



Maine Farm Safety Program

by Dawna L. Cyr, farm safety project assistant, and Steven B. Johnson, Ph.D., Extension crops specialist

Ladders, Lifting and Falls

Many farm injuries can be attributed to poor lifting techniques, improper ladder use or falls. Use the proper procedures and body position when lifting to reduce the risk of injury. Use the proper ladder for the job, and make sure it is safe and secure. Take precautions to eliminate falls.

Lifting

Lift objects properly. Avoid bending over. Instead, squat before the object to be lifted and use your knees to rise. Protect hands and feet with safety gloves and safety shoes. Get a good grip and good footing, bend the knees and lift with the leg muscles. Use hooks, straps and pulleys to lift a heavy load from the floor. Reverse the procedure to set a heavy object down.

Reduce weights and forces to a minimum. Reduce the horizontal distance objects must be moved.

Instead of lifting or lowering objects, try pushing, pulling or carrying them. Keep all lifts in the middle range between the shoulders and hands when they are at the side of the body.

Carrying heavy, bulky or long objects may result in a fall. Check your path beforehand, noting slipping or tripping hazards that should be picked up or avoided. Make sure the object is

Ladders, Lifting and Falls

- **Lift with the legs, not the back.**
- **Visually inspect a ladder before using it.**
- **Make sure the ladder has a secure footing before climbing.**
- **Use the 1:4 ratio where the ladder base is 1 foot away for every 4 feet of height to where it rests.**
- **Always use caution around electrical wire or connectors.**

balanced and your grasp secure before walking. Take your time, particularly on steps and through tight places. Watch so that long or large objects don't bump or catch on something and throw you off balance. Carry objects so you can see where you are going. Get help if you need it or save the job until help is available. Don't risk straining your back or falling.

Guidelines for Safe Lifting

1. Lift only what can be handled without overexertion. Get help if necessary.
2. Lift comfortably. Choose the position that feels best.
3. Lift gradually.
4. Lift close to the body.
5. Lift without twisting.
6. Maintain strong abdominal muscles.

Activities that Increase the Risk of Lower Back Injury

There are several things workers do that put them at risk for lower back injury. Standing or sitting for long periods of time, doing tasks that require awkward posture for more than one minute, and activities that require twisting the upper body put a person at risk for back injury. Other activities such as repeated and sustained extended reaches, bending over,

work over shoulder level, lifting and lowering objects greater than 25 pounds in weight, and pulling/pushing heavy loads in trucks or across flat surfaces for more than 30 seconds, also put a person at risk of lower back injury.

Ladder Selection

Portable ladders are designed as one-person equipment with the proper strength to support the worker, tools, and materials. Ladders are constructed under three general classes.

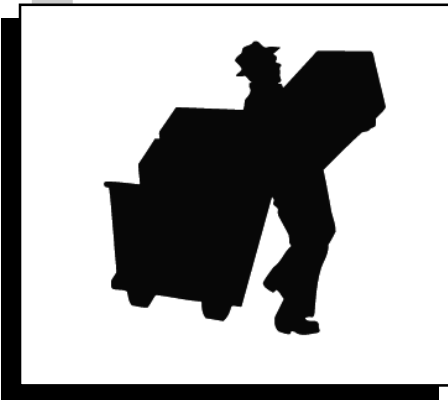
Type I - Industrial: heavy-duty with a load capacity not more than 250 pounds.

Type II - Commercial: medium-duty with a load capacity not more than 225 pounds. (Suited for painting and similar tasks.)

Type III - Household: light-duty with a load capacity of 200 pounds.

Ladder Maintenance

All ladders should have a UL seal from the Underwriter's Laboratory. Use only proper ladders in good condition. Make sure to get the right surface grade and load rating for your ladder. Visually inspect your ladder before each use. Never use a defective ladder. Tag or mark it so that it will be repaired or destroyed. Keep ladders clean and free from dirt and grease, which might conceal defects.



Wood ladders should be protected with a clear sealer varnish, shellac, linseed oil or wood preservative. Wood ladders should not be painted because the paint could hide defects. Check carefully for cracks, rot, splinters, broken rungs, loose joints and bolts, and hardware in poor condition.

Aluminum or steel ladders should be inspected for rough burrs and sharp edges before use. Inspect closely for loose joints and bolts, faulty welds and cracks. Make sure the hooks and locks on extension ladders are in good condition. Replace worn or frayed ropes on extension ladders at once.

Fiberglass ladders should have a surface coat of lacquer maintained. If it is scratched beyond normal wear, it should be lightly sanded before applying a coat of lacquer.

Ladder Usage

Use the one-to-four (1:4) ratio when using a ladder. To do this, place the ladder so its base is one foot away from what it leans against for every four feet in height to the point where the ladder rests. Place a portable ladder so that both side rails have secure footing. Provide solid footing on soft ground to prevent the ladder from sinking. Place the ladder's feet on a substantial and level base, not on movable objects. Never lean a ladder against unsafe backing, such as loose boxes or barrels. When you use a ladder for access to high places, securely lash or otherwise fasten the ladder to prevent its slipping. Be especially careful

on windy days. Extend the ladder's side rails at least three feet above the top landing.

When working on a ladder, take precautions so not to slip. Lock a leg around a rung if you need to work with both hands. Do not overreach. Keep your belt buckle between the rails. Do not put one foot on the ladder and the other on an adjacent surface or object.

Never stand on the braces, extension arms or paint shelf. Never use a ladder in a horizontal position as a runway or scaffold. If you set up a ladder or scaffold in front of a door, lock or bar the door. Use ladders to reach parts of equipment you cannot reach from the ground. When getting down, step, don't jump, from ladders.

Care should be exercised anytime work is done with a ladder near electrical wires or connections. Keep ladders as far as possible from power lines. Use wood or fiberglass ladders if work must be done near electrical wires and still use caution. Never use an aluminum or metal ladder near power lines.

Take special care when ascending or descending a ladder. Hold on with both hands when going up or down. If material must be handled, raise or lower it with a rope. Always face the ladder when ascending or descending. Never slide down a ladder. Be sure that your shoes are not greasy, muddy or slippery before you climb. Do not climb

Use the one-to-four (1:4) ratio when using a ladder. To do this, place the ladder so its base is one foot away from what it leans against for every four feet in height to the point where the ladder rests.

higher than the third rung from the top on straight or extension ladders, or the second tread from the top of stepladders.

There are other safety precautions that should be taken when working with ladders. Never use makeshift ladders, such as cleats fastened across a single rail. Be sure that a stepladder is fully open

and the divider locked before you start to climb it. Do not splice short ladders together. They will not be strong enough. Do not use ladders during a strong wind except in an emergency, and only when they are securely tied. Do not leave a placed ladder unattended, especially outdoors, because someone could climb it, especially a child.

Safety Tips for Using Ladders in Orchards

The length and weight of the ladder should be at a minimum to place the picker safely in the tree. Step ladders up to 12 feet in height can be used for smaller trees. Taller trees require straight ladders. Metal ladders or wire-enforced ladders are dangerous around electrical installations. Check ladder before use for cracks and broken rungs.

Follow these steps for proper placement of a ladder in a tree:

1. Take the ladder by the second and fourth rung.
2. Place the bottom firmly on the ground and raise it to vertical.
3. Turn the ladder sideways, and ease into the tree.
4. Place straight ladders so that if a limb breaks, they will fall into the tree.

The ladder should be placed in a near upright position. In this position, the picker does not need to hang on and can use two hands in picking. Ladders in an upright position put little strain on the ladder and tree. The support legs of step ladders should be placed under the canopy of the tree. Ladders left against a tree should be easily seen by truck or tractor drivers.

Falls

Farmers can be liable if people fall on their property. They are responsible when they have knowledge of the fall and fail to take care of the problem. Farmers can even be liable when they should have known about a hazard. Situations that pose hazards include wet floors, waxy floors, cluttered buildings and unmarked changes in floor levels. Wet and waxy floors should be marked with signs. Use reflective tape or “watch your step” signs for changes in floor levels.

The following is a list of tips to help reduce the risk of falls on farms:

1. Keep floors dry. Mop up water and mud. When floors are wet put up caution signs.
2. Apply non-skid wax properly.
3. Remove clutter in aisles and buildings.
4. Inspect the farm regularly. Provide adequate lighting and make sure floors are properly cleaned.
5. Get all employees safety trained. Educating them is less costly than dealing with an accident.
6. Schedule maintenance properly. Clean and repair things when the areas are not in use.

If a fall should happen on the farm, make note of it. Prepare a written description of conditions surrounding the event, and keep it on file. Include information on the cause of the fall, witnesses, last inspection, last cleaning, and conditions surrounding the fall. Take a photograph of the area before disturbing it.

Educating employees about proper lifting techniques, ladder usage, and know-how to avoid falls will help prevent accidents on the farm. Preventing these accidents will help improve productivity and make the farm more profitable.





This Maine Farm Safety fact sheet is part of an educational fact sheet series produced by University of Maine Cooperative Extension. For more information on farm safety, contact your county Extension office.

For the most current Extension publications, see our online catalog at

www.umext.maine.edu

A Member of the University of Maine System

Published and distributed in furtherance of Acts of Congress of May 8 and June 30, 1914, by the University of Maine Cooperative Extension, the Land Grant University of the state of Maine and the U.S. Department of Agriculture cooperating. Cooperative Extension and other agencies of the U.S.D.A. provide equal opportunities in programs and employment. 6/02