



Farm and Ranch Safety and Health Association

**OCCUPATIONAL HEALTH AND SAFETY
RISK ASSESSMENT PROGRAM
FOR AGRICULTURE**

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Risk Assessment Program for Agriculture

Definitions of Commonly Used Terms in Risk Management

Hazard: anything, including a work practice or procedure, that causes, or has the potential to cause, injury, harm or illness.

Incident: any unplanned event resulting in, or having the potential for, injury, illness, ill health, damage or other loss

Near miss: an incident that does not produce an injury or disease.

Risk assessment: the process of determining the potential of a hazard to cause injury or illness and the potential severity of that injury or illness

Risk Control: the process of controlling risks associated with hazards by using the hierarchy of control.

Risk Management: the overall process of identifying hazards, assessing the risk of those hazards, eliminating or controlling hazards and monitoring and reviewing risk assessments and control measures.

Workplace Hazards and Due Diligence

What is the standard of due diligence? Due diligence simply means taking all reasonable care to protect the wellbeing of employees or co-workers. To meet that standard of due diligence you must take precautions that are reasonable in the circumstances so that you carry out your health and safety responsibilities.

An ongoing Occupational Health and Safety Program that controls specific hazards in your workplace forms the basis of due diligence. If you, as an employer have all the elements of the OHS Program for agricultural employers in effect and working you will generally be acting with due diligence. A written program won't amount to due diligence unless you have implemented it.

You will also have to take special steps to control specific hazards such as confined spaces, lockout etc. in order to show that you are exercising due diligence in particular circumstances. The greater the risk, the greater the need for specific policies, practices and other measures to control hazards.

Documentation will show that you took steps to control or eliminate specific hazards. It can also show that you have provided workers with adequate instruction, training, supervision, and discipline to work safely.

Why is Risk Assessment Important ?

Risk management is recognized as an integral part of a good management practice. It is an important step in protecting your workers and your business, as well as complying with the law. It is an interactive process consisting of steps which, when undertaken in sequence, enable continuous improvement in decision making. They help to:

- Create awareness of hazards and risks
- Identify who may be at risk (employees, visitors, contractors, the public) and the level of risk
- Comply with BC's Occupational Health and Safety Regulations (OHSR)
- Demonstrate due diligence

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- Determine what controls are required, or if the existing control measures are adequate.
- Prevent loss to the operation due to: injury, illness, lost production, equipment / property damage

When are Risk Assessments Required ?

Risk assessments are required at all stages of a work process including:

- Prior to establishing and using a workplace
- When planning and designing work procedures
- Before selecting purchasing, installing and using equipment
- Before changes are made to the workplace systems
- Whenever there is new information about the work procedure.

FARSHA has examined the full text of the *Workers Compensation Act* and *Occupational Health and Safety Regulation, (OHSR)* and identified the requirements that call for risk assessment.

Here is a list of those that are most likely to be found in agricultural workplaces, along with the section number from the *OHSR*:

- If the need to rescue or evacuate workers may arise (4.13)
- If risk factors for musculo-skeletal injury are present (4.47)
- If risk factors for workplace violence are present (4.28)
- If emergency eyewash or showers may be needed (5.88)
- If there's a risk of leak or fire in chemicals (5.99)
- If there are risks posed in pesticide handling (6.95)
- If workers face the risk of heat stress or cold stress, as the result of working in extreme temperature conditions (7.55)
- If there are confined spaces that might require worker entry (9.2)
- If there are high noise levels that, averaged over a workday, could result in hearing damage (7.4)
- If there's a risk of injury from unexpected movement of equipment or machinery during maintenance (10.3)
- If there's a risk of injury from falling from heights or onto unusual hazards (11.2)
- If work is being done near high-voltage lines or equipment (19.25)

If any of these are present in this particular workplace, the employer must do a risk assessment.

The following tables will assist to determine whether a risk assessment is required for the potential hazard identified in each box. Simply follow the instructions in each box

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Hazardous Materials

Are any of the following present in the workplace? (Tick any that are used or stored in the workplace or as part of workplace operations.)

- | | |
|---|--|
| <input type="checkbox"/> Fuels, lubricants
<input type="checkbox"/> Compressed gases (acetylene, oxygen, propane, etc.)
<input type="checkbox"/> Pesticides (herbicides, fungicides, baits, insecticides, etc.)
<input type="checkbox"/> Paints, solvents, coatings, varnishes | <input type="checkbox"/> Fertilizers (anhydrous ammonia, or others)
<input type="checkbox"/> Veterinary medications
<input type="checkbox"/> Sterilizers or cleaners
<input type="checkbox"/> Materials with WHMIS labels |
|---|--|

If yes to any of these, complete the section entitled Hazardous Materials. Implement a Workplace Hazardous Materials Information System (WHMIS) program, and include appropriate controls for all hazardous materials.

If no to all of these, write "not applicable" here: _____

Musculo-skeletal Injury Prevention

Do workers typically, in any job duties, encounter any of these conditions? (Tick any that are normally experienced.)

- | | |
|--|--|
| <input type="checkbox"/> Carrying heavy weights or unbalanced loads
<input type="checkbox"/> Animal handling, or carrying live animals (calves, lambs, etc.)
<input type="checkbox"/> Awkward or extended postures
<input type="checkbox"/> Twisting while lifting or holding weights
<input type="checkbox"/> Bending or stooping while working | <input type="checkbox"/> Gripping objects using a "pinch grip"
<input type="checkbox"/> Lifting or moving objects by moving wrist or elbow
<input type="checkbox"/> Repetitive movements
<input type="checkbox"/> Cold, wet, or slippery conditions
<input type="checkbox"/> Working with vibrating tools or equipment |
|--|--|

	Yes	No
Has the workplace experienced any claims for musculo-skeletal injury?	<input type="checkbox"/>	<input type="checkbox"/>
Does the commodity group experience a significant number of musculo-skeletal injury claims?	<input type="checkbox"/>	<input type="checkbox"/>

If yes to any of these, complete the section entitled MSI Prevention Program. Carry out a risk assessment and implement appropriate controls.

If no to all of these, write "not applicable" here: _____

Noise Control and Hearing Conservation

Is anyone exposed to noise levels that may be over 82 decibels over the course of an 8-hour day? (A rough way of identifying a damaging noise level is whether it's possible to hear normal human speech at arm's length early in the morning – if voices have to be raised to be heard clearly, the noise level is potentially damaging.)	<input type="checkbox"/>	<input type="checkbox"/>
Are there ever exceptionally loud noises such as hogs squealing, pesticide blast sprayers, engine backfires, etc.?	<input type="checkbox"/>	<input type="checkbox"/>
Has anyone in the workplace been diagnosed with noise-induced hearing loss?	<input type="checkbox"/>	<input type="checkbox"/>
Is there any indication that long-time workers or family members have a hearing loss?	<input type="checkbox"/>	<input type="checkbox"/>

If yes to any of these, the FARSHA consultant should carry out a basic noise level survey to determine whether a hearing conservation program is required. Complete the section entitled Noise Control and Hearing Conservation.

If no to all of these, write "not applicable" here: _____

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	Yes	No
Working Alone or in Isolation		
Does anyone in the workplace work alone in conditions that present a risk of disabling injury?	<input type="checkbox"/>	<input type="checkbox"/>
Would the worker be unable to get help (on his or her own) in an emergency or if injured?	<input type="checkbox"/>	<input type="checkbox"/>
Is anyone out of contact for periods of time while there is a risk of disabling injury?	<input type="checkbox"/>	<input type="checkbox"/>
If yes to any of these, complete the section entitled Working Alone or in Isolation. Carry out a risk assessment, and implement appropriate controls.		
If no to all of these, write "not applicable" here: _____		
Workplace Violence Prevention		
Does anyone in the workplace have direct interaction with the public and dispense alcohol? (This may be the case if a vineyard provides a wine tasting room, for instance.)	<input type="checkbox"/>	<input type="checkbox"/>
Does anyone in the workplace have direct interaction with the public and handle money? (This may be the case if there are farm gate sales, or if an orchard also operates a fruit stand, for instance.)	<input type="checkbox"/>	<input type="checkbox"/>
Does anyone in the workplace have direct interaction with the public, and work alone or in isolation from others from the workplace? (This may be the case with agri-tourism, farm tours, farm gate sales or display rooms, for instance.)	<input type="checkbox"/>	<input type="checkbox"/>
If yes to any of these, complete the section entitled Workplace Violence Prevention. Carry out a risk assessment, and implement appropriate controls.		
If no to all of these, write "not applicable" here: _____		
Confined Spaces		
Using the WorkSafeBC definition, are there any confined spaces on the workplace property?	<input type="checkbox"/>	<input type="checkbox"/>
Is it possible to enter any of these spaces? ("Entry" meaning the face or head could be exposed to an atmospheric hazard. Entry is considered possible if the space has not been secured.)	<input type="checkbox"/>	<input type="checkbox"/>
Do any of these spaces ever require worker entry (now or foreseeably in the future)?	<input type="checkbox"/>	<input type="checkbox"/>
If yes to any of these, complete the section entitled Confined Spaces. Carry out a risk assessment, and implement appropriate controls.		
If no to all of these, write "not applicable" here: _____		
Documentation of Responsibilities Between Owner and Farm Labour Contractor		
Does this employer have workers who come through a farm labour contractor?	<input type="checkbox"/>	<input type="checkbox"/>
Does this employer have an agreement with the Seasonal Agricultural Worker Program or any other government-sponsored temporary worker program?	<input type="checkbox"/>	<input type="checkbox"/>
Is this employer a farm labour contractor?	<input type="checkbox"/>	<input type="checkbox"/>
If yes to any of these, complete the section entitled Documentation of Responsibilities Between Owner and Contractor.		
If no to all of these, write "not applicable" here: _____		

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Types of Risk Assessments

Comprehensive: Specific Hazards Identified in BC's Occupational Health and Safety Regulations (OHSR)

In many instances risk assessments are required to be carried out, in accordance with BC's Occupational Health and Safety Regulations to determine if those particular hazards are present (those instances have already been listed above). If those hazards are present they may require a more specific and comprehensive form of risk assessment, and in some cases they may have to be performed by a qualified person. For these types of risk assessments FARSHA can provide advice or assistance.

Standard: Non-specific Hazards (not specifically identified in the OHSR)

Where there is potential for a hazard to cause injury or illness a standard risk assessment will be carried out.

Undertaking a Risk Assessments:

PROCESS:

Identify the hazards - *Recognize*

Evaluate the level of risk - *Evaluate*

Control the hazard and eliminate or reduce the risk - *Control or Manage*

Recognize:

What is/are the hazards? A hazard can be identified by observation, inspection, testing, communication and consultation with staff or by reviewing injury statistics, incident investigations, and recording the hazards identified.

Review the OHSR requirements for risk assessment list on page 2

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Evaluate:

During the evaluation process we need to assess the risk that the hazard presents. Each hazard should be studied to determine its level of risk, when doing so there is several factors that play an important role and need to be prioritized, and that will require action. For each risk:

- ❖ Determine the **likelihood** of an incident occurring
 - **Very Likely** Could happen frequently
 - **Likely** Could happen occasionally
 - **Unlikely** Could happen but rarely
 - **Very unlikely** Could happen, but probably never will

Consider for example:

- The number of times a situation occurs
- The number of people exposed and the duration of exposure
- The skills/experience of persons exposed
- The position of the hazard relative to people and other hazards
- Special characteristics of workers that may affect the likelihood of an incident
- The quantities of materials or point of exposure
- Environmental conditions
- The condition of equipment
- The effectiveness of existing control measures

- ❖ Determine the **consequences** of an incident occurring
 - **Extreme** Death, permanent disablement
 - **Major** Serious bodily injury
 - **Moderate** Casualty treatment
 - **Minor** First aid, no lost time work

Consider, for example:

- The potential for chain reaction (where a hazard can evolve and compound into more dangerous situation)
- Substance concentration
- Material volume
- Speed of projectiles or moving parts
- Height of worker or lanyard
- Worker position relative to the hazard

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- Weight of worker or hazard
- Forces and energy level

Rating Risk:

In order to determine the significance of a hazard, it is first necessary to rate the hazard, based on "how likely could it happen", and "how severely could it hurt someone".

This can quite simply be accomplished using the "RISK ASSESSMENT RATING MATRIX" on page seven.

Using the matrix table, a hazard is rated based on likelihood and consequences. As explained on page six there are various degrees of likelihood, as well as, various degrees of consequences, both of these are used in the matrix to assess the level of risk. They are ranked by column and row from the highest risk level to the lowest risk level.

The person using the matrix must do a thorough analysis to ensure they understand all aspects of the hazard including all tasks and work associated with the hazard. With that information in mind, the person must make judgment calls, and select where the hazard fits in the matrix depending on the degree of likelihood and consequence of an injury. That should produce a number anywhere from one to seven, one being the highest degree of risk, and one the lowest; use the examples on page six for assistance.

When a degree of risk from one to seven has been selected, refer to the box at the bottom of page seven to determine whether the hazard has a HIGH, MODERATE or LOW level of risk. Depending on which level of risk is appropriate it will also advise when to take action.

The matrix rating system will also assist to prioritize action if there is more than one hazard being considered.

Once the applicable level of risk (HIGH, MODERATE or LOW) has been established the level of risk will be entered in the "risk" column when completing the "STANDARD RISK ASSESSMENT WORKSHEET" or when conducting a more comprehensive risk assessment.

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Likelihood: How likely could it happen	Consequences: How severely could it hurt someone			
	Extreme Death, permanent disablement	Major Serious bodily injury	Moderate Casualty treatment	Minor First aid only, no lost time
Very Likely Could happen frequently	1	2	3	4
Likely Could happen occasionally	2	3	4	5
Unlikely Could happen but rare	3	4	5	6
Very Unlikely Could happen, but likely never will	4	5	6	7

Use the ratings for each risk to develop a prioritized list of workplace risks requiring action

The scores (1 – 7) indicate how important it is to do something about each risk

1,2,3 HIGH, do something about these immediately
4,5 MODERATE, do something about these risks as soon as possible
6,7 LOW, these risks may not need immediate attention

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Manage/Control :

The Hierarchy of Control will assist in determining the most appropriate course of action to control the risk identified. The Hierarchy of Control ranks risk control strategies from the most effective to the least effective. Not all strategies will be practicable and a combination of strategies may be needed to achieve the best protection, for example ventilation and gloves.

Engineered Control

Where a hazard cannot be simply eliminated from the workplace, it is often still possible to reduce the risks by designing safeguards to be built in to the equipment. This involves controlling the hazard right at the source, by adding safety features to machinery, by redesigning a system or task, or by building a containment or enclosure to isolate the hazard from people.

A familiar example is the great reduction in noise with enclosed tractor cabs - this is an example of an engineered solution to a long-standing hazard.

Control measures that are "built in by design" are very reliable, and their success does not depend on individual judgment, training, or decision-making.

Administrative Control

Where engineered controls are not possible (for instance, when still using older, less-safe equipment, or when work is done in buildings that cannot easily be remodeled), the next best alternative is an administrative or procedural control. These involve the use of policies or procedures to reduce the exposure to the hazard. Administrative controls include job rotation, reduction of exposure time, and worker training and education. An employer may decide to adopt a company policy that requires everyone to follow a certain procedure, as a way of reducing the risk of injury.

However, administrative controls may not be a very effective means of controlling hazards. Administrative controls depend on too many factors that cannot be predicted. People may not understand the seriousness of a hazard or they may underestimate a risk. They may not remember all the steps of a procedure. They may feel pressure to "cut corners."

You must be **especially** vigilant with administrative controls to ensure that workers' exposure to the hazard is effectively controlled.

Personal Protective Equipment

The decision to use personal protective clothing or gear is a last resort, when it's not possible to control a hazard or reduce a risk in any other way. Actually, it's an admission that the hazard still remains, and that the risk cannot be reduced at its source.

To be effective, workers who use personal protective equipment (PPE) must understand the hazards, and must accept the importance of using protective equipment consistently and correctly.

As well, special efforts must be made to ensure that personal protective equipment is chosen, used, and maintained correctly.

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Choosing the Right Control for Each Hazard and Risk

In many cases, hazard controls are already built in by design, so there's not much more for the employer to do.

However, in some situations, employers are expected to **choose** a hazard control that's appropriate to the situation. Wherever this is the case, the *Occupational Health and Safety Regulation* requires you to follow the order of the hierarchy of controls, and adopt the **most effective** method possible in the circumstances.

The employer is responsible for choosing an appropriate method of control for these hazards.

A hazard control is considered appropriate if it:

- Is tailored to the hazard and level of risk in a given situation
- Meets the intent of the law
- Is workable for the workplace, given its size and resources.

Monitor and review the Effectiveness of Measures

Determine whether chosen control measures are implemented as planned.

- ❖ Are chosen control measures in place?
- ❖ Are these measures being used?
- ❖ Are they being used correctly?

Determine whether chosen control measures are working.

- Have changes, made to control exposure, resulted in what was expected?
- Has exposure to the assessed risks been eliminated or adequately reduced?

Determine whether there are any new problems.

- Have the implemented control measures resulted in the introduction of any new problems or in the worsening of any existing problems?

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Conducting a Standard Risk Assessment :

For standard risk assessments there is no need to overcomplicate the process. In many workplaces the hazards are well known and the necessary controls are easy to apply.

In the case of a small operation, the manager / supervisor may be confident and understand what's involved and can do the risk assessment themselves, or they may request FARSHA's assistance.

Larger operations may require a FARSHA consultant to help, particularly for comprehensive risk assessments.

Assessments should be done by a team of individuals who have a good working knowledge of the workplace. In all cases workers who are associated with the hazards should be involved in the process. They will have useful information about how the work is done, which in turn, will make the risk assessment more thorough and effective.

On page eleven there is a blank "Standard Risk Assessment Worksheet" (SRAW). This tool will provide a mechanism to recognize evaluate and control hazards in a systematic way.

A standard risk assessment should be undertaken on all tasks that have the potential to cause injury or illness. The task must be analyzed from start to finish and documented on the SRAW. All of the hazards associated with the task should be individually identified in the hazards column. Using the Risk Assessment Rating Matrix on page 8, and the information provided to employ it, a level of risk (low, moderate or high) is entered in the risk column adjacent each hazard. Finally, using the information on pages nine and ten, an appropriate method of control, based on the risk level, must be decided on, for each hazard, using the "Hierarchy of Control". As discussed on page eight the control will require either immediate attention, as soon as possible attention, or may not need immediate attention. This information must be included in the control column. An example has been provided on page 12.

After conducting several risk assessments, and the principals of conducting them are well understood, all that the assessor should require is the "Risk Assessment Rating Matrix" and "Standard Risk Assessment Worksheets"

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STANDARD RISK ASSESSMENT WORKSHEET			
Company: _____		Work Place Location: _____	Date: _____
Prepared by: _____			
TASK	HAZARD	RISK	CONTROL
Other Recommendations: _____ _____ _____			

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STANDARD RISK ASSESSMENT WORKSHEET - EXAMPLE

Company: XYZ Potatoes

Work Place Location: Potato Harvester

Date: September 2, 2010

Prepared by: Johnny Twotoes

TASK	HAZARD	RISK	CONTROL
Sorting potatoes on a potatoes harvester as the machine is moving, and ensuring that the vines don't clog the equipment.	Sorting potatoes beside a running conveyor	Moderate	Wear tight fitting clothing with no dangling jewelry, laces or hair
	Getting on and off the harvester as it's moving	Moderate	Maintain a two point contact while mounting and dismounting the harvester.
	Unguarded chain drives present when clearing vines	High	Stop doing the task until all chain drives are properly guarded
	Unguarded driveshaft's present while clearing vines	High	Stop doing the task until all drive shafts are properly guarded
	Making machines adjustments	High	Adjustments are not to be made until the equipment is locked-out
	Working in sunlight	Low	Wear a hat and sunscreen

Other Recommendations: Before each shift ensure all guards are in place, clear vines and other debris and make necessary adjustments. Give potato harvester safe work guidelines to workers. Conduct an orientation for new workers.