

Avoiding Residues when Applying Crop Protection Products



Australian supermarkets, consumers and export customers are increasingly demanding Australian growers provide assurance over the integrity of their produce, particularly with respect to the possibility of chemical residues.

A residue detection in produce resulting from the illegal and/or off-label use of an agricultural chemical can result in growers having their produce rejected or destroyed, facing price penalties and in some cases losing their supply contracts with major chains. In export markets, residue breaches have the potential to negatively impact on Australia's trade reputation and put at risk future export market access.

Although the implications of a residue breach are potentially very serious, there are simple steps applicators of crop protection products can take to ensure the integrity of their produce.

This Product Stewardship Technote outlines the critical role that product label instructions play in ensuring the integrity of agricultural produce and the important role that the Australian Pesticide and Veterinary Medicines Authority (APVMA) permit system plays in assessing potential residue risks posed by off-label use patterns and providing growers with legal access to approved minor uses.

The importance of product labels in ensuring product integrity

In order to develop a product label and to register a particular use pattern, Syngenta is required to undertake a range of comprehensive residue trials under Australian growing conditions.

Before a product can be registered, these trials are assessed by the APVMA to ensure that a proposed use pattern will not pose a risk to the health and safety of consumers. The APVMA also use this data to establish a Maximum Residue Limit (MRL), representing "the maximum concentration of a residue, resulting from the registered use of an agricultural or veterinary chemical, which is legally permitted in or on a particular food or agricultural commodity".

Given an MRL is based on the maximum recommended label rate (and frequency) and is always higher than the highest individual value recorded in pre-registration residue trials, growers can be confident that through following product label instructions their harvested crop or produce will not contain residues in excess of the MRL and can therefore be legally sold.

Why are MRLs important?

MRLs represent important science-based standards for trading agricultural products within and between countries.

An MRL is **not** intended to be a measure of food safety, but rather a clear standard to confirm that a crop protection product has been used in line with label instructions (or permit conditions).

In the case of domestic production, State and Territory laws state that it is illegal to knowingly sell produce containing a chemical residue in excess of the relevant domestic MRL* (as established by Food Standards Australia New Zealand).

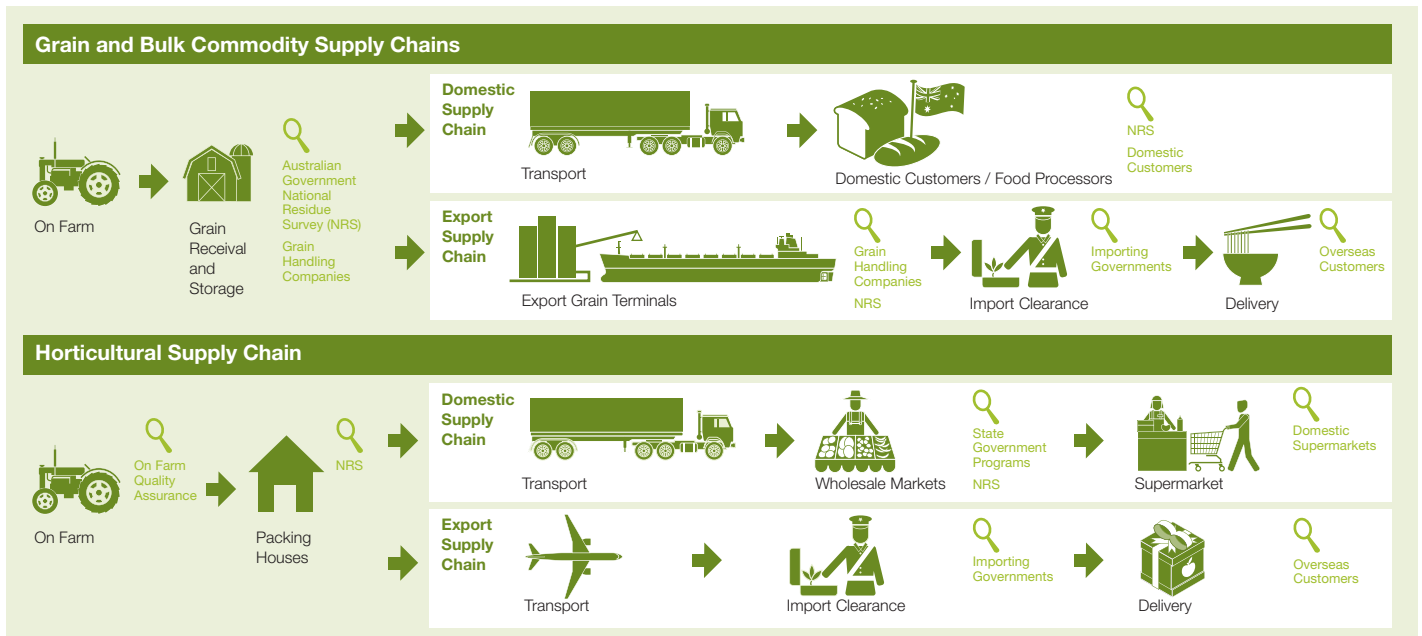
In the case of export markets, MRL values vary considerably between different countries, meaning it is critical for growers (and traders) to familiarise themselves with MRL requirements in individual export markets and take measures to ensure their produce is compliant.

*Legal requirements vary between States and Territories, for specific information please contact the relevant State or Territory Department in your jurisdiction.

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Who is checking for residues and where?



Why are product label instructions so important?

Syngenta's product labels provide growers with all the information they require to make optimal use of a crop protection product, without risking the integrity of their produce through exceeding the MRL.

There are a number of particular components of a product label that are important when it comes to ensuring product integrity.

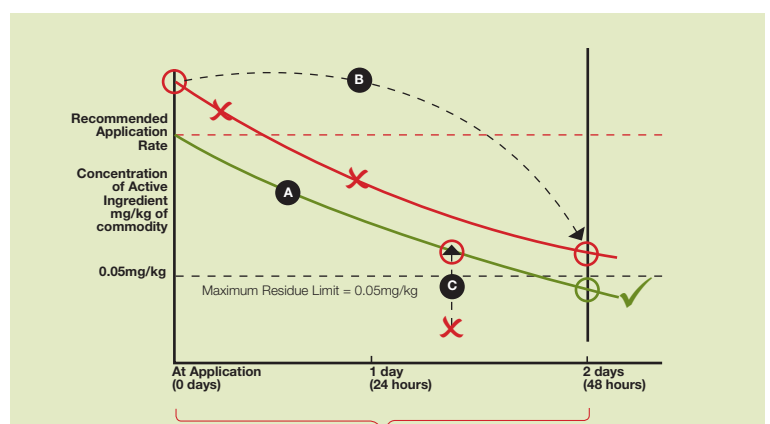
Withholding periods

The withholding period (WHP) represents the timeframe a grower is legally required to wait after applying a product before harvesting their crop (harvest withholding period) or grazing or cutting their crop for stockfeed (grazing withholding period).

Harvest withholding periods are calculated on the basis of residue decline trials, and represent the timeframe after which a grower can be confident that residue levels in their crop will have declined to a level below the domestic MRL, thereby allowing their crop to be harvested and legally sold.

Results from State Government residue monitoring programs, reveal that in the majority of cases, MRL breaches generally arise from growers not respecting the WHP and harvesting their crops before residues have had sufficient time to decline to below the MRL (Fig. 1 - example C).

In order to be confident their produce will be below the relevant MRL, growers should carefully adhere to the stated WHP. For instance if a label states **"DO NOT harvest for 2 days after application"**, a grower should ensure a full 48 hours has passed before harvesting their produce. Maintaining accurate records, including a detailed spray diary, can prove invaluable in keeping track of when products are applied and in ensuring the required WHP is observed.



Label instruction: **WITHHOLDING PERIOD - DO NOT HARVEST FOR 2 DAYS AFTER APPLICATION**

Figure 1 The importance of label instructions in avoiding MRL breaches.

- ✓ **A** By adhering to recommended label rates and withholding periods growers can ensure their produce/commodity will be below the relevant domestic Maximum Residue Limit*
- ✗ **B** Applying products at greater than the recommended label rate is illegal and can result in the MRL being exceeded at the time of harvest (even if the WHP is followed).
- ✗ **C** Harvesting produce prior to the withholding period passing can result in the MRL being exceeded.

Application rates

Given that both the WHP and the MRL for a product in a certain crop are calculated on the basis of the maximum label rate, it is important that spray equipment is carefully calibrated to ensure that product is not being applied at greater than the highest label rate.

In addition to risking crop damage, legal breaches and inflated chemical bills, growers applying products at greater than the maximum recommended rate are likely to experience higher concentrations of chemical persisting on their crop for longer than the WHP, placing them at risk of a residue breach (Fig. 1 - example B).

Application timing and frequency

In order to minimise the risk of a residue breach, it is also important that growers adhere to the recommended application timing(s) and spray intervals listed on product labels.

MRLs and WHPs are calculated on the basis of the recommended application timing and associated crop stage, meaning that if label instructions are not followed and products are applied at a later timing or crop growth stage, applicators face a high likelihood that residue levels will exceed the relevant MRL. Similarly, products should not be applied at a greater frequency (ie shorter spray intervals) than is listed on a product label.

What if I want to use a Syngenta product in way other than is specified on the label?

While Syngenta's product labels contain all the information necessary to avoid a residue breach, there are instances where a grower may need to apply a product in a manner other than is specified on its label.



When faced with a lack of on-label control options, growers have a number of choices:

- 1 Talk to the Syngenta Technical AdviceLine on 1800 067 108 or local Territory Sales Manager to consider alternative products offering on-label or authorised control options?
- 2 Check to see if an off-label permit exists for the desired use in the desired crop on Syngenta's website (www.syngenta.com.au/permits); or
- 3 Approach their industry body to investigate applying to the APVMA for a permit.

The importance of the APVMA permit system in ensuring product integrity

Although off-label chemical use is against the law in most States and Territories (refer to Table 1), the APVMA's permit system provides growers with an avenue to legally access off-label uses, while also ensuring that potential residue risks are assessed and managed.

In applying for an off-label permit, applicants (most frequently industry/grower groups) must demonstrate that the intended use pattern is safe for people and the environment, won't affect Australia's international trade reputation through potential residue breaches and is effective for its intended purpose. Off-label use permit applications generally need to be accompanied by certain residue data in order to allow the APVMA to establish an appropriate MRL and WHP as part of the permit approval.

Syngenta often works with grower and industry groups to assist in providing or generating residue data required to establish permits for our products. For more information on applying for an APVMA permit relating to one of Syngenta's products please contact the Syngenta Advice Line on 1800 067 108.

Tips on keeping residues below the MRL

- Observe the withholding period
- DO NOT exceed the maximum application rate
- Ensure minimum spray intervals are observed
- Keep detailed records, including spray diaries
- Do not apply a product at a time other than is specified on the label
- Ensure application equipment is appropriately calibrated and well maintained
- Avoid contamination from spray drift or other off-target movement.

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Off-label use in the absence of a permit

In the majority of Australian States and Territories, it is illegal to use a crop protection product in a crop or situation that is not listed on its label as a registered use or alternatively approved under an APVMA permit. Table 1 outlines the different control of use regulations relating to off-label use in different States and Territories.

Although the application of certain crop protection products off-label without a permit is allowed under Victorian law (and in South Australia where an exemption has been issued), applicators need to be aware that in using a product in a manner other than is specified on its label, they take on full legal responsibility for any implications arising from the use of the product (including, but not limited to, residue violations and adverse experiences relating to user or environmental safety).

In this regard, all of Syngenta's product labels clearly indicate that manufacturers warranties concerning our products (other than non-excludable statutory warranties) will not apply where the product has been stored, handled or used in a manner contrary to directions (i.e. label instructions).

Although certain deviations from the label instructions may be permitted under some State and Territory laws (refer to Table 1), it is important that applicators take into account other risk factors (beyond simply legal risks) prior to applying a product in a manner contrary to label instructions. For instance, while it is legal to use a product at less than the registered label rate, applicators need to be aware that through disregarding label instructions and cutting rates they are likely to compromise product efficacy (and in some cases face a heightened risk of resistance developing).

Off-label rules	QLD	NSW	VIC	TAS	SA	WA	NT
Is it illegal to use unregistered crop protection products?	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Is general off-label use illegal? (ie: using a product in a crop/situation that is not listed as a registered label use or approved under a permit)	Yes	Yes	No ¹	Yes	No ^{2/3}	Yes	Yes ⁴
Is it illegal to use a product in a way that the label explicitly states is prohibited (ie: statements containing the terms such as "MUST NOT", "MAY NOT", "DO NOT", "NOT TO BE USED", "NOT FOR USE" or "USE ONLY" etc)?	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Is it illegal to apply a product at a higher rate or greater frequency than is approved on the label? ⁵	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Is it illegal to apply a crop protection product at a lower rate or frequency than is specified on the label?	No	No	No	No	No	No ⁶	No
Is it illegal to use a product to control a different pest (not listed on label) in a registered crop? ⁵	No	Yes	No	No	No	Yes	No

Table 1: Legal conditions relating to the off-label use of crop protection products

1 With the exception of 'restricted use' chemicals (all products classified as Schedule 7 Poisons, atrazine, metham sodium, and ester formulations of 2,4-D, 2,4-DB, MCPA and triclopyr) which cannot be used off-label unless a Section 25A permit has been issued for that use by the Victorian Department of Primary Industries.

2 In South Australia an exemption exists in relation to horticultural crops, where the legislation allows a person who is an accredited participant of an approved quality assurance scheme to use a registered agricultural chemical product off-label on a horticultural crop in respect of which the scheme is approved, on condition that the product is not used at a rate or frequency that exceeds the highest rate or frequency specified on the approved label for use on any crop.

3 In South Australia, it is legal to use a product on specified crops, or in specified situation, if such a use is included on the label for another State or Territory, on the condition the label recommended rate is not exceeded.

4 In the Northern Territory it is legal to use a product in a specified crop/situation, if such a use is included on the label for another State or Territory, on the condition that recommended label rate is not exceeded or the label does not explicitly state the product is not for use in the NT.

5 In the absence of an APVMA Permit.

6 Subject to legal interpretation.

Costly advice: the risks of recommending illegal off-label uses

In addition to the legal risks facing chemical applicators, in many States and Territories there are explicit laws making it an offence to provide advice to a chemical applicator that will result in them breaching agricultural chemical control of use laws (eg those relating to the use of products off-label). Many of these laws are accompanied by major fines and associated penalties. In addition, individuals providing advice of the use of crop protection products retain a duty of care and therefore may also be liable for any adverse consequences if negligence is proven under civil law.

The last word ...

Australian growers are facing considerable additional scrutiny in relation to the integrity of their agricultural produce. Chemical residues continue to be a major focus for both customers and governments, with unprecedented levels of testing now occurring in both domestic and export markets.

Although the consequences of a residue breach can be very serious, through closely adhering to label instructions or APVMA permits, and through avoiding illegal off-label uses, growers can be confident that their produce will conform to Australian MRLs, protecting both themselves and the interests of their entire industry.

For more information

For more information on strategies to avoid residues when applying crop protection products, please contact your local Syngenta representative or the Syngenta Product Advice Line on 1800 067 108.

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