CAUTION

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

Warlock®

Insecticide

ACTIVE CONSTITUENT: 17 g/L EMAMECTIN

present as EMAMECTIN BENZOATE

SOLVENTS: 602 g/L LIQUID HYDROCARBON
100 g/L N-METHYL-2-PYRROLIDONE

GROUP 6 INSECTICIDE

Crops: Brassica Vegetables, Canola, Capsicum, Cotton, Grapes, Lettuce, Pulses, Sweet Corn and Tomatoes

Controls or Suppresses: Bean Pod Borer, Cabbage White Butterfly, Diamondback Moth, Green Mirids, Heliothis, Lightbrown Apple Moth, Loopers and Mites as per the Directions for Use

Formulation type
Emulsifiable Concentrate **EC**

ADAMA

adama.com

CONTENTS: 1 - 1000 L

DIRECTIONS FOR USE

RESTRAINTS

DO NOT use on canola grown as a forage crop.
DO NOT use on dual-use canola prior to grazing.
DO NOT apply to crops under visible stress.
DO NOT apply if wind speed is less than 3km and more than 20km per hour or under conditions where temperature inversions may occur.
DO NOT spray any plants in flower while bees are actively foraging.
DO NOT apply with aircraft in brassica vegetables, grapes, sweet corn, lettuce, capsicum and tomatoes.

CROP	PEST	RATE	CRITICAL COMMENTS
Brassica Vegetables Broccoli, Brussels Sprouts, Cabbages, Cauliflower only	Diamondback Moth (Cabbage Moth) (*Plutella xylostella*), Cabbage White Butterfly (*Pieris rapae*)	650 to 780 mL/ha Add a non- ionic surfactant at recommended label rate	Spray at first signs of insect infestation as indicated by local spray thresholds. Use the lower rate on low to moderate infestations. DO NOT make more than 4 applications to any brassica crop. Where more than one crop is grown DO NOT make more than 4 applications of WARLOCK® in any one year. **Resistance Management** The use of WARLOCK® in vegetable brassicas is subject to an insecticide resistance management strategy for Diamondback Moth. Review the current CropLife strategy prior to use.
Canola (for grain production)	Diamondback Moth (*Plutella xylostella*)	150 to 300 mL/ha Add a non- ionic surfactant at recommended label rate	Apply as soon as larval populations reach threshold numbers. Observe current industry threshold recommendations based on crop growth stage. Use rates towards the lower end of the range to control threshold level populations when crop growth stage or insect activity does not favour rapid population development. Use the higher rate to control threshold level populations when conditions favour rapid crop or pest population development. Sample crops twice a week after application to determine if a second application is required. Make no more than 2 applications per season. If further applications are necessary, rotate to an approved product from a different Mode of Action group. Highly toxic to bees. Refer to the Protection of Livestock statement for notification requirements. **Resistance Management** The use of WARLOCK® in canola is subject to an insecticide resistance management strategy for Diamondback Moth. Refer to the CropLife website for more information prior to use.

CROP	PEST	RATE	CRITICAL COMMENTS
Capsicum, Lettuce	Heliothis (*Helicoverpa armigera, Helicoverpa punctigera*)	390 to 650 mL/ha	Spray at first signs of insect infestation as indicated by local spray thresholds. For best results apply soon after the *Helicoverpa* eggs have hatched. DO NOT apply more than 4 sprays of WARLOCK® per crop. Where more than once crop is grown per year DO NOT apply more than 4 sprays per year. Ensure thorough spray coverage. Use the lower rate when targeting light infestations of small larvae. Use 650 mL/ha during periods of heavy insect pressure or under very hot and sunny conditions. WARLOCK® should be used according to CropLife resistance management strategies.
Cotton Qld, NSW, WA, NT only	Heliothis (*Helicoverpa armigera, Helicoverpa punctigera*)	550 mL/ha or 700 mL/ha Add a non- ionic surfactant at recommended label rate	**Heliothis** Timing is important. For best results apply at or just prior to the anticipated time of hatching of *Helicoverpa* eggs as indicated by egg levels or scouting. As earlier larval stages are easier to control, DO NOT target larvae larger than 5 mm (very small to small). Large larvae and larvae feeding within bolls and squares may not be controlled. Larvae must feed on treated areas in order to achieve effective control. Where high egg lays occur the addition of an ovicide is recommended. Use the lower rate on light infestations. **Green Mirids** Apply to developing Green Mirid populations that are predominantly nymphs. Maximum effect is not achieved until 5 to 7 days after application. Use the higher rate on heavier populations. **Mites** Applications of WARLOCK® as outlined above for Heliothis will reduce the rate of mite development in treated cotton. **Resistance Management** WARLOCK® should be used in accordance with the cotton Best Management Practices Manual. Make no more than 4 applications of WARLOCK® per season. Caution – If avermectin resistant mites are present, poor control may occur.
	Green Mirids (*Creontiades dilutes*) Suppression only		
	Mites Suppression only	550 mL/ha or 700 mL/ha Add a non- ionic surfactant at recommended label rate	
Grapes (except grapes grown for dried fruit production)	Light Brown Apple Moth, Grapevine Moth	**Dilute Spraying:** 40 mL/100 L **Concentrate Spraying:** Refer to the Mixing/ Application section	DO NOT apply after bunch closure. For optimal control of Light Brown Apple Moth apply soon after egg lay when larvae are small in size and before larvae become webbed into the bunches. Eggs laid after application on new growth may not be controlled. For Grapevine Moth control, spray when local threshold levels have been reached. Monitor pest levels after application, a further application may be required (minimum re-treatment interval: 7-14 days). Apply by dilute or concentrate spraying equipment. Apply a maximum of 2 applications. Ensure thorough coverage. Apply the same amount of product to the target crop whether applying this product by dilute or concentrate spraying methods.
Summer and Winter Pulses	Bean Pod Borer (*Maruca vitrata*), Heliothis (*Helicoverpa armigera, Helicoverpa punctigera*), Loopers (*Thysanoplusia* sp.), Diamondback Moth (*Plutella xylostella*)	150 to 300 mL/ha Add a non- ionic surfactant at recommended label rate	Timing is important. For best results, apply at or just prior to the anticipated time of hatching of Lepidoptera larvae as indicated by egg levels or scouting. As earlier larval stages are easier to control, DO NOT target larvae larger than 5 mm (very small to small). Use rates towards the lower end of the range to control threshold level populations when crop growth stage or insect activity does not favour rapid population development. Larvae feeding within pods may not be controlled. Larvae must feed on treated areas in order to achieve effective control. Where high egg lays occur, the addition of an ovicide is recommended. DO NOT make more than 2 applications per season, with a minimum interval of 7 days between applications. If further applications are necessary, rotate to an approved product from a different Mode of Action group. Highly toxic to bees. Refer to the Protection of Livestock statement for notification requirements. **Resistance Management** The use of WARLOCK® in pulses is subject to an insecticide resistance management strategy for *Helicoverpa* spp. Refer to the CropLife website for more information prior to use.
Sweet Corn	Heliothis (*Helicoverpa armigera, Helicoverpa punctigera*)	390 to 650 mL/ha	For best results apply just prior to or just after the *Helicoverpa* eggs have hatched, but before larvae enter the cob. DO NOT apply more than 4 sprays of WARLOCK® per crop. Where more than one crop is grown per year DO NOT apply more than 4 sprays per year. Thorough spray coverage is critical. Larvae present within the cob at the time of spraying may not be controlled. Use the lower rate when targeting light infestations of small larvae. **Resistance Management** The use of WARLOCK® in sweet corn is subject to an insecticide resistance management strategy for *Helicoverpa armigera*. Review the current CropLife strategy prior to use.

CROP	PEST	RATE	CRITICAL COMMENTS
Tomatoes	Heliothis (*Helicoverpa armigera, Helicoverpa punctigera*)	390 to 650 mL/ha or 39 to 65 mL/100 L (dilute spraying for Trellised Tomatoes) **Concentrate Spraying:** Refer to the Mixing/ Application section	Spray at first signs of insect infestation as indicated by local spray thresholds. For best results apply soon after the *Helicoverpa* eggs have hatched. DO NOT apply more than 4 sprays of WARLOCK® per crop. Where more than one crop is grown per year DO NOT apply more than 4 sprays per year. Ensure thorough spray coverage. Use the lower rate when targeting light infestations of small larvae. Use 650 mL/ha during periods of heavy insect pressure or under very hot and sunny conditions. **Trellised Tomatoes:** In the case of dilute spraying (mL/100 L) apply in the range of 400 to 500 L/ha after transplanting and increase to 800 to 1000 L/ha at full canopy. **Resistance Management** The use of WARLOCK® in sweet corn is subject to an insecticide resistance management strategy for *Helicoverpa* spp. Review the current CropLife strategy prior to use.

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

WITHHOLDING PERIODS

Brassica Vegetables:	**DO NOT HARVEST FOR 3 DAYS AFTER APPLICATION** **DO NOT USE TREATED CROP, CROP WASTE OR PRODUCE FOR STOCK FOOD**
Canola:	**DO NOT HARVEST, GRAZE OR CUT FOR STOCK FOOD FOR 2 WEEKS AFTER APPLICATION**
Capsicum, Lettuce, Tomatoes:	**DO NOT HARVEST FOR 3 DAYS AFTER APPLICATION** **DO NOT ALLOW LIVESTOCK TO GRAZE TREATED CROPS OR CROP STUBBLE**
Cotton:	**DO NOT HARVEST, GRAZE OR CUT FOR STOCK FOOD FOR 4 WEEKS AFTER APPLICATION** **DO NOT FEED COTTON TRASH FROM TREATED AREAS TO ANIMALS, INCLUDING POULTRY**
Grapes:	**DO NOT HARVEST FOR 8 WEEKS AFTER APPLICATION** **DO NOT GRAZE TREATED AREAS, OR CUT FOR STOCKFEED FOR 8 WEEKS AFTER APPLICATION**
Pulses:	**Harvest: DO NOT HARVEST FOR 21 DAYS AFTER APPLICATION** **Grazing: DO NOT GRAZE OR CUT FOR STOCK FOOD FOR 14 DAYS AFTER APPLICATION**
Sweet Corn:	**DO NOT HARVEST FOR 3 DAYS AFTER APPLICATION** **DO NOT GRAZE OR CUT FOR STOCK FOOD FOR 21 DAYS AFTER APPLICATION**

EXPORT TRADE ADVICE

Treated crop commodities destined for export *may require extra time being allowed* between application and harvest, as some export markets have either no Maximum Residue Limits (MRLs) or different MRLs to those of Australia. Details of overseas standards and any export interval can be obtained by contacting Adama Australia *before using this product.*

GENERAL INSTRUCTIONS

MIXING

Add the required amount of WARLOCK® to a partly filled spray tank, and then add the remainder of the water.

APPLICATION

WARLOCK® is not systemic. To be effective, WARLOCK® requires thorough spray coverage. Ensure that equipment is properly calibrated to give an even distribution at the correct volume.

Canola:

Ground Application: Apply in at least 100 L spray volume per hectare.

Air Application: Apply in at least 20 L spray volume per hectare.

Capsicum, Lettuce, Sweet Corn and Tomatoes: Ensure thorough coverage of the crop.

Cotton:

Ground Application: Apply in at least 80 L spray volume per hectare.

Air Application: Apply in at least 20 L spray volume per hectare.

Brassica Vegetables: Apply WARLOCK® in a minimum of 400 L water per hectare.

Grapes: Apply WARLOCK® in a minimum of 250 L water per hectare.

Pulses:

Ground Application: Apply in at least 80 to 100 L spray volume per hectare, depending on the crop canopy size. Use at least 80 L spray volume per hectare for crops with lower canopy size e.g. Lentils, and 100 L spray volume per hectare for crops with higher canopy size e.g. Chickpeas.

Air Application: Apply in at least 20 L spray volume per hectare.

Mixing/Application: Grapes and Trellised Tomatoes

Dilute Spraying

Use a sprayer designed to apply high volumes of water up to the point of runoff 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 runoff. Avoid excessive runoff. The required water volume may be determined by applying different test volumes, using different settings on the sprayer, from industry guidelines or expert advice. Add the amount of product specified in the Directions for Use table for each 100 L of water. Spray to the point of runoff. 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 water volumes less than those required to reach the point of runoff) and matched to the crop being sprayed. Set up and operate the sprayer to achieve even coverage throughout the crop canopy using your chosen water 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 concentrate factor in this example is 3X (ie. 1500 L ÷ 500 L = 3)
4. If the dilute label rate is 125 mL/100 L, then the concentrate rate becomes 3 x 125, that is 375 mL/100 L of the concentrate spray.

The chosen spray volume, amount of product per 100 L of water, and the sprayer set and operation may need to be changed as the crop grows. For further information of concentrate spraying, users are advised to consult relevant industry guidelines, undertake appropriate competency training and follow industry Best Practices.

COMPATIBILITY

As formulations of other manufacturer's products are beyond the control of Adama Australia, and the quality of water may vary with location, all mixtures should be tested prior to mixing commercial quantities.

INSECTICIDE RESISTANCE WARNING

GROUP 6 INSECTICIDE

For insecticide resistance management WARLOCK® INSECTICIDE is a Group 6 insecticide. Some naturally occurring insect biotypes resistant to WARLOCK® and other Group 6 insecticides may exist through normal genetic variability in any insect population. The resistant individuals can eventually dominate the insect population if WARLOCK® or other Group 6 insecticides are used repeatedly. The effectiveness of WARLOCK® on resistant individuals could be significantly reduced. Since the occurrence of resistant insects is difficult to detect prior to use, Adama Australia accepts no liability for any losses that may result from the failure of WARLOCK® to control resistant insects.

WARLOCK® is subject to specific resistance management strategies as per the Directions for Use table sections on Resistance Management. WARLOCK® should not be applied more than the following number of times per season/crop/year:

Brassica Vegetables, Capsicum, Lettuce, Sweet Corn, Tomatoes:
Four sprays per season/year.
Canola, Grapes, Pulses:
Two sprays per season.
Cotton: Four sprays per season.

RE-ENTRY PERIOD
DO NOT enter treated areas until the spray has dried, unless wearing cotton overalls buttoned to the neck and wrist (or equivalent clothing) and chemical resistant gloves. Clothing must be laundered after each day's use.

PROTECTION OF WILDLIFE, FISH, CRUSTACEANS AND ENVIRONMENT
Dangerous to fish and other aquatic organisms. DO NOT contaminate streams, rivers or waterways with the chemical or used containers. DO NOT apply under weather conditions or from spraying equipment which could be expected to cause spray to drift onto adjacent areas, particularly wetlands, water bodies or watercourses. A spray drift minimisation strategy should be employed at all times when aerially applying to, or near, sensitive areas. The strategy envisaged is exemplified by the cotton industry's Best Management Practice Manual.

PROTECTION OF HONEY BEES AND OTHER INSECT POLLINATORS
Dangerous to bees. Will kill bees foraging in the crop to be treated or in hives which are oversprayed or reached by spray drift. Residues may remain toxic to bees for several days after application.
DO NOT spray any plants in flower while bees are foraging. Before spraying, notify beekeepers to move hives to a safe location with an untreated source of nectar, if there is potential for managed bees to be affected by the spray or spray drift.

STORAGE AND DISPOSAL
1 L
Store in the closed, original container in a cool, well-ventilated area. Do not store for prolonged periods in direct sunlight. Triple rinse containers before disposal. Add rinsings to the 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. Do not burn empty containers or product.

5 – 100 L, 200L
Store in the closed, original container in a cool, well-ventilated area. Do not store for prolonged periods in direct sunlight. This container can be recycled if it is clean, dry, free of visible residues and has the *drumMUSTER* logo visible. Triple rinse container for disposal. Dispose of rinsate by adding it to the spray tank. Do not dispose of undiluted chemical on site. Wash outside of the container and the cap. Store cleaned container in a sheltered place with cap removed. It will then be acceptable for recycling at any *drumMUSTER* collection or similar container management program site. The cap should not be replaced, but may be taken separately.

Micro Matic Valve (110L)
Store in the closed, original container in a cool, well-ventilated area. Do not store for prolonged periods in direct sunlight. Do not tamper with the valve or the security seal. Do not contaminate the container with water or any foreign matter. After each use of the product, please ensure that the coupler delivery system and hoses are disconnected, triple rinsed with clean water and drained accordingly. When the contents of the container have been used, close all valves and return to the point of sale for refill or storage. The container remains the property of Adama Australia.

1000 L
Store in the closed, original container in a cool, well-ventilated area. Do not store for prolonged periods in direct sunlight. Storage must be secure so that contents cannot be tampered with. All locks and/or seals must be in order. If locks or seals are broken prior to initial use then the integrity of this product cannot be assured. If this occurs Adama Australia should be advised immediately. This minibulk container is reusable and remains the property of Adama Australia. Do not rinse empty container. Empty contents fully into application equipment. Close all valves and return to the point of supply for refill or storage. No other liquid, solid or pesticide product shall be put into it. When empty return to Adama Australia for cleaning, relabelling and refilling.

SAFETY DIRECTIONS
Will irritate the eyes and skin. Avoid contact with eyes and skin. When opening the container, preparing spray, using the prepared spray and pouring large quantities, wear cotton overalls buttoned to the neck and wrist (or equivalent clothing) and chemical-resistant gloves and face shield or goggles. If applying by low pressure hand wand, wear cotton overalls buttoned to the neck and wrist (or equivalent clothing), chemical-resistant gloves, a half facepiece respirator and face shield or goggles. If product on skin, immediately wash area with soap and water. If product in eyes, immediately wash area with water. Wash hands after use. After each day's use, wash gloves and face shield or goggles and contaminated clothing.

FIRST AID
If poisoning occurs contact a doctor or Poisons Information Centre. Phone Australia 13 11 26.

SDS

If additional hazard information is required refer to the Safety Data Sheet (SDS). A safety data sheet for WARLOCK® Insecticide is available from adama.com or Call Customer Service on 1800 423 262.

CONDITIONS OF SALE: The use of WARLOCK® Insecticide being beyond the control of the manufacturer, no warranty expressed or implied is given by Adama Australia regarding its suitability, fitness or efficiency for any purposes for which it is used by the buyer, whether in accordance with the Directions for Use or not. Adama Australia accepts no responsibility for any consequence whatsoever resulting from the use of this product.

07/2020 22014