

1: Harvest season is a time of farm-safety awareness | AGDAILY

A part of a successful farming operation is understanding what causes farm accidents and how to prevent them. Accidents often seem to "just happen." Things seem to be going just fine one minute and then catastrophe strikes.

Video from news report on unsuccessful rescue attempt in Indiana Several factors complicate the rescue of entrapment victims even if their heads remain above the grain. Most grain storage and handling facilities are located on farms in rural areas, often distant from trained rescuers such as fire or ambulance services. They are also confined spaces, posing hazards to rescuers. Foremost among them is the air within. The dust can also sometimes have molds or spores that may be toxic [1]: The aeration fan should be turned on to improve ventilation, but without any heat source activated. They should wear proper safety equipment such as lifelines. No more than two should walk on the surface of the grain at any time. Stored grain is often kept fresh by blowing dry air over it. Grain creates friction that resists the force used to pull them out. Once that has been done, the next step is creating the equivalent of a cofferdam within the grain from which grain can then be removed by hand, shovel, grain vacuum or other extraction equipment. Entrapments are more likely when grain is more spoiled. Workers should never be alone, but if they must be they should have a radio or cell phone to communicate. Signs indicating the potential hazard should be posted at the entry, and anyone who does not have a good reason to be in the grain should never be there. At farms and feedlots not subject to those regulations, it is sometimes common to tie a permanent lifeline to the inside of the storage facility. Its National Agricultural Confined Space Incident Database has, as of , records on reported entrapments dating to The program has analyzed them to find consistent patterns in the hope of improving prevention and rescue efforts. Among the statistically significant patterns it has found are the type of grain in which incidents predominantly occur, the geographic locations of incidents, the type of facility they occur in and the demographics of victims. Given the predominance of corn as an entrapment medium, most incidents occur in the Corn Belt states Illinois, Indiana, Iowa, Minnesota and Ohio where that grain is grown and stored in quantity. Farms in states in the Upper Midwest and West , where humidity is lower and smaller grains are preferred, report fewer incidents. Three-quarters of them have been farmers, farm workers, or members of farm families. The average age of victims is in the 40s, but a disproportionate share are under 18 youths 16 or older can work in agriculture without any restrictions. This was not only the highest since , it capped a period in which the five-year average had steadily increased. Observers speculate that the demand for ethanol fuel production has fostered the increase of corn in storage. Before , a quarter of the victims were saved. Since then, the rate has improved to half. It sent letters to other grain-handling facilities afterwards reminding them of their legal and moral obligations to prevent such deaths. A year later, after another incident in Oklahoma where two teenaged boys lost legs to a sweep auger, the agency proposed new rules on child labor in agriculture. Most minors working in agriculture work for farms with fewer than ten employees, which are exempt from most federal workplace-safety laws and regulations. The proposed regulations, which took up 49 pages in the Federal Register , [14] would have changed that. While they preserved the exemption for small family farms, many observers, even proponents, felt they had overreached in scope and would prevent children of farm families from learning important skills at an early age. Even some of the family members of teenage boys who had died in entrapments told the media that the proposed rules went too far. In late , after one popular user reposted to his blog some "choice excerpts" from the Wikipedia article about grain entrapment along with a video showing a mannequin sinking in flowing grain, they began to increase. Finally, in October , a Tumblr account dedicated to grain-entrapment memes was created. The most popular ones were widely reblogged. In the French film *Le Casse The Burglars* , the jewel thief Azad buries his nemesis, the corrupt police officer Zacharia, in grain. In the film *A Quiet Place* , the children struggle to avoid becoming entrapped in corn grain in a silo while hiding from the antagonist creatures of the film.

2: Alliant Energy - Safety on the Farm

To prevent your tractor and other important farm equipment from breaking down, make a list of what needs to be done to maintain them. Then, assign workers and family members to complete those tasks. This way, nothing will be overlooked or forgotten, and you'll prevent safety and technical hiccups.

Children in rural areas are at risk for different types of injuries because of: As children grow and develop, they get stronger and learn to think things through better. Your child should not do any activity that he or she is not physically and developmentally ready for, even if raised on a farm. Adults can help lower the risk of a child getting hurt by knowing what to expect at different stages of development. By your own actions, show your child the safest way to do things and how to follow safety rules. To keep your child safe, make sure he or she is always:

- Put up barriers to keep your child away from hazards e.
- Make sure there is good air flow in root cellars to avoid suffocation hazards.
- Mark electric fences with a flag or sign and teach your child to stay away from these areas.
- Farm Equipment** Keep farm equipment safe and stored in a locked shed. When not in use, make sure machinery always has the parking brake on and take the keys out of the ignition. Keep your child out of grain wagons and grain storage areas.
- Firearms** The Canadian Paediatric Society states that firearms should not be kept in homes or environments where children and adolescents live or play. If you do keep firearms in your home, keep them in a locked storage case. Make sure they are not loaded and safety clips are on. Lock ammunition in a different storage case, away from firearms. Teach your child the dangers of firearms.
- Equestrian Safety** Have a regular routine to check and maintain horse riding equipment. When working with or riding a horse, make sure your child wears an approved equestrian helmet. While riding, make sure your child is supervised by an experienced rider. For more information about equestrian safety go to Parachute: Preventing Injuries for Horseback Riding.
- Animal Safety** Stay with and supervise your child when he or she enters an animal pen. Teach your child to treat livestock with respect and not to startle animals.
- Fire Safety** If you burn anything in a rural area, use a fire-safe container with a grate on top. Only responsible adults should oversee a burning fire. When refueling machinery outside, do it away from open flames or lit smoking materials e.
- Chores on the Farm** Have your child do chores and activities that are appropriate for his or her age and stage of development. To prevent injury on a farm, make sure your child: A responsible adult who knows how to do the job must always supervise until a child can do the job safely. You can reduce your supervision over time once a child can consistently do the task safely. Before you ask your child to do chores on the farm, think about how old he or she is. Remember, all children are different. Your child must not carry more than 10 to 15 percent of his or her body weight. Never let your child work until he or she is exhausted.

3: Grain - Show-Me Farm Safety

Do your best to avoid these accidents by informing your farm or ranch hands about the risks associated with different tasks. Grain Silos: Storage Safety When proper safety rules are followed, working in grain bins becomes just an everyday part of farm life.

While new technologies have increased efficiency on the farm, the machinery also gives farmers the ability to work alone—exposing them to additional dangerous situations. Click to download our handout [Never Enter a Bin with Flowing Grain](#) Do not enter bins while grain is being loaded or unloaded. Suffocation is one of the most common causes of death involving grain bins. This occurs when someone enters a bin with flowing grain and is pulled under and covered with grain. Many farmers underestimate the massive force behind flowing grain. Standing on moving grain can be deadly; the grain works like quicksand to create suction that can bury a person in seconds. Wait until the dust clears so you can clearly see your footing before entering. Shut off and Secure Power Sources Be sure to turn off and lock out all power equipment associated with the grain when not in operation, including the augers used to help move grain. Be especially aware of automatic unloading equipment, and keep children away from operating grain augers at all times. Wear Respiratory Protection Fermentation produces carbon dioxide, a colorless, odorless gas. Grain bins often have an oxygen-deficient atmosphere. Working in a grain bin where carbon dioxide is present can be very harmful to your health. To reduce the hazard, open all manholes and doors to force air through the bin before working inside. Once exposed, the carbon dioxide can get in your bloodstream and slow down your breathing, which can cause drowsiness, headaches and even death by suffocation. Even a small amount of spoiled grain can produce millions of tiny mold spores which easily become airborne when disturbed. Airborne mold spores can be inhaled, causing reactions so severe that sometimes hospitalization is necessary. Farmers working without respiratory protection inside a bin or other grain storage facility where moldy grain is present are especially vulnerable to mold and dust reactions. Your tolerance may be reduced with each repeated exposure to dust and mold. Be sure to wear a mask that fits securely around your mouth and nose to protect you. Fumigants are incredibly toxic to humans when swallowed, inhaled or even absorbed through the skin. Be sure to follow all label recommendations when in use. It is necessary to only use masks and equipment tested by the National Institute for Occupational Safety and Health when fumigating. Always run the ventilation fan before entering a bin to reduce the danger of the environment to your health. To ensure the safety of those near the bin, post warning signs telling people you are fumigating grain and to avoid the area. Some producers choose a safer and more effective method and have their stored grain fumigated by a licensed, professional fumigator. Use Equipment Guards and Shields Grain augers become increasingly dangerous with each hour of use. Equipment guards and shields prevent opportunities for farmers and workers to become entangled in moving equipment parts. Removing equipment guards and not replacing them is a common cause of injury in farmers. When repairing machinery, be sure to replace all guards and shields when finished to reduce injury. It is extremely important to make sure there is a guard on a PTO-driven grain auger. Some PTO shafts can rotate at revolutions per minute, which can cause severe injury and even death. The power shaft that moves power to the top of the auger can cause the same injuries as a rotating PTO shaft. Always replace damaged or missing PTO and power shaft shields before operation. Intake screens on augers help prevent your hands and feet from getting caught between during operation. Today, most new augers are sold with intake screens in place. If you have an older machine that does not have an intake screen; add one, and be sure to replace missing or damaged screens. Many grain augers operate on a belt or chain drive system. These belts and chains have several pinch points. A pinch point is where a belt or chain wraps onto a pulley or sprocket. If a finger or piece of clothing gets caught in a pinch point or the auger, it may result in severe injury, sometimes requiring amputation. Most of these systems do not come with shields, but they can be easily fabricated for use. Install Safety Equipment Before working in bins, be sure to have all equipment in place in case of emergency. This includes full-body harnesses and life lines for easier rescue in case of a grain avalanche. This also includes installing rest platforms every 30 feet on vertical ladders on the outside of bins to reduce the risk of falls while climbing the

GRAIN FARM ACCIDENTS AND HOW TO PREVENT THEM pdf

bins. Strategically placing safety decals around the grain bins should alert workers to the possible dangers of flowing grain, crusted-over grain and carbon dioxide.

4: Tractor Safety - Show-Me Farm Safety

Offering your farm as a place to train for a grain entrapment scenario may be helpful. Find out if your local fire department is equipped with a grain bin rescue tube. If not, you may nominate them for equipment and training from Nationwide, the National Education Center for Agricultural Safety and their many partners.

The goal of the campaign is to raise awareness for grain-handling safety. As part of the effort, a free webinar was held on Tuesday. While many people participating in organized events around the country are employees of large feed and grain companies, the week serves as an important reminder for private operators, as well. He says out-of-condition grain is often a leading factor in grain entrapment situations. Taking the proper steps to store grain long term can go a long way in preventing potentially hazardous situations. It is important to note ground piles may also be prone to cliffing. Materials like woodchips and silage can easily form this dangerous shape. Common Entrapment Situations Rowe explained to webinar participants that confined space entrapment often happens because of one of three situations. Sometimes clumps of grain may clog unloading equipment. Entrapment accidents often occur when you enter the bin to free the blockage without shutting off the power. Once the debris is free, grain begins moving again quickly, sucking everything in its path toward the flow of grain. Entrapment can also occur when you walk out onto bridged grain. This is where a firm crust has formed on the top of the grain. It may appear to be a solid pile, but once it gives way, you can fall. Aalanche entrapment situations often occur when you enter the confined space to break apart grain stuck to the wall on one side. You may be 6 feet tall, but if the moving grain pushes you over, you can still be severely hurt or killed. Safety Tips Working from outside the bin is always recommended. If you must enter the storage area, it is important to keep these safety tips in mind. Shut off dangerous equipment. Cut off power to all unloading equipment to prevent entanglement or engulfment once the blockage is freed. Check for unsafe gases or atmosphere. Dangerous gases can build up in confined spaces. Determine if ventilation or respiratory protective equipment is necessary before entering. Double-check there are no running vehicles or machinery nearby expelling exhaust fumes that can build up in the bin. Be careful around dust that may make it difficult to breath and can be combustible. Always use the buddy system. Never, ever enter a grain bin alone. Contact your local rescue team before you enter. Before you set foot inside the confined space, call your local rescue team. Let them know you plan to enter and make sure they can be ready to help, should the need arise. If they are addressing another emergency and will not be available, do not enter. This call does not replace an attendant watching from outside the space. Rescue Plans Although the goal is to work from outside the bin and no one expects to be involved in an entrapment accident, it is important to have a rescue plan in place ahead of time. After developing a rescue plan, be sure it is clearly communicated to everyone on your farm. Check that new or temporary people know the plan and how to execute it. Unfortunately, additional injuries or deaths often occur when someone unprepared enters the space to help someone who is already trapped. Consider sending members of your operation to a training course for grain rescue. Their ability to act may be the difference between life and death when emergency teams come from a distance, as is often the case in rural areas. Have open dialogue with your local emergency response teams before an incident occurs. Give them the chance to become familiar with your facilities. Offering your farm as a place to train for a grain entrapment scenario may be helpful. Find out if your local fire department is equipped with a grain bin rescue tube. If not, you may nominate them for equipment and training from Nationwide, the National Education Center for Agricultural Safety and their many partners. Since , the program has awarded 48 tubes throughout the country. Paul Stevenson leads the program for Nationwide and says the company expects to distribute about 30 additional tubes in He reminds farmers the deadline to nominate their local fire department for this year is April That makes you feel good. It would be great if people never had to enter a grain bin. If they do, he wants to make sure they know how to do it safely. That comes first; the rescue tube comes second. For farms in rural areas where emergency crews would take longer than 10 minutes to respond, this might be an especially wise choice. GSI recently introduced the Zero-Entry Unload System with Flexwave technology , designed to eliminate the dirty and dangerous chore of manual grain bin cleanout. Instead, a pair of

industrial-grade liners at the bottom of the bin take turns inflating to push grain toward a centrally located conveyor trough. A limited offering of the Zero-Entry Unload System with Flexwave technology is planned for , involving hopper bins and smaller-diameter grain bins used for short-term storage. GSI expects to introduce the system in larger-capacity grain bins for long-term grain storage for the harvest season. Gary Woodruff is a conditioning applications manager for the company. He says he is excited about the safety benefits of the new bin cleanout system. To think we may be able to put an end to that is the best part of this technology.

5: Prevent accidents through grain bin training

To ensure the safety of those near the bin, post warning signs telling people you are fumigating grain and to avoid the area. Some producers choose a safer and more effective method and have their stored grain fumigated by a licensed, professional fumigator.

Read more about hazardous substance controls on the HSE website. How to control hazardous chemicals In order to reduce the risks of hazardous materials on your farm, you should look at using less hazardous alternatives where possible. If this is not possible, you should consider control measures. For example, you could: You should monitor the health of your workers to detect early symptoms and seek appropriate medical advice. Livestock handling Handling livestock should be a major component of your health and safety policy, in order to prevent injury to yourself and others who have to handle your livestock - such as vets. You should already have proper restraining and handling equipment to minimise any risks when handling livestock for routine tasks. Other equipment, such as halters, bull poles and pig boards should be available for larger animals like cattle and pigs. Anything you use to guide the animals when moving them - such as pig boards, paddles or flat slap sticks - should not have sharp edges that could harm the animal. The use of electric goads should be avoided as far as possible. For further information, see the page on cattle welfare during transportation, at market and at shows in the guide on cattle welfare and the guide on [sheep and goat welfare] <https://www.hse.gov.uk/livestock/>: Whenever animals need to be restrained for treatments or other tasks, they must be contained and be unable to move at will. If you have cattle that are likely or known to kick, then leg restraints should be used. Pig handling You may not tether a pig unless it is undergoing an examination, test, treatment or operation carried out for any veterinary purpose. Where tethers are used, they must not cause injury to the pigs and must be inspected regularly and adjusted as necessary to ensure a comfortable fit. Sheep handling All sheep farmers should have secure and easily operated handling pens to facilitate routine management and treatment, on a size and scale to suit the flock numbers. Pens and floors should be kept in a good state of repair and should not have any sharp edges or projections. Sheep should be handled or restrained by means of a hand or an arm under the neck holding the neck wool, if necessary with the other arm placed on or around the rear. Lifting or dragging sheep by the fleece, tail, ears, horns or legs is unacceptable and dangerous. Devices such as raddles, harnesses, tethers and yokes should be of suitable material and should be properly fitted and adjusted. They should be checked regularly and kept in good condition. Tethering by the horns is not acceptable. Every farm that handles cattle should have proper handling facilities which are well maintained and in good working order. The minimum requirements are a crush and holding pen with short race or forcing pen. Longer races are more suitable for larger numbers. A good, well-designed handling system will last many years, reduce labour requirements, improve animal welfare and be safer. You can read guidance on handling and housing cattle on the HSE website. Halters and ropes can be useful for handling and moving cattle around areas of the farm. The rope used should be of a suitable material, eg soft twisted rope or leather, but never baler twine. Bulls should be handled with care. They should be ringed a ring through the nose at ten months of age, and you should inspect this regularly. Their accommodation must contain outer walls of at least 1. All cattle should be checked daily. If you keep dairy cows, they should be trained to the dairy parlour process. Handling animals in the field There will be some occasions when you will need to carry out tasks while your animals are in the field and without proper handling facilities. In order to reduce risk, you should have a vehicle nearby so that you can escape if necessary. If you intend to do any planned work then it is worth considering a mobile handling system. You should also have at least two people present when you need to separate an animal from its herd. These additional people can assist in keeping other animals away from you as you work, as well as give warnings of any problems. Machinery and vehicles Accidents involving farm machinery and vehicles cause numerous injuries and fatalities. The majority of these could be prevented by taking the proper precautions. For more information on safety when using vehicles on your land, see the guide on vehicles and machinery on farms. Design, manufacture and supply of machinery Machinery and equipment manufactured and supplied for use at work must be safe and without risk to health of users. Purchasing your machines

Regulations require that all machinery, vehicles and equipment must be safe to use with the dangerous parts properly guarded. This shows that the machine has been built to the minimum legal safety requirements. If noise levels exceed the legal limits, then properly fitted ear protection should be provided. Using your machines When using your farm machinery and vehicles, you must be sure that they are always well maintained, repaired and in good working order. Avoiding accidents To help avoid farming accidents involving vehicles, machinery or other equipment, it is recommended that you keep them well maintained and repaired at all times. Seatbelts or lap belts should be worn to prevent you from being thrown from the vehicle. You should also not carry any loose tools in the vehicle cab, as these can be dangerous in the event of a crash. Dangerous parts Vehicle and machinery parts can cause damage if not properly maintained or regularly replaced. Many farm machines have dangerous parts such as drive shafts, belts, pulleys, augers, conveyors and other moving components which cut, chop or process materials. These can cause severe injuries if people come into contact with them, so it is essential that they are properly guarded. Machines should always be made safe before attempting to deal with blockages or other problems. Training Training in how to operate equipment safely, the use of personal protective equipment and the procedures required to work safely is vital. It is also a legal requirement. A good basic knowledge of typical farm hazards, risks and control measures, and an understanding of how to undertake risk assessments properly, are just some of the topics covered by health and safety vocational qualifications specific to farming and horticulture. These nationally recognised qualifications are available at three academic levels and are supported by a range of training courses and learning materials. They offer training for vocational qualifications such as NVQs in a range of subjects including proper manual handling and use of dangerous tools such as chainsaws. You can find a list of courses on the NPTC website. Public safety Farming activities can pose risks to the health and safety of you and your employees, and also to any contractors or visitors - including walkers, hikers and cyclists - that may come onto your land. Public safety should be a part of your overall health and safety policy. If you carry out a risk assessment, you can minimise any risks to those on your land. Rights of way If you have people passing through on your land, you must minimise any risk of injury to them. Livestock If an animal injures somebody or causes damage, you may be liable under the Animals Act If you have fields that are accessible by the public and have livestock normally in them, you must make sure: Disease control As a farmer, you have a responsibility to ensure that you do not inadvertently spread disease from your farm to humans, livestock or plants. This means you must observe strict hygiene and health standards when storing, transporting or disposing of animal and plant matter. You must also report any incidents to the proper authorities, and strictly follow their instructions in the event of any disease outbreaks. For more advice, see the guides on disease prevention and disease notifications and restrictions. Open farms If you open your farm up to the general public, you have certain responsibilities under health and safety law. For example, you must take steps to protect people from harmful micro-organisms such as E-coli O Child safety There are legal prohibitions on children under the age of 13 driving vehicles and machines for agricultural operations, and on children riding on machines, vehicles and farm implements. Older children of school age and above may undertake some of these activities subject to conditions. Public highways You should not obstruct a public highway or do anything that could cause inconvenience or danger to the public. This includes leaving compost, dung, rubbish or mud on a carriageway. Your farm should also include reflective road signs to direct traffic when it comes onto your farm. Hedges, trees and shrubs should all be maintained to avoid any danger to the visiting public, and you must ensure that any ditches have proper drainage. Spray drift When using pesticides, you must take reasonable precautions to protect human health and the environment. Any queries about the use of pesticides on your farm should be directed to the HSE. It is your responsibility to ensure that the general public is not affected by any chemical drift from spraying operations on your farm. Falls from or through fragile roofs are common. Certain accidents and incidents have to be reported by law. As back and muscle problems can be a major problem in the farming industry, you should make yourself aware of the main causes of these injuries and how they can be avoided. Lifting and handling Many farming items are very heavy and difficult to move without assistance. Bales of hay, feed bags and other items should be moved by mechanical means where possible - eg using a forklift that is operated by a properly trained person. It is also your responsibility to

ensure that seat belts or lap straps are used when operating lifting equipment such as forklifts or telescopic handlers when working with raised loads. This is especially important when working on any sloping or rough terrain on your farm. Where there is the possibility of equipment rollover, belts or straps are essential. The proper handling of bales or other heavy objects using safe lifting techniques should ensure that back injury is minimised. Preventing falls on the farm Falls from height are the second highest cause of deaths and major injuries in agriculture. You must make sure that all work at height is properly planned, supervised and carried out by people who are competent to do the job. You should only use suitable and well-maintained access equipment. The key issues are: You should also plan to ensure the right equipment, suitable weather conditions and enough time are available to do the task safely stacking and loading - a falling stack of bales can be extremely dangerous. You should make sure that staff are properly trained and adequate equipment is used to secure bales while stacking ladders - these can easily slip, and there is an extra danger if they lean against a fragile surface. If there is any alternative, such as a temporary work platform or scaffolding, consider using it. You should never undertake long-term planned work at height using ladders Further information.

6: Farm safety - risks and hazards - Better Health Channel

To help prevent further deaths and injuries, Nationwide collaborates each year with the National Education Center for Agricultural Safety (NECAS) to provide safety training. The director of NECAS travels to training locations with a state-of-the-art grain entrapment simulator and rescue tube.

Select Page Tractors Tractors are essential to many daily tasks on the farm. Click to download our handout Prevent Rollovers Rollovers account for a large majority of tractor fatalities, and can happen in a matter of seconds. There are two types of rollovers: A rearward rollover occurs when a tractor tips to the rear when the rear wheels cannot rotate enough to move the machine forward. A sideways rollover can happen when a tractor turns too sharply or on too steep of an incline. The wider the tractor, the more stable the machine is. Rearward tractor rollovers can be prevented by: Avoiding driving on steep hillsides Backing the tractor up steep hills Changing tractor speed gradually by applying power smoothly Properly stabilizing the tractor for the work to be done Using tire chains, boards and other materials to improve traction of wheels Hitching loads to the drawbar correctly Sideway rollovers can be prevented by: Properly stabilizing the tractor Avoiding driving on steep hillsides Avoiding turning at excessive speeds Avoiding driving too close to the edge of roadside ditches or slopes Using a tractor equipped with a Roll-Over Protection Structure Roll-Over Protection Structures ROPS are operator compartment structures usually cabs or frames on the tractor. The Roll-Over Protection System, which includes the structure and proper seat belt use, can eliminate nearly all fatalities caused by rollovers. If you have an older tractor model that does not have a cab or frame, a Roll-Over Protection Structure can be retrofitted to your tractor. Many companies provide engineer-certified Roll-Over Protection Structures for purchase and installation. For low-clearance environments, like orchards or inside buildings, equipment should feature AutoROPS, which stay in a lowered position until a rollover condition is detected, and then extends into a locked position. Check Your Surroundings Before moving a tractor, you should be sure the area is clear. An unseen child or adult near the tractor is at risk of being run over. Children should not be permitted to play where tractors and other machinery are running. You should always drive tractors at a safe speed, especially near populated areas. Be familiar with the safety features of your tractor and any heavy equipment before using. Have you lost your manual or never had one? Find the tractor manual for the model you need. This includes stability, tractor safety decals, operator comfort and control and protection from other hazards. Engine oil and hydraulic fluid levels Radiator coolant level Tire pressure Tan belts Check to ensure implements are secure and properly connected. Check carefully for hydraulic leaks by using a piece of cardboard or wood rather than your hands. Wear Appropriate Attire Loose-fitting clothing is easily caught in the moving parts of tractors and other equipment. Wear fitted pants, tuck in any loose shirt tails, and avoid wearing scarves when working on or around machinery. Protect your feet by wearing sturdy work shoes or boots with non-skid soles and steel toe caps. Heavy work gloves and safety glasses may also be useful when working with machinery. Mount and Dismount Tractor Safely Many tractor-related injuries occur as a result of falling while mounting or dismounting the steps of the tractor. The steps on the tractor should be used like the steps of a ladder; either two hands and one foot or one hand and two feet should be in contact at all times. Be sure your pant cuffs or boot loops are clear of the pedals when you exit the tractor to prevent tripping or falling. Do not carry extra riders on heavy machinery, unless it is equipped with a buddy seat. To keep all riders safe, there should only be as many passengers on the tractor as there are seat belts. Accidents can happen, even from cabs with locked doors. Avoid By-Pass Starting Avoid starting a tractor or equipment while standing outside the cab or on the ground. An operator who starts a tractor while standing on the ground cannot be sure if the transmission is in neutral or park. When a manual transmission is in gear when the engine is started, the tractor could run over the operator because the tractor will start moving as soon as the engine turns over. If your tractor does not have a shield covering the starter motor, retro-fit shields are available to prevent by-pass starting. This shield should not be removed from the starter motor except when servicing the starter motor, then replaced immediately. Use Front-End Loaders Properly Front-end loaders are often misused by stretching their lifting capacity and inappropriate use. Adequate counter-balancing of a

loader-equipped tractor is needed for safe lifting. Another front-loader option is a spear-type bale mover, mounted on either the front or rear of the tractor.

7: Proper Grain Condition is First Step to Accident Prevention | Successful Farming

Northern Strands produces industrial safety equipment and it demonstrated its grain bin fall protection system at the recent Ag In Motion outdoor farm show near Saskatoon.

While farm safety should always be a top priority, as fall harvest gets underway, Michigan Farm Bureau is reminding farmers and their rural neighbors to stop long enough and think about minimizing risks and exposure to avoid becoming another statistic. The Off-the-Job Safety program was created to help employees, their friends and families, rural communities and customers. Here are just three videos in a series, posted to YouTube for viewing and sharing with family members, employees and co-workers: Grain Bin Safety Basics: Fifteen to 20 grain bin entrapments are documented each year. A farmer shares the details of a near-fatal tractor rollover accident. Bill Field from Purdue University shares tips to help avoid these types of incidents. Most farm accidents and deaths involve outdated machinery that lack safety features. Consider retrofitting older equipment to reduce rollover injury and fatalities. Be Alert on the Road. Most accidents happen at dawn or dusk, as they are peak commuting times for drivers. They occur most often when a driver attempts to pass a slow-moving vehicle, or does not realize a farmer is turning or stopping. Have a plan for grain bin safety. When entry is absolutely necessary, train workers on grain storage hazards and risks involved. Have an emergency action plan in case an accident occurs and make sure everyone on your farm is trained to follow it. There should always be a person outside the bin during any entry. Tell family and helping hands where you will be working and when. Keep the lines of communication open. Also, always have a cell phone or walkie-talkie on you in case of emergencies or accidents. Know where you are at! Get plenty of rest and take frequent breaks. Drink plenty of fluids and have healthy snacks on hand to keep your energy levels up. Do not push yourself past healthy limits. Familiarize yourself with how your prescriptions and over the counter medications affect you. Some medications and machinery do not mix. Consult your doctor if your medications impair your ability to safely operate your equipment. Make sure you understand how to safely handle the chemicals you use. Keep chemicals in their original, marked containers. Make sure everyone working on your farm is trained in safely handling them and understands emergency procedures.

8: National Ag Safety Database - National Ag Safety Database

"Grain Bin Safety Week provides a forum for the agricultural community to help prevent these tragic accidents from occurring," said Morgan Wrich, program director for the Nebraska Corn Growers Association.

Harvesting Replacing a fence post in its existing location When you call , a professional locator will come to your property to mark a natural gas pipeline or other utility-owned lines in the ground. Follow these three rules: Call before you dig. Wait the required time for utility lines to be marked. Respect the marks or flags and dig with care. When you start digging, stay at least 18 inches away from the marked lines. Hand dig with extreme caution if you must excavate within the safety tolerance zone. Overhead power lines Overhead power lines are a significant risk of electrocution on the farm. Always keep in mind that most overhead power lines have no protective insulation. In addition, high-voltage lines can sag several feet when they are hot. Maintain at least a foot clearance. Keep smaller equipment like ladders, poles, rods or irrigation pipes at least 10 feet away from overhead power lines. Take care when climbing, trimming or cutting trees, especially after a storm. Broken or damaged power lines can send electricity through tree limbs and fences, so use extreme caution with chain saws, axes and pruning poles. Be sure your children do not fly kites or balloons with long strings in the vicinity of power lines.

Wiring and grounding requirements The National Electrical Code requires different wiring types and techniques for the three general types of agriculture buildings: High levels of moisture, corrosive dust and gases inside animal housing, milk houses and silos create electrical risks. These buildings require dust- and moisture-tight, non-corroding materials and wiring methods. Machine storage buildings, shops and unattached garages can be wired similar to residential buildings. Keep all electrical equipment and service areas clean. Make sure all wiring and cords are protected from human and animal contact or damage from equipment e. Check to see if all fuses in the service panel are the correct size for their circuits. Check outlets and switches for loose connections or broken or missing cover plates. Keep high-intensity light fixtures away from combustible materials. Be sure to turn off and unplug equipment before cleaning or repairing. Turn off the power at the service panel when checking outlets, switches and light fixtures. Portable and standby generators Generators can come in handy if you experience a power outage, but these devices must be used with extreme caution. As a property owner, you are responsible for the safe installation and use of the equipment, and you can be held liable for any injuries or damage. Only a qualified electrician should install a permanent standby generator. This will help ensure that the unit is sized properly and wired correctly. Make sure the area is well ventilated. It is recommended that portable generators not be operated indoors. Generator connections must be installed in a manner to prevent electricity from feeding from the generator back on to the utility system. This is accomplished with a transfer switch. The generator must be rated to have a sufficient wattage for the electrical load it will operate. Unplug the device or cut power at the service panel first. If the victim is in shock, loosen clothing and keep him or her horizontal and warm. Burns should be treated only by medical professionals. Always seek medical help for an electrical contact accident, no matter how minor it appears. Electricity burns from the inside out, so injuries might not be visible. In addition, the heart can be affected several hours later. Never use water on an electrical fire – use a multipurpose fire extinguisher.

Downed power lines Report downed power lines to your electric company immediately. Avoid touching anything a downed line is contacting, especially metal fences and equipment. Remember that the area around the downed line, including the soil, equipment or other objects, could also be energized. If a downed line comes in contact with a vehicle or farm equipment, instruct the driver to stay in the vehicle until help arrives. If there is an immediate danger of a vehicle fire, the driver should jump out of the vehicle, landing with both feet together and avoiding touching both the car and the ground at the same time. The driver should then shuffle away from the vehicle without raising his or her feet.

Natural gas safety Smell gas? Since natural gas is colorless and has no scent, a strong odorant that smells like rotten eggs is added to help you detect a possible gas leak. We will investigate for free. Signs of a leak Smell the odor of rotten eggs. Hear hissing or whistling sounds near a gas appliance, meter or pipeline. See blowing dirt, bubbling water or discolored vegetation in an otherwise green area. Turn off and abandon machinery. Leave

GRAIN FARM ACCIDENTS AND HOW TO PREVENT THEM pdf

the area and keep others away until Alliant Energy allows you to return. If you hear blowing gas, which is a more serious issue, evacuate to a remote location and call

9: Grain entrapment - Wikipedia

Farm Safety for Just Kids is a non-profit organization working to promote youth safety within the rural environment. This is done through the production and distribution of educational materials and the initiation of programs about farm and rural safety and health.

Research on farm accidents centers around causes and severity of injuries and illnesses, health and safety of youth, farm safety education, and improved survey techniques. Examples of research from each of these areas are discussed below. The status of injuries and illnesses on farms is one of the first items of information that should be determined. Status of injury or illness includes information about the victim, the agent that caused the injury or illness, the task being performed when the illness or injury occurred, and other information that will describe the event. Injuries in farming range from cuts and scrapes to total disabilities and fatalities. Most traumatic injuries occur during interactions with machinery, especially tractors. Injuries also result from poor building design, electric power, livestock handling, and weather conditions. The activities that victims were most often performing when injured are machinery maintenance, fieldwork, and caring for animals. Hoskin and others, b and c; Pollock, ; and Yoder and others. Tractor accidents have been identified as the leading cause of deaths and disabling injuries on farms. National Coalition for Agricultural Safety and Health, Tractors are the most frequent cause one-third to one-half of injury for fatal farm accidents but account for a much smaller percentage 5 to 10 percent of nonfatal farm accidents, according to Murphy. Murphy, Murphy also reports that the types of fatal tractor accidents have not changed over the last 10-plus years, with overturn accounting for about one-half and runover accounting for about one-fourth of such accidents. Murphy, Most deaths caused by overturns and runovers could be prevented if tractors were equipped with rollover protective structures (ROPS) and seat belts and if passengers were not allowed on tractors. However, only about one-third of the tractors on U.S. farms have ROPS. Other types of fatal injuries involving tractors are caused by power takeoff (PTO) entanglements, contact with overhead electrical wires, and road collisions. Madsen, Not all injuries involving tractors are fatal. Hoskin and others, in their report on tractor-related injuries, showed that "struck by or against" an object and fall from a different level were the most frequent types of injuries. These generally resulted in bruises or fractures struck by or against and fractures or sprains to the foot. Hoskin and others, b. Most of the struck by or against accidents occurred during fieldwork, but most of the accidents by falls occurred while the tractor was parked or stationary. Hoskin and others, b. This study drew two conclusions. Machinery Other Than Tractors. Hoskin and others in their study of machinery-related injuries showed that most accidents occurred when the victim was struck by or struck against the machine while performing maintenance on combines with grain heads when the machine was not running. Hoskin and others, a. Other types of injuries that happen when working with machinery include entanglements in belts, chains, gears, power takeoffs at the tractor and along the PTO drive, and crop gathering and moving mechanisms. Madsen, Most machinery is manufactured with protective devices, and warning signs are placed on the machines at spots where workers can become easily entangled. These injuries generally result in a bruise or fracture to the head and most often happen while performing chores involving animals or treating animals. Hoskin and others, c. A Pennsylvania study supports these findings, showing that the largest percentage of farm injuries occurred in barns 30 percent, fields 16 percent, barnyards 14 percent, and farm buildings 12 percent. Huizinga and Murphy, ILLNESSES Farmers and farmworkers have higher rates than other workers of respiratory disease, certain cancers, acute and chronic chemical toxicity, dermatitis, musculoskeletal syndromes, noise-induced hearing loss, and stress-related mental disorders. National Coalition for Agricultural Safety and Health, Respiratory diseases are not new to farmers and farmworkers. In Bernardino Ramazzini wrote that "measurers and sifters of grain were at risk for respiratory problems," and in Charles Thackrah "described a relationship between asthma and inhalation of corn dust" Von Essen, In a study by a small group of veterinary practitioners showed that respiratory problems appeared in workers exposed to swine confinement areas. Donham, According to Von Essen, at least six disorders are associated with exposure to airborne dusts in farming: HP is caused by exposure to antigens found in silage and in

spoiled hay and grain. HP is commonly seen on dairy farms but has also been found on farms where grain is stored in drying bins and is found in poultry houses and mushroom houses Von Essen, Workers affected by ODTs include those uncapping silos on dairy farms, cleaning grain bins, moving moldy grain, and working in swine confinement facilities Von Essen, The precise cause of CB, other than airborne dust, has not been isolated; nor have the individuals who are at high risk been identified. However, workers in swine confinement areas, poultry farmers, and handlers of grain appear to have risks of suffering from CB Von Essen, The occurrence of APS has been studied in grain farmers and swine confinement workers, and both groups have exhibited symptoms Von Essen, Asthma can be triggered by many farm antigens. Also, many farm antigens cause MMI. In addition to airborne dusts, some gases can cause acute toxicity. The primary locations of these gases are silos, manure pits, and modern semienclosed animal production buildings Hurst, ; Pependorf, ; and Zwemer and others, Soon after corn is ensiled, nitrogen oxide levels begin increasing and continue to increase for about 7 days. Anyone entering silos during the first 2 weeks after filling may experience difficult or labored breathing dyspnea or, in the extreme case, death Pependorf, ; and Zwemer and others, Hydrogen sulphide, methane, ammonia, carbon dioxide, and carbon monoxide are some of the toxic gases emanating from manure pits, especially when the manure is being agitated Hurst, Even when the levels of these gases are not high enough to be fatal, unconsciousness may cause drowning or near drowning in manure liquids Hurst, High levels of ammonia have been documented in poultry and swine confinement facilities, especially in winter Pependorf, Concentrations of ammonia in these facilities would ordinarily be only a strong irritant to the eyes, nose, and throat but when combined with organic dusts could cause pulmonary damage Pependorf, The marked frequency of these cancers in farmers have not been conclusively identified Blair and Zahm, ; McDuffie and others, ; McDuffie and others, ; and Novello, Department of Health and Human Services, a. Some evidence indicates women on farms have higher incident rates of multiple myeloma than do farm men Zahm and others, a. Exposure to pesticides can produce acute and chronic toxic reactions. Acute reactions develop immediately after moderate or high exposures to pesticides. Symptoms of acute reactions include dizziness, vomiting, headache, fatigue, drowsiness, and skin rashes. More research on the chronic effects of pesticide exposures is required. Occupational dermatitis is very common among workers on U. Among the agents causing dermatitis and related skin conditions are ammonia fertilizers, animal feed additives, pesticides, plants, sunlight, cattle, swine, sheep, moist and hot environments, and chiggers, bees, and wasps Blair, ; Susitaival and others, ; Zwemer and others, Degenerative musculoskeletal syndromes are widespread among farmers and farmworkers National Coalition for Agricultural Safety and Health, ; and Novello, Low back pain, hip arthrosis, and degenerative arthritis of the knee and upper extremities are the syndromes most often reported National Coalition for Agricultural Safety and Health, ; and Novello, Chronic vibration from tractors and farm machinery and repetitive trauma associated with farm work can lead to musculoskeletal syndromes Barbieri and others, ; Holness and Nethercott, ; National Coalition for Agricultural Safety and Health, ; and Novello, Another occupational hazard for farmers and farmworkers is hearing loss caused by exposure to farm machinery, especially tractors. Hearing losses affect about a quarter of younger farmers and one-half of older farmers May and Dennis, ; National Coalition for Agricultural Safety and Health, ; Novello, ; and Reesal and others, Farmers, farmworkers, and farm family members have high rates of stress-related mental disorders, especially depression Heffernan, The Fair Labor Standards Act limits the employment of minors according to age and occupational activity Runyan, Children of farm operators may work for their parents on their own farms at any age. In addition, many children are at risk by living on farms. A study of Iowa farm families highlights some of the safety issues related to youth: An earlier study of injuries to farm youth less than 20 years of age in , , and used national statistics Reesal and others, According to this study, about youth die each year from farm injuries and 23, suffer nonfatal injuries; rates of fatal and nonfatal injuries increase with the age of the victim; fatal and nonfatal injury rates are much higher for males than for females; more than one-half of the victims of fatal farm injuries die before reaching a physician, nearly one-fifth die in transit to a hospital, and about one-tenth live long enough to receive in-patient care; nearly 90 percent of the nonfatal injuries were treated in an emergency room and released; and accidents involving farm machinery accounted for most of the fatal and nonfatal injuries, with tractors being involved in more accidents

than other machinery. Other farm machinery involved in such accidents were wagons and combines. However, these findings may be somewhat misleading because the data include deaths due to drowning and firearms and do not distinguish between recreation and farm-related activities as agents of death Rivara, A study of fatal farm-related injuries to children 9 years of age and under in Wisconsin and Illinois from to that used death certificate data showed the average annual death rates in the study population were 3. The study found that the death rate was substantially higher for boys than for girls, that most fatalities occurred in July, and that machinery was the source of more than one-half of the injuries in Wisconsin and Illinois during the period of the study Salmi and others, All of these groups have a stake in farm safety. A brief review of some literature on farm safety education follows. Both studies showed farm families to be aware that farming is a hazardous occupation and that safety is important even when this factor is ranked alongside such matters as prices and the environment. Findings also indicated that farm families were receptive to receiving constant reminders and literature about safe working practices, especially when these practices could be put to use by all ages. Farm magazines, the Cooperative Extension Service, and local equipment dealers in the Iowa study were found to be the most frequently used sources of safety information. Farm families participating in the New York study had reservations that safety meetings might not be the best way to communicate safety information Pollock, Farm operators and family members are aware of farming hazards, but in times of stress, such people may make decisions that under more ideal conditions would have been considered dangerous and unwise. For example, a farmer may throw aside a bent power takeoff shield so that grain unloading can go forward, rather than wait until the shield can be repaired. In this example, the operator is unconsciously making the economic decision that the value of the time required to repair the shield is greater than the potential loss that might result from an injury. However, these authors argue that "it is equally important to recognize that we should not stop trying to do a better job with education methods" Aherin and others, , p. The authors suggest that behavioral psychology may help in providing solutions for this continuing problem Aherin, ; and Aherin and others, Variables of Effective Safety Communication. Aherin and others identify several variables of effective safety communication: They argue that the most effective message will be conveyed by one who is an expert in agricultural issues, is trusted and liked by farmers, and is as similar as possible to farmers source characteristics. Also, "any program that requires the direct participation of the farmers could potentially increase persuasion and safety behavior" personal involvement Aherin and others, , p. Elements for Safety Communications. Aherin and his colleagues also note the importance of the characteristics of the message. They identify four elements that should be included in any safety communication: These authors use warning signs and labels, a major form of safety communication by machinery manufacturers, to demonstrate these four elements. In brief, the warning text that accompanies the label must be explicit and must answer the question, "Why should I obey? An Example of a Safety Education Effort One example of an effort to educate people about farm safety is a farm safety audit called "Farm Safety Walkabout," which could be used either as an individual or as a community activity, and which was developed at the University of Iowa Hawk and others, The audit has six one-page sections: The handbook provides all the materials necessary to carry out a community activity as well as the safety audit, a farm family health and safety community survey, a pretest to gather information on safety practices, a post-test to evaluate the effect of the program, a resource list, an accident emergency information sheet, and a basic list of supplies for a well-equipped emergency first-aid kit for a rural home. Two survey methods are used most frequently to collect farm accident data: Farm Household Surveys The following discussion includes a survey that was methodologically sound but had implementation problems and a survey that is being tested. Standard Farm Accident Survey Program. Although the Standard Farm Accident Survey Program was methodologically sound, consistent implementation from State to State was difficult because the survey relied heavily on volunteers to collect the data and because selecting and maintaining a stratified sample proved to be difficult Baker and others, Also, some States did not participate in the study, which limited its usefulness as a national data source.

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