NORTHERN, SOUTHERN AND WESTERN REGIONS
MANAGING MAXIMUM RESIDUE LIMITS IN EXPORT GRAIN

Violations of maximum residue limits (MRLs) affect the marketability of Australian export grain. By observing several precautions growers can ensure that grain coming off their farm is compliant.

KEY POINTS

- Grain samples are tested for pesticide residues in Australia and when export shipments leave the port to ensure they are within maximum residue limits (MRLs).
- A single violation of an importing country’s MRL can lead to punitive measures on all Australian grain exported to that country and undermine Australian grains’ reputation internationally.
- Consequences may include costs awarded against the exporter and/or grower. If repeated violations are detected with the same chemical, that chemical may be banned.
- It is essential that growers ensure both pre-harvest and post-harvest chemical applications adhere to the Australian Grain Industry Code of Practice.
- Use only registered products and observe all label recommendations including label rates and withholding periods.
- Trucks or augers that have been used to transport treated seed or fertiliser can be a source of contamination. Pay particular attention to storage and transport hygiene.
- Silos that have held treated fertiliser or pickled grain will have dust remnants that require particular attention. These silos either need to be cleaned or designated as non-food-grade storage.
- Compliance with Australian MRLs does not guarantee the grain will meet an importing country’s MRL (which may be nil).
- Know the destination of your grain. When signing contracts, check the importing countries’ MRLs to determine what pesticides are permitted on that crop.

All Australian grain, whether destined for the domestic or export market, is tested for pesticide residues.

While residue testing over the past decade has indicated a very high level of compliance – 99.7 per cent – violations of Australian and importing countries’ maximum residue limits (MRLs) have been detected.

These violations have several causes including poor hygiene, inappropriate chemical use and failure to understand Australian domestic or importing countries’ MRLs.

**Poor farm and transport hygiene**

All equipment used to handle and store grain should be considered a potential source of contamination.
Inappropriate chemical use

The off-label use of chemicals can result in MRL violations. This includes using higher rates than stated in the label recommendations, and late spray applications that breach the withholding period.

National Residue Survey

The National Residue Survey (NRS) is part of an Australian Government and industry strategy to minimise chemical residues and environmental contaminants in Australian food products and to promote market access. In addition to animal and horticultural products, 21 grain, pulse and oilseed crops are sampled and analysed.

Grain samples are collected from bulk export terminals, export container packers, maltsters, stockfeed manufacturers, feedlots, flour millers, oilseed crushers, oat processors and chickpea canners.

The NRS contracts laboratories to conduct pesticide residue analysis of grain samples destined for both domestic and export markets.

All residue testing results are assessed against Australian Pesticides and Veterinary Medicines Authority (APVMA) MRLs to confirm good agricultural practice and, where applicable, against the relevant overseas MRLs.

NRS chemical testing

The analytical screen applied to all grain samples collected by the NRS was developed in consultation with industry, taking into account registered chemicals, market sensitivities and chemical residue profiles. The screen is reviewed twice a year.

Products covered by the analytical screen include insecticides (including post-harvest grain protectants), fungicides, herbicides, insect growth regulators, environmental contaminants (including heavy metals and organochlorine insecticides) and fumigants such as phosphine.

MRLs

Australian MRLs are based on the application of the pesticide under Australian use patterns (label rates) and Australian dietary intake parameters. This means use of these pesticides at label rates may still mean the grain does not meet importing country MRLs. Where there is a lower or zero MRL overseas, using maximum label rates of a product could cause an MRL violation in the overseas market.

The NRS maintains tables of international MRLs for Australia’s major export markets. See Useful Resources at the end of this fact sheet for the Department of Agriculture NRS link to these tables.

Traceback

If a sample is found to contain a residue above the prescribed Australian MRL, a traceback investigation is undertaken to determine the cause, and the findings are reported to the NRS. A traceback investigation can be carried out on grain samples taken from any grain delivered to any receival site around the country.

Where appropriate, the information is forwarded to industry and government authorities for action.

This feedback can highlight potential problems such as inappropriate chemical use. State government departments may then work with industry bodies to educate growers about correct chemical use practices.

Traceback information may also be forwarded to the APVMA for consideration during its chemical review process.

It is important to note that the sale by growers of grain that does not comply with the relevant domestic MRL standard, or approved label use, may be illegal in some states.

What happens if an MRL is exceeded at a foreign port?

Export markets have differing approaches to testing. For example in Japan, Australian grain may be sampled under the Ministry of Agriculture, Forestry and Fisheries (MAFF) surveillance program, or by the Ministry of Health, Labour and Welfare (MHLW).

If an importing country detects pesticide residues in imported grain at levels that exceed its MRL, the government authority may increase the rate of sampling and testing of future consignments from the exporting country. Further MRL violations could result in market closure.

The costs incurred from increased sampling and testing activities may be passed back to the exporter. Other potential costs include demurrage and damages, which can exceed $50,000 per shipment.

The exporter may also be required to retrieve the shipment and return it to the country of origin. The Australian exporter may then seek to recover costs from the handler or from the grower.

More importantly, from an industry perspective, the reputation of the exporting country may be tarnished, a situation that may take many years to rectify and which competitors can exploit.

Maintaining grain hygiene

There are several ways in which growers can ensure that grain complies with MRLs.

1. Use only chemical products registered for the crop or for grain storage. Apply at label rates and adhere to withholding periods.

2. Maintain and clean storage sites, particularly silos, augers or trucks, that have held treated fertiliser or alternate products such as pickled grain. Where possible, use different storage sites.
and augers to handle and store these products.

3. Ensure any contractors involved in transporting your grain comply with the Grain Carriers’ Code of Practice (see Useful Resources).

4. Keep accurate records of all chemical applications (including treatment of fertilisers), chemical storage and cleaning activities on storage sites, trucks and handling equipment. Complete a Commodity Vendor Declaration (CVD) form based only on those records.

5. Know which market your grain is going into. Importing countries may have lower MRLs than Australia. This is extremely important when growers are signing contracts (including forward contracts). The contract may state that the grower is not to exceed the MRLs of the importing country. In some cases this means growers will be unable to use particular pesticides on that crop.

6. Clean grain storage and transport equipment.

Cleaning

Always wear appropriate personal protective equipment (PPE). The goal of cleaning is to remove any residual dust or chemicals and there are two methods of doing so:

- sweeping or using compressed air

followed by washing. This is the best option for grain transport and storage equipment; or

- compressed air by itself.

Note that just sweeping with a broom is unlikely to adequately remove dust and chemicals.

If using contractors for grain transport, ensure they provide a declaration of cleanliness. The Grain Carriers’ Code of Practice requires that the carrier retain records of cleaning and prior loads to determine the risk of chemicals contaminating the truck.

The NRS grains program at a glance

Total grain levy: 1.015%

NRS levy: 0.015% since 1993, equating to $15 in every $100,000 farm-gate value

More than 90,000 samples since 1993

Overall MRL compliance: 99.7%

Covers all tradeable grains:

- Cereals – wheat, barley, oats, sorghum, maize, triticale
- Pulses – beans (broad/faba, mung, navy), peas (chick, cow, field, pigeon), lentils, lupins, vetch
- Oilseeds – canola, sunflowers, linseed, safflowers, soybeans

Analysis:

- multi-residue screen: insecticides, fungicides, herbicides (including imidazolinones)
- special herbicides: glyphosate, paraquat, haloxyfop (1 in 4)
- phosphine (1 in 5)
- mycotoxins (100 tests per year)

Export program:

Bulk and container = 4000 samples per annum (1000 container and 3000 bulk)

Domestic program:

Milled products, stockfeed, feedlots, maltsters, oat processors, oilseed crushers = 1000 samples per annum (at receival)
FREQUENTLY ASKED QUESTIONS

What chemicals are screened by the NRS and industry?
Post-harvest insecticides such as chlorpyrifos-methyl, fenitrothion, dichlorvos, deltamethrin, spinosad; crop-desiccant herbicides such as paraquat and glyphosate; fungicides such as flutriafol and fluquinconazole; imidazolinone herbicides such as imazapyr and imazapic; and haloxyfop.

Importing countries may sometimes require analysis of each shipment for particular chemicals of concern in their country. In this case, the exporter will test for these chemicals. Exporters generally also test for a range of chemicals to ensure the grain supplied will meet the market requirements.

My agronomist has recommended a cheaper herbicide mix than the registered product. Is this OK?
Agronomists may occasionally make recommendations without understanding market access implications or legal obligations. In some states it is an offence to provide information or advice that is likely to lead a chemical user to contaminate their produce. You must only use those chemicals registered for your particular crop, except in the case where a permit has been issued. Check the MRL requirements of the intended market (domestic or export), and apply at label rates and adhere to withholding periods.

MORE INFORMATION

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USEFUL RESOURCES

Registered pesticides for Australian canola: The grower's guide to succeeding within domestic and international markets
www.australianoilseeds.com/__data/assets/pdf_file/0017/2906/Pesticides_Flyer.pdf

Harvesting equipment clean down guidelines – canola

Reducing harvester fire risks – the back pocket guide

Department of Agriculture National Residue Survey
www.daff.gov.au/agriculture-food/nrs

International Grain Maximum Residue Limits for Grains

Managing chemical cross contamination risks

Chemical Usage and Outturn Tolerances: Australian Grains Industry Post Harvest Chemical Usage Recommendations and Outturn Tolerances 2013/14
www.graintrade.org.au/chemical_tolerances

Grain Industry Code of Practice
www.graintrade.org.au/node/670

South Australian Road Transport Association (SARTA): Grain Carriers’ Code of Practice
sarta.org.au/industryresources_graincodeofpractice.html

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