

DANGEROUS POISON
KEEP OUT OF REACH OF CHILDREN
READ SAFETY DIRECTIONS BEFORE OPENING OR USING

Thiodan[®] EC

INSECTICIDE

Active Constituent: 350 g/L ENDOSULFAN
Solvent: 640 g/L LIQUID HYDROCARBONS

GROUP 2A INSECTICIDE

For the control of various insect pests on cotton, oilseeds, vegetables and other crops as specified in the DIRECTIONS FOR USE table

RESTRICTED CHEMICAL PRODUCT – ONLY TO BE SUPPLIED TO OR USED BY AN AUTHORISED PERSON. A CONDITION OF REGISTRATION OF THIS PRODUCT IS THAT IT WILL ONLY BE SUPPLIED TO AN AUTHORISED PERSON. TO DO OTHERWISE IS AN OFFENCE UNDER THE AGVET CODE.

GENERAL INSTRUCTIONS

Insecticide Resistance Warning

For insecticide resistance management, Thiodan EC Insecticide is a Group **2A** insecticide.

Some naturally occurring insect biotypes resistant to Thiodan and other Group **2A** insecticides may exist through normal genetic variability in any insect population. The resistant individuals can eventually dominate the insect population if Thiodan or other Group **2A** insecticides are used repeatedly. The effectiveness of Thiodan on resistant individuals could be significantly reduced. Since occurrence of resistant individuals is difficult to detect prior to use, Bayer CropScience accepts no liability for any losses that may result from the failure of Thiodan to control resistant insects.

The user should seek advice, and monitor the performance, and if the results are not in accordance with expectations, contact the manufacturer immediately. Apparent resistance however, should not be confused with poor application, coverage or timing techniques.

Thiodan may be subject to specific resistance management strategies. For further information contact your local supplier, Bayer CropScience representative or local agricultural department agronomist.

Mixing

Add the required quantity of Thiodan EC Insecticide directly to water in spray tank, with agitators in motion.

Compatibility

Thiodan EC is compatible with some formulations of most commonly used insecticides and fungicides, including copper oxychloride, wettable sulphur, zineb, ziram, Ovasyn[®] Options and organic phosphate materials. Thiodan EC is also compatible with the plant growth regulator Reign[®]. Thiodan EC should not be mixed with dinocap or alkaline sprays such as Bordeaux mixture or lime sulphur. Changes in climatic conditions and formulations of the preparations with which it may be mixed may cause variation in plant tolerance to admixtures.

Application

Thiodan EC Insecticide is a contact spray. Thorough, even coverage is essential. Refer to detailed application instructions below.

Special Instructions for tree and vine crops

Dilute Spraying

- ◆ Use a sprayer designed to apply high spray volumes, up to the point of run-off and matched to the crop being sprayed.
- ◆ Set up and operate the sprayer to achieve even coverage throughout the crop canopy. Apply sufficient water to cover the crop to the point of run-off. Avoid excessive run-off.
- ◆ The required spray volume may be determined by applying different test volumes, using different settings on the sprayer, or from industry guidelines or expert advice.
- ◆ Add the amount of product specified in the Direction for Use table for each 100 L of water. Spray to the point of run-off.
- ◆ The required dilute spray volume will change and the sprayer set up and operation may also need to be changed, as the crop grows.

Concentrate Spraying

- ◆ Use a sprayer designed and set up for concentrate spraying (that is a sprayer which applies spray volumes less than those required to reach the point of run-off) and matched to the crop being sprayed.
- ◆ Set up and operate the sprayer to achieve even coverage throughout the crop canopy using your chosen spray volume.
- ◆ Determine an appropriate dilute spray volume (See *Dilute Spraying* above) for the crop canopy. This is needed to calculate the concentrate mixing rate.
- ◆ The mixing rate for concentrate spraying can then be calculated in the following way:

EXAMPLE ONLY

1. Dilute spray volume as determined above: For example 1500 L/ha
 2. Your chosen concentrate spray volume: For example 500 L/ha
 3. The concentration factor in this example is 3 X (i.e. $1500 \text{ L} \div 500 \text{ L} = 3$)
 4. If the dilute label rate is 190 mL/100 L, then the concentrate rate becomes 3×190 , that is 570 mL/100 L of concentrate spray.
- ◆ The chosen spray volume, amount of product per 100 L of water, and the sprayer set up and operation may need to be changed as the crop grows.
 - ◆ Do not use a concentrate rate greater than 5 times the dilute spraying rate.
 - ◆ For further information on concentrate spraying, users are advised to consult relevant industry guidelines, undertake appropriate competency training and follow industry best practice.

HIGH VOLUME LARGE-DROPLET-PLACEMENT TECHNIQUE SPECIFICATIONS FOR EC FORMULATIONS**Meteorology*****Mandatory***

Immediately before beginning a spray application, the operator (or a person acting on his or her behalf) must measure and record wind speed, wind direction, ambient air temperature and relative humidity (wet-bulb temperature depression) at the application site.

Do not apply endosulfan when surface temperature inversion conditions exist at the application site.

Advisory

Endosulfan should not be applied during unstable atmospheric conditions characterised by high temperatures, strong convective activity and variable horizontal wind velocities.

Endosulfan should be applied when the local mean wind speed is between 4 and 20 km/hr as measured 2 metres above the ground.

Spraying should not take place when the wet-bulb depression (a measure of evaporation potential) is greater than 10°C.

Aerial Equipment and Application


Apply using water as a carrier. Thiodan EC Insecticide should not be applied by aircraft in Tasmania without the specific approval of the registrar of Chemical Products.

Mandatory

Do not apply endosulfan EC formulations unless a volume of carrier water greater than 30 L/ha is used. Use higher volumes of water (40 to 50 L/ha) when ambient air temperatures at the application site exceed 30°C.

Do not apply endosulfan with booms where the distance between the two outermost nozzles is greater in length than 65% of the wingspan.

Do not apply endosulfan EC formulations unless the droplet volume median diameter (VMD) of the spray is greater than 250 µm. The nozzle system and airspeed combinations specified in the following table can be used to satisfy this requirement.

Note: For the following table,  means "Ok to use"

NOTE WELL: All nozzles must be directed backward and aimed parallel with the airstream.

Nozzle Type	Airspeed 90-115 knots	Airspeed 116-135 knots
CP <u>Standard</u> 30° deflector	✓ Boom Pressure greater than 30psi required	DO NOT USE
CP <u>Straight Stream</u> 30° deflector	✓	DO NOT USE
CP <u>Straight Stream</u> 5° deflector	✓	DO NOT USE
CP <u>Straight Stream</u> 0° deflector	✓	✓ Boom Pressure greater than 30 psi required
<u>Flat Fan</u> Min. Specification: Fan angle 65° or less Orifice size 10 or greater	✓	✓

Advisory

Aircraft used for endosulfan EC application should be pattern tested to ensure that even coverage and low coefficients of variation are achieved at optimum flight lane separations.

The spray system should not be operated if the wheel height is greater than 3 metres above the crop height.

Booms should be fixed at a vertical displacement of 25 to 30 cm below the trailing edge of the aircraft wing.

Ground-Based Equipment and Application

Standard low volume boom or high volume equipment may be used.

Mandatory

Do not apply endosulfan EC formulations unless a volume of carrier water greater than 50 L/ha is used. For band spraying applications, use at least 50 L/ha of carrier water for the actual area sprayed in the bands.

Use only flat fan nozzles with all ground-based boom sprayer equipment.

All nozzles must be operated such that a "medium" spray quality is produced as indicated by manufacturers according to the BCPC and ASAE nozzle classification system.

Do not use additional adjuvants in the spray mix unless approved (on label) by the pesticide manufacturer.

Do not use ducted air or sleeve sprayers unless the air velocity is adjusted to ensure that there is no reflection of air from the ground surface.

Advisory

Release height of the spray should be as low as possible, consistent with nozzle specifications and coverage requirements.

Booms sprayers should be rigged to ensure that vertical boom movement does not exceed 0.5 metres at normal operating speeds.

PRECAUTIONS

For aerial application, support workers/markers should be protected by enclosed cabs.

Re-entry period

Re-entry to treated areas is permitted once the spray has dried.

PROTECTION OF LIVESTOCK

Dangerous to bees. DO NOT spray any plants in flower while bees are foraging.

PROTECTION OF WILDLIFE, FISH, CRUSTACEANS AND ENVIRONMENT

Extremely dangerous to fish. DO NOT contaminate streams, rivers or waterways with the chemical or the used containers. DO NOT apply under weather conditions or from spraying equipment that could be expected to cause spray to drift onto wetlands, natural surface waters, neighbouring properties or other sensitive areas.

STORAGE AND DISPOSAL

Store in the closed, original container in a cool, well-ventilated area. Do not store for prolonged periods in direct sunlight. Store in a locked room or place away from children, animals, food, feedstuffs, seed and fertilisers.

20, 200 litre containers

Triple or preferably pressure rinse containers before disposal. Add rinsings to spray tank. Do not dispose of undiluted chemicals on site. If recycling, replace cap and return clean containers to recycler or designated collection point. If not recycling, break, crush, or puncture and bury empty containers in a local authority landfill. If no landfill is available, bury the containers below 500 mm in a disposal pit specifically marked and set up for this purpose clear of waterways, desirable vegetation and tree roots. Empty containers and product should not be burnt.

110 litre container

If tamper evident seals are broken prior to initial use then the integrity of the contents cannot be assured. Empty container by pumping through dry-break connection system. Do not attempt to breach the valve system or the filling point, or contaminate the container with water or other products.

Ensure that the coupler, pump, meter and hoses are disconnected, triple rinsed and drained after each use. When empty, or contents no longer required, return the container to the point of purchase. This container remains the property of Bayer CropScience Pty Ltd.

1000 litre container

If tamper evident seals are broken prior to initial use then the integrity of the contents cannot be assured. The container must be vented before discharging contents. To empty connect a camlock fitted hose to the bottom valve. Remove top cap when discharging for venting purposes. When the container is empty, close all caps and valves and return the container to the point of purchase.

SAFETY DIRECTIONS

Very dangerous particularly the concentrate product. Undiluted product poisonous if absorbed by skin contact, inhaled or swallowed. Will damage the eyes. Will irritate the nose, throat and skin. Avoid contact with eyes and skin. Do not inhale vapour. If clothing becomes contaminated with product or wet with spray remove clothing immediately. If product on skin, immediately wash area with soap and water. If product in eyes, wash it out immediately with water.

When opening the container and preparing spray, wear cotton overalls buttoned to the neck and wrist [or equivalent clothing], elbow-length PVC gloves, and a full facepiece respirator (or half facepiece respirator and goggles).

When using the prepared spray, wear cotton overalls buttoned to the neck and wrist [or equivalent clothing].

After use and before eating, drinking or smoking, wash hands, arms and face thoroughly with soap and water. After each day's use, wash gloves, respirator (if rubber wash with detergent and warm water), goggles and contaminated clothing.

FIRST AID

If poisoning occurs, contact a doctor or Poisons Information Centre (telephone 13 11 26). If swallowed do NOT induce vomiting. Give a glass of water.

MATERIAL SAFETY DATA SHEET

Additional information is listed in the Material Safety Data Sheet which can be obtained from www.bayercropscience.com.au.

EXCLUSION OF LIABILITY

This product must be used strictly as directed, and in accordance with all instructions appearing on the label and in other reference material. So far as it is lawfully able to do so, Bayer CropScience Pty Ltd accepts no liability or responsibility for loss or damage arising from failure to follow such directions and instructions.

Reign® and Thiodan® are Registered Trademarks of Bayer.

APVMA Approval No.: 50004/0805



ORGANOCHLORINE PESTICIDE, LIQUID, TOXIC (contains endosulfan)	
UN No. 2996	HAZCHEM 2X
FOR 24 HOUR SPECIALIST ADVICE IN EMERGENCY ONLY PHONE 1800 033 111	

RECORD KEEPING REQUIREMENTS**Required for all endosulfan uses on all crops**

All growers using endosulfan are required to keep a record of each application. It is the responsibility of the grower to collect (either directly or from a person acting on his or her behalf) and record all of the information required in the endosulfan spray record which must contain at least the information set out below. (For convenience, an endosulfan record-keeping form can be obtained from retailers of endosulfan or from the Australian Pesticides and Veterinary Medicines Authority.)

General:

Name and address of farm owner (or grower if grower is not owner)	Name and address of person who applied endosulfan	Date and time of application
Number of endosulfan sprays to field so far this season (including contribution from band sprays)	Map of farm with treated field or paddock outlined on map and field number or name indicated	Area of field or paddock sprayed with endosulfan
Level of user's training (license, certification, etc.)	Whether neighbours have been notified	When and how neighbours were notified

For Cotton Growers Only:

A sketch of the downwind no-spray zone drawn onto the map	Whether or not the downwind neighbour has consented to waive the downwind no-spray zone
Whether farm is registered with the cotton industry as using Best Management Practices	Whether farm has a cotton industry Spray and Drift Management Plan in place

Crop and Pest Details:

Name of crop	Stage of crop growth (height) or age if tree or perennial crop	Health of crop (whether stressed and type of stress)
Major types of pests present	Pest numbers for each type	Pest stage of growth
Length of time since last irrigation	Whether standing water was in furrows at time of application	

Weather Conditions at Application Site:

Whether (at beginning of application) rain was officially forecast for the next 48 hours	Whether and how much rain fell in previous 24 hours	Conditions at time of application (showers, overcast, partly cloudy, clear sky, inversion conditions)
Temperature and humidity at time of application	Wind speed and direction at beginning of application	Wind consistency (gusty/steady breeze, direction steady/variable)
Whether wind direction changed during application and to where	Whether wind speed changed during application and to what	Whether smoke wind direction indicators were used

Application Details:

Method of Application (by aircraft or by ground equipment)	Equipment and type of nozzles used	Speed of aircraft or ground application equipment
Sprayer pressure used	Formulation used (EC)	Name of endosulfan product used or unique APVMA approval number
Amount active ingredient applied per hectare	Total volume of spray mixture applied per hectare	Total amount of active ingredient used in spray operation
Any additives used in mixture and rate of use	Whether closed mixing and loading equipment was used	Operator protection used (type of protective clothing, enclosed cab)
For aerial applications – was GPS equipment used	For aerial applications – what was the length of the boom as percentage of wingspan	For aerial applications – what was the angle of the nozzles
Time at beginning of application	Time at end of application	

Description of any problems with the application caused by equipment.

Description of any problems with the application caused by weather.

A statement saying the information on this record is accurate and correct followed by the signature of the grower.

DEFINITIONS APPLYING WITHIN THIS LABEL**For Endosulfan Use on Cotton**

- Downwind** The direction toward which the wind is blowing during the time that an endosulfan spray application is carried out.
- Occupier** In relation to land, means the person in actual occupation of the land or, if there is no person in actual occupation, the person entitled to possession of the land. In relation to residence, means a responsible person in actual occupation of the residence.
- Neighbour** A neighbour is the occupier of a neighbouring property or residence the boundaries or walls of which are within 750 metres for aerial EC or 200 metres for ground EC application of the area of cotton to be sprayed with endosulfan.
- Area Of Cotton To Be Sprayed** A cotton field or portion of a cotton field intended to be sprayed. The intention to spray the area is necessarily made before the wind direction is known at the actual time of spraying. The possible location of a “downwind no-spray zone” (see definition below) which may come into effect at the time of spraying does not influence the dimensions of the area of cotton originally planned to be treated with endosulfan.
- Neighbour Notification Zone** A zone extending in all directions from the edges of the cotton field or portion of a cotton field intended to be sprayed. (See Diagram A under “DIAGRAMS” following this section.) Its width is determined by the endosulfan formulation (EC) and by the application method (by air or by ground). The widths are 750 metres for EC applied by aircraft and 200 metres for EC applied by ground equipment. Property boundaries or residences falling within that zone make it necessary for the grower to notify the occupiers of those properties and residences according to methods specified under “HOW TO NOTIFY THE NEIGHBOURS”.

Note that because the wind direction cannot be known prior to the time of spraying, the possible location of a “downwind no-spray zone” (see definition below) does not influence the area of cotton originally planned to be treated with endosulfan and does not relieve the cotton grower of the obligation to notify neighbours who might be anticipated to be downwind.

- Downwind No-Spray Zone** A zone of higher risk for spray drift effects where spraying cannot take place unless written consent to waive the zone is obtained from the downwind neighbour as specified under “OBTAINING WRITTEN CONSENT TO WAIVE THE DOWNWIND NO-SPRAY ZONE”. Its width is determined by the endosulfan formulation (EC) and by the application method (by air or by ground). The widths are 750 metres for EC applied by aircraft and 200 metres for EC applied by ground equipment. The no-spray zone begins at the nearest downwind property boundary or residence and, depending upon the distance between the property boundary or residence and the cotton field, extends toward or into the cotton field to be sprayed.

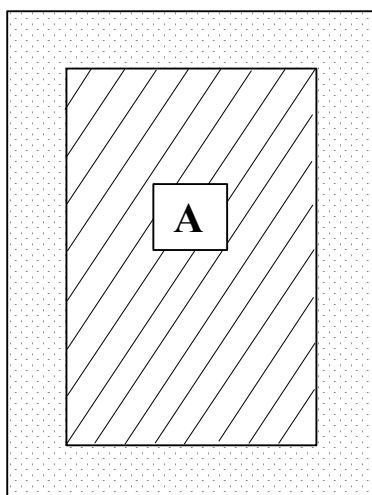
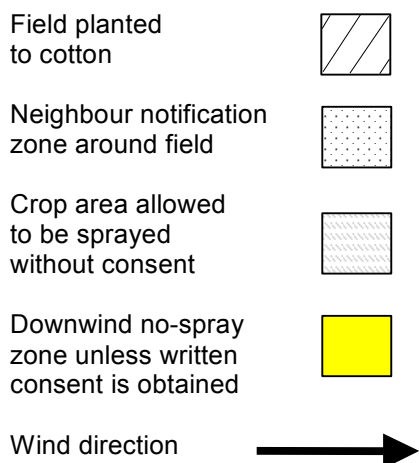
DIAGRAMS & EXPLANATIONS RELATED TO DIAGRAMS

For Endosulfan Use on Cotton

The width of both the **neighbour notification zone** and the **downwind no-spray zone** is determined by the endosulfan formulation (EC) and by the application method (by air or by ground). For both types of zone, the widths are:

- 750 metres for EC applied by aircraft
- 200 metres for EC applied by ground equipment

Legend



The neighbour notification zone extends in all directions around the area of cotton to be sprayed and requires the cotton grower to notify all neighbours falling within that zone before spraying. (See definition in previous section under “DEFINITIONS APPLYING WITHIN THIS LABEL”.)

Diagram A Shows the neighbour notification zone extending in all directions around a cotton field. If no property lines or residences fall within that zone, then no neighbours need to be notified. For example, if the grower chose to apply endosulfan by ground, then the zone would extend only 200 metres in all directions and may not reach to neighbouring properties or residences. Alternatively, if the grower chose to apply EC endosulfan by air, the zone would extend 750 metres in all directions and might include neighbouring properties or residences and therefore require the grower to notify those neighbours.

Downwind No-Spray Zone

The downwind no-spray zone is a zone of higher risk for spray drift effects where spraying cannot take place without written consent from the downwind neighbour. (See definition in previous section under “DEFINITIONS APPLYING WITHIN THIS LABEL”) See below for examples of several different situations.

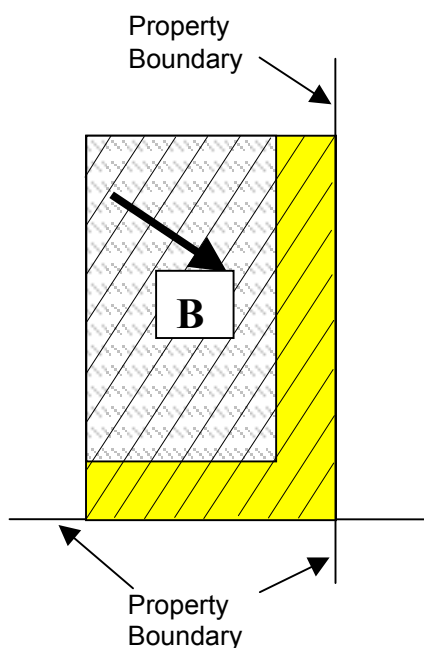


Diagram B Shows a cotton field bordered on two sides by property lines. In this case the wind is blowing toward both property lines, which requires the endosulfan user to observe a no-spray zone for both downwind portions of the field. Since the property lines adjoin the field, the full width of the no-spray zone extends into the field.

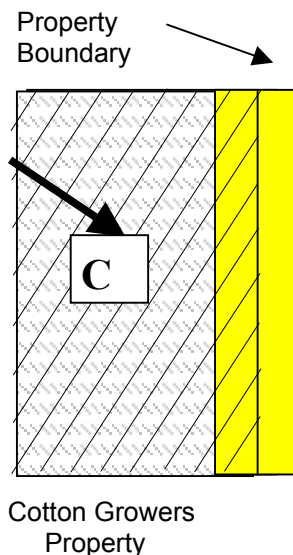


Diagram C Shows a cotton field with only one property line nearby but not adjoining the field. The wind is blowing toward the property line, but since there is a gap between the property line and the edge of the field, only a portion of the no-spray zone extends into the field, and therefore only that portion of the field must not be sprayed unless consent to waive the no-spray zone is obtained from that neighbour. The rest of the no-spray zone is taken up by the gap, which is located on the cotton grower's property.

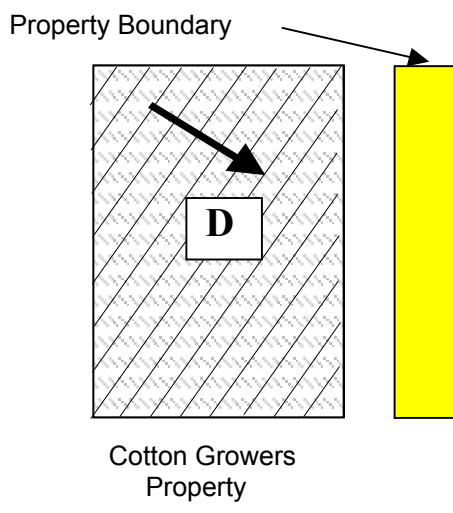


Diagram D Shows a cotton field with a downwind property line which is so far removed that it exceeds the width of the no spray-zone (as illustrated). Therefore, all of the downwind no-spray zone, which begins at the neighbour's property boundary, falls within the gap on the cotton grower's property. No portion of it extends into the cotton field allowing the entire field to be sprayed without a neighbour's consent.

It is important to remember that the width of the no-spray zone depends upon the application method and the formulation. The situation shown in diagram D might be the case for a ground application of EC (200 metre wide zone), but for the same field, it might be as shown in diagram C for an aerial application of EC (750 metre wide zone). The width of the downwind no-spray zone which is chosen and the width of the gap between the field edge and the downwind property line will determine which situation applies.

HOW TO NOTIFY THE NEIGHBOURS

For Endosulfan Use on Cotton

Notification of neighbours may be done by a method agreed in writing between the cotton grower and the neighbour. The agreement must be signed by both parties and may be made before or during the endosulfan spray period for that cotton season.

If such a written agreement is not achieved with a particular neighbour, then the cotton grower (or a person acting on the grower's behalf) must notify that neighbour between 48 hours and 12 hours before application of endosulfan is intended. Specifications for giving notification are set out in sections 1 through 5 below.

1. The notice must include the following information: (For convenience, a standard APVMA Endosulfan Neighbour Notification Form containing the following elements can be obtained from retail sellers of endosulfan or from the APVMA.)
 - (i) the name, address and telephone number of the cotton grower;
 - (ii) the name of the neighbour being notified;
 - (iii) the date and estimated time of the planned application;
 - (iv) the location, size and outline of the area of cotton to be sprayed shown on a map which must also show the full extent to which the neighbour notification zone extends onto the neighbour's property or residence;
 - (v) the formulation of endosulfan to be used in the planned treatment (EC) and
 - (vi) the method of application (by aircraft or by ground equipment).

2. Notice must be given in writing in at least one of the following forms:
 - (i) by personally delivering the notice to the neighbour by hand;
 - (ii) by electronic mail ("e-mail");
 - (iii) by facsimile transmission or
 - (iv) by sending the notice via Express Post. Note that if this method is used, the cotton grower must sufficiently anticipate the time of spraying in order to have the letter delivered within the period of 48 hours to 12 hours before spraying. (See section 3 below for the time of Express Post delivery)
3. A person will be taken to have been notified as follows:
 - if delivered by hand, upon delivery;
 - if sent by e-mail, upon receipt by the sender of an acknowledgment that the communication has been properly transmitted to the recipient;
 - if sent by facsimile transmission, upon receipt by the sender of an acknowledgment that the communication has been properly transmitted to the recipient; and
 - if sent by Express Post, at 5.00 PM on the second business day after the date on which it was sent.
4. Retain some form of proof that each neighbour has been notified. For example, the printed verification of e-mail or facsimile transmission or a photocopy of the notification with the Express Mail routing sticker attached will serve as proof. If you are delivering the notice by hand, you may prefer to take 2 copies of the notice and ask your neighbour to sign one copy as a written acknowledgment that he/she has received a copy of the notice. If the neighbour refuses to acknowledge receipt in writing, then make a note of this fact, including the date and time that you personally delivered the notice.
5. If a planned endosulfan application is cancelled or postponed due to weather or other factors, each neighbour must be informed of that fact in the notification for the next planned application.

OBTAINING WRITTEN CONSENT TO WAIVE THE DOWNWIND NO-SPRAY ZONE

For Endosulfan Use on Cotton

The downwind no-spray zone must be observed unless written consent to waive it has been obtained by the cotton grower from the appropriate neighbour (see "DIAGRAMS" and "DEFINITIONS APPLYING WITHIN THIS LABEL").

Written consent must contain the following information:

- (i) the name and address of the cotton grower;
- (ii) the name and address of the neighbour;
- (iii) the period of time (beginning date and ending date including the year) for which consent to waive the downwind no-spray zone is granted by the neighbour (**Note** – the period cannot be longer than the current cotton season which here means the upcoming or current endosulfan spray season);
- (iv) the words "This document is not a contract. This consent may be withdrawn at any time by giving a written notice of withdrawal of consent to the cotton grower named above. Consent to waive the downwind no-spray zone will be deemed cancelled 24 hours after such written notice is delivered. Written notice may be sent by mail and will be taken to be delivered at 5.00 PM on the second business day after the date on which it was sent if sent by Express Post and at 5.00 PM on the fifth business day after it was sent if sent by ordinary mail"; and
- (v) the signature of the neighbour and the date signed.

DIRECTIONS FOR USE**Restrains:**

DO NOT use this product unless records of sprays are kept in accordance with specifications found under “**RECORD KEEPING REQUIREMENTS**” in this booklet (attached to container) which forms part of the label. Records of sprays are subject to audit by authorised inspectors.

EXCEPT FOR ORCHARD CROPS, all other crops are limited to a maximum of 2 full coverage sprays of endosulfan product per crop per growth season (or equivalent of 2 sprays in active ingredient per hectare) unless irrigation tail water and up to 25 mm of rainfall can be captured on farm.

DO NOT apply if heavy rains or storms that are likely to cause surface runoff from the farm property are forecast with greater than 50% probability within two days of application. If a property has water retention systems capable of containing all irrigation tailwater and at least a further 50 mm of rainfall on the property, then endosulfan may be applied even if rain is forecast within two days.

DO NOT apply when irrigating, or to waterlogged soil or while water remains in furrows unless tail water can be captured.

DO NOT irrigate for at least two days after spraying unless tail water can be captured on farm.

BEFORE applying to cotton, users MUST refer to the “**CONDITIONS OF USE ON COTTON**” section of this booklet.

FIELD CROPS (including cotton)

CROP	PEST	STATE	RATE	WHP	CRITICAL COMMENTS	
Pre emergent use ONLY Canola (oilseed rape), linseed, safflower, sunflower	Redlegged earthmite	Qld, NSW, Vic, Tas, SA, WA only	0.5 or 1.0 L/ha	See Withholding Period Section	Spray only by ground rig using at least 50 litres of water per hectare. Use the lower rate for broad area spraying of mite-infested paddocks prior to seedling emergence. This rate will give 3 to 5 weeks residual protection. Use the higher rate as a perimeter spray within the fence lines if mites are moving into the paddock from adjacent areas.	
	Blue oat mite	NSW, WA only				
Pre emergent use ONLY Cereals	Redlegged earthmite	NSW, Vic, SA, WA only	0.5 or 1.0 L/ha			Spray only by ground rig using at least 50 litres of water per hectare. Use the lower rate for broad area spraying of mite-infested paddocks prior to seedling emergence. This rate will give 3 to 5 weeks residual protection. Use the higher rate as a perimeter spray within the fence lines if mites are moving into the paddock from adjacent areas.
Pre emergent use ONLY Adzuki beans, chickpeas, cowpeas, faba beans, lupins, mung beans, navy beans, peas—field, pigeon peas, soybeans	Redlegged earthmite	Qld, NSW, Vic, Tas, SA, WA only	0.5 or 1.0 L/ha			Spray only by ground rig using at least 50 litres of water per hectare. Use the lower rate for broad area spraying of mite-infested paddocks prior to seedling emergence. This rate will give 3 to 5 weeks residual protection. Use the higher rate as a perimeter spray within the fence lines if mites are moving into the paddock from adjacent areas.
	Blue oat mite	NSW, WA only		Spray only by ground rig using at least 50 litres of water per hectare. Use the lower rate for broad area spraying of mite-infested paddocks prior to seedling emergence. This rate will give 3 to 5 weeks residual protection. Use the higher rate as a perimeter spray within the fence lines if mites are moving into the paddock from adjacent areas.		
Cotton	Heliiothis (<i>Helicoverpa</i> spp., native budworm, cotton bollworm), rough bollworm, aphids, thrips, cotton looper, jassids, green vegetable bug, cutworms, cotton tipworm	Qld, NSW, WA, NT only	2.1 L/ha	Apply at or just prior to egg hatching of caterpillars, or at first sign of infestation depending upon insect checks. Repeat sprays at intervals of 5 to 10 days, depending on infestation level, rate of growth of cotton and insect checks. Caterpillar larvae larger than 7 to 10 mm are not readily controlled. Refer to the CONDITIONS OF USE ON COTTON prior to use on cotton.		
	Web-spinner caterpillar	NSW, WA, NT only				

VEGETABLES

Note: Observe Restraints

CROP	PEST	STATE	RATE	WHP	CRITICAL COMMENTS
Beetroot	Beetroot webworm, aphids	All States	190 mL/100 L	See With-holding Period Section	Apply as thorough spray as required and repeat at 10 to 14 day intervals.
	Leafminer	Tas, SA, WA only	2.1 L/ha		Apply as required.
	Heliothis (<i>Helicoverpa</i> spp.), loopers	Qld, WA only	200 mL/100 L or 2.1 L/ha		Apply as a thorough spray every 10 to 14 days or according to pest incidence. Add wetting agent.
Cabbages (head), cauliflower, broccoli	Caterpillars, cabbage white butterfly, looper and riddler caterpillars, aphid (except grey cabbage aphid), Rutherglen bug, green vegetable bug, thrips, <i>Helicoverpa</i> spp. (heliothis), jassids, cutworm	All States	2.1 L/ha or 190 mL/100 L water or 30 mL/15 L knapsack		Apply every 10 to 14 days or according to pest incidence. Apply when caterpillars are small (7 to 10 mm or less).
Capsicums, cape gooseberry, okra	Tomato grub, thrips, aphids, Rutherglen bug, jassids, cutworms, tomato russet mite, white flies, loopers	All States	190 mL/100 L or 2.1 L/ha		Spray thoroughly and repeat as required.
	Green vegetable bug	Qld, NSW, Tas, SA, WA only			Apply every 10 to 14 days while infestation lasts.
Carrots	Aphids, leafhoppers	SA, WA only	190 mL/100 L	Apply as a thorough spray every 10 to 14 days, or as required.	
Celery	Aphids, caterpillars, leafhoppers, thrips	Tas, SA, WA only	190 mL/100 L	Apply as required.	
Cucurbits (including chokos, cucumbers, marrows, melons, pumpkins, squash)	Aphids, thrips, jassids, green vegetable bug	All States	190 mL/100 L	Apply every 10 to 14 days or according to pest incidence. Apply when caterpillars are small (7 to 10 mm or less).	
	Cucumber moth, heliothis (<i>Helicoverpa</i> spp.)	Qld, WA only	200 mL/100 L		
	Cucurbit shield bug, fruitspotting bugs, Rutherglen bug	Qld, WA only	2.1 L/ha		
Egg plant	Heliothis (including tomato grub), thrips, aphids, Rutherglen bug, jassids, cutworms, tomato russet mite, white flies, loopers	All States	190 mL/100 L or 2.1 L/ha		
	Green vegetable bug	Qld, NSW, Tas, SA, WA only			
	Egg fruit caterpillar, yellow peach moth	Qld, WA only	190 mL/100 L		
	Potato moth	SA, WA only			
Potatoes	Thrips, aphids, leaf miner, jassids, potato moth, Rutherglen bug, green vegetable bug	All States	2.1 L/ha	Apply every 10 to 14 days or according to pest incidence commencing at first sign of pests.	
Sweet potato	Leafminer	Qld, WA only	2.1 L/ha	Apply every 10 to 14 days or according to pest incidence commencing at first sign of pests.	
Taro	Caterpillars (including cluster caterpillars)	Qld, WA only	200 mL/100 L	Spray thoroughly and repeat as required.	
Tomatoes	Tomato grub, thrips, aphids, Rutherglen bug, jassids, white flies, cutworms, tomato russet mite, loopers	All States	190 mL/100 L or 2.1 L/ha	Apply every 10 to 14 days or according to pest incidence. Apply when caterpillars are small (7 to 10 mm or less).	
	Green vegetable bug	Qld, NSW, Tas, SA, WA only			

TREE and VINE CROPS**Note:** Observe Restraints

RATE In the following table, all rates are given for dilute spraying. For concentrate spraying and for further details on dilute spraying, refer to the Special Instructions for Tree and Vine crops section.					CRITICAL COMMENTS For all uses in this table: Apply by dilute or concentrate spraying equipment. Apply the same total amount of product to the target crop whether applying this product by dilute or concentrate spraying methods. For concentrate spraying, DO NOT use at rates greater than 5 times the dilute spraying rate.
CROP	PEST	STATE	RATE (Dilute spraying)	WHP	
Avocados	Fruitspotting bugs, banana-spotting bug, yellow peach moth	All States	150 mL/100 L	See With-holding Period Section	Apply one or two sprays at 2 to 3 week intervals when infestation present.
	Brown loopers, grey loopers, redbanded thrips, redshouldered leaf beetle (monolepta beetle), swarming leaf beetle	Qld, WA only	200 mL/100 L		Apply as required.
	Redshouldered leaf beetle (monolepta beetle)	NSW only	150 mL/100 L		Ensure thorough coverage of flowers and foliage. Repeat when necessary.
Cashews	Fruitspotting bugs	Qld, WA only	200 mL/100 L		Apply as required during December/January to prevent premature fruit drop.
Citrus including mandarins, lemons, oranges, grapefruit	Spined citrus bug	NSW, WA, SA, Vic, Qld only	10 -30 mL/100 L		<ol style="list-style-type: none"> 1. Use higher rate within the recommended range to spray over-wintering clusters of the pests which are usually found on oranges, mandarins and grapefruit adjacent to lemons. 2. Spray in spring if more than 20 adult pests can be found in a 30 minute search and less than 50% of egg batches are parasitised. 3. Spray in December/January if more than 2 adults or 30 nymphs are found in a 30 minute search, and less than 50% of egg batches are parasitised. 4. Spray mandarins in February/ March as soon as pests are detected. Continue monitoring for pest presence. Follow-up sprays may be required.
Custard apple	Fruitspotting bugs, banana-spotting bug, yellow peach moth	All States	150 mL/100 L		Apply one or two sprays at 2 to 3 week intervals when infestation present.
	Blue triangle butterfly, loopers	NSW, WA only			Apply cover sprays to foliage and fruit if loopers and caterpillars are found in large numbers in spring and autumn.
	Blue triangle butterfly	Qld only	200 mL/100 L		Spray once in late summer/ autumn. Spray young trees only if serious defoliation occurs.
Guavas, persimmons	Fruitspotting bugs, caterpillars, loopers	NSW, WA only	150 mL/100 L		Apply cover sprays once the damage is detected in the spring and autumn. A follow-up spray may be necessary 3 weeks following the initial spray.
	Fruitspotting bugs	Qld only	200 mL/100 L		Apply at monthly intervals from time of fruit set, or more frequently in orchards under constant pest pressure.
Kiwifruit	Caterpillars, Rutherglen bug, fruitspotting bugs	NSW, WA only	150 mL/100 L		Apply as a high volume spray when pests appear. Apply every 7 to 14 days when pests are present.
	Fruitspotting bugs	Qld only	200 mL/100 L		Apply every 2 to 4 weeks during fruiting period depending on orchard location and level of infestation.
	Passionvine hopper	Qld, WA only			Apply as required.

RATE In the following table, all rates are given for dilute spraying. For concentrate spraying and for further details on dilute spraying, refer to the Special Instructions for Tree and Vine crops section.					CRITICAL COMMENTS For all uses in this table: Apply by dilute or concentrate spraying equipment. Apply the same total amount of product to the target crop whether applying this product by dilute or concentrate spraying methods. For concentrate spraying, DO NOT use at rates greater than 5 times the dilute spraying rate.
CROP	PEST	STATE	RATE (Dilute spraying)	WHP	
Longans	Rutherglen bugs, thrips	Qld, WA only	200 mL/ 100 L	See With-holding Period Section	Apply as required. Repeat applications may be necessary.
	Fruitspotting bugs				Apply every 2 to 4 weeks during fruiting period depending on orchard location and level of infestation.
Loquats	Fruitspotting bugs	Qld, WA only	200 mL/ 100 L		Apply every 2 to 4 weeks during fruiting period depending on orchard location and level of infestation.
Lychees (Litchis)	Flower eating caterpillar	NSW, WA only	150 mL/ 100 L		Apply spray when trees are flowering. A repeat spray may be necessary.
	Lychee stink bug, fruitspotting bugs				Apply spray when bug activity is seen on trees. A repeat spray may be necessary one week later.
	Fruitspotting bugs	Qld only	200 mL/ 100 L		Apply from October to harvest whenever bug damaged fruit is found.
Macadamias	Fruitspotting bugs	Qld, NSW, WA only	150 mL/ 100 L		Apply two sprays at 3 weekly intervals when premature nut fall is evident.
	Banana-spotting bug				Apply two or three sprays at 2 week intervals, after flowering.
	Flower caterpillar				Apply two or three sprays in the flowering period.
	Twig girdler, aphids, macadamia lace bug, hairyline blue butterfly (hairyline caterpillar)				Apply as required.
	Green vegetable bug				Apply the spray when heavy infestations of the pest occur. Ensure thorough coverage.
	Redshouldered leaf beetle (monolepta beetle)				Apply to infested trees as required. Ensure thorough coverage of flowers and foliage. Repeat applications may be necessary.
	Black citrus aphids	Qld, WA only	200 mL/ 100 L		Apply as required.
Mammy (Mammy apples)	Redbanded thrips	Qld only	200 mL/ 100 L		Apply as required. Repeat applications may be necessary.
Mangoes	Flatid planthoppers (including mango planthopper), flower-eating caterpillars, fruitspotting bugs, large mango tip-borer, small mango tip-borer	NSW only	150 mL/ 100 L		Apply as required to flowers, foliage and fruit during the flowering to early fruiting stage.
		Qld, WA only	200 mL/ 100 L		
	Redshouldered leaf beetle (monolepta beetle)	NSW, WA only			Apply as a high volume full cover spray when bugs or fresh damage detected.
	Banana-spotting bug, Redbanded thrips	Qld, WA only			
Passion fruit	Passionvine bug, Rutherglen bug	All States	150 mL/ 100 L		Apply as required when pests present.
	Green vegetable bug	Qld, NSW, Tas, SA, WA only	200 mL/ 100 L		Apply when 2% or more fruit show fresh injury.
	Fruitspotting bugs	Qld, WA only			

RATE In the following table, all rates are given for dilute spraying. For concentrate spraying and for further details on dilute spraying, refer to the Special Instructions for Tree and Vine crops section.					CRITICAL COMMENTS For all uses in this table: Apply by dilute or concentrate spraying equipment. Apply the same total amount of product to the target crop whether applying this product by dilute or concentrate spraying methods. For concentrate spraying, DO NOT use at rates greater than 5 times the dilute spraying rate.
CROP	PEST	STATE	RATE (Dilute spraying)	WHP	
Pawpaw	Fruitspotting bugs, banana-spotting bug, yellow peach moth	All States	150 mL/100 L	See With-holding Period Section	Apply one or two sprays at 2 to 3 week intervals when infestation is present.
Pecans	Heliothis (<i>Helicoverpa</i> spp.), green vegetable bug	Qld, NSW, WA only	2.8 L/ha (refer to Critical Comments)		Apply as required from approximately October to April using 30 to 40 litres of water per hectare by aircraft and approximately 1,400 litres of water per hectare by ground.
	Christmas beetles, monolepta beetles, fruitspotting bugs, yellow peach moth	NSW, WA only	150 mL/100 L		Apply cover sprays once damage by these pests is detected in the spring and summer period. It may be necessary to apply a follow-up spray one week after the first.
Pistachios	Aphids, caterpillars	Qld, WA only	200 mL/100 L		Apply as required.
Pome fruit	Woolly aphids (apples only), green & black peach aphids, thrips, Rutherglen bug, Heliothis (<i>Helicoverpa</i> spp.)	All States	190 mL/100 L		Apply as a full cover spray as required.
	Cherry aphid	NSW, Vic, Tas, SA, WA only			
	Dimpling bugs	Qld, NSW, Vic, SA, WA only			Apply as a full cover spray at early-late pink stage. A second application may be necessary if re-infestation occurs.
	Redshouldered leaf beetle	NSW, WA only	150 mL/100 L	Spray when heavy infestations occur on flowers. Repeat when necessary.	
Pomegranates	Yellow peach moth	Qld, WA only	200 mL/100 L	Apply once when damage is evident on small fruit and again 21 days later if necessary.	
Rambutans	Fruitspotting bugs	Qld, WA only	200 mL/100 L	Apply from October to harvest whenever bug damaged fruit is found.	
Sapodillas	Yellow peach moth	Qld, WA only	200 mL/100 L	Apply and repeat as required.	
Tamarillos	Fruitspotting bugs	Qld, WA only	200 mL/100 L	After fruit set spray every 14 days.	
	Aphids			Apply when aphid numbers on leaves and terminals begin to cause honeydew contamination of fruit, and natural enemies are not able to control the infestation.	
	Caterpillars			Apply if significant defoliation occurs.	

OTHER**Note:** Observe Restraints

CROP	PEST	STATE	RATE	WHP	CRITICAL COMMENTS
Native trees, shrubs (direct seeding)	Redlegged earthmite, blue oat mite	NSW, WA only	0.5 or 1.0 L/ha	See With-holding Period Section	Apply as soon as mite activity is evident on seedlings. Use the lower rate for bare earth treatment. Use at least 50 litres of water per hectare to give good coverage. Use the higher rate for longer residual control or as a barrier spray where mite activity is high on surrounding vegetation. Where mite infestations are severe a perimeter spray of up to 3 metres should be applied around seedlings. Direct seeded areas should be either fenced and/or stock removed to ensure survival of seedlings.
Ornamentals, nursery crops	Thrips, aphids, jassids, cutworms, loopers and other caterpillars	All States	190 mL/100 L		Apply as a thorough spray, ensuring wetting of plant, and repeat as necessary.
Tobacco	Heliothis (<i>Helicoverpa</i> spp., native budworm, tobacco budworm), loopers, caterpillars, thrips, leafminer, aphids, jassids, green vegetable bug	NSW, Vic, SA, WA only	125 to 250 mL/100 L		Apply as thorough wetting spray every 7 to 14 days or as required according to pest incidence. Use higher rate under severe pest incidence. Apply approximately 600 litres of spray per hectare to young plants (0.5 m) increasing to 1,000 litres per hectare to mature plants (1.5 m).
		Qld only	200 to 250 mL/100 L		

NOT TO BE USED FOR ANY PURPOSE, OR IN ANY MANNER, CONTRARY TO THIS LABEL UNLESS AUTHORISED UNDER APPROPRIATE LEGISLATION.

THIS PRODUCT IS TOO HAZARDOUS TO BE USED IN THE HOME GARDEN.

IN TASMANIA THIS PRODUCT MUST NOT BE APPLIED BY AIRCRAFT WITHOUT THE SPECIFIC APPROVAL OF THE REGISTRAR OF CHEMICAL PRODUCTS.

CONDITIONS OF USE ON COTTON

Use on cotton is limited to a total of 2205 grams of active ingredient per hectare per growth season (equivalent to 3 full coverage applications of 735 grams active ingredient per hectare) where irrigation tailwater and up to 25 mm of rainfall can be captured on farm.

The total limit is reduced to 1470 grams of active ingredient (equivalent to 2 sprays) per hectare per growth season where irrigation tailwater and up to 25 mm of rainfall cannot be captured on farm.

When used on cotton, this product must be used in accordance with the current Australian cotton industry Best Management Practices Manual and its associated spray and drift management plan except when advice or requirements from cotton's best management practices conflict with conditions of use found on the label or in this booklet (attached to container) which forms part of the label. In such cases, label directions must be followed.

Do not use on cotton unless occupiers of neighbouring properties and occupiers of neighbouring residences are given prior notice of planned time, location, formulation and method of application. "Neighbouring properties and residences" are those with boundaries within 750 metres for aerial EC or 200 metres for ground EC application of the area of cotton to be sprayed (refer to diagrams in this booklet which forms part of the label). Notification may be done by a method agreed in writing with the neighbouring owner or occupier. Without such a written agreement, notification must be made between 48 and 12 hours before spraying is intended and must follow other requirements as specified under "how to notify the neighbours" found in this booklet (attached to container) which forms part of the label.

Do not use on cotton aurally or by ground except with a high-volume large-droplet-placement technique as specified in this booklet (attached to container) which forms part of the label.

continued

CONDITIONS OF USE ON COTTON (continued)

Do not use on cotton by aerial spraying where there is located within 750 metres downwind from the area of cotton to be sprayed any property boundary or any residence without prior written consent from the occupiers of that neighbouring property or residence. The time period of consent must be included in the written consent and may be granted for a part of but not longer than the whole of the current cotton season (see “obtaining written consent to waive the downwind no-spray zone” found in this booklet which forms part of the label).

Do not use on cotton by ground spraying where there is located within 200 metres downwind from the area of cotton to be sprayed any property boundary or any residence without prior written consent from the occupiers of that neighbouring property or residence. The time period of consent must be included in the written consent and may be granted for a part of but not longer than the whole of the current cotton season (see “obtaining written consent to waive the downwind no-spray zone” found in this booklet which forms part of the label).

Do not use on cotton by aerial spraying outside the period of 15 November to 15 January inclusive (excepting only the shire council areas of Bourke and Walgett in NSW and Balonne, Banana, Bauhinia, Belyando, Broadsound, Dalrymple, Duaringa, Emerald, Peak Downs, Richmond and Waroo in Qld where the period is 1 November to 31 December inclusive).

Do not use on cotton by ground application outside the period of 1 October to 15 January inclusive.

Permissible Dates of Application on Cotton

Application of endosulfan on cotton can only take place during the time windows specified below.

The allowed time windows for endosulfan are determined by the method used and by the geographic area where the application takes place. These application windows must be observed.

October		November		December		January	
1 st - 15 th	16 th - 31 st	1 st - 14 th	15 th - 30 th	1 st - 14 th	15 th - 31 st	1 st - 15 th	16 th - 31 st
Endosulfan EC - Ground application							
				Endosulfan EC - Aerial Application¹			
		Endosulfan EC - Aerial Application²					

1. All cotton growing areas except for the areas listed in (2) below.

2. Shire council areas Bourke and Walgett in NSW, and Balonne, Banana, Bauhinia, Belyando, Broadsound, Dalrymple, Duaringa, Emerald, Peak Downs, Richmond and Waroo in Qld.

Do not use by aerial spraying on cotton less than 20 centimetres in height.

WITHHOLDING PERIODS**FIELD CROPS (including cotton)**

Pulse crops (adzuki beans, chickpeas, cow peas, faba beans, field peas, lentils, lupins, mung beans, navy beans, pigeon peas):

Harvest: WITHHOLDING PERIOD NOT REQUIRED WHEN USED AS DIRECTED

Grazing: DO NOT GRAZE OR CUT FOR STOCKFOOD FOR 7 WEEKS AFTER APPLICATION

Cereals (barley, oats, rye, triticale, wheat):

Harvest: WITHHOLDING PERIOD NOT REQUIRED WHEN USED AS DIRECTED

Grazing: DO NOT GRAZE OR CUT FOR STOCKFOOD FOR 10 WEEKS AFTER APPLICATION

Oilseeds: (canola (rapeseed), linseed, soybeans, safflower, sunflowers):

Harvest: WITHHOLDING PERIOD NOT REQUIRED WHEN USED AS DIRECTED

Grazing: DO NOT GRAZE OR CUT FOR STOCKFOOD FOR 8 WEEKS AFTER APPLICATION

Cotton: DO NOT HARVEST FOR 8 WEEKS AFTER APPLICATION

This product must not be used on cotton where cotton trash, fodder or stubble (excluding seed and hulls) will or may be fed to livestock.

DO NOT FEED COTTON FODDER, STUBBLE OR TRASH TO LIVESTOCK

VEGETABLES

Broccoli, cabbage, cauliflower: DO NOT HARVEST FOR 7 DAYS AFTER APPLICATION

Cucurbits: DO NOT HARVEST FOR 3 DAYS AFTER APPLICATION

Capsicum, tomatoes: DO NOT HARVEST FOR 3 DAYS AFTER APPLICATION

Cape gooseberry, eggplant, okra: DO NOT HARVEST FOR 7 DAYS AFTER APPLICATION

Beetroot, carrot, potato, sweet potato, taro: DO NOT HARVEST FOR 14 DAYS AFTER APPLICATION

Celery: DO NOT HARVEST FOR 7 DAYS AFTER APPLICATION

DO NOT FEED VEGETABLE WASTES OR WRAPPER LEAVES OF TREATED VEGETABLE CROPS TO LIVESTOCK

DO NOT FEED TREATED MELONS OR MELONS CROP TO LIVESTOCK

DO NOT FEED TREATED TOMATO CROPS TO LIVESTOCK

TREE AND VINE CROPS

Citrus fruit: DO NOT HARVEST FOR 3 DAYS AFTER APPLICATION

Loquats, pome fruit: DO NOT HARVEST FOR 28 DAYS AFTER APPLICATION

Avocado, kiwifruit, mammey, passionfruit, pomegranate, sapodilla,: DO NOT HARVEST FOR 14 DAYS AFTER APPLICATION

Custard apple, guava, lychees, longans, mango, pawpaw, persimmon, rambutan, tamarillo: DO NOT HARVEST FOR 7 DAYS AFTER APPLICATION

Cashews, pecans, pistachios: DO NOT HARVEST FOR 14 DAYS AFTER APPLICATION

Macadamias: DO NOT HARVEST FOR 2 DAYS AFTER APPLICATION

DO NOT GRAZE ORCHARDS AFTER APPLICATION

OTHER CROPS

Native trees, nursery crops, ornamentals, shrubs, tobacco: WITHHOLDING PERIOD NOT REQUIRED WHEN USED AS DIRECTED.

Export Trade Advice - Livestock

Consumption by livestock of any materials previously treated with this product, may produce residues in the animal that might not be acceptable in some markets. The label withholding periods for grazing only apply to stock slaughtered for the domestic market. Some export markets apply different standards. To meet these standards, ensure that the Export Slaughter Interval (ESI) is observed before stock are sold or slaughtered.

Export Slaughter Interval (ESI) – 21 days

Livestock that have been grazing on or fed treated crops (Except for label exclusions – cotton, melons, tomato, vegetable wastes/wrapper leaves which should not be fed to livestock) should be placed on clean feed for 21 days prior to export slaughter.

Export of Treated Produce

Growers should note that suitable MRLs or import tolerances may not be established in all markets for produce treated with Thiodan EC Insecticide. If you are growing produce for export, please check with Bayer CropScience Pty Ltd for the latest information on MRLs and import tolerances BEFORE using Thiodan EC Insecticide.