



DuPont™ Avatar® insecticide

Technical Information

Active Constituent:
300 g/kg INDOXACARB

Pack Sizes:
500 g
3 kg

GROUP **22A** INSECTICIDE



POISON

KEEP OUT OF REACH OF CHILDREN

READ SAFETY DIRECTIONS BEFORE OPENING OR USING

For the control of *Lepidopteran* species of insect pests in certain vegetable and fruit crops, as per the Directions for Use table

SAFETY DIRECTIONS

Harmful if swallowed. Will irritate the eyes and skin. Avoid contact with eyes and skin. If product in eyes, wash it out immediately with water. Wash hands after use. When opening the container and preparing spray, wear cotton overalls buttoned to the neck and wrists, a washable hat, elbow-length PVC gloves and a face shield or goggles. When using the prepared spray, wear cotton overalls buttoned to the neck and wrists, a washable hat and elbow-length PVC gloves. After each day's use wash gloves, face shield or goggles and contaminated clothing.

FIRST AID

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

SAFETY DATA SHEETS

For further information refer to the Safety Data Sheet that can be obtained from www.cropprotection.dupont.com.au

GENERAL INSTRUCTIONS

DuPont™ Avatar® insecticide has been specifically designed for use in Integrated Pest Management (IPM) schemes. DuPont™ Avatar® is an oxadiazine insecticide in the form of a water dispersible granule. DuPont™ Avatar® is particularly active on Lepidopteran insect pests, primarily as a larvicide. Before application monitor insect populations to determine whether or not there is a need for application of Avatar® based on locally determined economic thresholds. More than one treatment of DuPont™ Avatar® may be required to control a population of pests.

INSECTICIDE RESISTANCE WARNING

GROUP **22A** INSECTICIDE

For insecticide resistance management DuPont™ Avatar® is a Group 22A insecticide. Some naturally occurring insect biotypes resistant to DuPont™ Avatar® and other Group 22A insecticides may exist through normal genetic variability in any insect population. The resistant individuals can eventually dominate the insect population if DuPont™ Avatar® or other Group 22A

insecticides are used repeatedly. The effectiveness of Avatar® on resistant individuals could be significantly reduced. Since the occurrence of resistant individuals is difficult to detect prior to use DuPont accepts no liability for any losses that may result from the failure of DuPont™ Avatar® to control resistant insects.

DuPont™ Avatar® may be subject to specific resistance management strategies. To help prevent the development of resistance to Avatar® insecticide, use DuPont™ Avatar® in accordance with the current Insecticide Resistance Management (IRM) strategy for your region. For further information contact your local supplier DuPont representative or local department agronomist.

PRODUCT USE

Mixing

Always add dry DuPont™ Avatar® to water in tank. **DO NOT** premix or slurry. With the exception of products in water soluble bags, Avatar® must be in suspension in the tank before adding companion products or surfactant.

Fill spray tank to ¼ to ½ full of water. Measure the amount of Avatar® insecticide required for the area to be sprayed. Add Avatar® insecticide directly to the spray tank with the agitation engaged. Mix thoroughly to disperse the insecticide. Once dispersed, the material must be kept in suspension at all times by continuous agitation. Use mechanical or hydraulic means, **DO NOT** use air agitation, premix or slurry.

If spray solution is left standing, ensure thorough reagitation of the spray mix until fully resuspended. **DO NOT** allow spray mix to sit overnight, as resuspension may be difficult.

Surfactant/Wetting agent

Apricots, Apples, Capsicum, Eggplant, Grapes, Leafy vegetables, Nashi pears, Nectarines, Peaches, Pears, Peppers, Plum, Tomatoes: use a non-ionic surfactant/wetting agent at 15 g active/100 L, (e.g. Agral® 600 @ 25 mL/100 L or Citowett® @15 mL/100 L).

Broccoli, Brussels sprouts, Cabbage, Cauliflower: use a non-ionic surfactant/wetting agent at 75 g active/100 L, (e.g. Agral® 600 @ 125 mL/100 L or Citowett® @ 75 mL/100 L).

DO NOT add a non-ionic surfactant/wetting agent if:

- mixing with another product which already contains a surfactant and/or the product label advises not to add a surfactant.
- mixing with a liquid fertiliser

DO NOT use BS1000® or Activator-90® as it may cause crop phytotoxicity.

APPLICATION

Minimising Spray Drift

The interaction of many equipment and weather-related factors determines the potential for spray drift. The applicator must consider all these factors when making application decisions.

The most effective way to reduce drift potential is to apply large droplets (volume mean diameter (VMD) > 150 - 200 microns). The best drift management strategy is to apply the largest droplets that provide sufficient coverage and control. **APPLYING LARGER DROPLETS REDUCES DRIFT POTENTIAL, BUT WILL NOT MINIMISE DRIFT IF APPLICATIONS ARE MADE IMPROPERLY OR UNDER UNFAVOURABLE ENVIRONMENTAL CONDITIONS.** When making applications in hot and dry conditions, set up equipment to produce larger droplets to reduce effects of evaporation.

Dilute spraying

- Use a sprayer designed to apply high volumes of water 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 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 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 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 as determined above: For example 1,500 L/ha
2. Your chosen concentrate spray volume: For example 500 L/ha
3. The concentration factor in this example is 3X (i.e. $1,500 \text{ L} \div 500 \text{ L} = 3$)
4. If the dilute label rate is 25 g/100 L, then the concentrate rate becomes 3×25 , that is 75 g/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.
- For further information on concentrate spraying, users are advised to consult relevant industry guidelines, undertake appropriate competency training and follow industry Best Practices.

Ground application

Use a boom sprayer fitted with high flow rate nozzles to apply the highest practical spray volume. Nozzles with higher rated flows produce larger droplets. Use the lower spray pressures recommended for the nozzle. Higher pressure reduces droplet size, **DOES NOT** improve canopy penetration and may increase drift potential. **WHEN HIGHER FLOW RATES ARE NEEDED, USE A HIGHER-CAPACITY NOZZLE INSTEAD OF INCREASING PRESSURE.** Use a nozzle type that is designed for the intended application. With most nozzle types, narrower spray angles produce larger droplets. Consider using low-drift nozzles. When applying Avatar® insecticide by ground application, keep the boom low to avoid spray drift. For

orchard/vineyard sprayers avoid directing spray above trees and always turn-off outward pointing nozzles at row ends and outer rows.

COMPATIBILITY

Since formulations may be changed and new ones introduced, it is recommended that users premix a small quantity of the desired tank mix and observe possible adverse changes (settling out, flocculation etc). Avoid complex tank mixtures of several products or very concentrated spray mixtures. Avatar® insecticide is compatible with Captan*, Dextrolac*, Delan*, Fulasin*, mancozeb, Omite*, Polyram* and Systhane*.

The mixing sequence recommended is: water soluble bags, dry flowable or water dispersible granules (Avatar®), wettable powders, water based suspension concentrates, water soluble concentrates, oil based suspension concentrates, emulsifiable concentrates, adjuvants and surfactants, soluble fertilisers.

SPRAY EQUIPMENT CLEANOUT

Prior to application, start with clean, well maintained application equipment. Immediately following application, thoroughly clean all spray equipment to reduce risk of forming hardened deposits that might become difficult to remove. Drain spray equipment. Thoroughly rinse sprayer and flush hoses, boom, and nozzles with clean water. Loosen and physically remove all visible deposits. Clean all other associated application equipment.

PROTECTION OF LIVESTOCK

Dangerous to bees. DO NOT apply when bees are actively foraging. Avoid direct application or drift of the spray mix onto bee hive. After the spray has dried, bees can safely forage flowering crops. **AVOID SPRAY DRIFT ONTO ADJOINING PROPERTIES OR STOCK AREAS.**

Assess the treatment area before application to identify animal exposure risks. Avoid aerial application if possible.

Observe the buffer zones for aerial and ground application. If unexpected conditions cause spray drift to contaminate land that livestock could potentially graze seek advice from DuPont.

PROTECTION OF WILDLIFE, FISH, CRUSTACEANS AND ENVIRONMENT

DO NOT contaminate streams, rivers or waterways with the chemical or used containers.

PROTECTION OF CROPS, NATIVE AND OTHER NON-TARGET PLANTS

DO NOT apply under weather conditions, or from spraying equipment, that may cause spray to drift onto near-by non-target plants/crops, cropping lands or pastures.

STORAGE AND DISPOSAL

Store in the closed, original container in a cool, dry, well-ventilated area out of direct sunlight. Store in a locked

room or place away from children, animals, food, feedstuffs, seed and fertilisers.

Triple or preferably pressure rinse containers before disposal. Add rinsings to spray tank. **DO NOT** dispose of undiluted chemicals on site. 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.

PRECAUTIONS – RE ENTRY PERIOD

DO NOT allow entry into treated areas until spray has dried. When prior entry is necessary, wear cotton overalls buttoned to the neck and wrists, a washable hat and chemical resistant gloves. Clothing must be laundered after each day's use.

**IN A MEDICAL EMERGENCY CALL
1800 674 415 All hours**

NOTICE TO BUYER

To the extent permitted by the Competition and Consumer Act (2010) or any relevant legislation of any State or Territory (the "Legislation") all conditions and warranties and statutory or other rights of action, whether arising in contract or tort or whether due to the negligence of DuPont or Seller, which buyer or any other user may have against DuPont or Seller are hereby excluded provided however that any rights of the buyer pursuant to non excludable conditions or warranties of the Legislation are expressly preserved. DuPont hereby gives notice to buyer and other users that to the extent permitted by the Legislation it will not accept responsibility for any indirect or consequential loss of whatsoever nature arising from the storage, handling or use of this Product. Where permitted by the Legislation DuPont's liability shall in all circumstances be limited to the replacement of the product, or a refund of the purchase price paid therefor.

The Product must be used and applied strictly in accordance with the label instructions and other directions for use. It is impossible to eliminate all risks associated with the use of this product. Such risks may arise from factors such as weather conditions, soil factors, off target movement, unconventional technique, presence of other materials, the manner of use or application, or other unknown factors, all of which are beyond the control of DuPont or the Seller. Buyer accepts these risks.

APVMA Approval number: 52546/1007

DIRECTIONS FOR USE

RESTRAINTS

DO NOT apply if rainfall is expected within 2 hours of application.

DO NOT use on container, hydroponic, greenhouse or glasshouse grown crops.

DO NOT apply within 20 m upwind of water bodies.

DO NOT apply by aircraft (tomatoes excepted).

DO NOT apply less than 300 m (aerial application) or 80 m (ground application) upwind of land potentially producing feed for livestock. If the wind direction is at an angle with regard to the field then the in-field buffer must be observed on both upwind sides of the feed producing land.

ENSURE YOU READ THE PROTECTION STATEMENTS BEFORE APPLYING THE PRODUCT.

Crop	Pest	Rate	Critical Comments
Broccoli Brussels sprouts Cabbage (closed head varieties only) Cauliflower	Cabbage white butterfly (<i>Pieris rapae</i>) Cotton bollworm (<i>Helicoverpa armigera</i>) Native budworm (<i>H. punctigera</i>)	170 g/ha	Use in accordance with AIRAC Insecticide Resistance Management Strategy guidelines. Apply as egg and larvae reach threshold numbers. Contact the local Department of Agriculture or consultant for further information on management of Diamondback Moth. Thorough coverage is essential. Adjust water volumes to crop stage (200 – 1000 L/ha). Refer to Surfactant/Wetting agent section.
	Cluster caterpillar (<i>Spodoptera litura</i>) Cabbage centre grub (<i>Hellula hydralis</i>) Diamondback moth (<i>Plutella xylostella</i>)	250 g/ha	For Cabbage Centre grub time sprays early to ensure larvae are exposed to treatment before they become entrenched in protected feeding sites For best results, it is recommended that up to 3 applications of Avatar® insecticide be made sequentially as thresholds dictate. A maximum of 4 applications can be made to any one crop. DO NOT retreat within seven (7) days. Further treatments should be made with alternative mode of action insecticides.
Leafy vegetables: Chicory, Cress, Endive, Fennel, Kale, Lettuce: closed head and leafy varieties; Mustard, Silverbeet, Spinach, and Chinese leafy vegetables: Bok choy, Choy sum, Chinese cabbage	Cotton bollworm (<i>H. armigera</i>) Native budworm (<i>H. punctigera</i>)	170 g/ha	FOR ALL CROPS Regularly scout crops to monitor for eggs and larvae. Target sprays against eggs and newly hatched larvae before they become entrenched. Use enough water to ensure thorough coverage of the crop. Adjust water volumes to crop stage (200 – 1,000 L/ha). Refer to Surfactant/Wetting agent section. Apply a maximum of 3 applications to any one crop. DO NOT retreat within seven (7) days. Further treatments should be made with alternative mode of action insecticides. As part of an Insecticide Resistance Management programme for cotton bollworm, it is important to plough crops immediately after harvest. CAPSICUM, EGGPLANT, PEPPERS, TOMATO – Use 250 g/ha during periods of heavy <i>Heliothis</i> pressures or when using aerial application (Tomatoes only).
Capsicum Eggplant Peppers Tomato (trellis and field)	Cotton Bollworm (<i>H. armigera</i>) Native Budworm (<i>H. punctigera</i>)	170 or 250 g/ha or 17 g/100 L dilute	
	Potato moth (Tomato leaf miner) (<i>Phthorimaea operculella</i>)	170 g/ha or 17 g/100 L dilute	

Crop	Pest	Rate	Critical Comments
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. Refer to Application section of the label.			
Apples Nashi pear Pears	Codling moth (<i>Cydia pomonella</i>) Budworms (<i>Helicoverpa</i> spp).	Dilute spraying: 25 g/ 100L water Concentrate spraying: Refer to Mixing/ Application section	Thorough fruit coverage is essential. A maximum of 6 applications of Avatar® are to be applied at 10 day intervals commencing at petal fall (or before 80 Degree Days after Codling moth are detected in traps) until late December. Further treatments should be made with alternate mode of action insecticide. The above programme, when commenced at petal fall, will also control budworms.
	Lightbrown apple moth (<i>Epiphyas postvittana</i>)	Dilute spraying 12.5 g/ 100 L water Concentrate spraying: Refer to Mixing/ Application section	Thorough fruit coverage is essential. A maximum of 6 applications of Avatar® are to be applied at 14 day intervals commencing at petal fall or apply at 140 Degree Days after Lightbrown apple moths are detected in traps. Best results are obtained when DuPont™ Avatar® treatments are applied consecutively. Further treatments should be made with alternative mode of action insecticides.
	Weevils: Apple weevil (<i>Otiorhynchus cribricollis</i>) Fuller's Rose weevil (<i>Asynonychus cervinus</i>) Garden weevil (<i>Phlyctinus callosus</i>)		Monitor weevil emergence. Garden weevil usually emerges late October to late November. Apple weevil and Fuller's Rose weevil usually emerge late November to late December. Garden weevil and Apple weevil: Prevent damage by treating early in the stages of emergence. Fuller's Rose weevil: Spray after peak weevil emergence when leaf damage is obvious. Thorough coverage is essential. Continue monitoring after spraying. For weevils there is a maximum of 2 applications per season. DO NOT retreat within ten (10) days. DO NOT use for more than 2 consecutive seasons.
	Wingless grasshopper (<i>Phaulacridium vittatum</i>)	Dilute spraying: 25 g/ 100L water Concentrate spraying: Refer to Mixing/ Application section	Spray when local thresholds have been reached and damage is being observed. Thorough coverage is essential. DO NOT retreat within ten (10) days.
Apricot Nectarine Peaches Plums	Budworms (<i>Helicoverpa</i> spp.)	Dilute spraying: 25 g/ 100 L water Concentrate spraying: Refer to Mixing/ Application section	Target sprays against eggs and newly hatched larvae before they become entrenched. A maximum of 3 applications of Avatar® insecticide is to be applied at 10 day intervals to each crop. Further treatments should be made with alternative mode of action insecticides (non-group 22A). Thorough coverage is essential. Best results are obtained when Avatar® insecticide treatments are applied consecutively.
	Oriental fruit moth (<i>Grapholita molesta</i>)		Thorough coverage is essential. When treating the first generation, apply the initial treatment before 110 Degree Days after Oriental fruit moths are detected in traps. A maximum of 3 applications of Avatar® insecticide is to be applied at 10 day intervals to each crop. Target sprays against eggs and newly hatched larvae before they become entrenched. Best results are obtained when Avatar® insecticide treatments are applied consecutively. Further treatments should be made with alternative mode of action insecticides.
	Lightbrown apple moth (<i>E. postvittana</i>)	Dilute spraying: 12.5 g / 100L water Concentrate spraying: Refer to Mixing/ Application section	Thorough fruit coverage is essential. A maximum of 3 applications of Avatar® are to be applied at 14 day intervals commencing at 140 Degree Days after Lightbrown apple moths are detected in traps. Best results are obtained when Avatar® insecticide treatments are applied consecutively. Further treatments should be made with alternative mode of action insecticides.
	Weevils: Apple weevil (<i>Otiorhynchus cribricollis</i>) Fuller's Rose weevil (<i>Asynonychus cervinus</i>) Garden weevil (<i>Phlyctinus callosus</i>)		Monitor weevil emergence. Garden weevil usually emerges late October to late November. Apple weevil and Fuller's Rose weevil usually emerge late November to late December. Garden weevil and Apple weevil: Prevent damage by treating early in the stages of emergence. Fuller's Rose weevil: Spray after peak weevil emergence when leaf damage is obvious. Thorough coverage is essential. Continue monitoring after spraying. For weevils there is a maximum of 2 applications per season. Do not retreat within ten (10) days. DO NOT use for more than 2 consecutive seasons.
	Wingless grasshopper (<i>Phaulacridium vittatum</i>)	Dilute spraying: 25 g/ 100L water Concentrate spraying: Refer to Mixing/ Application section	Spray when local thresholds have been reached and damage is being observed. Thorough coverage is essential. DO NOT retreat within ten (10) days.

Crop	Pest	Rate	Critical Comments
Grapes	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. Refer to Application section of the label.		
	European earwig (<i>Forficula uriculari</i>) (suppression only)	Dilute spraying 17 g/ 100L water Concentrate spraying: Refer to Mixing/Application section	Only apply treatments if damage is likely to occur. Thorough coverage is essential. Continue monitoring after spraying. DO NOT retreat within ten (10) days. DO NOT apply after pre-bunch closure (growth stage EL31).
	Garden weevil (<i>Phlyctinus collosus</i>)		Monitor weevil emergence. Delay application until damage in the canopy is observed. This is usually late October to late November for garden weevil. Thorough coverage is essential. Continue monitoring after spraying. For Garden weevil there is a maximum of 2 applications per season. DO NOT use for more than 2 consecutive seasons. DO NOT apply after pre-bunch closure (growth stage EL31).
	Grapevine moth (<i>Phalaenoides glyciniae</i>)	Dilute spraying 8 g/ 100 L water Concentrate spraying: Refer to Mixing/Application section	Spray when local thresholds have been reached. Thorough coverage is essential. DO NOT retreat within ten (10) days. DO NOT apply between pre-bunch closure (growth stage EL31) and harvest. Post harvest infestations can be treated.
	Inland katydid (<i>Caedicia simplex</i>)		Spray when local thresholds have been reached. Thorough coverage is essential. DO NOT retreat within ten (10) days. DO NOT apply between pre-bunch closure (growth stage EL31) and harvest.
	Lightbrown apple moth (<i>E. postvittana</i>)	Dilute spraying: 17 g/ 100 L water Concentrate spraying: Refer to Mixing/Application section	Applications to be timed for egg hatch (140 Degree Days after a detected moth flight). Thorough fruit coverage is essential. A maximum of 3 applications of Avatar® insecticide to be applied to each crop, with 2 applications at flowering and fruit set (depending on pest pressure as assessed by crop scouting). DO NOT retreat within ten (10) days. A final application may be applied up to bunch closure. DO NOT apply after bunch closure. Further treatments should be made with alternative mode of action insecticides.
	Wingless grasshopper (<i>Phaulacridium vittatum</i>)		Spray when local thresholds have been reached and damage is being observed. Thorough coverage is essential. DO NOT retreat within ten (10) days. DO NOT apply between pre-bunch closure (growth stage EL31) and harvest.
Concentrated spray: DO NOT apply in volumes less than 400 L/ha. This low water volume is dependent on the suitability of concentrated spray application equipment. More reliable application may be gained through increased water volumes.			

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

WITHHOLDING PERIODS

HARVEST

CAPSICUM, EGGPLANT, LEAFY VEGETABLES, PEPPERS, TOMATOES (FIELD AND TRELIS): DO NOT APPLY LATER THAN 3 DAYS BEFORE HARVEST.

BROCCOLI, BRUSSELS SPROUTS, CABBAGE, CAULIFLOWER: DO NOT APPLY LATER THAN 7 DAYS BEFORE HARVEST.

APRICOT, NECTARINE, PEACH, PLUM: DO NOT APPLY LATER THAN 7 DAYS BEFORE HARVEST.

APPLES, NASHI PEARS, PEARS: DO NOT APPLY LATER THAN 14 DAYS BEFORE HARVEST.

GRAPES: DO NOT APPLY LATER THAN 8 WEEKS BEFORE HARVEST. DO NOT HARVEST TREATED GRAPE LEAVES FOR HUMAN CONSUMPTION.

GRAZING – ALL TREATED CROPS

DO NOT ALLOW LIVESTOCK TO GRAZE CROPS OR VEGETABLE WASTE (EXCEPT TOMATO POMACE) THAT HAS BEEN TREATED WITH AVATAR INSECTICIDE.

EXPORT STATEMENT: Import tolerances for produce treated with Avatar® may be pending in some countries. Consult with your exporter or DuPont before applying Avatar® to export crops.

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Du Pont (Australia) Pty Ltd
7 Eden Park Drive,
Macquarie Park NSW 2113
Phone: (02) 9923 6111
www.cropprotection.dupont.com.au

Emergency Telephone
Transport Emergency: (02) 9923 6275
24 hr Emergency Medical Information: 1800 674 415