

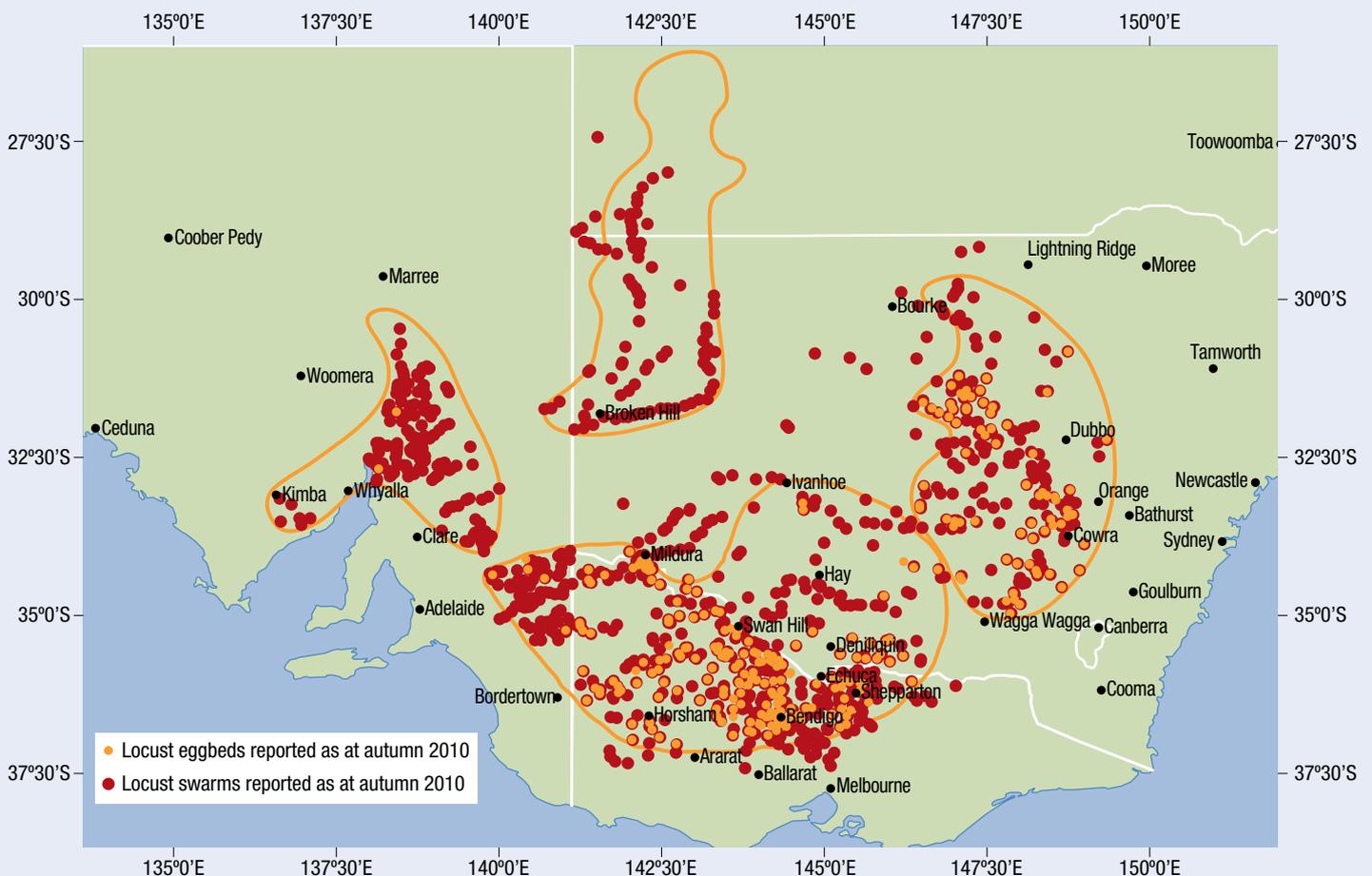
PLAGUE LOCUST CONTROL FACT SHEET



A coordinated approach to control plague locusts

Large swarms of locusts travelled through New South Wales, south west Queensland and the northern parts of Victoria and South Australia earlier this year. Landholders must be vigilant in protecting all crops and pastures from spring locust hatchings by using targeted applications of registered or permitted insecticides.

Figure 1 Australian plague locust risk zones for spring 2010



SOURCE: Australian Plague Locust Commission, Autumn 2010

Landholders need to monitor predicted hatching dates for their area by checking the APLC website at www.daff.gov.au/animal-plant-health/locusts and review hatchings several weeks prior to the predicted date.

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***Forecast dates** are based on known or estimated egg laying by adult locusts. Egg laying, development and hatchings are sensitive to soil moisture and temperature. In July and August the southern states experienced below average temperatures and continuing rainfall has resulted in later peak hatching dates. Egg samples from sandy soil sites in northwest Victoria and the S.A. Mallee show embryonic development of non-diapause eggs is more advanced. Higher thermal conductivity meant that egg development continued during late autumn. Early hatching dates have been retained for these areas, where protracted hatchings are likely to occur from mid-September to mid-October.

KEY POINTS

- **Plan ahead.** Do not underestimate the damage from either hoppers or adult locusts in crops or pastures.
- **Coordinated approach.** Locusts know no boundaries. There are three levels of locust control – strategic interstate (Australian Plague Locust Commission), state level (state departments) and local (landholders). Effective control on all three levels is vital to widespread plague containment.
- **Be vigilant.** Look for hatchings from early spring. Check the APLC website regularly for updates to the forecast hatching dates for your region.
- **Insecticides must be approved for locust control by the Australian Pesticides and Veterinary Medicines Authority (APVMA).** All landholders also need to be aware of their responsibilities under their own state control of use legislation.
- **You must observe withholding periods (WHPs) for grain, hay, pastures, meat, milk or any other production following the use of chemicals to control locusts.** Note: all producers need to be aware of Maximum Residue Levels (MRLs) and must follow the label at all times.
- **Minimise damage.** Cutting crops for hay or windrowing them in preparation for harvest can minimise locust damage or eliminate the need for chemical control. Baling or silaging crops and pastures before locusts hatch is another management tool.
- **Report outbreaks.** All locust outbreaks, be they adult swarms or hatching nymphs, should be reported immediately to authorities. If after assessing the risk of outbreak on your property you are concerned at how you will manage it, please seek assistance from the authorities.

TABLE 1 PREDICTED HATCHING DATES REGION BY REGION

As of 1 September 2010. Dates will become more accurate closer to spring, so check updates on the APLC website – www.daff.gov.au/animal-plant-health/locusts/current

Location - NSW	Hatching*	Mid-instar*	Fledging*
Brewarrina-Bourke	7 September	22 September	15 October
Tibooburra-Wanaaring	10 September	25 September	18 October
Broken Hill-Wilcannia	15 September	30 September	22 October
Ivanhoe-Hillston	25 September	13 October	2 November
Nyngan-Tottenham	21 September	6 October	26 October
Tullamore-Condobolin	5 October	19 October	7 November
Dubbo-Peak Hill	6 October	20 October	11 November
Parkes-Cowra	14 October	28 October	17 November
Forbes-West Wyalong	12 October	26 October	14 November
Hay-Balranald	5 October	21 October	4 November
Wagga-Cootamundra	25 October	6 November	26 November
Narrandera-Griffith	15 October	29 October	17 November
Jerilderie-Deniliquin	18 October	31 October	20 November
Location - Victoria	Hatching	Mid-instar	Fledging
Mildura-Ouyen	25 September	14 October	5 November
Swan Hill-Boort	6 October	25 October	14 November
Echuca-Bendigo	24 October	6 November	25 November
Shepparton-Tungamah	20 October	3 November	22 November
Nhill-Warracknabeal	17 October	1 November	20 November
Horsham-Stawell	24 October	6 November	1 December
Location - SA	Hatching	Mid-instar	Fledging
Marree-Lyndhurst	2 September	17 September	10 October
Andamooka-Cooper Pedy	5 September	21 September	15 October
Hawker-Orroroo	24 September	10 October	30 October
Renmark-Morgan	26 September	12 October	4 November
Pinnaroo-Karoonda	2 October	21 October	10 November
Keith-Bordertown	17 October	1 November	25 November
Kimba-Cowell	1 October	18 October	10 November
Port Augusta-Quorn	19 September	4 October	27 October

SOURCE: AUSTRALIAN PLAGUE LOCUST COMMISSION

Landholders need to monitor predicted hatching dates by checking the APLC website at www.daff.gov.au/animal-plant-health/locusts and start checking for hatching several weeks prior to the predicted date.

Widespread swarm activity occurred in NSW, northern SA, northern Victoria and south west Queensland during early April 2010, after the fledging of major nymph (hopper) infestations during March. There have been three generations of locust population increases this season, due to widespread heavy rainfall and favourable conditions.

Eggs laid in autumn will produce a generation of high density nymphs in spring, but if effectively controlled the population can be decreased and damage minimised.

Landholders have obligations under state legislation to report and/or control locusts on their property. If you are unsure of your obligations, please check your state agency's website or contact their hotline (see p8).

There are three steps landholders need to take:

1. **Assess** the risk of a locust infestation on your farm;
2. **Estimate** the size of the problem; and
3. **Plan** now for hatching in September/October.

1 Assess the locust risk on your land

Firstly, select the situation which most represents your farm and immediate surrounding areas:

High risk: Locusts were on your farm for one to four weeks during April and May and you observed egg laying.

Moderate risk: Locusts were on your farm for less than a week and there was egg laying in isolated areas.

Low risk: Locusts pass through your property and you observe no egg laying.

2 Estimate the size of the problem

Consider the following:

- How many hectares of crop or pasture do you have?
- How many hectares per day can you spray?
- Locust control will need to occur over a 28-day period (from hatching to late nymph stage). Growers should be responsive with early intervention during this period. Can you spray the area likely to be affected with locusts in this time frame? If the answer is NO, consider using a contractor or talk to local advisers about options.
- When will locusts hatch in your region? Go to www.daff.gov.au/animal-plant-health/locusts/current or contact

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TABLE 2 CEREALS APVMA permits – users must obtain, read and adhere to the conditions of APVMA permits prior to use. PER equals permit.

	NSW	QLD	SA	WA	VIC	WHP	Grazing withholding period [^]	
Approvals for all cereals (Including but not limited to wheat, barley, durum, oats, cereal rye, maize, sorghum & triticale)								
carbaryl		Registered		Registered	#	1 day	1 day	
chlorpyrifos	Registered						10 days	2 days
diazinon	Registered						14 days	14 days
cypermethrin	PER10928				#	21 days	35 days	
alpha-cypermethrin	PER10927				#	7 days	14 days	
beta-cyfluthrin	PER10927				#	14 days	7 days	
fenitrothion	Registered						14 days	14 days
maldison	Registered			Registered		1 day	1 day	
metarhizium anisopliae	Registered						not specified	not specified
methidathion				PER11658	*	42 days	7 days	
Approvals for individual cereal crops								
Wheat & Barley								
gamma-cyhalothrin	PER10927				#	14 days	14 days	
lambda-cyhalothrin	PER10927				#	14 days	14 days	
Maize								
alpha-cypermethrin	PER10927				#	7 days	not specified	
cypermethrin	PER10928				#	7 days	not specified	
Sorghum								
diazinon	Registered						14 days	14 days
fipronil	Registered						14 days	14 days
alpha-cypermethrin	PER10927				#	7 days	not specified	
beta-cyfluthrin	PER10927				#	14 days	14 days	
chlorpyrifos	Registered				#	2 days	2 days	
cypermethrin	PER10928				#	14 days	49 days	
gamma-cyhalothrin	PER10927				#	14 days	14 days	
lambda-cyhalothrin	PER10927				#	14 days	14 days	

WHP (withholding period) - Following pesticide application, the relevant withholding period MUST expire BEFORE cutting for hay, windrowing, harvest or the undertaking of any similar operation.

Permit not required as Victorian 'control-of-use' legislation allows this off-label use in Victoria. For further information contact DPI Victoria.

[^] The SAFEMEAT Plague Locust Brochure should be consulted for information on managing residues in livestock – www.safemeat.com.au

* Methidathion, an S7 chemical, cannot be used off-label in Victoria unless an S25A permit has been issued by DPI Victoria.

1800 635 962 for the latest expected hatching dates. As the season progresses and weather conditions change, actual versus long-term average temperatures can be used to estimate hatchings, so that dates become more accurate. Start surveillance on your property at least a fortnight before forecast hatching dates, focusing on an area where swarm or egg laying activity was evident in autumn, as well as headland, roadside and track areas. (For predicted hatching dates see Table 1.)

WHAT LIES BENEATH

During autumn, adult locusts migrated into many cropping districts where mating occurred and the females selected suitable laying sites – usually the hardest and barest ground, including roadsides, tracks, fence lines, dry bare land and sparse pasture paddocks. Eggs are laid in pods, usually 20mm to 50mm deep. Each pod contains 30 to 50 pale yellow banana-shaped eggs, 5mm to 6mm long. Each female can lay up to four pods before dying. Eggs develop according to temperature and moisture – they are usually dormant over winter and hatch in spring when soil temperatures increase. Eggs and newly hatched nymphs are very hardy, and will not succumb to rainfall or frost events. Also predators (including mice) and parasites will not have any major impact on the expected hatchings.

3 Plan now for hatching

After hatching, nymphs (hoppers) move through five growth stages (from 4mm to 18mm) with wing buds becoming more noticeable through each stage. The nymphs move from the egg beds and concentrate into dense marching bands, which vary in size from a few square metres to several square kilometres. Bands then merge to create a distinct front of hoppers which can travel up to 500 metres a day.

Four to six weeks from hatching, development is complete and after the final moult young adult locusts emerge and concentrate into swarms, which make low drifting flights up to 50m high and can cover 10km to 20km per day depending on age, wind speed and temperature.

Locust population models usually predict around 90 per cent natural mortality between egg and adult, so less than 10 per cent of eggs laid result in breeding adults. The favourable conditions expected to exist in the spring could see up to 80 per cent of hatching eggs surviving to adulthood, increasing the potential impact. A well planned and well executed intervention strategy is necessary for every landholder.

ESTIMATE THE DAMAGE

Crops most at risk are those containing green plant matter. Hoppers prefer young, thinner green crops. Dense crops are less favoured, although the density of autumn egg laying has seen eggs laid throughout crops in some areas. Damage in crops may not be easily seen from the edges of the crop.

Flying adult locust swarms can directly enter a green crop at any point and begin feeding. As cereal crops ripen, locusts may continue to cause serious crop damage from head lopping, as they chew through the last green tissue (node) on the stem just below the head.

Where crops have dried off and no green plant material remains, damage from locusts feeding on the dried crop is less likely and insecticide control may not be necessary.

Pulses are susceptible to attack while they remain green and susceptibility of drying pulse crops is unknown. Early harvesting of pulse crops should be considered in high risk situations. The industry standards now allow a maximum moisture level at receipt of 14 per cent. Crop desiccation and topping with registered chemicals at registered rates can hasten maturity and allow more even ripening for earlier harvest.

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Hoppers and adult locusts can also cause serious damage to pastures. It has been estimated that 20 hoppers/m² eat the same as 3–5 dry sheep equivalent/hectare. Green and drying pastures are very susceptible to hopper attack. Pastures that have completely dried off are usually less preferred.

Adult locusts may fly into a pasture paddock and, although their stay may be short, can still damage OR consume a large amount.

Perennial pastures such as lucerne, long season annual pastures and newly sown pastures are at greater risk of attack later in the season, since they tend to remain green longer. Summer active perennial pastures will remain susceptible to attacks for an extended period. Growers need to identify high value pasture paddocks for special emphasis on control.

Hopper control for pasture protection can be considered economic if hopper densities (second-fifth instar stage) exceed 20/m² and adult locust control in pastures is economic if locust densities exceed 10/m².

CONTROLLING AN OUTBREAK

Egg beds can be destroyed with cultivation, but eggs can be laid at depth, which needs to be assessed before bringing in machinery. Cultivation to a fine tilth may also be required to expose egg pods. The only way to control hatched locusts is with the application of registered insecticide.

The most efficient and effective control is targeting nymphs late in 2nd instar and throughout 3rd instar stages, as hatched nymphs will have aggregated into their highest concentrations.

The Australian Plague Locust Commission (APLC) has a defined area of operations. It

undertakes surveillance by ground and air and may undertake control. Where APLC undertakes locust control using aerial treatment, it will only spray after obtaining informed consent from all landholders on whose properties locust control is undertaken. Landholders will be advised by APLC in advance of any potential treatment on their property.

APLC control programs are not aimed at individual crop and pasture protection, but to provide strategic short and long-term population management. Landholders should not expect or wait for APLC or any other agency to control locusts on their property.

The Victorian, South Australian and NSW Governments have all undertaken to also conduct aerial and ground spraying of locusts in areas of need, and will facilitate landholder control actions through assistance schemes and the provision of advice.

When you have established your property is at risk, select registered insecticides or those with permits for use in your state from tables 2-5 and contact your reseller to pre-order insecticide to avoid shortages.

USERS MUST OBTAIN, READ AND ADHERE TO THE CONDITIONS OF APVMA PERMITS PRIOR TO USE.

WITHHOLDING PERIODS (WHP)

There are significant risks associated with not observing the withholding period for grain, hay, pastures, meat, milk or any other production. Not only is such an act in contravention of control-of-use legislation, it may result in the harvested product being unsaleable at significant cost to the landholder due to residue occurrences in excess of legal standards.

Following insecticide application, the relevant withholding period **MUST EXPIRE BEFORE** cutting for hay, windrowing, harvesting or carrying out any similar operation.

Harvesting and grazing/cutting withholding periods

Every insecticide has a harvest withholding period (WHP). Consult the specific label for the withholding period. For windrowed crops, the **WINDROW DATE IS THE SAME AS THE HARVEST DATE** when considering chemical control options. The WHP must expire before crops are windrowed for grain production. In crops cut for hay, the WHP must elapse/expire **BEFORE** the crop is cut or windrowed.

Always observe the grazing or cutting for stockfeed WHP specified on the registered product label before grazing dairy lactating stock (dls) on treated pastures or fodder crops, or before cutting treated crops as feed for dairy lactating stock or finishing stock (cattle, sheep and lamb).

Do not put export or domestic markets at risk from chemical residue. Markets have very low or nil tolerance to insecticide residue. The SAFEMEAT Plague Locust Brochure should be consulted for managing residues in livestock (www.safemeat.com.au).

RECEIVAL STANDARDS

Receival standards vary with crop type.

- **Cereal crops (wheat, durum wheat, barley, triticale and oats):** the maximum allowed live or dead is three field insects per half litre of grain or seed. One locust counts as one field insect.
- **Canola:** the limit is 10 large field insects per half litre of grain or seed, including hoppers. For example, eight locusts and two smaller hoppers still reach the limit of 10 large field insects. The number includes body parts.
- **Pulses:** acceptable standards allow a maximum of 30 dead or live field insects per 400 gram sample or pro-rata for a 200 gram sample.

If you are harvesting during an outbreak/infestation, start with the paddocks with the lowest population first or delay harvest. Locust contaminated grain may have to be cleaned to meet harvest receival standards.

Grain buyers may require declarations of pesticides used for locust control.

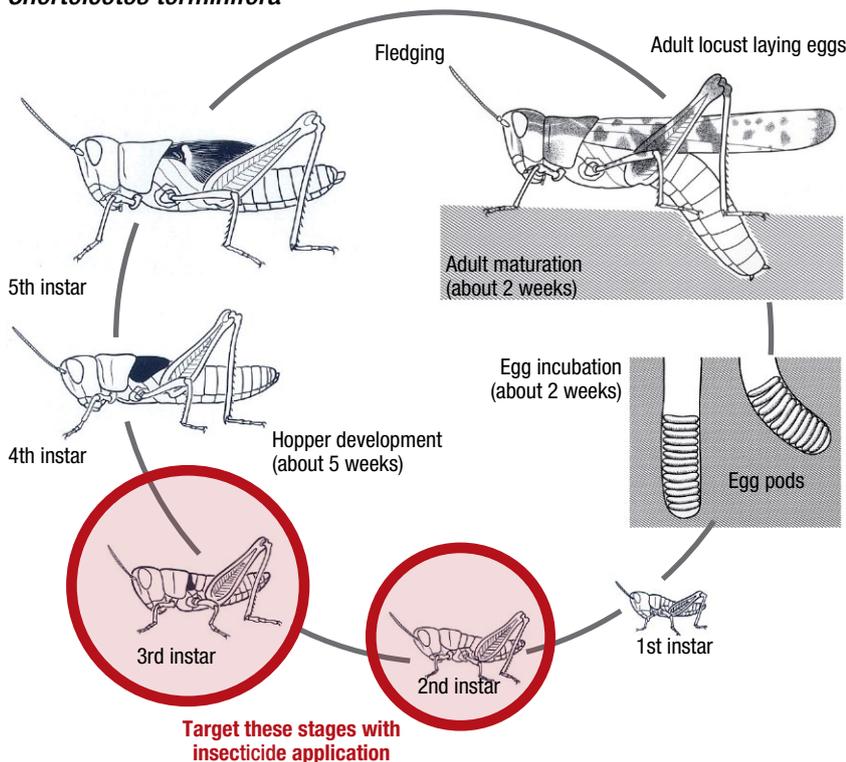
EXPORT SLAUGHTER INTERVAL (ESI)

Livestock should be placed on clean feed for the appropriate ESI prior to export slaughter – unless they have already met the recommended Export Grazing Interval (EGI) for the insecticide. This applies if they have been oversprayed or grazed on or fed treated crops/pastures, including treated feeds cut after the expiry of the WHP.

GRAZING INTERVAL (GI)

If overspraying of livestock or feeding of treated feeds before the expiry of the

Figure 2 The standard life cycle of the Australian Plague Locust, *Chortoicetes terminifera*



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TABLE 3 OILSEEDS APVMA permits – users must obtain, read and adhere to the conditions of APVMA permits prior to use. PER equals permit.

	NSW	QLD	SA	WA	VIC	WHP	Grazing withholding period [^]
Approvals for all oilseeds crops (Including but not limited to canola, safflower and linseed)							
diazinon	Registered					14 days	14 days
metarhizium anisopliae	Registered					not specified	not specified
chlorpyrifos	PER11843		PER12255	PER11658	#	not specified	2 days
Approvals for individual oilseed crops							
Canola							
alpha-cypermethrin	PER10927				#	21 days	21 days
beta-cyfluthrin					#	14 days	14 days
lambda-cyhalothrin					#	7 days	7 days
gamma-cyhalothrin					#	7 days	7 days
cypermethrin	PER10928				#	21 days	21 days
maldison	PER11843		PER12255	PER11658	#	not specified	not specified
Cotton**							
alpha-cypermethrin	PER10927				#	14 days	not specified
beta-cyfluthrin					#	28 days	not specified
lambda-cyhalothrin					#	21 days	not specified
gamma-cyhalothrin					#	21 days	not specified
carbaryl				PER11658	#	not specified	1 day
chlorpyrifos	PER11843		PER12255	PER11658	#	28 days	28 days
cypermethrin	PER10928				#	14 days	not specified
Linseed							
alpha-cypermethrin	PER10927				#	14 days	not specified
carbaryl				PER11658	#	3 days	1 day
Linola							
alpha-cypermethrin	PER10927				#	12 weeks	not specified
Soyabeans							
alpha-cypermethrin	PER10927				#	7 days	not specified
lambda-cyhalothrin					#	21 days	21 days
gamma-cyhalothrin					#	21 days	21 days
cypermethrin					PER10928		
Sunflower							
alpha-cypermethrin	PER10927				#	21 days	not specified
lambda-cyhalothrin					#	28 days	not specified
gamma-cyhalothrin					#	28 days	not specified
carbaryl				PER11658	#	3 days	1 day
cypermethrin	PER10928				#	21 days	not specified
maldison	PER11843		PER12255	PER11658	#	not specified	not specified
methidathion				PER11658	*	7 days	not specified

WHP (withholding period) - Following pesticide application, the relevant withholding period MUST expire BEFORE cutting for hay, windrowing, harvest or the undertaking of any similar operation.

Permit not required as Victorian 'control-of-use' legislation allows this off-label use in Victoria. For further information contact DPI Victoria.

[^] The SAFEMEAT Plague Locust Brochure should be consulted for information on managing residues in livestock – www.safemeat.com.au

* Methidathion, an S7 chemical, cannot be used off-label in Victoria unless an S25A permit has been issued by DPI Victoria.

** For information on permits in cotton go to www.cottonaustralia.com.au

grazing WHP is unavoidable and does occur, animals must not be slaughtered for human consumption until after the GI or Export Grazing Interval (EGI) has expired.

Achieving the best results from control measures

- The best results come from targeting hoppers, not adult locusts, so spray when hopper bands begin to appear (2nd to 3rd instar) including spot-spraying bands along crop edges before they enter crops.
- Plan ahead with pastures by considering grazing them out prior to the arrival of locusts or using them for fodder conservation or for weed control with brown manuring.

- Insecticides are not effective repellents. It is not possible to spray prior to a swarm or band arriving to prevent the locusts entering a crop.
- Use only registered or permitted insecticides (see tables 2-5). Read the label and all instructions before you buy and before you apply. Do not put export or domestic markets at risk from chemical residues. Markets have very low or nil tolerance to insecticide residues.
- Check for off-target impacts, including nearby livestock, bees, aquaculture, organic production, dams and waterways. Ensure that all required buffer zones are observed to minimise environmental impacts.
- If in doubt, ask for assistance.

TIPS FOR USING INSECTICIDES

Effective control of late-instar hoppers can be achieved, but the area sprayed will be much larger as these hoppers are more active and can cover a much larger area and subsequently requires greater effort. Adults should be treated when they are settled by spraying early in the morning or at dusk, rather than attempting to control flying swarms. Spray when there is a steady breeze, as still conditions or gusty variable winds are not suitable for spraying. Only spray where locusts or hoppers are present. In many cases, spraying fence lines, roadways and non-crop areas where locusts or hoppers are present may provide sufficient control depending on the actual distribution of locusts. If using misters, limit the swath width to 50 metres.

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TABLE 4 PULSES APVMA permits – users must obtain, read and adhere to the conditions of APVMA permits prior to use. PER equals permit.

	NSW	QLD	SA	WA	VIC	WHP	Grazing withholding period [^]
Approvals for individual pulse crops							
Chickpeas							
alpha-cypermethrin	PER10927				#	21 days	35 days
beta-cyfluthrin					#	14 days	7 days
lambda-cyhalothrin					#	7 days	7 days
gamma-cyhalothrin					#	7 days	7 days
cypermethrin					PER10928	#	21 days
metarhizium anisopliae	Registered					not specified	not specified
Faba beans							
alpha-cypermethrin	PER10927				#	28 days	35 days
beta-cyfluthrin					#	14 days	7 days
lambda-cyhalothrin					#	7 days	7 days
gamma-cyhalothrin					#	7 days	7 days
cypermethrin					PER10928	#	28 days
metarhizium anisopliae	Registered					not specified	not specified
Field peas							
alpha-cypermethrin	PER10927				#	28 days	not specified
beta-cyfluthrin					#	7 days	7 days
lambda-cyhalothrin					#	7 days	7 days
gamma-cyhalothrin					#	7 days	7 days
cypermethrin					PER10928	#	28 days
maldison	PER11843		PER12255	PER11658	#	3 days	not specified
metarhizium anisopliae	Registered					not specified	not specified
Lentils							
lambda-cyhalothrin	PER10927				#	7 days	7 days
gamma-cyhalothrin					#	7 days	7 days
metarhizium anisopliae					Registered		
Lupins							
alpha-cypermethrin	PER10927				#	28 days	not specified
beta-cyfluthrin					#	14 days	7 days
lambda-cyhalothrin					#	14 days	14 days
gamma-cyhalothrin					#	14 days	14 days
cypermethrin					PER10928	#	28 days
metarhizium anisopliae	Registered					not specified	not specified
methidathion				PER11658	*	not specified	7 days
Mungbeans							
alpha-cypermethrin	PER10927				#	7 days	not specified
lambda-cyhalothrin					#	14 days	14 days
gamma-cyhalothrin					#	14 days	14 days
cypermethrin					PER10928	#	7 days
metarhizium anisopliae	Registered					not specified	not specified
Navy beans							
alpha-cypermethrin	PER10927				#	7 days	not specified
beta-cyfluthrin					#	21 days	14 days
lambda-cyhalothrin					#	14 days	14 days
gamma-cyhalothrin					#	14 days	14 days
cypermethrin					PER10928	#	7 days
metarhizium anisopliae	Registered					not specified	not specified
Vetch							
lambda-cyhalothrin	PER10927				#	7 days	7 days
gamma-cyhalothrin					#	7 days	7 days
metarhizium anisopliae					Registered		

WHP (withholding period) - Following pesticide application, the relevant withholding period MUST expire BEFORE cutting for hay, windrowing, harvest or the undertaking of any similar operation.

Permit not required as Victorian 'control-of-use' legislation allows this off-label use in Victoria. For further information contact DPI Victoria.

[^] The SAFEMEAT Plague Locust Brochure should be consulted for information on managing residues in livestock – www.safemeat.com.au

* Methidathion, an S7 chemical, cannot be used off-label in Victoria unless an S25A permit has been issued by DPI Victoria.

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TABLE 5 PASTURES APVMA permits – users must obtain, read and adhere to the conditions of APVMA permits prior to use. PER equals permit.

	NSW	QLD	SA	WA	VIC	Cutting WHP	Grazing withholding period [^]
Pastures							
alpha-cypermethrin	PER10927				#	14 days	3 days
beta-cyfluthrin	PER10927				#	3 days	3 days
carbaryl	Registered				#	1 day	1 day
chlorpyrifos	Registered					2 days	2 days
diazinon	Registered					14 days	14 days
fenitrothion	Registered					14 days	14 days
fipronil	Registered					14 days	14 days
metarhizium anisopliae	Registered					not specified	not specified
gamma-cyhalothrin	PER10927				#	14 days	14 days
lambda-cyhalothrin	PER10927				#	14 days	14 days
maldison	Registered			Registered		1 day	1 day
methidathion				PER11658	*	7 days	7 days
Pasture seed crops							
carbaryl	Registered				#	1 day	1 day
pastures (medic)							
maldison	Registered			Registered	#	1 day	1 day
Forage brassica							
lambda-cyhalothrin	PER10927				#	2 days	2 days
gamma-cyhalothrin	PER10927				#	2 days	2 days
metarhizium anisopliae	Registered					not specified	not specified
Forage crops							
fenitrothion	Registered					14 days	14 days
metarhizium anisopliae	Registered					not specified	not specified
chlorpyrifos	Registered					2 days	2 days
Lucerne							
alpha-cypermethrin	PER10927				#	14 days	14 days
lambda-cyhalothrin	PER10927				#	14 days	14 days
gamma-cyhalothrin	PER10927				#	14 days	14 days
beta-cyfluthrin	PER10927				#	3 days	3 days
chlorpyrifos	Registered					2 days	2 days
fenitrothion	Registered					14 days	14 days
diazinon				PER11658	#	14 days	14 days
carbaryl				PER11658	#	1 day	1 day
maldison	PER11843		PER12255	PER11658	#	1 day	1 day
methidathion				PER11658	*	7 days	7 days
metarhizium anisopliae	Registered					not specified	not specified
Vetch							
lambda-cyhalothrin	PER10927				#	7 days	7 days
gamma-cyhalothrin	PER10927				#	7 days	7 days
metarhizium anisopliae	Registered					not specified	not specified

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* Methidathion, an S7 chemical, cannot be used off-label in Victoria unless an S25A permit has been issued by DPI Victoria.

AN ALTERNATIVE TO CHEMICAL PESTICIDES

A naturally occurring soil fungus, Metarhizium, which is specific to locusts and grasshoppers, has been developed as an environmentally friendly control for locusts. Marketed as Green Guard™, it has full registration with the APVMA (with the exception of the summer oil spray form) and is available through resellers and, in NSW, through your LHPA.

Before use, organic growers should check with their certifying body to ensure that the specific formulation and carrier oil are accredited organic inputs.

KEEPING THE GOOD BUGS

Locust control agents can kill bees, either by direct contact with insecticides or through insecticide traces taken into their hives, resulting in reduced honey production.

Bees forage for up to 5km in all directions around hives. Locust control agents should be excluded from this zone, so downwind buffers (as on registered labels) should be added to this 5km distance away from hives.

Before spraying for locusts:

- Move any nearby bee hives to areas where locust control is not expected. Some insecticides remain active for up to **28 days** from application.

- Advise the beekeeper or landholder, if the hives are not on your land but bees may forage in areas you intend to spray.
- Plan ahead for the relocation of bees. Decisions to spray are sometimes made quickly.
- Regularly check websites in your state for information on predicted outbreaks or departmental spraying.

Most insecticides are toxic to aquatic life (for example, crustaceans such as yabbies and marron) and may possibly affect the health of fish. Follow pesticide label directions or permits for buffer distances or exclusions for water courses, water bodies, bee hives and other restricted areas.

PLAGUE LOCUST CONTROL FACT SHEET

Helping you control locusts state by state

NEW SOUTH WALES

Land managers in NSW are required to report any locust activity and carry out any necessary control. Insecticides for the control of locusts are available from your local Livestock Health and Pest Authority (LHPA). All insecticides must be used in accordance with the *Pesticides Act 1999*. All insecticide applications must be applied according to the labels' instructions. All users of insecticides must be accredited.

All outbreaks must be reported to your local LHPA office.

For further information visit the LHPA website at www.lhpa.org.au, or the Industry and Investment NSW – Primary Industries website at www.dpi.nsw.gov.au/agriculture/pests-weeds/insects/general/locusts

LHPA main office contacts:

Balranald	T: 03 5020 1691
Bathurst	T: 02 6331 1377
Bourke	T: 02 6872 2322
Deniliquin	T: 03 5881 1055
Dubbo	T: 02 6882 2133
Forbes	T: 02 6852 1688
Narrabri	T: 02 6792 2533
Tamworth	T: 02 6762 2900
Wagga Wagga	T: 02 6923 0900

or phone the I&I NSW Plague Locust Hotline 1800 814 647

SOUTH AUSTRALIA

The South Australian Government has introduced a rebate scheme to encourage landholders in the Riverland/ Murray Mallee and Mid-North to undertake the necessary control of locusts by ground spraying hopper bands with registered or permitted insecticides on their own properties.

The rebate is payable once all spraying has been completed and is based on a rate of \$8.25/hectare sprayed to control locust hopper bands. The rebate is capped at rates of:

MAXIMUM REBATE PAYABLE

Land area owned / leased / share-farmed is less than 1000 hectares \$8.25 per hectare sprayed up to a maximum of \$2500.

Land area owned / leased / share-farmed is greater than 1000 hectares \$8.25 per hectare sprayed up to a maximum of \$2500; OR an amount not exceeding the sum of 20 per cent of total hectares owned, leased / sharefarmed, multiplied by \$8.25, whichever is the higher.

For more information in SA go to www.pir.sa.gov.au/locust
Locust activity in South Australia should be reported to your nearest Primary Industries and Resources operating base (after September 1),
Loxton T: 1800 833 451 or
Orroroo T: 08 8658 1456

VICTORIA

In Victoria, eligible landholders will be rebated 100 per cent of the purchase price of the DPI Victoria-listed insecticides used to treat locusts on their properties in spring 2010.

The information on claiming the rebate is available at www.dpi.vic.gov.au/locusts or contact your local DPI Victoria office. All outbreaks in Victoria should be reported to the DPI Victoria Locust Hotline, 1300 135 559.

QUEENSLAND

All outbreaks in Queensland should be reported to Biosecurity Queensland, 13 25 23.



USEFUL RESOURCES:

■ SAFEMEAT Plague Locust Brochure	www.safemeat.com.au
■ Grain receival standards	www.graintrade.org.au
■ Australian Plague Locust Commission	www.daff.gov.au/animal-plant-health/locusts or contact them on 1800 635 962
■ Australian Pesticides and Veterinary Medicines Authority (APVMA)	www.apvma.gov.au/index.asp
■ APVMA permits	www.apvma.gov.au/permits/search.php
■ GRDC	www.grdc.com.au/locusts

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