

RISK MANAGEMENT PROCEDURE



Risk Management

The fact we get out of bed in the morning presents a hazard to us, because of the environment in which we live, the nature of the hazard multiplied by the frequency and time we are exposed to the hazard will determine the severity and degree of risk that we will be exposed to.

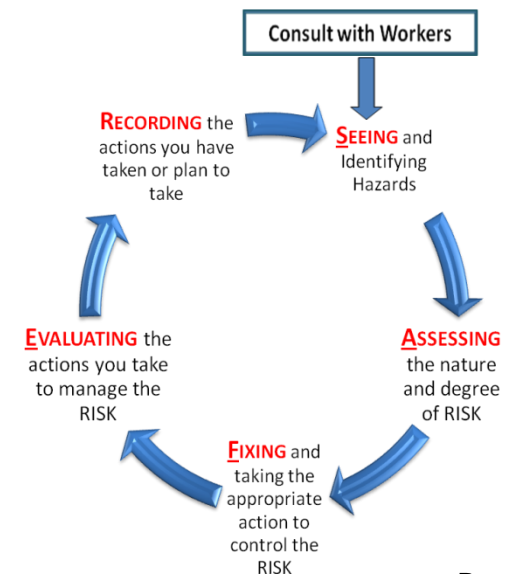
Managing risk is something we do every day. If we go to cross a road, we assess the situation instead of blindly stepping into the path of oncoming danger. We check to see if there are any vehicles on the road (hazards) and assess whether we had enough time to cross before the vehicle was upon us (risk assessment). Given this information, we might decide that the degree of risk is too high and we will walk further up the road to a pedestrian crossing (a procedural control). Before crossing the pedestrian crossing and while crossing, we might again check for oncoming vehicles. In this case, we would be reviewing the chosen control measure.

From this example, we can see that risk management is not an uncommon or complex task. We all use risk management frequently to make decisions in our day-to-day lives. We do this without any conscious effort. For example the decision to avoid a charging beast is made on the spot. You don't sit down with a pad and pencil and conduct a formal written risk assessment to work out that the charging bull will run over you if you don't get out of the way.

Many risk situations that you will meet in your day-to-day primary production activities are resolved on the go. In other situations you may make a more formal risk assessment.

Irrespective of the type of risk assessment you are undertaking you are applying the **S.A.F.E.R.** principals of risk management.

- **See** it, Identify hazards to health and safety in the workplace
- **Assess** the nature and degree of risk associated with the hazard
- **Fix** it, Take appropriate action to manage and control the risk
- **Evaluate**, the actions you have taken to manage the hazard and control the associated risks
- **Record** the action you have taken or plan to take



RISK MANAGEMENT PROCEDURE

Now let's assess the task of a farmer setting out to undertake a chemical spray application using a typical, tractor-mounted hydraulic boom spray. A number of hazards with varying degrees of exposure to risks are immediately presented by the use of this plant and the associated hazardous substances. Use Farmsafe's Tractor Hazard Checklist to complete this risk assessment procedure.

STEP 1. Firstly let's **See** some of the hazards we could be exposed to:

1. The Tractor

- Is a ROPS fitted? (Extreme risk if not)
- What type of cab is fitted, is it air-conditioned, does it leak dust and chemical vapours?
- Is an approved and maintained chemical filter installed?
- Is the tractor in good mechanical condition? (For instance do the brakes work)
- Is the PTO shaft guarded?
- Is hearing protection and appropriate training provided by the employer (no cab)?

2. The Spray Equipment

- Is the equipment in good mechanical condition;
- do hoses, pumps and filters leak;
- has the spray tank been cleaned down from the last job;
- Are the nozzles clean, calibrated and functioning within their design tolerances, are filters clean and adequate for the spray job to be undertaken.

Managing Farm Safety – Risk Management – Tractor Hazard Checklist Page 2 of 5

TRACTORS IDENTIFIED HAZARDS	OK or NA	EXTREME (STOP WORK)	HIGH (STOP)	MODERATE (PLAN)	LOW (REVIEW)
4. Are the power take-off (PTO) outlets and drive shafts guarded and fitted with protective covers?		X			
5. Are all appropriate guards, including manufacturer's guards, in place and in good condition?	OK				
Pre-Operational					
5. Are operator manuals readily available for the tractor?	OK				
6. Are daily pre-operational checks made before using the tractor?	OK				
7. Are tractor operators able to adjust the tractor seat to their individual requirements?	OK				
8. Is an activated charcoal filter fitted to tractor cabins when used for agricultural chemical application?	OK				
9. Are brake and steering systems functional and within safe operating limits?	OK				
10. Are all fittings clean and in working order? Headlights, reflectors, windscreen, rear-view mirrors, etc.	OK				
11. Are the steps and handrails on the tractor in adequate condition to prevent slips, trips and falls?	OK				
12. Is the exhaust system functional to protect the operator from noise and exhaust gas exposure?	OK				
13. Are all hydraulic hoses sound and undamaged with no fluid leaks from hoses or couplings?	OK				
14. Is the tractor's ballast and tyres checked to ensure optimal operational safety?	OK				
15. Are Manufacturers' recommendations for attachment followed when using rear-mounted implements on tractors?	OK				
16. Are all chains and slings checked prior to their use for signs of wear and/or damage?	OK				

© Farmsafe Queensland Ltd 2002 Ver. 2157

Note: Equipment hygiene and maintenance should be at a standard where it is not necessary to clean or remove nozzles during a spray operation. Where a hazard has been identified an assessment of the risk associated with the hazard must be made. The degree of risk is a combination of the potential severity of injury and the frequency of the exposure to the hazard. The table below provides a framework to assist you in assessing risk.

RISK MANAGEMENT PROCEDURE

STEP 2. Now we assess the risks we have seen, *the PTO to the spray pump is not guarded*, we do this by using a risk calculator.

1. First we have to **assess** how serious the injury might be. If you were entangled in a PTO shaft what would your injuries be? Using the far left column would your injuries be Minor? No - the type of injury would fall in the **CATASTROPHIC - death or permanent disability** box.
2. **Secondly** what is the **LIKELIHOOD**, how many times is the equipment used or the process done; this is called frequency, use the RISK CALCULATOR below to select the frequency. The tractor is in use on a fruit & veggie farm on a **DAILY basis** so the **Likelihood** of becoming entangled in the unguarded PTO is **POSSIBLE - might occur at some time**.

RISK CALCULATOR	LIKELIHOOD – The likelihood of the exposure causing injury to a person given the frequency of exposure				
CONSEQUENCES How severely could it hurt someone	ALMOST CERTAIN <small>Is expected to occur in most circumstances</small>	LIKELY <small>Will probably occur in most circumstances</small>	POSSIBLE <small>Might occur at sometime</small>	UNLIKELY <small>Could occur at sometime</small>	RARE <small>May occur in exceptional circumstances</small>
CATASTROPHIC <small>Death or permanent disability</small>	EXTREME	EXTREME	EXTREME	EXTREME	HIGH
MAJOR <small>Serious bodily injury</small>	EXTREME	EXTREME	EXTREME	HIGH	HIGH
MODERATE <small>Casualty Treatment</small>	EXTREME	HIGH	HIGH	MODERATE	MODERATE
MINOR <small>First aid only, no lost time</small>	HIGH	HIGH	MODERATE	LOW	LOW
INSIGNIFICANT <small>No injuries</small>	HIGH	MODERATE	LOW	LOW	LOW

Figure 1

Using the **Risk Matrix - Figure 1** we go down the **POSSIBLE** column and across from the **CATASTROPHIC** box and we end up with an **EXTREME** risk where they cross.

RISK MANAGEMENT PROCEDURE

Now that we have determined the level of Risk, in this case Extreme, we must use the **Hierarchy of Control** to determine the control actions that we will use.

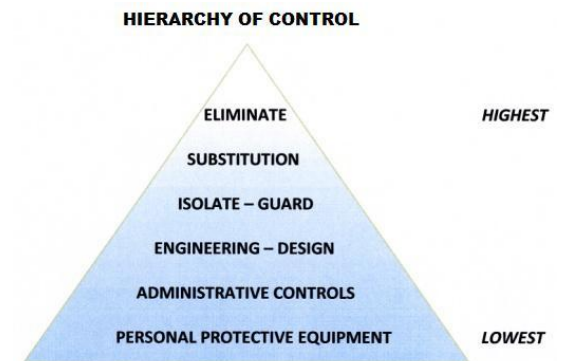
Reading from the table below we see that an **EXTREME RISK** requires us to **act now**, to do this we must use *The Hierarchy of Control*.

RISK CLASS	ACTION REQUIRED
OK or Not Applicable	No Foreseeable Risk - OK for now; Review if any equipment/people/materials/work methods or procedures change. Or this particular inspection item is Not Applicable to this workplace
EXTREME	Extreme Risk - Act Now Do something about these risks immediately. Stop the task until the hazard is controlled and the risk managed.
HIGH	High Risk - Act As Soon As Possible. Do something to manage these risks as soon as possible. Consultant with Management
MODERATE	Moderate Risk - Develop a PLAN to manage these risks / note any suggestions on how the risk might be managed.
LOW	OK for now Review if any equipment/people/materials/work methods or procedures change.

Figure 2

STEP 3. Now that we have **Seen** and **Assessed** the hazards let's use *The Hierarchy of Control* to **Fix** the identified hazards. The preferred methods of Risk Management control starts at **A.** the most effective method of control to **F.** the least effective control, they are as follows:

- A. Elimination** - removing the hazardous substance from the workplace may eliminate exposure to a hazardous chemical. A good example of elimination is the adoption of Integrated Pest Management programs.
- B. Substitution** – The substitution of a less toxic chemical may be considered if occupational exposure cannot be effectively controlled. i.e. substituting glyphosate for paraquat.
- C. Isolation / Separation (Guarding)** – Separation of the process can be by distance from the rest of the workplace or by a physical barrier between the process and the person.



RISK MANAGEMENT PROCEDURE

Examples include:

- separate chemical mixing areas with limited access to all but appropriately authorised persons;
- use of air-conditioned tractor cabs with activated carbon filters
- shielding spray equipment so that the operator is separated from drift exposure
- Guards fitted to rotating parts such as the PTO

D. Engineering – engineering controls could be used in some of the following ways:

- To minimise the generation or emission of a chemical;
- To suppress or contain a chemical, or;
- deliver the chemical in a way that reduces off-target drift (nozzle selection i.e. the use of low-drift nozzles)

Examples of engineering controls include:

- changing nozzle parameters and hydraulic pressures that will alter droplet size that may result in less risk from drift exposure.
- using an extraction ventilation system over a fruit dipping bath to remove droplets and vapour from the workplace.
- fitting a spray applicator with a chemical mixing device such as a closed system drum pump or a chemical mixing hopper.

Engineering Design Controls – The use of design allows hazards to be designed out and control measures to be designed in.

Examples of design include:

- A PTO guard that has been designed so that there are no ‘nipping points’ where persons or their clothing can be caught;
- Changing the design of a spray applicator i.e. lower profile tank, fitting access ladders and hand holds will all help lower the risk of exposure to chemical spillage by the operator;
- Situating the spray booth on a banana sorting wheel outside a packing shed with good natural or mechanical ventilation

RISK MANAGEMENT PROCEDURE

E. Administrative – Administrative controls are “policy” or behavioural type controls that should be put into place by the employer in their workplace. Often these controls are referred to as ‘methods of work’ or procedural controls.

Examples of Administrative Controls include:

- ❖ Policy requiring the wearing of appropriate PPE as per the Label and Safety Data Sheets (SDS) directions;
- ❖ Reducing the number of persons exposed and excluding non-essential personnel from access to chemicals especially in the mixing area;
- ❖ Ensuring that chemical application activities are carried out at the most appropriate time of the day;
- ❖ Providing and ensuring the use of adequate facilities for effective decontamination;
- ❖ Ensuring that crop re-entry periods are strictly observed and field workers are removed before a spray application commences (especially aerial operations); and
- ❖ Ensuring used containers are disposed of in accordance with label directions and hazardous substances are stored in an approved manner.

F. Personal Protective Equipment (PPE) – The control of exposure to a chemical should be secured by one or more methods other than provision of personal protective equipment. However label requirements mostly require the wearing of some form of PPE, particularly when mixing the chemicals.

In most cases the **exposure to a hazardous substance** will entirely controlled by Substitution, Separation or Engineering or Design therefore the operator must be provided with good quality and well-maintained PPE and instructed in the appropriate use of such equipment.

Remember: *Under the Queensland Work Health and Safety Act 2011; Section 17* – Person conducting a business or undertaking (PCBU) has an obligation to “**Manage Risks**” and Section 19 “**primary duty of care**”.

Under Section 28 of the Act – **A Worker** has an obligation that to do nothing to harm themselves or others in the workplace. This requirement includes wearing PPE that is provided by the employer or PCBU.

The Control selected from *The Hierarchy of Control* to **Fix** the hazard would be **C - Isolation / Separation (Guarding)**, we would fit a PTO shaft guard.

RISK MANAGEMENT PROCEDURE

STEP 4. Now the hazards were **Seen, Assessed** and **Fixed** the risk to manage the hazard we now need to **Evaluate** the control measure during or after their implementation. This is done by repeating the steps **See it, Assess it and Fix it**, to see if the risk exposure is reduced to a lower level. Using our example the worker is not exposed to the rotating shaft of the PTO daily because it is guarded, so the **likelihood of injury occurring in exceptional circumstances** would be assessed as **RARE**.

RISK CALCULATOR	LIKELIHOOD – The likelihood of the exposure causing injury to a person given the frequency of exposure and consequence?				
	ALMOST CERTAIN <i>Is expected to occur in most circumstances</i>	LIKELY <i>Will probably occur in most circumstances</i>	POSSIBLE <i>Might occur at sometime</i>	UNLIKELY <i>Could occur at sometime</i>	RARE <i>May occur in exceptional circumstances</i>
CONSEQUENCES How severely could it hurt someone					
CATASTROPHIC <i>Death or permanent disability</i>	EXTREME	EXTREME	EXTREME	EXTREME	HIGH
MAJOR <i>Serious bodily injury</i>	EXTREME	EXTREME	EXTREME	HIGH	HIGH
MODERATE <i>Casualty Treatment</i>	EXTREME	HIGH	HIGH	MODERATE	MODERATE
MINOR <i>First aid only, no lost time</i>	HIGH	HIGH	MODERATE	LOW	LOW
INSIGNIFICANT <i>No injuries</i>	HIGH	MODERATE	LOW	LOW	LOW

We now see that any injury consequence would be **INSIGNIFICANT**. Going down the **RARE** column and across from the **INSIGNIFICANT** box we find the risk is now rated as **LOW**.

The risk is now acceptable.

RISK MANAGEMENT PROCEDURE

Step 5. The most important step to complete your Risk Assessment is to **Record** your assessment procedure In the Risk Assessment and Management Records at the end of your Hazard Checklist. **1 - Record the identified hazard;** **2 - Chose the controls** to manage the hazard; **3 - Implement the chosen Controls** By using the Hazard Checklist and keeping them in a folder you have recorded your Risk Assessment. Remember to keep a copy of the identified re-evaluated risks with your original Hazard Checklist.

RISK ASSESSMENT AND MANAGEMENT RECORD									
HIERARCHY OF CONTROLS PLANNED OR IMPLEMENTED									
Item #	Date	Identified Hazard	Assessed Risk Level	CONTROL 1 Eliminate	CONTROL 2 Substitute	CONTROL 3 Isolate or Guard	CONTROL 4 Redesign or Engineering	CONTROL 5 Administration	CONTROL 6 PPE
3	10/04/11	Unguarded PTO shaft poses high level of exposure to workers	Extreme	NA	NA	Isolation – fit PTO guard	NA	Include instruction in SWP that operator is to disengage the PTO before moving from the tractor seat.	NA

Management requires a **follow up assessment of the performance of the PTO shaft guard**, this is to ensure the guarding is operational and the assessed risk is still acceptable (Low).

Item #	RISK MANAGEMENT ACTION REQUIRED	Responsible Person	Cost \$	Target Date	Date Actioned	Revised Risk Level after Action
3	Purchase new PTO shaft guard for the Sprayer	Fred Nurk	\$120	20/05/11	18/05/11	Low

This example risk assessment was a simple exercise to show you the process to follow for other more complicated Hazards in the workplace.

There are more Hazard Checklists available at Farmsafe Queensland's web site www.farmsafe.com.au click on Resources. **For more information contact us on 1300 737 470**