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MEAT & LIVESTOCK AUSTRALIA

riskassessment

LIVESTOCK PRODUCTION ASSURANCE

On-farm risk assessment for persistent chemicals

Australia's markets demand food that is free of nacceptable chemical residues. Livestock can develop unacceptable chemical residues if they are exposed to areas on your farm that are contaminated by persistent chemicals.

The presence of unacceptable chemical residues in animal products is a direct threat to your livelihood and to that of other livestock producers. Carcases with unacceptable residues are condemned without payment and their producer could be held responsible for consequent costs imposed on processors and other industry participants. Unacceptable residues threaten market access and place the whole industry at risk.

What are 'persistent chemicals'?

There are several types of persistent chemicals that you should consider when undertaking your on-farm risk assessment:

Organochlorine (OC) pesticides, which were previously registered for a wide range of agricultural, horticultural and pest control uses, are the main chemicals of concern. OC pesticides, including aldrin, BHC, chlordane, DDT, dieldrin, HCB, and heptachlor, can persist in treated areas for decades after use.

Polychlorinated biphenyls (PCBs) is another group of OC chemicals that were added to transformer oils, electrical capacitors and some hydraulic oils as fire retardants. PCB residues are very persistent in the environment and in livestock.

Lead, arsenic and cadmium should also be considered in your risk assessment. Lead and arsenic can kill stock as well as causing unacceptable tissue residues in animals that suffer non-fatal poisoning. While arsenic residues clear quite rapidly from animal tissues, it may take many months for excessive lead residues to clear from the liver and kidney of animals that recover from lead poisoning.

Cadmium occurs naturally in some soils and is also present in some phosphate fertilisers, particularly those made from rock phosphate or guano of marine origin. Fertiliser storages and stockpiles should be securely fenced to prevent stock access. Cadmium residues accumulate in liver and kidney tissue.

Why are persistent chemicals still a problem?

Persistent OC chemicals, including the OC pesticides mentioned above and PCBs, breakdown very slowly in the environment. In soil, the half-life of some OC chemicals may be as long as 50 years. The half-life is affected by a range of factors including the chemical involved, climate and soil type. Lead, arsenic and cadmium are chemical elements and do not breakdown. Their level in a particular contaminated area may reduce over time as a result of dilution or leaching.

Why should I do a risk assessment for persistent chemicals?

Livestock producers must take all reasonable measures to ensure that the animals they sell do not have unacceptable residues. The following information is provided to help you complete an effective risk assessment for persistent OC chemicals that may be present on your farm. It also provides advice on managing any affected or suspect areas you identify on your farm.

Question 1

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

State/territory animal health authorities will normally contact the livestock producer immediately if a significant chemical residue is found or suspected in their livestock or other agricultural products. These authorities 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, such as an OC, the management arrangements 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.

You may be able to obtain results of past residue tests for persistent chemicals that were done on stock originating from land that you currently own or occupy. The National Residue Survey's database holds records of residue tests carried out on slaughter stock since 1987. Test results for cattle and pigs are usually stored against the property identification code (PIC or 'tail-tag number') identifying the stock at slaughter. State/territory authorities may also hold residue test results that are referenced to PICs.

Past negative results do not necessarily mean that your farm has a 'clean bill of health'. It is more likely that persistent chemicals are present in areas that were not available to tested stock – such as old rubbish dumps, old dip sites or around farm buildings, house sites and chemical storage and handling areas.

Question 2

Do stock have access to areas where bananas, cotton, corn, potatoes, tobacco, lucerne, orchard crops, sugar cane, tobacco, vegetables or other potentially OC-treated crops were grown prior to 1987?

Land that previously grew OC-treated crops often contains 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 that has been proven to be effective in preventing unacceptable OC residues in livestock. Most producers will need professional assistance to develop and test a management plan for livestock that have previously grazed on OC-affected land.

Soil tests can be used to determine the type and level of any OCs that may be present in suspect paddocks . **Soil testing isn't necessary if you already know that the area is OC-affected or if you chose to manage suspect areas by excluding any livestock that you are producing for human consumption.**

Question 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 1987?

Soil and timber can contain high concentrations of OC 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.

Soil and timber around old house sites, farm sheds, shearing sheds, stockyards, power poles, timber bridges and similar structures often contain OCs as a result of past pest control activities. 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. OC residues have been confirmed in stock that chewed discarded timber and floor coverings from OC-treated houses.

Generally it is acceptable to use stock yards for routine handling of stock that were previously treated with OC pesticides. However, stock should never be held and/or fed in yards (or any other area) that may have been treated with OCs. High levels of OCs are likely to remain in treated soil and/or yard timbers.

Question 4

Does the property have a dip or spray race (working or not) built before 1962?

OCs were used to control external parasites on sheep and cattle until the early 1960s. Arsenic was also used in sheep dips until the late 1980s. Given the persistent nature of these chemicals it is not surprising that they are often found in high concentrations around old sheep and cattle dips. OCs were also applied to sheep by jetting and may therefore be found in any area where jetting was carried out. Land to which dip or jetting fluids have drained and those where materials scooped from the dip were discarded are likely to have particularly high chemical levels.

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

Question 5

Do stock have access to a rubbish dump on the property?

Always exclude livestock from rubbish dumps and waste storage areas. These areas commonly hold old chemical containers, lead acid batteries and other potentially hazardous materials. Allowing stock to access these areas raises both residue and direct livestock health risks.

Question 6

Do stock have access to current or former chemical storage, mixing or washdown areas?

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. Old, unwanted chemicals in leaking containers, or stored in areas where they can be accessed by livestock, present an extremely high risk. These areas should always be securely fenced to exclude any stock ntended for human consumption.

Question 7

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

PCBs are very persistent industrial chemicals. They are part of the same family of chemicals that includes the organochlorine pesticides. PCBs can be even more persistent environmental contaminants than the OC pesticides. PCB residues are also very persistent in the fat of livestock.

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 (chitter) that have been 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.

Question 8

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

Although uncommon these days, serious problems have occurred in the past with OC-treated feed storages. Old concrete silos set on an earth, bitumen or concrete base and earth or timber floored hay sheds have been most common sources of feed contamination. 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. The chemical slowly vaporises and is absorbed into the feed. This process can contaminate the entire contents of an OC-treated grain silo. Feeds kept in OC-treated storage can be affected decades after the initial treatment.

Now complete the risk assessment on the next page.

(Remember to refer back to this information when completing the risk assessment.)

A completed risk assessment satisfies some of the requirements of LPA element 1.

Q1 **Have OC residues ever been found in stock from this property or in soil or other materials collected on the property?**

❑ Yes ❑ No ❑ Unsure

Negative tests in the past do not guarantee future results – complete the full risk assessment.

Q2 **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 1987?**

❑ Yes ❑ No ❑ Unsure

Exclude stock from suspect areas unless testing confirms the area is free of persistent chemicals or the stock is being managed in accordance with a proven residue management plan.

Q3 **Do stock have access to any timber buildings, sheds, yards, power poles, stockyards or other structures, which may have been treated with OCs for termites before 1987?**

❑ Yes ❑ No ❑ Unsure

Exclude stock from suspect areas unless testing confirms the area is free of persistent chemicals or the stock is being managed in accordance with a proven residue management plan.

Q4 **Does the property have a dip or spray race (working or not) built before 1962?**

❑ Yes ❑ No ❑ Unsure

Exclude stock from these areas unless soil tests confirm the area is free of persistent chemicals.

Q5 **Do stock have access to a rubbish dump on the property?**

❑ Yes ❑ No ❑ Unsure

Keep farm dumps stock-proof at all times.

Q6 **Do stock have access to current or former chemical storage, mixing or washdown areas?**

❑ Yes ❑ No ❑ Unsure

Keep current and former chemical storage, mixing and washdown areas stock-proof at all times.

Q7 **Do stock have access to leaking electrical transformers, capacitors, hydraulic equipment or coal mining waste?**

❑ Yes ❑ No ❑ Unsure

Keep current and former chemical storage, mixing and washdown areas stock-proof at all times.

Q8 **Is feed stored in silos, hay sheds or other areas that may have been treated with OCs?**

❑ Yes ❑ No ❑ Unsure

Ensure feed storages are free of persistent chemicals.

If you have any further questions not covered by the information in this brochure, Please call 1800 683 111 or visit www.mla.com.au/lqs

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MEAT & LIVESTOCK AUSTRALIA

Level 1, 165 Walker Street,
North Sydney NSW 2060
Ph: 02 9463 9333
Fax: 02 9463 9393
www.mla.com.au

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