

POISON

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

Cormoran[®]

Insecticide

ACTIVE CONSTITUENTS:

100 g/L NOVALURON

80 g/L ACETAMIPRID

SOLVENT: 395 g/L N-METHYL PYRROLIDONE

GROUP **15|4A** INSECTICIDE

Crops: Apples, Pears, Stone Fruit

Controls/Suppresses: Apple Dimpling Bug, Black Peach Aphid, Codling Moth, Green Peach Aphid, Light Brown Apple Moth, Longtailed Mealybug, Mediterranean Fruit Fly, Oriental Fruit Moth, Plague Thrips, Queensland Fruit Fly, San Jose Scale, Tuber Mealybug and Woolly Apple Aphid

Formulation type
Dispersible
Concentrate

DC



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CONTENTS: 1 - 110 L

DIRECTIONS FOR USE

RESTRAINTS

DO NOT apply CORMORAN[®] during flowering.
DO NOT apply by aircraft.
DO NOT apply if heavy rains or storms are forecast within 3 days.

SPRAY DRIFT RESTRAINTS

DO NOT apply when wind speed is less than 3 or more than 20 km/h as measured at the application site.
DO NOT apply during surface temperature inversion conditions at the application site.
DO NOT direct the spray above trees during airblast applications.
TURN OFF outward pointing nozzles at row ends and outer rows during airblast applications.

Users of this product **MUST make an accurate written record** of the details of each spray application within 24 hours following application and **KEEP** this record for a minimum of 2 years. The spray application details that must be recorded are: **1)** date and start and finish times of application; **2)** location address and paddock/s sprayed; **3)** full name of this product; **4)** amount used per hectare and number of hectares applied to; **5)** crop/situation and weed/pest; **6)** wind speed and direction during application; **7)** air temperature; **8)** nozzle brand, model and type and spray system pressure measured during application; **9)** name and address of person applying this product. (Additional record details may be required by the State or Territory where this product is used.)

MANDATORY NO-SPRAY ZONES:

No-spray Zone for Protection of International Trade

DO NOT apply if there are livestock, pasture or any land that is producing feed for livestock downwind from the application area and within the mandatory no-spray zone shown below:

Ground application:

Wind speed range at time of application	Downwind mandatory no-spray zone
From 3 - 20 kilometres per hour	30 metres

No-Spray Zone for Protection of the Aquatic Environment

DO NOT apply if there are aquatic and wetland areas including aquacultural ponds, surface streams and rivers downwind from the application area and within the mandatory no-spray zones shown below:

Ground application:

Wind speed range at time of application	Downwind mandatory no-spray zone
From 3 - 20 kilometres per hour	200 metres

Table 1. Apples

PEST	RATE	CRITICAL COMMENTS
Apple Dimpling Bug <i>(Campylomma liebknechti)</i> Codling Moth <i>(Cydia pomonella)</i> Light Brown Apple Moth <i>(Epiphyas postvittana)</i> Longtailed Mealybug <i>(Pseudococcus longispinus)</i> Plague Thrips <i>(Thrips imaginis)</i> San Jose Scale <i>(Quadraspidiotus perniciosus)</i> Tuber Mealybug <i>(Pseudococcus viburni)</i> Woolly Apple Aphid <i>(Eriosoma lanigerum)</i> Suppression only	70 mL/100 L or 1.4 L/ha	<p>Apply a single application of CORMORAN® in apples targeting either:</p> <ul style="list-style-type: none"> • Apple Dimpling Bug, Plague Thrips and/or Mealybugs from early post flowering; OR • First generation Codling Moth and/or Light Brown Apple Moth <p>Apply CORMORAN® in rotation with registered alternative mode of action insecticides. Refer to pest specific guidelines below.</p> <p>Apple Dimpling Bug and Plague Thrips Apply an alternative mode of action product such as Mavrik® during flowering. Apply CORMORAN® after flowering to protect developing fruitlets from damage caused by Apple Dimpling Bug and Plague Thrips. Monitor insect numbers and apply an alternative mode of action insecticide 5-7 days later if populations approach threshold numbers. Under heavy Plague Thrips pressure, use an alternative registered insecticide such as Mavrik®.</p> <p>Codling Moth Apply CORMORAN® as part of a season long Codling Moth management program including pest monitoring and targeted insecticide applications. Apply CORMORAN® targeting the first generation of Codling Moth, just prior to the generation egg hatch and before 110 Degree Days after Codling moth are detected in traps. Apply further insecticide applications after a 14 day interval using alternative mode of action insecticides. See Application Timing in GENERAL INSTRUCTIONS for further detail.</p> <p>Light Brown Apple Moth Monitor for Light Brown Apple Moth activity from late flowering using pheromone traps. Apply CORMORAN® after petal fall or 140 Degree Days after Light Brown Apple Moth are detected in traps. If required, apply further insecticide applications after a 14 day interval using alternative mode of action insecticides. See Application Timing in GENERAL INSTRUCTIONS for further detail.</p> <p>Longtailed Mealybug and Tuber Mealybug Apply CORMORAN® as part of a spray program to prevent mealybugs from migrating into the calyx of the fruit where they are difficult to control. Early control of crawlers is very important. Monitor the crop and apply CORMORAN® as soon as crawlers are seen after petal fall. Apply a different mode of action insecticide 14 days later to maximise knockdown control. Some mealybugs sheltering in the canopy may not be adequately controlled and these survivors can multiply and infest developing fruit. Further applications of insecticides from other mode of action groups is recommended to ensure control of any surviving mealybugs.</p> <p>San Jose Scale Apply CORMORAN® from petal fall for the control of San Jose Scale crawlers. Use CORMORAN® as part of a spray program in rotation with insecticides registered for San Jose Scale from alternative mode of action groups, using a minimum spray interval of 14 days. Ensure thorough spray coverage of limbs and branches.</p> <p>Woolly Apple Aphid Apply CORMORAN® for the control of Woolly Apple Aphid from petal fall at the first sign of infestation. Some Woolly Apple Aphid may survive the first spray in sheltered spots such as cracks in the bark. Additional insecticide applications from alternative mode of action groups may be required after two or more weeks to ensure control. Ensure thorough spray coverage of limbs and branches.</p> <p>Application Apply CORMORAN® as a dilute (high volume) spray ensuring thorough coverage of fruitlets and foliage. If the water volume will exceed 2000 L/ha, use the per hectare rate and adjust the dilute concentration accordingly. Concentrate spraying is not recommended when targeting Mealybug, San Jose Scale and Woolly Apple Aphid as thorough coverage is critical for control.</p> <p>DO NOT apply more than one application of CORMORAN® per season in apples. DO NOT apply CORMORAN® at more than 1.4 L/ha.</p>

Table 2. Pears

PEST	RATE	CRITICAL COMMENTS
Codling Moth <i>(Cydia pomonella)</i> Light Brown Apple Moth <i>(Epiphyas postvittana)</i> Longtailed Mealybug <i>(Pseudococcus longispinus)</i> San Jose Scale <i>(Quadraspidiotus perniciosus)</i> Tuber Mealybug <i>(Pseudococcus viburni)</i> Woolly Apple Aphid <i>(Eriosoma lanigerum)</i> Suppression only	70 mL/100 L or 1.4 L/ha	<p>Apply up to two applications of CORMORAN® per season in pears. Always apply CORMORAN® as part of a season long spray program in rotation with registered alternative mode of action insecticides.</p> <p>Longtailed Mealybug and Tuber Mealybug Apply CORMORAN® as part of a spray program to prevent mealybugs from migrating into the calyx of the fruit where they are difficult to control. Early control of crawlers is very important. Monitor the crop and apply CORMORAN® as soon as crawlers are seen after petal fall. Apply a second spray 14 days later to maximise knockdown control. Some mealybugs sheltering in the canopy may not be adequately controlled and these survivors can multiply and infest developing fruit. Further applications of insecticides from other mode of action groups is recommended to ensure control of any surviving mealybugs.</p> <p>Codling Moth Apply up to two sprays of CORMORAN® with a 14 day spray interval. CORMORAN® can be used to control the first generation or later generations of Codling Moth providing that pest monitoring is undertaken and the applications are timed just prior to a generation egg hatch. When targeting the first generation, the first spray should be applied just prior to the generation egg hatch and before 110 Degree Days after Codling Moth are detected in traps. See Application Timing in GENERAL INSTRUCTIONS for further detail.</p> <p>Light Brown Apple Moth Monitor for Light Brown Apple Moth activity from late flowering by pheromone trapping. Apply CORMORAN® after petal fall or 140 Degree Days after Light Brown Apple Moth are detected in traps. If required, apply a second application after a 14 day interval. Additional treatments should be made using alternative mode of action insecticides. See Application Timing in GENERAL INSTRUCTIONS for further detail.</p> <p>San Jose Scale Apply CORMORAN® from petal fall for control of San Jose Scale, targeting crawlers when they become active in the canopy. Up to two applications of CORMORAN® can be applied as part of a spray program for San Jose Scale in rotation with registered insecticides from alternative mode of action groups, using a minimum spray interval of 14 days. Ensure thorough spray coverage of limbs and branches.</p> <p>Woolly Apple Aphid Apply CORMORAN® from petal fall for the control of Woolly Apple Aphid at the first sign of infestation. Some Woolly Apple Aphid may survive the first spray in sheltered spots such as cracks in the bark. Additional insecticide applications from alternative mode of action groups may be required after two or more weeks to ensure control. Ensure thorough spray coverage of limbs and branches.</p> <p>Application Apply CORMORAN® as a dilute (high volume) spray ensuring thorough coverage of fruitlets and foliage. If the water volume will exceed 2000 L/ha, use the per hectare rate and adjust the dilute concentration accordingly. Concentrate spraying is not recommended when targeting Mealybug, San Jose Scale and Woolly Apple Aphid as thorough coverage is critical for control.</p> <p>DO NOT apply more than two applications of CORMORAN® per season in pears.</p>

Table 3. Stone fruit – including apricots, cherries, nectarines, peaches and plums

PEST	RATE	CRITICAL COMMENTS
Black peach aphid <i>(Brachycaudus persicae)</i> Green peach aphid <i>(Myzus persicae)</i> Light Brown Apple Moth <i>(Epiphyas postvittana)</i> Mediterranean Fruit Fly <i>(Ceratitis capitata)</i> Suppression only Oriental Fruit Moth <i>(Grapholita molesta)</i> Queensland Fruit Fly <i>(Bactrocera tryoni)</i> Suppression only San Jose Scale <i>(Quadraspidotus perniciosus)</i>	70 mL/100 L or 1.4 L/ha	<p>Apply up to two applications of CORMORAN® per season in stone fruit. Always apply CORMORAN® as part of a season long spray program using pest monitoring and in rotation with registered alternative mode of action insecticides.</p> <p>Black Peach Aphid and Green Peach Aphid Apply CORMORAN® when monitoring indicates aphid numbers are above the economic threshold. Aphids that are within curled leaves may not be adequately controlled.</p> <p>Light Brown Apple Moth Monitor for Light Brown Apple Moth activity from late flowering by pheromone trapping. Apply CORMORAN® after petal fall or 140 Degree Days after Light Brown Apple Moth are detected in traps. If required, apply a second application after a 14 day interval. Additional treatments should be made using alternative mode of action insecticides. See Application Timing in GENERAL INSTRUCTIONS for further detail.</p> <p>Mediterranean Fruit Fly and Queensland Fruit Fly Apply CORMORAN® as part of a broader program involving other products for control of fruit fly, appropriate pest monitoring and farm hygiene. Apply when monitoring indicates fruit fly activity. Apply CORMORAN® in rotation with insecticides from a different mode of action using a 7-10 spray interval. DO NOT apply consecutive applications of CORMORAN®.</p> <p>Orchard floors with flowering weeds must be mowed prior to application. Beekeepers that are known to have hives in, or nearby the orchard should be notified at least 48 hours prior to application so that bees can be removed or otherwise protected prior to spraying.</p> <p>Oriental Fruit Moth Monitor Oriental fruit moth using pheromone traps and target sprays against eggs and newly hatched larvae before they become entrenched. If targeting the first generation, apply CORMORAN® before 110 Degree Days after Oriental fruit moth are detected in traps. Further applications should be made on 14 day spray intervals. After applying CORMORAN®, rotate to an insecticide from an alternative mode of action prior to a second CORMORAN® application. See Application Timing in GENERAL INSTRUCTIONS for further detail.</p> <p>San Jose Scale Apply CORMORAN® from petal fall to control San Jose Scale, targeting crawlers when they become active in the canopy. Up to two applications of CORMORAN® can be applied for San Jose Scale control as part of a spray program in rotation with registered insecticides from alternative mode of action groups, using a minimum spray interval of 14 days. Ensure thorough spray coverage of limbs and branches.</p> <p>Application Apply CORMORAN® as a dilute (high volume) spray ensuring thorough coverage of fruitlets and foliage. If the water volume will exceed 2000 L/ha, use the per hectare rate and adjust the dilute concentration accordingly. Concentrate spraying is not recommended when targeting San Jose Scale as thorough coverage is critical for control DO NOT apply more than two applications of CORMORAN® per season in stone fruit.</p>

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

WITHHOLDING PERIODS (WHP)

Harvest

APPLES

DO NOT HARVEST FOR 70 DAYS AFTER APPLICATION

PEARS

DO NOT HARVEST FOR 35 DAYS AFTER APPLICATION

STONE FRUIT

DO NOT HARVEST FOR 7 DAYS AFTER APPLICATION

Grazing:

DO NOT GRAZE ANY TREATED AREA OR CUT FOR STOCKFOOD

CROPS FOR EXPORT

Before using CORMORAN® on crops destined for export it is essential to consult your exporter or Adama to ensure that an appropriate MRL is in place in the importing country.

GENERAL INSTRUCTIONS

MIXING

Two thirds fill the spray tank with clean water with the agitator operating, then add the required quantity of CORMORAN® Insecticide. Top up the spray tank to the required volume with clean water with the agitator running. Maintain agitation while spraying.

COMPATIBILITY

As formulations of other manufacturer's products are beyond the control of Adama, all mixtures should be tested prior to mixing commercial quantities. For more information on CORMORAN® product compatibility, check the Adama website adama.com.

APPLICATION INFORMATION

Good insect control requires even, thorough coverage of the treated area.

Application Timing for Codling Moth, Light Brown Apple Moth and Oriental Fruit Moth.

All insects have an optimum temperature range for growth and development. At temperatures above or below the maximum or minimum temperature range for the particular insect, the growth rate rapidly declines.

Insect development is measured in cumulative thermal time units called degree-days. A degree-day (°D) is each degree of temperature by which the average temperature on a day exceeds the lower developmental threshold.

Pheromone traps in conjunction with degree-day modelling can be used to predict when first generation egg lay will occur. The thermal time taken from mating to egg hatch for Codling Moth and Oriental Fruit Moth is approximately 110°D and for Light Brown Apple Moth is 140°D. This equates to 7-14 calendar days and 10-15 days calendar days respectively.

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 spray volume to cover the crop to the point of run-off. Avoid excessive run-off. The required spray volume to achieve point of run-off may be determined by applying different test volumes, using different settings on the sprayer, or from industry guidelines or other 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 run-off. The required dilute spray volume to achieve point of run-off 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 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 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 2000 L/ha
2. Your chosen concentrate spray volume: For example 1000 L/ha
3. The concentration factor in this example is: 2 X (i.e. 2000 L/1000 L = 2)
4. As the dilute label rate is 70 mL/100 L, then the concentrate rate becomes 2 x 70, that is 140 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 2 X. For further information on concentrate spraying, users are advised to consult relevant industry guidelines, undertake appropriate competency training and follow industry Best Practices.

INSECTICIDE RESISTANCE WARNING

For insecticide resistance management, CORMORAN[®] Insecticide is a Group

GROUP **15|4A** INSECTICIDE

15 and Group 4A Insecticide. Some naturally occurring insect biotypes resistant to CORMORAN and other Group 15 and Group 4A insecticides may exist through normal genetic variability in any insect population. Resistant individuals can eventually dominate the insect population if CORMORAN[®] and other Group 15 and Group 4A insecticides are used repeatedly. The effectiveness of CORMORAN[®] on resistant individuals could be significantly reduced. Since occurrence of resistant individuals is difficult to detect prior to use, Adama Australia accepts no liability for any losses that may result from the failure of CORMORAN[®] to control resistant insects. CORMORAN[®] may be subject to specific resistance management strategies. For further information contact your local supplier, Adama representative, local agricultural department agronomist or CropLife Australia Insecticide Resistance Management Strategies.

INTEGRATED PEST MANAGEMENT

Toxic to beneficial arthropods. Not compatible with integrated pest management (IPM) programs utilising beneficial arthropods. Minimise spray drift to reduce harmful effects on beneficial arthropods in non-crop areas.

PROTECTION OF HONEY BEES AND OTHER INSECT POLLINATORS

Moderately toxic to bees. Acetamiprid has systemic action. A risk is identified for bees foraging in the crop to be treated or in hives and non-target areas which are over-sprayed or reached by spray drift. DO NOT spray while bees are actively foraging on and around the treatment area. If there is a potential for managed hives to be affected by the spray or spray drift, notify beekeepers 48 hours before spraying to move hives to a safe location. Residues may remain at levels toxic to bees for several days following application. DO NOT apply where bees from managed hives are known to be foraging, and crops, weeds or cover crops are in flower at the time of spraying, or are expected to flower within several days.

PROTECTION OF WILDLIFE, FISH, CRUSTACEANS AND ENVIRONMENT

Very toxic to aquatic life. DO NOT contaminate wetlands or watercourses with this product or used containers. DO NOT apply under weather conditions or from spraying equipment that may cause spray to drift from the target area onto wetlands, natural surface waters, neighbouring properties or other sensitive areas.

STORAGE AND DISPOSAL

1 – 100 L: 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 or any undiluted chemical according to state legislation requirements. 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. If not recycling, break, crush, or puncture and deliver empty packaging to an approved waste management facility. If an approved waste management facility is not available, bury the empty packaging 500 mm below the surface in a disposal pit specifically marked and set up for this purpose, clear of waterways, desirable vegetation and tree roots, in compliance with relevant local, state or territory government regulations. DO NOT burn empty containers or product.

110 L Micro Matic Valve: 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 Micro Matic 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 Micro Matic coupler delivery system and hoses are disconnected, triple rinsed with clean water and drained accordingly. When the contents of the container have been used, please return the container to the point of purchase. The container remains the property of Adama Australia.

SAFETY DIRECTIONS

Harmful if swallowed. Will damage eyes. Repeated exposure may cause allergic disorders. Avoid contact with eyes and skin. When opening the container and preparing and using the prepared spray, wear cotton overalls buttoned to the neck and wrist (or equivalent clothing) and goggles. If product in eyes, wash out immediately with water. Wash hands after use. After each day's use wash gloves, goggles and contaminated clothing.

FIRST AID

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

SDS

Additional information is listed in the safety data sheet (SDS). A safety data sheet for CORMORAN[®] INSECTICIDE is available from adama.com or call Customer Service on 1800 423 262.

CONDITIONS OF SALE: The use of CORMORAN[®] 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.

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