



# PROPERTY RISK ASSESSMENT



Livestock Production Assurance

The Livestock Production Assurance (LPA) program is the Australian livestock industry's on-farm program covering food safety, animal welfare and biosecurity. It is part of the integrity system used by the red meat industry to meet the stringent requirements of our domestic and export markets. Customer confidence in Australian red meat underpins the success and growth of Australia's livestock industry, and protects the livelihoods of more than 180,000 producers.

When producers become LPA-accredited, they are promising to meet LPA's requirements and fulfil their responsibility in the production of safe and ethical red meat. **Property risk assessment** is just one of seven elements that farmers need to satisfy to become LPA-accredited.

**Every LPA-accredited producer must undertake risk assessments to minimise the risk of livestock being exposed to sites that are unacceptably contaminated with persistent chemicals, pathogens from recycled water, or physical contaminants.**

## What are persistent chemicals?

Persistent chemicals are substances that stay in the environment and may become concentrated within people and animals through food systems. They may have a serious adverse impact on human health, the environment and trade.

## How long do persistent chemicals remain a problem?

Persistent chemicals break down very slowly. Areas contaminated with persistent chemicals may have to be managed for decades, depending on the chemical involved, climate and soil type. Lead, arsenic and cadmium do not breakdown, although their levels may reduce over time as a result of dilution or leaching.

## Predominant persistent chemicals found on Australian farms:

### Organochlorine pesticides (OCs)

Common cause: *Previously used for a range of agricultural, horticultural and pest control uses. Include Aldrin, BHC, chlordane, DDT, dieldrin, HCB and heptachlor.*

Lifetime effect: *Can persist in treated areas for decades after use.*

### Polychlorinated biphenyls (PCBs)

Common cause: *Historically added to transformer oils, electrical capacitors and some hydraulic oils, as fire retardants. See [www.dcceew.gov.au/environment/protection/publications/monitoring-pcbs-australia](http://www.dcceew.gov.au/environment/protection/publications/monitoring-pcbs-australia)*

Lifetime effect: *Can persist for decades. Accumulates in fatty tissue.*

## Lead

Common cause: *Old batteries are the most common source of lead poisoning for farm animals, also through stock having access to lead sources such as sump oil or old lead-based paint, commercial painted surfaces, 200L drums, machinery, sheds, old baths etc.*

Lifetime effect: *Does not breakdown.*

## Arsenic

Common cause: *Old arsenic compounds discarded in farm rubbish tips or kept in old buildings.*

Lifetime effect: *Does not breakdown. Clears relatively quickly from the tissues of recovered animals, but may take months for excessive residues to clear from the liver and kidney of animals.*

## Cadmium

Common cause: *Found naturally in some soils, present in some phosphate fertilisers, particularly those made from rock phosphate or guano of marine origin. More information can be sourced from [www.cadmium-management.org.au](http://www.cadmium-management.org.au)*

Lifetime effect: *Accumulate in liver and kidney tissue.*

## What is recycled water? Why can it be a problem?

Recycled water refers to water recycled from sewage or other water sources containing human faecal material and supplied from a wastewater treatment plant under an agreement. This excludes on-farm household greywater and septic systems or stormwater. The use or accidental exposure of cattle to inadequately treated recycled water needs to be managed to minimise the risk of beef measles (*Cysticercus bovis*) infection in cattle.

## LPA REQUIREMENTS

- #1 **PROPERTY RISK ASSESSMENT**
- #2 SAFE & RESPONSIBLE ANIMAL TREATMENTS
- #3 STOCK FOODS, FODDER CROPS, GRAIN AND PASTURE TREATMENTS
- #4 PREPARATION FOR DISPATCH OF LIVESTOCK
- #5 LIVESTOCK TRANSACTIONS & MOVEMENTS
- #6 BIOSECURITY
- #7 ANIMAL WELFARE

## What?

As a livestock producer, you must ensure the animals you sell do not have unacceptable residues of these chemicals.

**You must ensure stock do not have access to old batteries, farm rubbish tips, old painted timbers, commercially painted surfaces (e.g., 200L drums), machinery and any potential chemical storage or disposal area. Securely fence fertiliser storages and stockpiles to prevent stock access and dispose of old batteries at an authorised recycling depot. You must also ensure they have not been exposed to potentially injurious physical contaminants such as broken needles, buckshot or wire.**

### To demonstrate this you must:

- Complete a risk assessment and map – and update it when any changes to the enterprise's activities occur
- Document and file this risk assessment

## How?

The risk assessment involves answering ten questions, and completing a risk map of the property, to ensure a livestock producer is doing all they can to prevent unacceptable levels of persistent chemicals or physical contaminants entering the meat they produce.

Responses to the risk assessment questions and the map must be documented and filed, and both made available should the property be subject to an LPA audit. Templates to assist you with your record keeping are available on the ISC website at [www.integritysystems.com.au/recordkeeping/](http://www.integritysystems.com.au/recordkeeping/).

## When

The risk assessment must be carried out when any changes to the enterprise's current activities occur.

## Why?

Australia's food safety record is essential to consumers of red meat, both locally and in the countries we export to. Food safety and quality is fundamental to the future of the red meat industry.

If livestock come in contact with persistent chemicals, the meat they produce may contain unacceptable chemical residues. This puts the entire industry at risk.

Physical contaminants could also cause harm to those consuming the meat.

There is an increased risk of cattle developing beef measles (*C. bovis*) if they are exposed to inadequately treated recycled water. *C. bovis* poses a food safety risk to humans and infected carcasses can be partly or fully condemned at processing.

Any food safety issue has the potential to impact consumers and puts the entire industry at risk.

At the producer level, repercussions may include failure to be paid for the livestock, and possible legal responsibility for the resulting costs faced by processors and the rest of the supply chain.

## Checklist:

1. *Have OC residues ever been found in stock from this property or in soil or other material samples from the property?*

Yes  No  Unsure

If a significant chemical residue is found or suspected in livestock or other agricultural products, state government departments may carry out an on-farm investigation to determine the source of the residue and the actions needed to prevent future problems.

If the residue is due to a persistent chemical, management arrangements are needed to prevent future problems are usually set out in a formal management plan. Under the National Organochlorine Residue Management Program (NORM), regular audits are undertaken to confirm ongoing compliance with OC residue management plans required on LPA accredited properties.

Even if residues have not been found, you are still required to complete the full risk assessment.

### Learn more

A dedicated module within LPA Learning explains what you need to know regarding LPA's requirements for on-farm risk assessment for persistent chemicals and physical contaminants. Information is also provided on the ISC website ([www.integritysystems.com.au/on-farm-assurance/property-risk-assessments/](http://www.integritysystems.com.au/on-farm-assurance/property-risk-assessments/)).

2. *Do stock have access to areas where bananas, cotton, corn, potatoes, lucerne, orchard crops, sugar cane, tobacco, vegetables or other potentially OC-treated crops were grown prior to 1998?*

Yes  No  Unsure

Land that previously grew OC-treated crops can contain enough residual OCs to cause unacceptable OC residues in grazing livestock. These areas should only be grazed in accordance with an approved NORM program property management plan.

Most producers will need professional assistance to develop and evaluate a management plan for livestock that have previously grazed on OC-affected land. This assistance can be provided by state DPIs.

3. *Do stock have access to any timber buildings, sheds, yards, power poles, stockyards or other structures, which may have been treated against termites before July 1995?*

Yes  No  Unsure

Soil and timber can contain high concentrations of OCs in areas where OCs were previously used to treat termites, ants and similar pests. Stock held or fed in areas where there are high levels of OCs can develop unacceptable OC residues after less than 24 hours exposure.

Stock should not be grazed or held in these areas unless adequate steps have been taken to demonstrate that using the area for these purposes does not carry a residue risk.

**4. Is there a dip or spray race - working or not - on the property which was built or operated before 1990?**

Yes  No  Unsure

OCs were used to control external parasites on sheep and cattle until the early 1960s and arsenic used in sheep dips until the late 1980s.

It is essential that livestock are excluded from these areas unless soil tests confirm the areas only have insignificant contamination, or stock are only exposed to the contaminated area in accordance with the provisions of an effective residue management plan/property management plan.

**5. Do stock have access to a rubbish dump, farm machinery, sheds, painted feed bins, or any painted surface?**

Yes  No  Unsure

Rubbish dumps and waste storage areas commonly hold old chemical containers, lead acid batteries and other potentially hazardous materials which present both residue and livestock health risks. Always exclude livestock from these areas.

Commercial paint contains excessive lead levels and can be a risk for livestock if they absorb it through licking or chewing. Animals should be prevented from accessing any surface painted with commercial paint, as well as ashes from burnt painted timber.

**6. Do stock have access to current or former chemical storage, mixing or washdown areas or fertiliser storage or loading areas?**

Yes  No  Unsure

Areas around current and former chemical storage, mixing and disposal sites may contain high levels of persistent chemicals due to past chemical spills and washdown of spray equipment.

These areas should always be securely fenced to exclude any stock that are ultimately intended for human consumption. Always exclude stock from fertiliser storage and loading areas to prevent direct poisoning risks and reduce the potential for excessive cadmium residues.

**7. Do stock have access to leaking electrical transformers, capacitors, hydraulic equipment or coal mine wastes?**

Yes  No  Unsure

Polychlorinated biphenyls (PCBs) are very persistent industrial chemicals. PCB residues have been found in soil below leaking electrical transformers, at former transformer service sites, in the oil leaking from capacitor starts on larger electric motors, on former coal mining leases and in materials such as coal washery wastes brought on to farms for use as road base or stockyard surfaces. Areas subject to industrial run-off have also been found to contain PCB residues.

Stock should be permanently excluded from any areas, equipment or materials that are known or suspected to be affected by PCBs unless access is allowed under a proven residue management plan/property management plan.

**8. Is feed stored in silos, hay sheds or other areas that may have been treated with OCs?**

Yes  No  Unsure

Although uncommon these days, serious problems have occurred in the past with OC-treated feed storages. If feed storages were previously sprayed with an OC chemical, such as dieldrin, any grain or hay stored in contact with treated surfaces will become contaminated. Feed kept in OC-treated storage can be affected decades after the initial treatment.

**9. Have sources of potentially injurious physical contaminants been identified?**

Yes  No  Unsure

Stock may be exposed to physical contaminants which can remain in the meat after slaughter.

Examples of physical contaminants include broken needles remaining in the animal after health treatments; buckshot from recreational or professional shooters who may use the PIC, adjacent properties or public land; and wire fragments.

Through its record keeping, the enterprise must be able to permanently identify and manage livestock that may have been exposed to such contaminants.

**10. Do cattle have access to recycled water for drinking or pastures irrigated with recycled water? Has the water been treated adequately to reduce the risk of C. bovis (beef measles)?**

Yes  No  Unsure

There is an increased risk of cattle developing beef measles (*C. bovis*) if they are exposed to inadequately treated recycled water. *C. bovis* poses a food safety risk to humans and infected carcasses can be partly or fully condemned at processing.

If you are being supplied with recycled water from a wastewater treatment plant, you need to ensure you have included recycled water use in a property risk assessment and indicated on your farm map where recycled water has been applied.

You must obtain in writing from the wastewater treatment plant the treatment level of the recycled water (agreement or contract) You need to demonstrate through the agreement that the recycled water is low risk and has been treated to achieve a:

- Log Reduction Value (LRV) of 4.0 in *Taenia saginata* egg concentration or equivalent; or
- LRV of 3.0 - only if the producer is supplying other fresh drinking water to cattle. The recycled water supplier must confirm that the sewage quality  $\leq 1$  T *saginata* egg/L, as part of the supply agreement.

If cattle are exposed to inadequately treated wastewater, they need to be identified, traceable and declared as exposed to *C. bovis* on outgoing LPA NVDs.

Property risk assessment - Supporting information

The risk assessment involves completing a risk assessment and map of the property, to ensure a livestock producer is doing all they can to prevent unacceptable levels of persistent chemicals and physical contaminants entering the meat they produce. Responses to the risk assessment questions and the map must be documented and filed, and both made available should the property be subject to an LPA audit.

Figure 1. Risk assessment map example

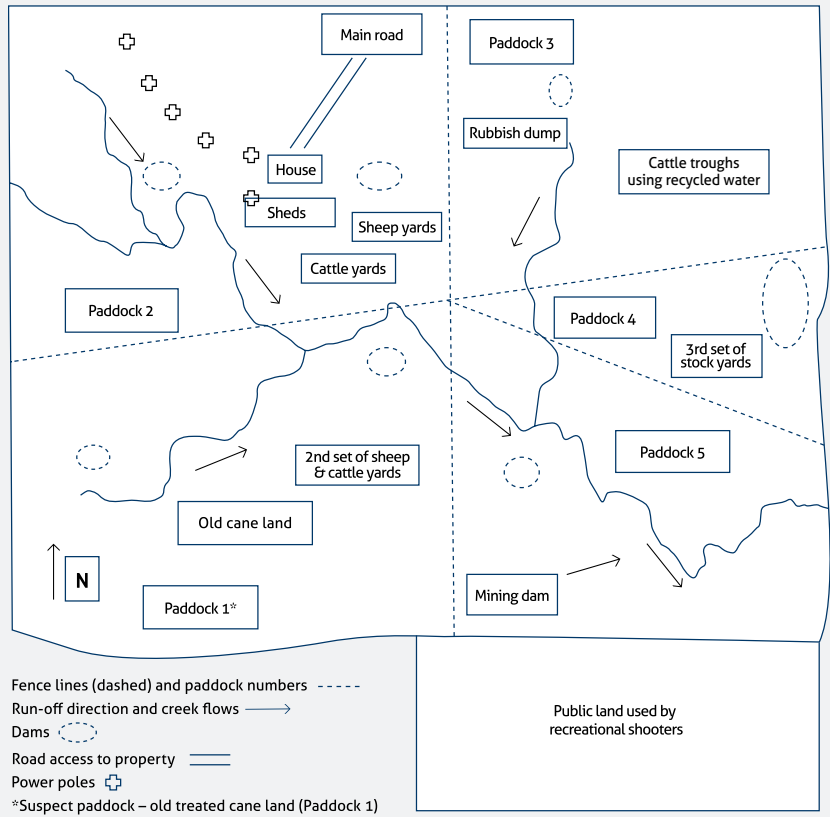


Figure 2 - Property risk assessment – Example documentation

Possible risk / risk site (refer to property map)	Reason or risk identified	Results received (soil or fat samples)	Description of how site is managed to eliminate the risk of livestock contamination
Rubbish dump	Old chemical drums, batteries, food scraps	Soil sample; Dieldren 0.20mg/kg BHC 0.40mg/kg	Rubbish dump fenced out 2005
Stock yards	Plunge dip Timber yards treated for termite control	NA	Cattle and sheep yards – plunge dip no longer in use and section of yards not used. Aware of timber yards treated for termite control.
Chemical storage shed and wash down area Sheds Machinery sheds Machinery	Sump oil and old batteries Timber treated for termite control Hydraulic oil on machinery Chemical storage and area used to clean our spray equipment	NA	Sheds – have area where old batteries and sump oil placed, fenced 2007 and also contains washed chemical drums ready for DrumMuster collection. Aware of machinery with oil leaks and endeavour not to leave machinery in paddocks where stock are.
Power poles	Organochlorine ground treated poles	Soil sample: Dieldren 0.60mg/kg	Power poles to house and sheds are pre-1987. Organochlorine ground treated poles. Old pole removed from paddock.
Mining dam	Possible heavy metals		Stock not allowed access to dam. Stock in paddock must be on clean feed for 60 days before they can go to slaughter.
Paddock 1 Old cane paddock	Paddock 1 old treated cane paddock	Soil sample: DDT 0.15mg/kg	Sale cattle restricted access. Stock in paddock must be on clean feed for 60 days before slaughter.
Public road / adjacent public land	Potential for physical contamination Rubbish from travellers including lead batteries	NA	Gates locked. Areas neighbouring public roads/lands checked for rubbish on a regular basis. Rubbish removal as required.
Potential physical contamination	Potential for physical contamination	NA	Potential for physical contamination minimised by collection of all loose fencing wire / clear policy regarding the use of firearms on the property.
Treated recycled water used for irrigation	Potential for presence of pathogen that can cause beef measles (Cysticercus bovis or C. bovis) in cattle.	Documentation from water supplier that water has been treated adequately	The recycled water supplier has confirmed that the recycled water has been adequately treated.  Other fresh drinking water is available to cattle. If exposed to inadequately treated recycled water, cattle are identified, traceable and declared as exposed to C. bovis on outgoing NVDs.