Agricultural safety seminars

2022–2023

Training designed for Oregon's agriculture industry

saif

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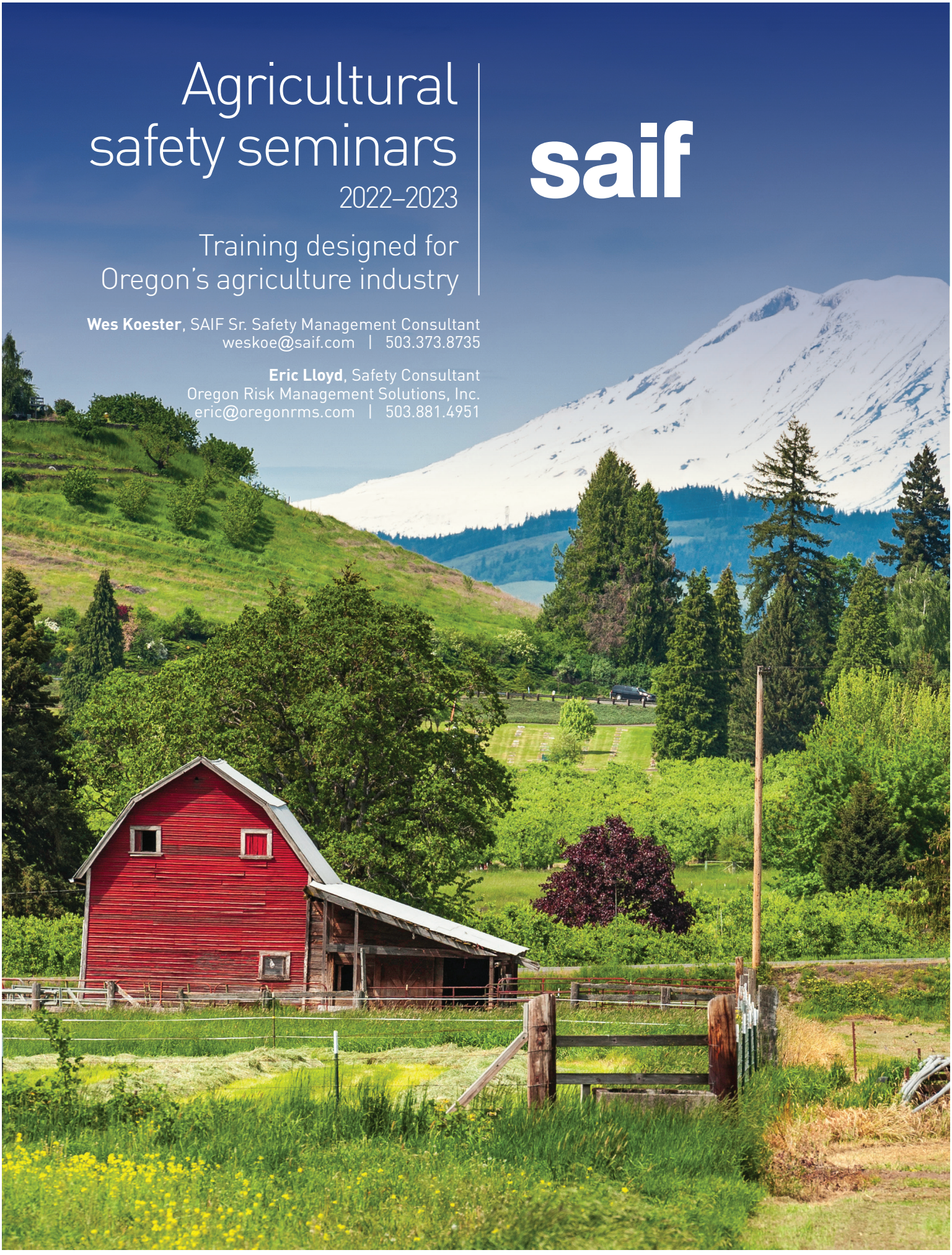


Conditional exemption from small agriculture employer "random" OSHA inspections

The exemption is available for agricultural employers with 10 or fewer permanent year-round, full-time and part-time employees. For determining the number of employees, exclude members of the agricultural employer's immediate family from the count.

The immediate family is defined as grandparents, parents, spouses, sisters, brothers, daughters, sons, daughters-in-law, sons-in-law, nieces, nephews, grandchildren, foster children, step-parents, step-children, and any blood relative living as a dependent of the core family.

Requirements for the exemption:

- **Accidents:** Within the preceding two-year period, the employer must not have had an accident resulting in death, in-patient hospitalization, or injury resulting in more than three days of lost work **that was the result of a violation of Oregon OSHA rules**.
- **Consultation:** A comprehensive consultation must be completed within the last four years and all problems identified in the report were corrected.
- **Training:** The employer and principal supervisors must annually attend at least four hours of instruction on agricultural safety or health. Attending a comprehensive safety and health consultation done on an agricultural place of employment is also acceptable as training.

The exemption does not include inspections for:

- Agricultural labor housing or field sanitation
- Valid complaints against the employer filed with Oregon OSHA
- Fatalities, catastrophes, and accident investigations

Sources: OAR437-001-0057 May 4, 2015 Oregon OSHA Program Directive: A-214

Contents

Presenters

Eric Lloyd is a safety consultant with Oregon Risk Management Solutions, Inc. His exposure to safety and agriculture began at an early age, when he spent summers working on the family ranch in Idaho and watching his father provide training and consulting services to promote ag safety throughout Oregon. Eric earned a degree in criminal justice from Western Oregon University, and served in law enforcement for several years until being drawn back to his roots and joining the family business in 2016.

Wes Koester is a SAIF senior safety management consultant living and working in the Willamette Valley area. He grew up working in his family's farm and nursery business in Riddle, Oregon. Wes graduated from the University of Oregon with a Bachelor of Science degree in psychology. Over the past five years, he's helped both farms and businesses with their overall safety compliance by providing over 1,100 on-site walk-through inspections to proactively assist them with their safety needs.

Ag hacks 3.0 - The saga continues...

"Ag hacks" are very much like "life hacks."

They are simple changes or modifications to a tool or a process that usually involves some neat, innovative, and (oftentimes) inexpensive way to do a better job or task on your farm.

We thank each of you for sending us your ideas and pictures of ag hacks and cool tools that you created or are using on your farms. Perhaps some farms will find value in these ideas.

If you've made an ag hack on your farm, we'd appreciate it if you'd send us a picture of it. We'll only use the picture if you give us permission to do so.

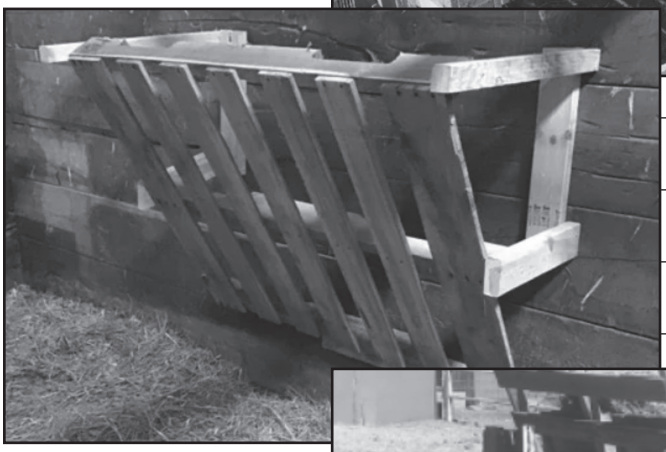
Email your ideas to:
Wes Koester: weskoe@saif.com
Eric Lloyd: eric@oregonrms.com

Reusing old wooden pallets for tool storage
Secure a pallet to a wall for long-handled tool storage. Make tools easy to find and keep them out from under foot to avoid slips, trips, and falls.

Take that one step further by mounting hooks or baskets to the pallet to hang small tools and store small items.

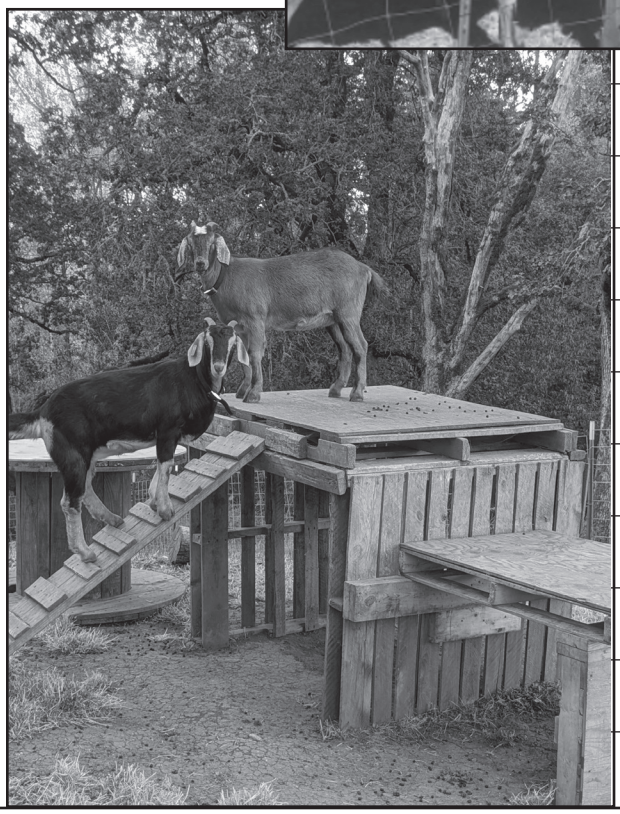
Pallet compost containers
Connect three pallets to create a container for compost. Line with chicken wire to help contain the compost and add a 2 by 6 board at ground level on the front to help keep compost from bleeding into your pathway.

Pallets for goats
Re-purposed pallets can be fashioned into wall-mount goat feeders.



Or, keep the hay more contained by using two side pallets to lift a third off the ground. Then, tip in a couple more to hold the hay.

Attach multiple pallets together to make a goat jungle-gym. The possibilities are only limited by your imagination. Sometimes, we're simply making something that makes our critters a little bit happier.



What do ag hacks have to do with safey?

Sometimes these ideas can help us get better organized by streamlining processes and improving productivity.

By nature, farmers are resourceful. We often re-use and re-purpose items. Sometimes making small tweaks to a tool and can simply improving it. We look to improve repetitive tasks, like putting away tools, by making it easier and more convenient.

As these small ag hack benefits increase in number, they can provide a better and safer working environment.

For example, organizing tools makes them easier to access. It can prevent the strain of over-reaching to access tools. It can also get tools up off the ground, preventing tripping hazards. Properly storing tools keeps them dry and reduces wear, prolonging their usefulness.

Speaking of usefulness, let's talk about plastic totes or tanks.

Totes or tanks

When you first see these, you might think they only haul hazardous waste, fertilizers, or other chemicals.

Keep in mind that you can purchase used ones that once carried food-grade liquids such as syrups or powdered foods—or even solid foods such as grains and seeds.

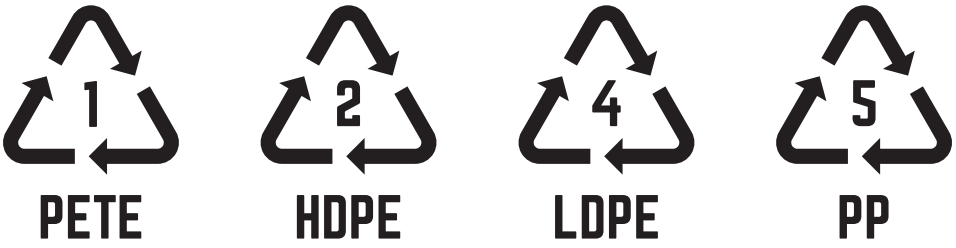
But how do you know if you're using a safer plastic totes that were originally manufactured as food grade?

The tanks are generally manufactured from high-density polyethylene, signified by the letters **HDPE** that are imprinted on the tanks. The tanks are usually housed within a steel frame on a pallet base.

When a large tank or tote is manufactured for food grade purposes, it will have sidewall markings or will be stamped or labeled with symbols signifying that it is food grade, so the user can know of its original intended use.

If a tank or tote is marked as food grade, that means the materials that the tank is made from will not react to food items that are placed within it. **However,** if you are buying a used tote, keep in mind that it may not be safe for food just because it is labeled as being food grade. Totes that have been used for non-food-related products, or toxic products such as hazardous waste, chemicals, or even pharmaceuticals should obviously not be used for water or food storage.

The easiest way to know if a container is food grade is to read the manufacturer's label.



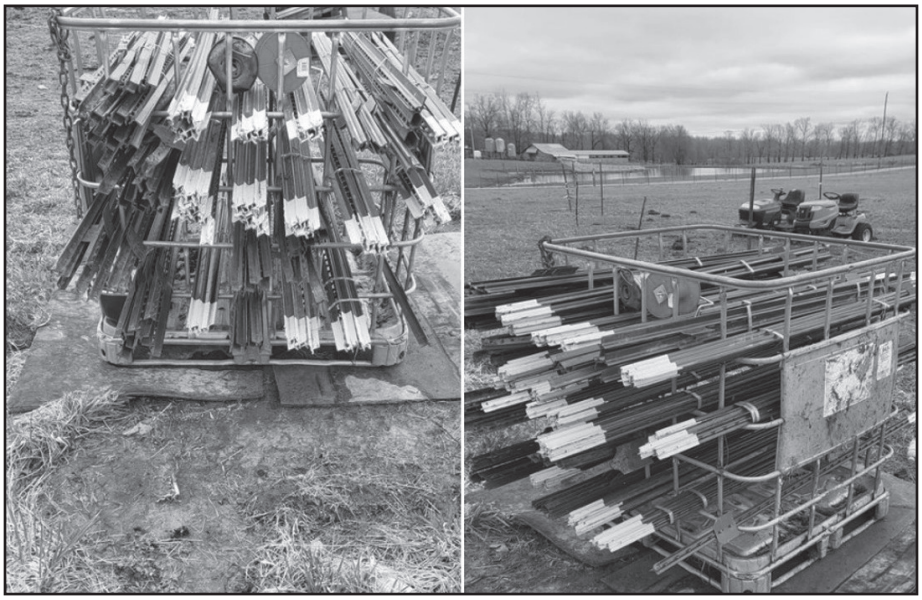
These are just SOME of the types of labels that can be found on food grade tanks. Make sure you read the label.

The label is the law. The manufacturer's label will tell you specifically what the tank was built to carry. If it's a used tank, when you buy it, verify with the seller what it was used for.

If you want to avoid all this hassle, simply buy a new food grade tank.

Tote ag hacks

Remove the interior plastic bladder from the steel framework and store fence posts, PVC pipes, or other similarly shaped materials.



Lois Gonzales from San Antonio makes hay feeders from totes. You can find him at **www.barrelsforsale.net** where he has videos demonstrating his process.

He also makes low-profile animal feeders and water troughs by cutting down food grade tanks and securing the edges with pool noodles.

This is a manbasket made from reinforced tote framework with the pallet base intact for solid lifting. This one is powder-coated blue.

This particular farm went to great lengths to make something extremely strong and durable for the needs they occasionally have on their farm.

When building these homemade tools, we must recognize that they may not always be professionally engineered. There may be a degree of extra liability that comes with that under certain circumstances. We should take extra care, like this farm did, to reinforce the item, to overbuild it, and to conduct the extra risk assessment that may be present because the item is homemade. We don't want to just focus on the benefit that it brings to our farms, but we also want to make sure that it is designed and built with safety in mind.

Take time to consider what new hazards you may be introducing onto your farm by building these new tools.

For example:

- Is this new tool fully capable of supporting the person's weight?
- Is the person tied off correctly and staying inside the cage while working?
- Are people properly trained regarding what they can and cannot do? Remember that these bars are not generally sufficient to climb on and probably won't support the person's weight. It is the platform that supports the weight.

Take the time to making sure that all of the safety aspects have been fully thought through before using the item that you've created. Like any hazard identification exercise, ask yourself, "what could go wrong here?"

Rubber boot drying rack

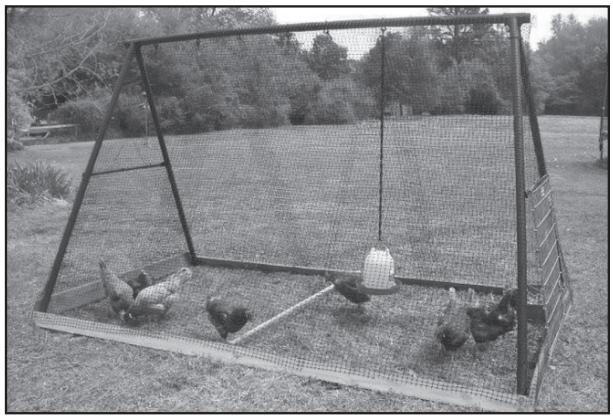
The pegs are spaced to accommodate the width of the heel of the boots so they wouldn't drop through the openings. Hose off your muddy rubber boots, hang them in the open slots, and let them thoroughly dry.

Why is it important that your rubber boots are thoroughly dry before you put them back on? Dry boots keep your feet warmer, but they also keeps your feet healthier because you're less apt to grow various types of foot fungus and avoid "foot rot." Foot rot usually impacts livestock like goats, sheep, and cattle, but humans can get it too! It's usually caused by wet moist skin that has blisters, cuts, and cracks where strong strains of bacteria can enter into the wound. It can be treated with Tetracycline, but if not caught in time it can lead to toe amputation. It's important to keep the insides of our boots dry.

Swingset chicken tractor
This abandoned swing set, with the swings removed, was covered with heavy netting. Wooden skids have been attached and a wire entry door has been bungy-corded into place.

Now your chickens can do their limited free-range thing and can tear up the ground to their hearts desire while prepping the soil for next spring's garden.

Notice the watering container hanging in the middle? They thought of everything.



Cool tools

PolyDome Calf Warmer
This calf warmer can also be used for newborn sheep and goats. It provides a comfortable and dark environment for newborn calves for the first few hours after birth. The top section is hinged and removable for easy calf entry. The floor is raised and slotted for heat circulation of the entire unit. There's a vent hole on one end for proper ventilation and viewing the calf without opening the unit up. It has an hitch and wheel attachment so it can be towed with an ATV or your side-by-side.

Cost:
approximately
$750 per unit

WalkThru extension ladder by Werner ladders

This is the perfect item for those who regularly need to exit the top of an extension ladder to climb onto a roof or other overhang. This cool tool extends above the top-rung of the ladder and enables someone to easily and safely climb off of or onto the ladder.

The WalkThru has enhanced stability with a dual clamping system that locks the rail extensions onto the ladder rails. It also has a wide base which provides additional contact area on the work surface with climbing on and off. This one is designed to work with Werner ladders, but you'll find similar ones that will work on other ladders.

Remember to inspect your ladders regularly and discard ladders that are not in good repair.

Cost: $249
Found at Lowe's and Home Depot

Lift Your Table folding table risers

Add these folding table risers to raise your table to 36", 42", and 48". Adjusting the height will keep you from having to bend over at a table work station. Fit the station to the worker. Made in the USA.

Cost: $40 - $59 per set depending on length
liftyourtable.com

Slow moving vehicle magnetic sign
If you're moving your tractor or any other piece of equipment and you're traveling at 25mph or less, then you must display an orange diamond-shaped 'Slow Moving Vehicle' placard on the back of the equipment that's being moved. The placard should be plainly visible from the rear of the tractor so it can be easily seen by the vehicles behind you.

Also, we encourage the use of pilot vehicles especially in poor weather conditions, on narrow roads, over bridges, when there is poor lighting, and long distances.

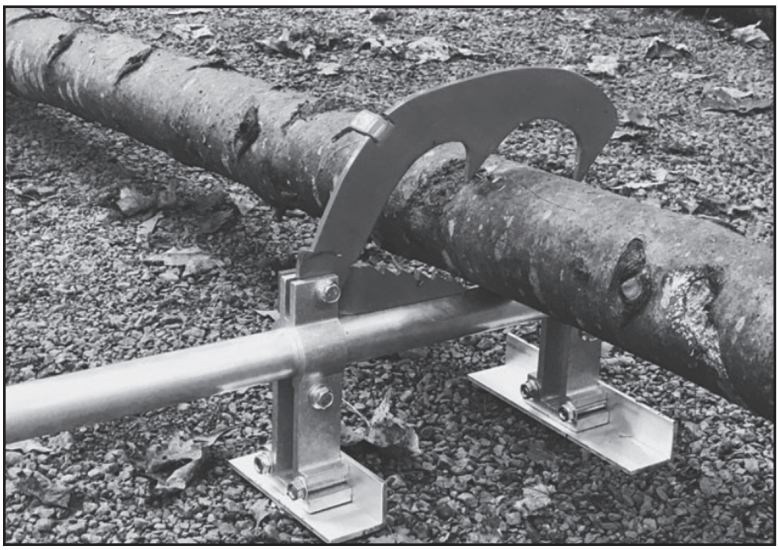
This farmer attached a strong magnet to the sign so that it easy to attach and re-locate depending on need. Its ease-of-use makes it more likely to be used, increasing visibility and potentially reducing accidents and injuries.

Woodchuck TimberPro
This log jack was created to minimize log roll over as well as kickbacks, push-backs, and pull-ins while operating the chainsaw.

You use the fulcrum effect to leverage the log into a better, raised position which provides a better angle for chainsaw cutting. It handles logs from 5" to 20" in diameter and raises logs 6" off the ground making it easier to cut from the underside as well. The 6" clearance makes it possible to cut without ever having the chain touch the ground, which means less sharpening.

The 49" handle is made from aircraft-grade aluminum tubing which is extremely strong. A lift bracket on the hook lets you use your foot to quickly release the hook from the log for repositioning the tool. Weighs 10 pounds. Made in the USA.

Cost: $124 and comes with a lifetime guarantee



Deer-Dash
A GPS-guided scarecrow is made with garden tiller tires and a wheelchair motor. It weighs 150 pounds but never tips over. The Deer-Dash uses drone autopilot software and hardware to control it. For use in a vineyard, orchard, nursery or, crop field, this product is designed to scare away deer, elk, birds, and geese. The Deer-Dash runs around the field based on pre-programmed GPS waypoints, resting periodically to not overuse the battery life.

This cool tool is not on the market yet, but you can follow it's progress online at **deer-dash.com**. Find the link indicating the year and look for photos and videos of the progress.

Ag Myth Busters

Pop! Fly Trap vs Captivator Fly Trap

Flies are a constant irritant on the farm. We set out to determine which fly trap works better. We deployed two products, Pop! Fly Trap and Captivator Fly Trap for an on-site comparison.

The Pop! Fly Trap worked best capturing many more flies.

Are these projects worth the money?
The difference seems to be the amount of sugar added to the product.

Refill costs:
Captivator Fly Trap: $1.60 (less sugar)
Pop! Fly Trap: $3.60 (more sugar)

You might consider purchasing the less expensive refills and adding more sugar.

VS.

Coexisting with agricultural chemicals

Continuing education credits (CEC)
Continuing education credits are what's required annually to maintain our Commercial Applicators License for pesticides, which many of you may need in order to apply the chemicals that you do on your farms. The agency that controls this now requires 2-hour, in-person training blocks.

One place you can find pesticide training is through the Oregon State University Extension service. You can find them online at: https://workspace.oregonstate.edu/course/pesticide-applicator-course-series

They offer eight course options for recertification. They can offer on-side pesticide re-certification under some circumstances.

The label is the law
When dealing with chemicals, the "label is the law" we need to be following any time we're working with pesticides of all sorts, from Roundup to Paraquat and everything in between.

What kinds of information can we find from our product labels?

Sample label

Product identifier

TJP556677
Detraxit

Supplier identification

ABC Supplier
1010 Industrial Ave., Anytown, State, 550055, USA
(800) 555-5555

Precautionary statement

Keep container tightly closed. Store in a cool, well-ventilated place that is locked.
Keep away from heat/sparks/open flame. No smoking.
Only use non-sparking tools.
Use explosion-proof electrical equipment.
Take precautionary measures against static discharge.
Ground and bond container and receiving equipment.
Do not breathe vapors.
Wear protective gloves.
Do not eat, drink or smoke when using this product.
Wash hands thoroughly after handling.
Dispose of in accordance with local, regional, national, international regulations as specified.
In Case of Fire: use dry chemical (BC) or Carbon Dioxide (CO_2) fire extinguisher to extinguish.
First Aid
If exposed call Poison Center.
If on skin (or hair): Take off immediately any contaminated clothing. Rinse skin with water.

Pictograms

Signal word

Danger

Hazard statement

Highly flammable liquid and vapor.
May cause liver and kidney damage.

Supplemental information

Directions for Use:
Apply product to clean surface and allow to dry for a minimum of two hours.

Fill weight:18.65 lbs. Lot Number:B56764434
Gross weight: 20 lbs.5
Expiration date: 6/21/25

Signal words

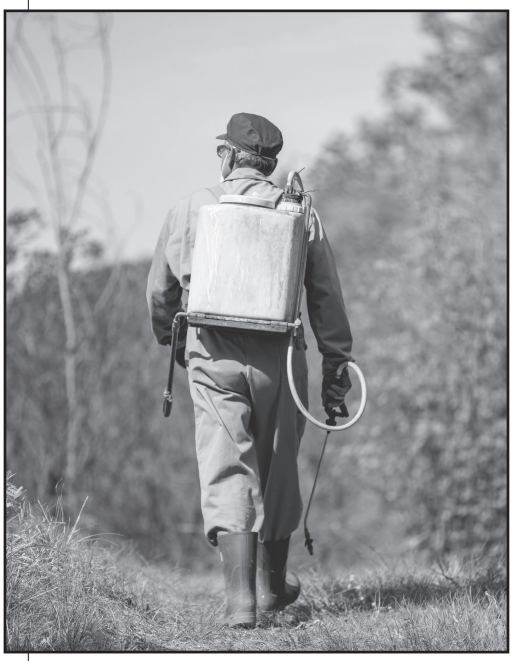
Caution	Slightly toxic either orally, dermally, or through inhalation; causes slight eye or skin irritation
Warning	Moderately toxic either orally, dermally, or through inhalation; causes moderate eye or skin irritation
Danger	Can cause severe eye damage or skin irritation
Danger-poison	Highly toxic by any route of entry into the body

Acute vs. chronic
The descriptions are all based on ACUTE exposure – what happens to you if you get exposed right now. The fact of the matter is, we just don't know what chronic exposure to these products over the course of 10 or 30 years can potentially do to us.

A good example of that is the product Roundup, an important farm tool that is likely to continue to be used.

Roundup uses the signal word **Caution** meaning a low level of acute hazard exists with this product.

To protect yourself when using a product like this, we recommend personal protective equipment (PPE) that would at least include long sleeves and pants to minimize direct skin exposure. It is even better, if you can change out of these close and launder them on site rather than exposing your family to the product by laundering these clothes at home. In addition, waterproof boots should be warn. These can be washed of and left to dry on site. Avoid tennis shoes or boots that can absorb the product and travel back home with the worker.



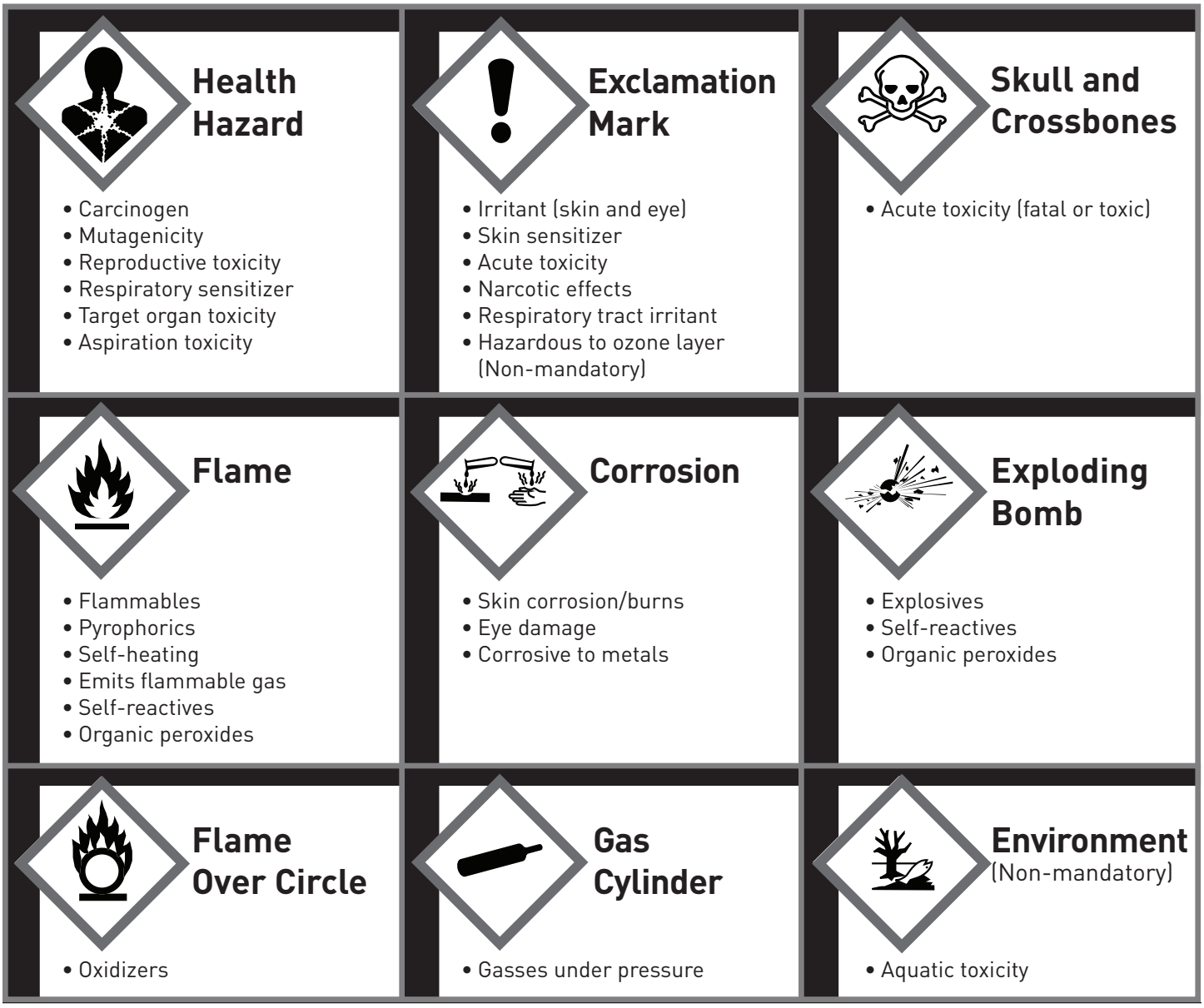
General use vs. restricted use
Sometimes when people are thinking about their safety, related to pesticide handling, they make handling decisions based upon whether it is a **General Use** or **Restricted Use** product. For most of us, the majority of the products we keep on our farms likely are General Use, meaning you don't have to have an applicator's license to purchase them. However, vast majority of us have at least some restricted use products on our farms.

We can also encounter restricted use pesticides that are really bad for fish and other wildlife. It is important that we still handle them correctly to help protect our environment and natural resources, even if these might present a minimal, if any, hazard to humans.

Conversely, General Use products can be **Danger** level and present enormous human health hazards. The label for "Wild Oat Herbicide," General Use product, states "HAZARDS TO HUMANS AND DOMESTIC ANIMALS - DANGER! Corrosive: Causes irreversible eye damage. May be fatal if absorbed through the skin. DO NOT get in eyes, on skin, or on clothing. Harmful if swallowed or inhaled. Avoid breathing spray mist."

General vs Restricted Use can be a guideline for us, but ultimately, we have to read the label each and every time we're handling a pesticide. Because, the label is the law.

Pictograms and their meanings



Chemical storage

Restricted Use Pesticides come with a few additional obligations over General Use products.

We're required to keep them under lock and key when they're in storage or we're not in immediate control of them.

We're required to store them on a cleanable surface.

And we want to make sure we aren't storing wet products above dry products, creating a scenario where a leaky jug could lead to the product underneath gassing off and filling our chemical shed with a cloud full of nastiness.

In order to make sure we're complying with these rules for Restricted Use products, the first thing we need to do is make sure we can find them in our storage area.

We should be working towards a goal of pesticide storage that looks something more like this. Products organized by category and jugs of the same product grouped together, with clear walkways free of spills and other slip/trip hazards. Not only does this make inventory easier to manage, and keep us safer while we're coming and going from our storage area, but just from an optics standpoint, this is going to have a better appearance and set a better tone should we ever find ourselves being inspected by OSHA or audited by ODA.

Locked storage
While it's generally legal to have our Restricted Use products interspersed with our General Use chemicals, one of the most common problems people struggle with is keeping their chemical storage areas locked. During a busy season where people are frequently coming in and going from chemical shed, it's just a hassle to unlock it and relock it every time. Perhaps it just gets forgotten about. This is understandable, but we can potentially face stiff fines if we get caught with Restricted Use products improperly left in unlocked storage.

One solution is to create separate locked storage. Sometimes that's a designated shelf area or an entirely separate building. Some people buy a plastic garden shed, with its own lock, and place it in the chemical shed. Some build a lockable cage into a section of shelving where only Restricted Use products are stored.

However we go about it, we have to keep Restricted Use products under lock and key when we're not immediately in control of them.

Cleanable surface
Restricted Use chemicals require a cleanable surface for storage.

Metal or plastic shelving is the easiest choice for shelving as long as they are durable and can handle the weight. Wooden shelves with vinyl coating, or that's been painted and sealed can be acceptable as well.

Storing jugs in plastic trays or tubs can catch spills for easy clean up and control. Larger containers can be placed in kiddie pools in case of a leak or spill.

In general, these practices are good for all chemical storage.

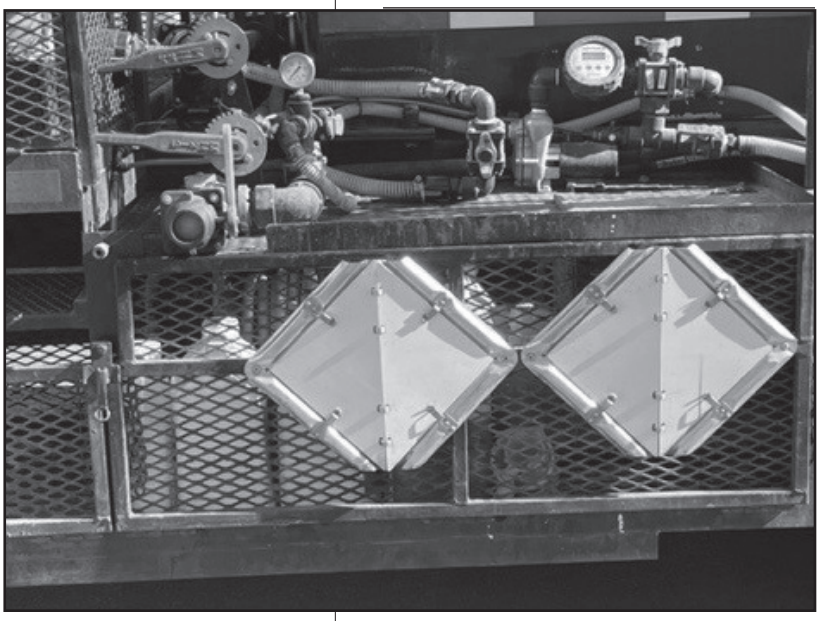
Dry products above wet products
If there is a leak, we don't want wet products leaking onto dry products. This can, and has, lead to serious illness and even fatalities.

It's a pretty easy solution to move our dry products to the top shelf when they're in small packages. The reality is, however, that dry products are more likely to look like a 50 pound sack of Prozap then a 2 pound box of Corry's Slug and Snail Killer. In these cases we need to factor ergonomics into our storage plans to ensure we're not handling heavy sacks of product in a manner that could lead to injury trying to get them on and off a top shelf. This may mean designating a whole shelf specifically for dry products so they don't have to go all the way to the top.

However we go about it, we need to keep our dry products out from underneath our wet products.

Transportation
Sometimes we need to take Restricted Use products out into the field. We stay in immediate control of them while mixing, prepping, and applying them.

However, problems arise (for example) when we throw a sack of ProZap into the bed of our pickup to go apply half of it in the morning, and then come back in for lunch, get distracted by another project for the afternoon, and leave that sack of restricted use product sitting in the driveway of our farm with no one else around.



Or perhaps a jug of Gramoxone gets left on the deck of our water truck and doesn't make its way back to storage at the end of the day. That could potentially be treated just the same as the door to our chemical shed being left wide open, and lead to big trouble.

If we're able, excess product being taken out into the field can be transported in separate locked storage, such as a pickup tool box, a portable cage, or even an igloo-cooler with a padlock installed. Make sure it's not sitting out, accessible to people who aren't authorized to access it, or to those who might not realize the hazards associated with it—like children and pets.

Decontamination
Most of us have decent eye wash/emergency shower setups on our farms that are generally in the vicinity of our chemical storage areas.

As we're loading up our various pesticides into a pickup, or onto the deck of our water truck, to be taken out into the field and applied, the further away from home base we go, the further away we are from our abilities to clean up, wash off and decontaminate ourselves if we have a spill or other accident occur leading to pesticide exposure.

Consider having a decontamination kit ready to transport along with the pesticides. This is a great idea, especially when we're mixing on site, or working with corrosive or more hazardous products

A basic decontamination kit should include a supply of fresh water, soap and paper towels, bottles of eye wash, and a change of clothes (like a spare pair of coveralls or a Tyvek suit). That way, if we slop product on our clothes, we're not tempted to just ride it out and finish our shift rather than going home and changing while we're soaking in that product or potentially sustaining chemical burns or other painful consequences.

Spill kits
If we do have a spill, we need to have the appropriate supplies to clean it up. What is in the spill kit may depend on what products you are using as well as the potential volume of spilled product. You should also consider what surface the spill could happen on (a truck bed or dirt) or what the spill may reach (a public road or waterway).

"If you ever want to make getting in trouble with OSHA seem really fun, easy, and affordable in comparison, all you have to do is get in trouble with the EPA."
-Eric Lloyd

Take another look at the label for the required PPE when handling the chemical and preparing a spill kit. You might only need some gloves and eye protection. Depending on what the labels says, you might think about expanding into respiratory protection, full face shields, Tyvek suits, and plastic booties or rubber boots.

If you are moving a large quantity of hazardous materials on public roads, its not a bad idea to have and plan that includes a professional spill response and hazmat containment provider, so you know who to call in case of a significant issue.

Secondary containers
If we do have a chemical jug leak, or even just in the process of mixing or distributing chemicals for use around our farm, we might be tempted to move those products into secondary containers other than what they came in.

Is this legal? Yes, it is.

What do we need to make sure we label them appropriately when we do? Remove the old label if there is one, and write or otherwise apply a label identifying what product is in the jug now, so there is no confusion about what we're handling in the event we do have a spill or other exposure, and we can check the safety data sheet and know exactly how to protect ourselves.

One thing we definitely want to avoid is the use of food or beverage containers for storing and/or transporting our chemicals and hazardous materials. There have been far too many tragic cases of children finding those bottles, thinking they're a soda or Gatorade or whatever, and taking a drink, leading to serious injuries or fatalities. Even adults have made that same mistake.

Examples:
Singer (herbicide) looks like cola
Transmission fluid looks like cranberry juice
Antifreeze looks like Mt. Dew
Windshield washer fluid looks like Powerade

Most common chemical-related hazards

While we focus heavily on the hazards posed to us by the chemicals we're working with themselves, it's important to maintain perspective on what is really most likely to hurt us.

Statistically speaking, gasoline offers the most common chemical hazard. Poisoning from accidental ingestion, irritation to eyes and skin, burns from fires and explosion, and long-term health effects of chronic exposure link gasoline to significantly more injuries than many other more dangerous chemicals. Perhaps it is the frequency of use. Maybe it is just because of our willingness to become lax with our safety precautions around it.

In many cases, the injuries we see during chemical application have absolutely nothing to do with the chemical being applied, but instead things like:

- Not following good energy control procedures and becoming entangled in the PTO shaft running the agitator in our sprayer
- Pushing ourselves too hard during a long spray season full of overnight shifts and falling asleep behind the wheel
- Not properly hydrating and experiencing heat stroke while wearing a Tyvek spray suit and a respirator
- Slipping and falling while climbing on and off our tractor.

These things can get us just as hurt, or just as dead, as an unintentional chemical exposure, and should be focused on just as heavily when performing these tasks.

Case study

Find this report at:
FACEReport No. 20OR02, Farm Worker Crushed in ATV Rollover During Herbicide Application on Hillside, Oregon (cdc.gov)

Summary: On March 16th, 2020, a 41-year-old Hispanic female vineyard technician was killed when the sprayer system equipped all-terrain vehicle (SUV) she was operating rolled over and pinned her underneath.

The case studies from FACE are intended to help us understand what can go wrong, so we can get ahead of injuries and accidents. And they cover recommendations to help prevent similar occurrences.

Juggling the heat and the effects of OSHA's new heat rule

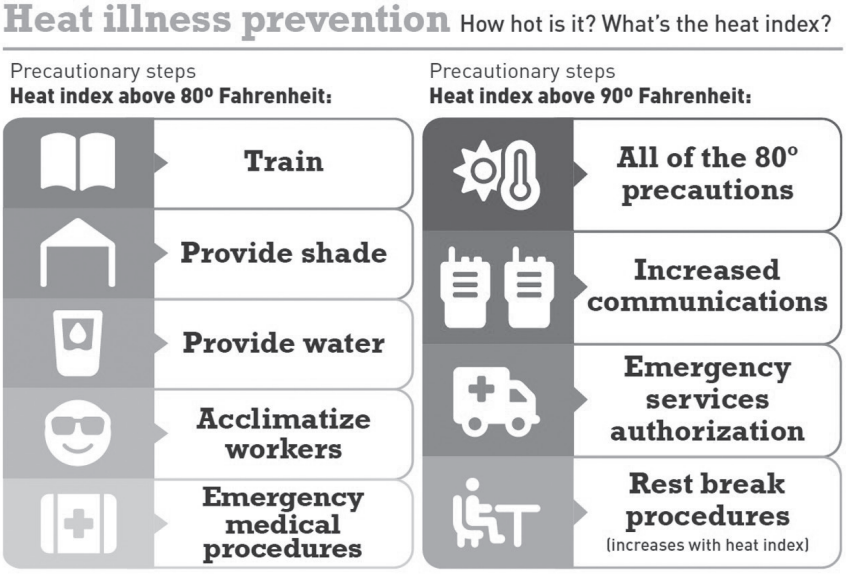
As you may recall, during these past couple of years we've been operating on what Oregon OSHA referred to as temporary heat rules. With Oregon OSHA, we know that temporary often becomes permanent. That is the case with the heat rule.

In addition, there have been edits, changes, and enhancements to the rule.

We are going to discuss the heat rules, but rather than focusing on WHAT they are, we are going to focus on solutions regarding how we can meet the needs of people who work in the heat. We'll talk about proactively preparing for those dreadfully hot days, and making sure we have what we need to keep our workers from getting heat-related illnesses.

The rules kick in when the Heat Index equals or exceeds 80 degrees F. These requirements include providing both supervisor and employee training on what to do during times of extreme heat, providing employees with access to shade and drinking water, providing an acclimatization process for all workers, as well as setting up emergency medical procedures so they're in place before the next heat wave hits.

Additional rules kick in when the heat index equals or exceeds 90 degrees F. These high heat protocols include increased communications for better accountability regarding employee location. Employees and supervisors must be able to reach each other by voice or electronic device. A designated person is authorized and provided with appropriate equipment to call for medical services in case of an emergency. There are also rest break intervals.



Heat index
The heat index indicates what the temperature feels like to the human body when relative humidity and the air temperature are combined.

The air temperature is easy. It is the actual temperature of the air outside.

The humidity is the amount of moisture or water vapor that's in that air. For example, when it's raining, the humidity is generally between 90% to 99%.

When it's hot outside and the humidity is high, you can literally feel the moisture in the air. It feels muggy and sometimes makes it hard to breathe.

How do we determine what the heat index is? There are several ways. We are going to discuss two of them.

OSHA and NIOSH created a heat safety app for your smartphone that you can download to your iPhone or Android for free. You can find it wherever you normally download apps. The logo is a red background with a yellow sun.

The app will show you the current temperature and the humidity. It will also give you a caution, warning, or danger indication as the heat index rises. The app will recommend actions to take depending on the current heat index.

If you believe someone is experiencing heat exhaustion or heat stroke, this app will guide you through the various symptoms you may be observing and suggest what you might do next.

You can switch between English and Spanish throughout the app.

Another way to monitor the heat index on your farm is to use the **Kestrel Drop D2**. This device was brought to our attention by Orchard View Farms in The Dalles. It sells for $99.

The Kestrel Drop D2 works with your smart phone to monitor and report data from wherever the device is located. You get to choose the exact location.

OSU study
According to a study by the Oregon State University: The rate of worker injuries climbs 4 percent when the heat index exceeds 75 degrees.

Workers' comp claims due to heat injury in the agricultural and construction industries are nearly triple that of the industries.

Training
When the temperature reaches 80 degrees it's time to implement training. Some of the items to be included in this training are:

- Understanding the environmental and personal risk factors for heat illness, including the extra burden of heat caused by exertion, clothing, and personal protective equipment.
- Understanding what is being provided by the employer including drinking water and shade, how to determine the heat index for that day, how to utilize cool-down rests, how to report symptoms of heat-related illness, where to obtain first aid, and how to adapt to working in a hot environment.
- The importance of employees immediately reporting symptoms or signs of heat illness for co-workers and themselves.
- The effects that non-job factors such as medications, alcohol, and obesity can have on someone's heat tolerance.
- The main types of heat-related illnesses: heat cramps, heat exhaustion, heat syncope, and heat stroke—along with their various signs and symptoms.
- The importance of hydration including frequent consumption of small quantities of water, up to 32 ounces per hour.

This training needs to be offered every year.

Heat illness symptoms

Heat exhaustion	Heat stroke
Elevated body temperature	High body temperature (above 103° F)
Dizziness	Confusion
Headache	Slurred speech
Heavy sweating	Skin is hot, red, and dry
Decreased urination	Seizures
Nausea	Fainting
Thirst	
Irritability	
Fatigue	

Call 911 if you notice any symptoms of heat stroke.

Shade and drinking water
Shade needs to be open to air or include ventilation, such as fans. It also needs to be as close as practical to the work area and be large enough that all the employees on recovery, rest, or meal breaks are able to fit within it and can sit and relax. A car cannot be considered shade for this purpose, unless the car is running and the air conditioning is turned on and working.

At least 32 ounces of water per person, per hour should be available for each employee. It needs to be provided at all times while the Heat Index is equal or greater than 80 degrees. Also, the water must be kept cool so it stays at or below 77 degrees. That means water bottles need to be packed on ice or the fluid needs to contain ice.

Lastly, it's recommended that some of the liquid be electrolyte-replenishing drinks. When we sweat, our bodies kick out necessary salts and other minerals that can be replenished back into our system with these electrolytes.

Here are some pre-planning ideas that have been shared with us from farms around Oregon:

Pre-order bulk quantities of bottled drinks containing electrolytes and have a plan to cool them down to at least 77 degrees before distributing.

The Rapi-Kool can cool down a large container of water quickly. These are restaurant-grade devices used to reduce the temperature of food without diluting the liquid. They hold 64 ounces of water and can be pre-frozen for immediate use. They can be re-frozen over night.

Zero sugar, electrolyte packets for adding to drinking water. This can be a less expensive option than purchasing electrolyte drinks.

Ryobi makes a misting fan. It hooks up to a garden hose and sits on top of a standard 5-gallon bucket. This runs on the Ryobi 18 volt battery.

Acclimate workers

Where the heat index is 90°F or greater, employees must be allowed to gradually adapt to the heat.

Recommendations for adapting include:
For workers who have not been working in heat, the heat exposure must be no more than 20 percent on day one, with an increase of 20 percent per day.

For workers who have been working in heat, the heat exposure must be no greater than 50 percent of the first day, with 60 percent on day two, 80 percent on day three and 100 percent on day four.

OHSA's concern is that if a person who is used to working in cooler weather elsewhere comes to Oregon and the next day begins working in 90 degree (or more) weather, it may take the worker some time to acclimate to the warmer weather.

In Oregon, we often find that workers were previously in California, where the weather is 100 degrees or more. In this case they may find working in 90 degree weather easier to do.

Emergency medical procedures
The plan for emergency medical procedures must include procedures for responding to a person's signs and symptoms of heat illness. If a worker displays signs of heat illness, have them immediately stop working and allow them to start cooling down.

Keep an eye on them to make sure their overall body temperature is dropping, don't leave them alone, and do NOT send them home without being offered on-site first aid or emergency medical services.

Provide multiple people on your farm the authority to call 911, an ambulance, the fire department, or other emergency services when an incident occurs. They should be comfortable enough to follow the instructions that will be provided by medical professionals, for example, transporting the person to a place where they can be safely reached by the emergency personnel.

Once the Heat Index reached 90 degrees Fahrenheit, high heat protocols should begin.

Increase communication
Make sure you know where your people are and that they have the ability to communicate with each other, by voice or electronic device. Who is in charge of testing the system and checking in with everyone?

Emergency services authorization
Who has the authority to call 911? Do they have what they need to direct first responders to the site? Who will flag down an ambulance?

Rest break procedures
What is the schedule for rest breaks? Who will make sure people take breaks? Where will the breaks happen? Who is in charge of making sure there is enough cool water for everyone?

These are not always easy procedures to set up or follow. Use your best judgement. Put forth a good faith effort. Keep people safe. Heat illness can come on quickly and when it does, people need proper attention immediately.

Body core temperature
About 2/3 of our body's overall weight comes from fluid. When it is hot, our first thought might be to drink more fluids. Though this is correct, we are in a constant race to replenish those fluids we're losing through perspiration. When our body heats up, our cardiovascular system (or blood circulatory system) works overtime to radiate the heat and to cool down. Our heart beats faster and pumps harder, circulating four to six times as much blood each minute than it does when it's cold outside.

As our body begins to perspire, it puts more stress on our cardiovascular system and our body excretes sodium, potassium, and other important minerals that our muscles and our cells need in order to maintain a proper balance of fluid.

Now, at this point, 48 percent of all of our blood in our body is being pumped to the skin to provide perspiration in an attempt to cool us down. That means less blood is being pumped around to our vital organs, including our heart and our brain. This puts more stress on our bodies. If there is high humidity as well, this adds further stress on the system and can lead to death.

The human body, at rest, has an internal body temperature is (on average) 98.6 degrees. With every degree the body's internal temperature rises, the heart beats about 10 beats per minute faster, which can heat us up even more. When we are hot, taking a break is appropriate, but keep in mind that studies have shown that body temperature can continue to rise for up to 30 minutes after the work has stopped because it takes that long for our cardiovascular system to settle down.

Here's a device that can help keep the body's core temperature under control.

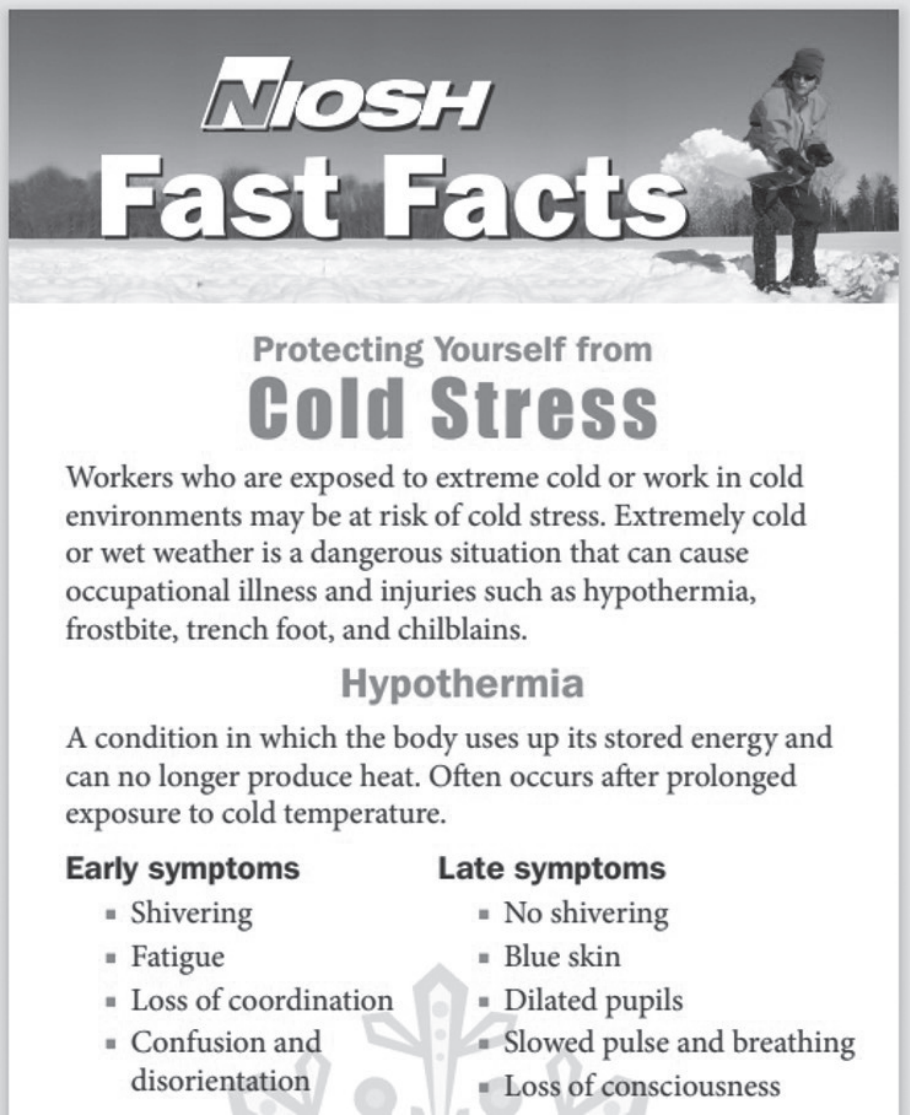
FlexiFreeze ice vest
This cool tool is super-thin and light-weight, has a fully zippered front, ranges in size from XS to 6XL, and is built to handle maximum mobility and flexibility. In addition, it's easy to swap out the fully-reusable self-contained ice packs from within their zippered pouches with a frozen ice-pack replacement.

Cold stress

Just as with heat stress, we want to encourage everyone to provide their best good-faith effort to help people who are working outside in the bitter cold. We need to check on them, make sure they have the protection from the cold to do their jobs—the right clothing, the right PPE, are they taking the necessary breaks to get their bodies warmed up.

We know that heat illness is real. In the same way cold stress is real, and it can lead to hypothermia and frost-bite.

Just as you have a plan to combat heat, have a plan to combat cold.

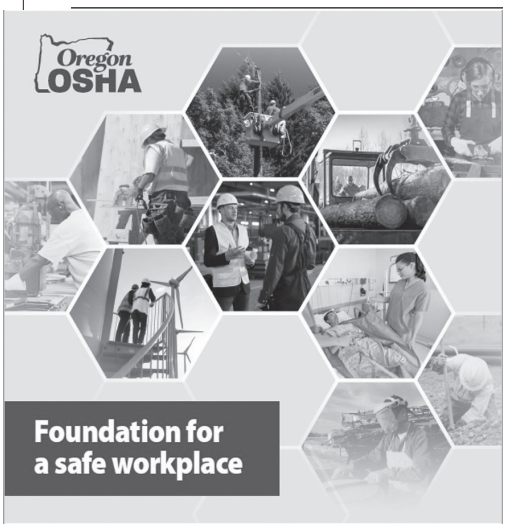


First responders on the farm

Hazard identification
What are some ways we can reduce the risk of fires and explosions on our farms?

Begin by identifying what the hazards are. Oregon OSHA has given us a guide that is worth considering.

- Conduct a baseline survey.
- Perform regular workplace inspections.
- Look for new hazards whenever you change equipment, materials, or work processes.
- Use safety data sheets to identify chemical hazards.
- Perform a PPE hazard assessment of the workplace.
- Investigate incidents to determine root causes. Most incidents are preventable.
- Investigate near misses to determine root causes.
- Characterize the nature of identified hazards, identify interim control measures, and prioritize the hazards to control.



Download it here:
https://osha.oregon.gov/OSHAPubs/4755.pdf

What items might we have on our farms that could pose a hazard to first responders?

Do you have a metal shipping container on your farm? Many farms do. They're an affordable, secure way to store chemicals, tools, equipment, spare parts, you name it. Would you identify one of these as a potential hazard?

It's important to remember that these containers can be made from both aluminum and steel. Aluminum melts in the 1200 degree Fahrenheit range, and aluminum containers, if exposed to a major fire or source of heat, will simply do that—melt.

Steel, however, melts at double that, 2200-2500 degrees Fahrenheit, meaning it is unlikely to lose structural integrity if exposed to the heat of a structure fire. Partially for this reason, shipping containers must be vented to allow the pressure from anything inside to gas off and release safely if needed. If those vents are closed off, whether intentionally to better seal the unit or unintentionally, from dirt, debris, birds nests, or whatever, steel containers can turn into a pressure cooker and potentially rupture, with catastrophic results.

Walkthroughs
One of the best ways we can identify hazards on our farms is by doing regular safety walkthroughs. In fact, this is so important that OSHA required they be conducted quarterly. For those of you that have a formal safety committee in place, as we've discussed in recent years, you can have your safety committee members conduct those quarterly inspections in place of their meeting for that month, so it doesn't even need to add one more item to stop work and have to make time for.

Emergency plan for ourselves and first responders
While prevention is the best plan, we can't completely eliminate the potential for an emergency situation on our farms.

Once we've identified what those hazards on our farms might be, it's important that we have a plan in place ahead of that emergency, so we know how we intend to respond. Consider all the factors that might come into play, so we can ensure that everyone is trained consistently on that plan, and so that we can quickly give a summary of that information to first responders should the need arise.

SAIF has some resources for helping you think through a plan. Find these resources on online in English and Spanish:

English: **https://www.saif.com/documents/SafetyandHealth/AccidentIncidentAnalysis/S1097B_SIF_reduction_worksheet__2021.pdf**

Spanish: **https://www.saif.com/documents/SafetyandHealth/AccidentIncidentAnalysis/S1097B_SIF_reduction_Worksheet_SP.pdf**

Find more information on serious injuries and fatalities (SIF) on saif.com here: **https://www.saif.com/safety-and-health/topics/prevent-injuries/serious-injuries-and-fatalities-(sif).html**

Calling for help
Make it easy for anyone to call for help. Create a contact card with emergency phone numbers, work site addresses, directions to the closest hospital. Make sure everyone has one.

More and more dispatch centers are now able to receive texts as well. So, if your local dispatch can do this, dropping a GPS pin for your location on your phone and sending it over can be an easy and specific way to guide help to more remote locations.

If you are working in an area that has poor internet connection, you could acquire a portable "hot spot" to ensure connectivity.

Remember, just because they can find the address doesn't mean that they know the site of the emergency. It's a best practice to send someone to the road to flag down first responders and lead them to the site.

Once those responders arrive, we need a good way to provide them a picture of the layout of our farm, and any hazards that they'll need to be aware of. We should prepare for the possibility though, that we won't always be able to meet them in the driveway, map in hand. The emergency might occur late at night, we might be off on our once-a-decade farmer vacation, or we might be the ones injured in that emergency, and not be in a position to share that information in the middle of the situation.

In a perfect world, we've had these conversations in advance, by inviting our local fire departments to come tour our farm, or even conduct a drill there, so their team is familiar with the layout they'll be working with in case of emergency.

But in some circumstances – it may be best for us, our people, and those first responders, to post in a conspicuous location a map of our farm, identifying those hazards to avoid. The map doesn't need to be complicated, difficult, expensive, or a work of art. Something as simple as sitting down with some paper, a pencil and a ruler could easily give us the starting point for a hand drawn reference guide.

There are many ways to create a map. Perhaps you already have an old aerial view photo of your farm that you could tag with potential hazard markings. Perhaps you, or someone you know, can take a photo from a drone camera. You can even use Google maps. Some of us are already using Onyx to tag areas when hunting. This may also be a good way to generate a map for your farm. Similarly, RF-Dash is an online program that can help you make an emergency map of your farm. Visit **rf-dash.com** for more information.

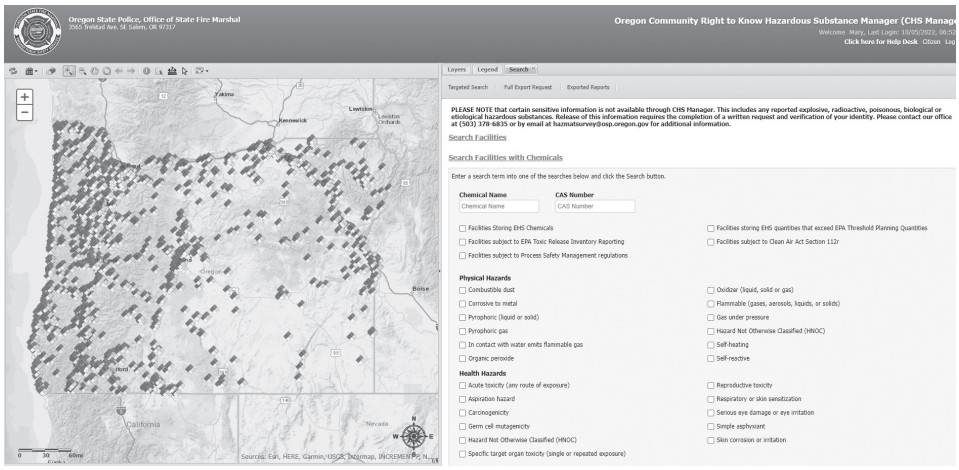
On site, have proper placarding on the buildings where chemicals, fertilizer, fuel, and other flammable, explosive, or toxic materials are stored. This is critical for ensuring that first responders know what they're getting into, what buildings they should attempt to save, and which ones they should keep a wide berth – or a REALLY wide berth – from.

CR2K - Community right to know

Where are the potential hazards in your area? Did you know that you can look that up? Visit **https://www.oregon.gov/osp/programs/sfm/Pages/Community-Right-To-Know.aspx**

Community right to know is a set of rules that run through the Oregon State Fire Marshal's office, requiring certain businesses to report and make public the types and quantities of certain hazardous materials. We should all be aware of them, so we know whether or not we fall under their jurisdiction.

This information can also be accessed by first responders en route to fires and other serious emergencies, and give them a major leg up on knowing just what they're getting themselves into.



Those of us who are not required to report, have the option to do so voluntarily. Even a vague report is better than no report at all. This system can, at the very least alert first responders that there is something to watch out for and stay away from.

Laws regarding this topic may have been around for awhile, and this isn't something we see a lot of farms doing. We realize it's probably completely new information for a lot of farmers and may seem overwhelming. But if one time, making that report on one farm, saves one fire fighter who's putting their life on the line to come try to save the farm—that seems like time and effort well spent.

Firefighter fatalities
A study from the National Fire Protection Association showed us the cause of fatalities for firefighters. Here are the results.

54% over exertion/stress/medical
13% Rapid fire progress/explosion
8% Struck by vehicle
8% Crashes
6% Fell
2% Assault
2% Exposure to electricity
2% Structural collapse
2% Lost inside
2% Exposure to heat

The folks who have chosen to pursue service as a first responder in addition to farming careers might benefit from a similar focus on yes, those scary things, the heat and electricity and collapses that we all think of when we think about fire fighters getting hurt or killed on the job. But, even more so on fitness, a healthy lifestyle, exercise, overall wellness, and being realistic about our own physical limitations.

"Farmers and firefighters tend to share the same mentality – we need to get the job done, no matter what."

For those of you that have already chosen to serve as a first responder, we can't thank you enough.