

# 2 Hazard Identification & Assessment

Once you have completed Element 2, you will have:

- Created an inventory of jobs and tasks on your farm.
- Identified, assessed and prioritized the hazards of each inventoried task.
- Involved workers in health and safety hazard identification and assessment.
- Allocated resources for health and safety on your farm.



# Introduction

The goal of any good occupational health and safety management system is to recognize the risks and minimize those risks.

The identification of hazards on your farm is an essential step in the development of a health and safety management system. Along with leadership commitment, hazard assessment forms the foundation of your health and safety system. It is important to proactively assess all jobs for hazards, and train workers to carefully evaluate existing and potential hazards at the work site. Involve people at all levels to ensure everyone is aware of hazards that might not otherwise have been noticed until an incident occurred.

*A hazard is a situation, condition or behaviour that has the potential to cause injury or loss.*

## WORK-RELATED HAZARD NOT COMMONLY IDENTIFIED



*Driving is a good example of a work-related hazard that may not normally be identified as part of a worker's job, despite the fact that many people routinely operate a vehicle in their daily work duties. Because most farm employers have equipment and vehicles that are operated on roadways, they will need to add driving as a job task that needs to be assessed for hazards. Employers with workers who drive passenger vehicles as part of their jobs should include this task as part of their hazard assessment.*

*In 2011, 22.8 percent of the occupational fatalities were motor vehicle incidents. (Government of Alberta, 2011)*

With almost one-quarter of all occupational fatalities in Alberta related to motor vehicle incidents, it is important to assess the hazards associated with driving for work (equipment and passenger vehicles). In order to decide which controls can be applied, you need to think about the hazards that may be faced by everyone working on the farm, and eliminate or reduce those hazards.

Visit [www.agriculture.alberta/farmsafety](http://www.agriculture.alberta/farmsafety) for information on how to include hazards and controls related to driving in your FarmSafe plan.

# Hazard Identification

Identifying agricultural hazards is key to preventing illnesses and injuries on the farm. Hazardous situations may be created by:

- Animals, machines or processes.
- Chemical and biological materials.
- Environmental conditions.
- Personal lifestyles.

## TABLE 2.1 TYPES OF HAZARDS

The following table can help you get started on identifying hazards that might be present on your farm or ranch. Don't forget to consider lifestyle and psychological hazards. Not all hazards can be easily seen. Some hazards will fit under more than one category; place them where it works for you.

Hazard Categories	Examples
Chemical	<ul style="list-style-type: none"> <li>• Solvents, pesticides, welding fumes, fuel and fuel vapours</li> </ul>
Biological or Bio-hazards	<ul style="list-style-type: none"> <li>• Bacteria, viruses, dust, molds, animal-borne diseases, veterinary supplies</li> <li>• Gases in manure storage pits, grain bins, septic tanks and other confined spaces</li> </ul>
Physical Conditions	<ul style="list-style-type: none"> <li>• Machinery-related — most frequently involved in farm fatalities</li> <li>• Electrical currents, heat, light, mechanical movement, vibration, pressurized liquids, radiation (welder's flash)</li> <li>• Noise — loss of hearing from sustained exposure to high noise levels</li> <li>• Falls, slips and trips</li> <li>• Using farm equipment on public roadways (rollover, collision)</li> <li>• Working with livestock or other animals</li> </ul>
Environmental	<ul style="list-style-type: none"> <li>• Extreme terrain and weather</li> <li>• Confined space</li> <li>• Working alone or in isolated places</li> <li>• Air quality</li> </ul>
Ergonomic	<ul style="list-style-type: none"> <li>• Poor posture or work position, repetitive motion</li> <li>• Work design or ergonomic hazards, such as lifting or moving</li> <li>• Sitting for extended periods of time</li> </ul>
Lifestyle/Psychological	<ul style="list-style-type: none"> <li>• Smoking, poor nutrition, alcohol or substance abuse</li> <li>• Stress and fatigue — caused by long work periods, heavy work demands, limited breaks from work, poor sleep</li> <li>• Depression, anxiety, harassment</li> </ul>

Everyone is responsible for identifying potential hazards and risks to workers. Workplace hazards may be identified by information gathered through the following means.



## SOURCES OF INFORMATION FOR IDENTIFYING HAZARDS AND RISKS

There are many online resources that list farm hazards. This may help to simplify the process for you, although you will need to ensure that you consider your specific circumstances. Refer to the resource list at the back of this manual, ask yourself the following questions:



### HAZARDS FOR SPECIFIC TASKS

When identifying hazards for a specific task, ask yourself the following questions:

	Yes	No
Can any body part get caught in or between objects?	<input type="checkbox"/>	<input type="checkbox"/>
Do tools, machines or equipment present any hazards?	<input type="checkbox"/>	<input type="checkbox"/>
Can the worker be harmed when in contact with objects?	<input type="checkbox"/>	<input type="checkbox"/>
Can the worker slip, trip or fall?	<input type="checkbox"/>	<input type="checkbox"/>
Can the worker suffer strain from lifting, reaching, pushing or pulling, or from repetitive movements?	<input type="checkbox"/>	<input type="checkbox"/>
Is there a danger from falling objects?	<input type="checkbox"/>	<input type="checkbox"/>
Is the worker exposed to extreme heat or cold?	<input type="checkbox"/>	<input type="checkbox"/>
Is noise or vibration a problem?	<input type="checkbox"/>	<input type="checkbox"/>
Is lighting adequate?	<input type="checkbox"/>	<input type="checkbox"/>
Can weather conditions affect safety?	<input type="checkbox"/>	<input type="checkbox"/>
Is contact possible with hot, toxic or caustic substances?	<input type="checkbox"/>	<input type="checkbox"/>
Are there fumes, dusts, mists or vapours in the air?	<input type="checkbox"/>	<input type="checkbox"/>
Are there job-specific risks, such as infections, chemicals, heights, electrical, confined space or violence?	<input type="checkbox"/>	<input type="checkbox"/>

## Hazard Assessment

There are two levels of hazard assessment:

- Formal hazard assessment is a complex undertaking and an important step in developing a health and safety management system specific to your farm or ranch.
- Field-level assessment is performed on the spot when unusual hazards may be introduced into the employee's work.

## Steps for Completing Your Formal Hazard Assessment

### STEP 1: CREATE AN INVENTORY OF JOBS AND TASKS

The first step of formal hazard assessment is to create a list of all jobs within the scope of your business, and record the number of workers that perform each job. Once this is done, list all the tasks performed as part of each job identified. Remember to focus your attention on work activities that are going to occur in the upcoming season rather than those that occur six to nine months in the future. This approach makes the work manageable by not dealing with all work activities at one time. You may also find it is more manageable to start with the top five to ten tasks you feel pose the highest risk.

## STEP 2: IDENTIFY HAZARDS

Review each inventoried task to identify the health or safety hazards workers may be exposed to. Be sure to involve workers who perform the tasks in this process to ensure nothing is overlooked. If you are having difficulty, be sure to reference Table 2.1 for examples.

## STEP 3: ASSESS HAZARDS

To assess the degree of risk, ask the following questions:

- How likely is the hazard to cause harm?
- Under what conditions is harm likely to occur?
- How quickly could an unsafe condition arise?
- What type of harm is involved?
- How many workers could get hurt?
- Is there a history of problems, accidents or dangerous occurrences resulting from this hazard?
- What ongoing monitoring is required to evaluate the risk?

After asking yourself these questions, choose a ranking for each frequency, severity and probability on the “assessment scale” (Table 2.2 Risk Rating Scale).

**TABLE 2.2 RISK RATING SCALE**

Frequency of Exposure (F)	Potential Severity (S)	Incident Probability (P)
<b>4</b> One or more times per day	<b>4</b> Catastrophic <i>(death, serious injury, permanent disability, extensive property damage)</i>	<b>4</b> Probable <i>(possible once or more per year)</i>
<b>3</b> At least once a week	<b>3</b> Critical <i>(lost time injury/illness, temporary disability, considerable property damage)</i>	<b>3</b> Occasional <i>(possible once every 1 to 5 years)</i>
<b>2</b> At least once a month	<b>2</b> Marginal <i>(medical aid injury, minor illness, minor property damage)</i>	<b>2</b> Remote <i>(possible once every 5 to 20 years)</i>
<b>1</b> Less than once a month	<b>1</b> Negligible <i>(first aid, limited property damage)</i>	<b>1</b> Improbable <i>(not likely to occur)</i>



Use Worksheet 2.1, “Hazard Assessment”, column 1, to identify a job and associated tasks for your farm site. If you need to break down the tasks into steps, use column 2 as well.



Use Worksheet 2.1 and Column 3 to identify hazards associated with tasks for your farm site.

**Frequency** = number of times you do the tasks

**Severity** = the potential outcome of the incident

**Probability** = the likelihood of the incident occurring



Use Worksheet 2.1 and assessment scale columns 4, 5 and 6 to assign frequency, severity and probability rankings.

Manage those hazards with the highest degree of risk to workers first.



Use Worksheet 2.1, the prioritization scale and columns 7 and 8 to assign a risk rating for each task and classification according to the scale in Table 2.3. Once you have assigned a number to each task, note that the higher the number, the higher the risk.

## STEP 4: PRIORITIZE HAZARDS

Using the information from the assessment, determine the risk rating for each task.

**RISK = Frequency X Severity X Probability.**

You can then address the tasks with the highest risk hazards first.

TABLE 2.3 HAZARD CLASSIFICATION PRIORITIZATION SCALE

Class of Hazard	Explanation	Example
[64 – 49] <b>Class A</b> (Major)	A condition or practice likely to cause permanent disability, loss of life or body part, and/or extensive loss of structure, equipment or material.	A guard missing on the power take-off; a non-secured oxy-acetylene tank set in the workshop.
[48 – 33] <b>Class B</b> (Serious)	A condition or practice likely to cause serious injury or illness, resulting in temporary disability or property damage that is disruptive but not excessive.	Workers using improper techniques when lifting, transferring and/or re-positioning a drum of oil.
[32 – 17] <b>Class C</b> (Minor)	A condition or practice likely to cause minor, non-disabling injury or illness or non-disruptive property damage.	Not wearing a particulate mask when sweeping out a dry grain bin.
[16 – 1] <b>Class D</b> (Substandard)	Any substandard condition or practice that is not likely to produce an injury or illness under normal conditions.	There are no paper towels in the washroom.

## STEP 5: DETERMINE CONTROLS

You will address identified hazards in Element 3 by assigning methods of control to eliminate or reduce the hazard.

## STEP 6: REVIEW HAZARD ASSESSMENTS

Formal hazard assessments should be dated and subject to a regular review schedule to prevent the development of conditions that may put workers at risk. Ensure these reviews take place annually (at a minimum), or any time a new process is introduced, a change is made to the operation, or a significant addition or alteration is made to a work site.

To support the hazard assessment process, you should implement a system that requires workers to report any unsafe practices and conditions they identify at the work site. This can be done through the use of a safety suggestion box or by designating a worker as the contact for safety concerns. Address any suggestions or ideas received in a timely manner.

## Steps for Completing Your Field-Level Assessment

*Your workplace changes everyday and, therefore, so do your hazards.*

You perform a field-level hazard assessment at the job site when hazards not considered in the formal hazard assessment could be introduced. Ensure all workers at the job site participate in the field-level assessment with their supervisor. The field-level hazard assessment is conducted before work begins and repeated at reasonable intervals if a new work process is introduced, a process or operation changes or before significant additions or alterations. The steps include the following.

### STEP 1: IDENTIFY NEW HAZARDS

Before starting work on a new job site, or under unfamiliar conditions, workers must stop to identify any hazards that may have been introduced into their usual work.

### STEP 2: PUT CONTROLS IN PLACE

Any existing hazards are identified and assessed on the spot, and controls are put in place immediately to eliminate or reduce the risk to a reasonable level before work begins.

In many cases, a field-level hazard assessment will identify hazards that have already been identified and assessed through the formal hazard process, since the formal process should have identified all hazards that workers would normally encounter in the course of their work. If this happens, direct the worker to a pre-determined method of hazard control. If a new and unusual hazard, specific to the job or job site, is identified, you may have to identify and implement a new control method before work can begin.

When a new control method is required for a new or unusual hazard, you can then prioritize the hazard and determine if further preventative action needs to be conducted (such as revision of training, procedures and awareness bulletins).

## Conclusion

Before you move on to Element 3 and hazard control, make sure that you have completed an inventory of tasks on the farm and their associated risks.

Use the checklist on the next page to determine what you have done and what still needs to be done before you move on to Element 3, Hazard Control.



## Element 2

### Self Evaluation Checklist

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	Yes	No
I have a list of all jobs carried out at the work site.	<input type="checkbox"/>	<input type="checkbox"/>
I have compiled a list of all tasks associated with each job. I have identified health and safety hazards associated with all tasks.	<input type="checkbox"/>	<input type="checkbox"/>
I have assessed all hazards using the assessment scale.	<input type="checkbox"/>	<input type="checkbox"/>
I have prioritized health and safety risks using the prioritization scale.	<input type="checkbox"/>	<input type="checkbox"/>
I have involved workers in the process of hazard identification and assessment.	<input type="checkbox"/>	<input type="checkbox"/>
I have trained key workers in the process of hazard identification and assessment.	<input type="checkbox"/>	<input type="checkbox"/>
I have a process in place to update hazard assessments when there are changes to the operation or in response to inspection results.	<input type="checkbox"/>	<input type="checkbox"/>

# Appendix 2.1

## Example Hazard Assessment

**Job:** Vaccinating Cattle

**Date of Assessment:** April 14, 2014

1	2	3
Task	Steps (Optional)	Hazards
Moving cattle through facilities	Moving through alleys and chutes	<ul style="list-style-type: none"> <li>• Risk of physical injury — kicks, body or limbs being crushed, getting stepped on</li> <li>• Slip/trip/fall hazards in wet or muddy conditions Risk of contracting zoonotic disease, infectious bacteria, reactions to animal dander</li> <li>• Fatigue and stress causing lack of focus and human error</li> </ul>
	Operating gates	<ul style="list-style-type: none"> <li>• Pinch points at gate closure can crush fingers</li> <li>• Can be hit by gate or crushed by animals if cattle push back or run at gates</li> </ul>
	Operating head gate and squeeze	<ul style="list-style-type: none"> <li>• Risk of catching hands or fingers in pinch points on gate mechanisms</li> <li>• Hands and fingers can be crushed between animal and squeeze</li> <li>• Blunt force by animal rearing in chute or escaping failed gate</li> </ul>
Vaccinating	Needling cattle	<ul style="list-style-type: none"> <li>• Risk of needle sticks resulting in infection in open wound</li> <li>• Exposure to vaccines through absorption, ingestion, inhalation or injection</li> <li>• Risk of contracting zoonotic disease, infectious bacteria, reaction to animal dander</li> <li>• Repetitive motion and awkward positions can cause chronic pain</li> </ul>

4	5	6	7	8	9
F Frequency	S Severity	P Probability	Total (F×S×P)	Hazard Class	Controls
2	3	4	24	C	<ul style="list-style-type: none"> <li>• Use catwalks to keep handlers away from contact with cattle</li> <li>• Ensure handlers have good access to cattle without having to reach over or through chutes</li> <li>• Provide training on animal behaviour and handling</li> <li>• Wear non-slip footwear</li> <li>• Install non-slip flooring where possible</li> <li>• Use gravel in muddy areas</li> <li>• Wear gloves and practice good hygiene</li> <li>• Provide adequate respiratory protection for the job</li> <li>• Provide regular rest periods and rotate tasks</li> </ul>
2	2	4	16	D	<ul style="list-style-type: none"> <li>• Install easy-to-use gate latches</li> <li>• Build gates to withstand pressure of cattle</li> <li>• Ensure gates are free of sharp projections</li> <li>• Wear gloves</li> <li>• Operate gates from catwalk where possible</li> <li>• Have an escape route planned</li> </ul>
2	4	4	32	C	<ul style="list-style-type: none"> <li>• Provide squeeze chute training for operators</li> <li>• Test hydraulics and all moving parts before use</li> <li>• Do not allow working alone</li> </ul>
1	3	3	9	D	<ul style="list-style-type: none"> <li>• Keep hands and fingers out of path of needle</li> <li>• Use shielded needles</li> <li>• Use safe injection techniques on animal that is properly restrained</li> <li>• Place used needles directly into an approved sharps container (or use one-handed recapping method)</li> <li>• Wear protective clothing, latex or nitrile gloves, safety glasses or face shield</li> <li>• Rotate workers on a regular basis to avoid fatigue and complacency</li> </ul>



