opening in the unloading gate gives the entire surface the quality of quicksand. When a single kernel is removed from the bottom of a wagon, kernels directly above it rush to fill the void, creating a fluid motion. Flowing grain is like a fluid; objects on the surface sink, and heavy objects sink faster than light ones.

sion, grain will flow into voids and openings, such as the mouth or nostrils. In some cases, grain has been found in the stomach, lungs, and throat of victims.

Suffocation also occurs when the victim is no longer able to inhale air. Pressure in a grain mass can restrict a person's ability to breathe. This happens when the chest cavity and diaphragm shrinks as a person exhales, and grain quickly flows around the body, filling any areas that are voids. On the next breath, the person will have less room to expand the chest cavity and inhale air. This is similar to the way a python strangles its prey. Panic hastens the process, and as the capacity of each breath becomes smaller, the person is unable to inhale enough air to survive.

Another factor is lack of a breathable atmosphere in the grain. Typically, a person requires a specific volume of air. In a grain entrapment, grain restricts the air flow to the area surrounding the submerged person. As the person uses oxygen and exhales carbon dioxide, the air surrounding the person is depleted of its oxygen.

How to prevent entrapments

The easiest way to reduce risk is to eliminate the situation. Always lock all access doors to grain storage structures. Never allow children to play or ride on grain wagons, or be in the work area. With these rules, children are not exposed to suffocation hazards.

Farm workers, however, must be exposed to some risks. To reduce risk, follow these guidelines:

- Lock out power to all types of grainhandling equipment. Disconnect power and place locks over operating switches. This also helps discourage grain theft.
- Always use the buddy system when you are unloading or loading

Even if grain has stopped flowing, submerged objects or people are difficult to extract. Victims with tremendous upper body strength cannot pull themselves out if they are buried to the chest. The force required to remove someone buried below the surface of grain easily can exceed 2,000 pounds, which is about the same as lifting a small car.

How suffocation occurs

Suffocation occurs in several ways during grain-handling entrapments. Investigations reveal that some victims ingest grain. During submer-

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drops, always cover the opening with plywood, or better yet, cover the plywood with flame-retardant, one-hour gypsum board.

Provide adequate ventilation

Chemical reactions, found in baled, damp hay, can be a cause for barn fires. Mows of tightly packed bales do not allow this build-up of heat to dissipate. Smouldering fires can go unnoticed for some time. Spontaneous combustion can occur when the smouldering fire has reached a high temperature and is exposed to oxygen, resulting in a full-blown fire. Store dry hay in barns and monitor the internal temperature of hay bales. Hazardous products should also be stored in well-ventilated areas to reduce risk of fire.

Practice electrical safety

‘Electrical malfunctions’ are a leading cause of fires. Wires should be enclosed in metal or PVC conduit (pipe) to protect them from exposure to weather, animals, and from mechanical damage from machinery and equipment. Keep combustibles away from heating appliances, and never leave them unattended. Regular cleaning of electrical appliances and equipment will prevent build-up of dirt and dust, which can contribute to overheating and malfunction. A regular maintenance cycle can also identify worn or defective parts, which can be repaired or replaced before they become a problem.

Install and maintain lightning rods and grounding cables

Lightning can enter a building via metal objects such as antennas, cupolas or anything that extends upward. Lightning rods are the best solution to preventing lightning-source fires. These rods give lightning a direct path to follow to the ground, keeping your barn and the livestock inside safe. Check grounding cables frequently and repair if worn or damaged.

Keep yard areas free of brush and debris

Clear the immediate areas surrounding all barns and farm buildings by removing brush, debris and machinery. Remove weeds and trim/prune under trees and bushes. Keep grass along a roadway closely mowed (a motorist’s stray cigarette could be a source for fire).

Refuel equipment safely

Refueling tractors and machinery should be done well away from buildings so flammable vapours can dissipate. Always refuel equipment outdoors, away from open flames and sparks. Make sure engines or motors are turned off and cool before refueling.


Install and maintain portable fire extinguishers

Install fire extinguishers in your barn, tool shed and other farm buildings. You should also have fire extinguishers on all mechanical equipment and machinery. Make sure family members and farm employees know where the extinguishers are located and how to use them. Inspect your extinguishers regularly and recharge when necessary. Consult your local fire department for advice on the type, rating, and location of extinguishers. If you have water-type fire extinguishers, protect them from freezing.

Make sure everyone follows the rules

Ensure anyone visiting or working on the property learns and obeys the fire safety rules.

Spread the word

Visit neighbouring farms and share what you know. Ask other farmers what kind of fire safety measures they have taken and participate in the exchange of information and ideas. Ensure your neighbours know your farm’s municipal address and vice versa – it could be their call that saves your farm! 

Auger safety standards

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purchase in English and French from the CSA on-line store at www.shop.csa.ca as CAN/CSA-M688-10 – Portable agricultural auger conveying equipment – General safety.

Statistics from Canadian Agricultural Injury Reporting show that augers are second only to tractors in their involvement in machinery-related injuries on the farm. Wassermann says “that alarming statistic triggered the Canadian Agricultural Safety Association to support the development of a new CSA safety standard for portable agricultural augers.”


The CSA standard was produced with financial support from the Canadian Agricultural Safety Association in partnership with Agriculture and Agri-Food Canada through Growing Forward, a federal, provincial, territorial initiative. 

Grain Safety continued from page 4

grain. Notify a second person where you are at all times, who can get help if needed.

- Never enter a bin when grain is caked or spoiled. Moldy, wet grain clumps and as it is unloaded a large air pocket may form just below the surface. This creates a grain bridge that can collapse at any time.

If someone is caught in flowing grain, there are several ways of handling the situation. The action required depends on whether the person is in a wagon, grain bin, or other type of storage structure. Check other references for specific rescue procedures.

Farm workers seldom have the strength or reaction time to save themselves once they are trapped in flowing grain. However, all farm workers can recognize the dangers of flowing grain, and avoid taking risks in routine tasks. 

Life-long learning on the farm

By Nicole Hornett, ARD Farm Safety Coordinator

You may enter your farming career straight out of high school, or maybe after post-secondary education and possibly some previous-career experience. In any case, one thing you will have in common with all other workers is the need for life-long learning. Regardless of how you chose to obtain your education, important skills were developed that enhanced your ability to learn, manage time and work cooperatively with others.

Those working on a farm may find many opportunities to discover and practice new skills. On- and off-farm training options present themselves all the time. A savvy worker recognizes those opportunities and seizes the chance to learn more.


As humans, we are constantly honing our ability to gather information, process the facts and apply the knowledge. Learning is never limited to just the classroom. A valuable way to learn while working on the farm is to seek a mentor. Find someone you respect who knows the ropes and is open to sharing their experience and knowledge. This can help you make safe and efficient choices on the farm without the hazards of needless trial and error.

Informal learning and training happen every day and both are often spontaneous¹. Reading this article could be considered informal learning. These opportunities do not follow a specific curriculum, yet information gathered that relates to your job can count as informal learning for your role. Volunteering for special projects is a great way to enhance your informal learning. For example, talking to your boss about developing and maintaining a personal protective equipment program on the farm could result in you becoming the lead of the new safety committee in the future. How about asking your employer if you could job shadow the person responsible for the equipment maintenance? Either of these roles could help to improve your safety awareness on the farm and would look great on your résumé!

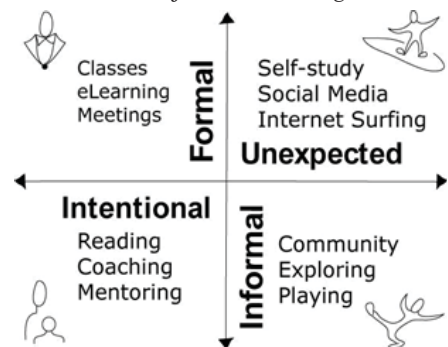
Your employer should be interested in both your formal and informal training and learning. While some training should only be provided through a certified source, many other agricultural tasks could be learned via informal training. If formal first aid training can motivate people to avoid workplace injuries and illnesses plus improve their outlook on risk controlsⁱⁱ, think what an informal refresher on machinery operation

could do to improve safety! Formal new worker orientation is proven to help set the standard for safety on a farm. To enhance this, current farm-related magazines could be placed in the lunch room to boost informal learning options.

Learning and training happen every day in many ways. Explore your options around the farm, in your community and online.

As Albert Einstein famously said, “Once you stop learning, you start dying.” This is one quote that could be interpreted a variety of ways. 

Formal and informal learning



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www.marciaconner.com

ⁱ <http://marciaconner.com/resources/informal-learning/>

ⁱⁱ http://acicr.ca/Upload/documents-reports/reports/literature-review-of-the-relationship-between-first-aid-training-and-injury-rates/LitReviewFirstAidInjury_000.pdf



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“Working safely may get old, but so do those who practice it.”