





ADAMA ABAMECTIN

Reg. No.: L11053 Act /Wet No. 36 of/van 1947
N-AR 2168

**READ ATTACHED PACKAGED LEAFLET BEFORE USE
KEEP OUT OF REACH OF CHILDREN AND ANIMALS**

GROUP	6	INSECTICIDE
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An emulsifiable concentrate translaminar insecticide/acaricide with stomach and direct contact action for the control of American leafminer and spider mites on crops, flowers and ornamentals, as listed.	'n Emulgeerbare konsentraat translaminêre insekdoder/mytdoder met maag- en direkte kontak aksie, vir die beheer van Amerikaanse blaarmyner en spinmyte op gewasse, blomme en sierplante, soos aangedui.
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    <p>DANGER</p>	<p>Hazard statements Flammable liquid and vapour. Toxic if swallowed or if inhaled. Harmful in contact with skin. Causes skin irritation. Causes serious eye irritation. May cause respiratory irritation. May cause damage to organs (central nervous system, liver, kidneys) through prolonged or repeated exposure (via inhalation). Suspected of damaging fertility or the unborn child. May be fatal if swallowed and enters airways. Very toxic to aquatic life. Very toxic to aquatic life with long lasting effects</p> <p>Precautionary statements Wear protective gloves/protective clothing/eye protection/face protection. Avoid release to the environment.</p>
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ACTIVE INGREDIENT/AKTIEWE BESTANDDEEL

Abamectin..... 18 g/LAbamektien

NET VOLUME/NETTO VOLUME

..... L

REGISTRATION HOLDER/REGISTRASIEHOUER

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UN no:1992

CONTACT IN EMERGENCY/KONTAK IN NOOD

Griffon Poison Information Centre: +27 82 446 8946
 Tygerberg Poison Information Centre: +27 861 555 777

Batch number
 Date of manufacture
 Expiry date

Lotnommer
 Datum van vervaardiging
 Vervaldatum

WARNINGS

- Flammable liquid and vapour.
- Toxic if swallowed or if inhaled.
- Harmful in contact with skin.
- Causes skin irritation.
- Causes serious eye irritation.
- May cause respiratory irritation.
- May cause damage to organs (central nervous system, liver, kidneys) through prolonged or repeated exposure (via inhalation).
- Suspected of damaging fertility or the unborn child.
- May be fatal if swallowed and enters airways.
- Very toxic to aquatic life.
- Very toxic to aquatic life with long lasting effects.

Allow the following number of days between the last application and harvest:

Apples	14 days
Cotton	21 days
Pears	7 days
Strawberries	3 days
Tomatoes	3 days

- Handle with extreme care.
- Toxic if swallowed, inhaled or absorbed through the skin.
- May cause eye and skin irritation.
- Unprotected workers must vacate the area before it is treated.
- Store in a cool place away from food, feeds and seed and out of direct sunlight.
- Store under lock and key.
- Keep out of the reach of children, uninformed persons and animals.
- **Flammable** – do not store and handle near heat or open flame.
- Toxic to fish and wildlife.

- Toxic to bees exposed to direct spray contact (do not spray during high bee activity).
- Do not allow animals to feed on treated foliage.
- Do not use in orchards inter-planted with other crops.
- **Re-entry:** Do not enter treated area within 2 days after treatment unless wearing protective clothing.
- **In case of poisoning, contact a physician and make this label available.**
- **Aerial application:** Notify all inhabitants of the immediate area to be sprayed and issue the necessary warnings. Do not spray over or allow to contaminate adjacent areas, rivers or dams. Do not apply **ADAMA ABAMECTIN** by aerial application to orchards.

Although this remedy has been tested extensively under a large variety of conditions, the registration holder does not warrant that it will be efficacious under all conditions because the action and effect thereof may be affected by factors such as abnormal climatic and storage conditions, quality of dilution water, incompatibility with other substances not indicated on the label and the occurrence of resistance of the pest against the remedy concerned as well as by the method, time and accuracy of application. The registration holder furthermore does not accept responsibility for damage to crops, vegetation, the environment or harm to man or animal or for lack of performance of the remedy concerned due to failure of the user to follow the label instructions or to the occurrence of conditions which could not have been foreseen in terms of the registration. Consult the supplier or registration holder in the event of any uncertainty.

PRECAUTIONS

- Obtain, read and follow all safety instructions before use.
- Do not handle until all safety precautions have been read and understood.
- Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
- Ground and bond container and receiving equipment.
- Use explosion-proof electrical/ventilating/lighting equipment.
- Take action to prevent static discharges. Use non-sparking tools.
- In case of fire: Use media other than water to extinguish.
- Do not breathe dust/fume/gas/mist/vapours/spray.
- Avoid breathing dust/fume/gas/mist/vapours/spray.
- Avoid release to the environment.
- Use only outdoors or in a well-ventilated area.

- Wear protective gloves/protective clothing/eye protection/face protection/hearing protection.
 - Do not eat, drink or smoke when using this product.
 - Wash hands, forearms and face thoroughly after handling.
 - Wash hands thoroughly after handling. Do not touch eyes.
 - IF exposed or concerned, get medical advice.
 - IF SWALLOWED: Get emergency medical help immediately. Do NOT induce vomiting. Rinse mouth. Specific treatment (see FIRST AID instructions on this label.)
 - IF ON SKIN: Wash with plenty of water.
 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse affected areas with water. Specific treatment (see FIRST AID instructions on this label.) Specific treatment (see FIRST AID instructions on this label.)
 - If skin irritation occurs: Get medical help.
 - Take off contaminated clothing and wash it before reuse.
 - IF INHALED: Remove person to fresh air and keep comfortable for breathing. Get emergency medical help immediately.
 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
 - If eye irritation persists: Get medical help.
 - Store locked up, in a well-ventilated place. Keep container tightly closed. Keep cool.
 - Collect spillage.
 - Dispose of contents/container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulation.
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- Do not inhale fumes and/or spray mist.
 - Avoid skin and eye contact.
 - Wear protective clothing, face shield, rubber gloves and rubber boots when mixing and spraying the spray mixture.
 - Wash with soap and water after use and accidental skin contact.
 - Wash contaminated clothing after use.
 - Do not eat, drink or smoke while mixing or applying the product or before washing hands and face and changing clothing.
 - Do not spray during periods when bee activity is high.

- Avoid drift of spray onto other crops, grazing, rivers, dams and areas not under treatment.
- Clean application equipment after use. Dispose of wash water where it will not contaminate crops, grazing, rivers, dams and boreholes.
- Triple rinse empty containers in the following manner: Invert the empty container over the spray or mixing tank and allow to drain for at least 30 seconds after the flow has slowed down to a drip. Thereafter, rinse the container three times with a volume of water equal to a minimum of 10 % of that of the container. Add the rinsings to the contents of the spray tank before destroying the container in the described manner.
- Destroy the empty container by perforation and flattening and dispose of it in a safe manner.
- **Never** re-use the empty container for any other purpose.
- Prevent contamination of food, feeds, drinking water and eating utensils.

RELEVANT SUBSTANCES

Chemical name	w/w %	CAS no.
Xylene	50 – 80%	1330-20-7
Abamectin	<10%	71751-41-2

FIRST AID TREATMENT

Get medical attention in all cases.

Inhalation: Remove patient to a well-ventilated area away from source of poisoning. Give artificial respiration or closed chest cardiac massage if necessary. Maintain open airway passages.

Skin contact: Remove contaminated clothing and rinse contaminated body area thoroughly with plenty of soap and cold water, until no evidence of chemical remains. Do not rub skin. Obtain medical attention if irritation occurs and persists.

Eye contact: Flush eyes with clean, flowing water for at least 20 minutes, occasionally lifting upper and lower lids, until no evidence of chemicals remains. If irritation occurs and persists, obtain medical attention.

Ingestion: Do not induce vomiting. **Get medical attention immediately.**

Symptoms of human poisoning

Possible signs or symptoms of human poisoning initially would be the dilation of the pupils, slow breathing and sedation. More severe poisoning may cause lethargy, muscle tremors and convulsions.

NOTE TO PHYSICIAN

There is no known specific antidote. Emetine syrup or ephedrine may be taken. Do not treat with drugs which can increase the activity of GABA, such as barbital or propyl valenic acid in emergency. Treat supportively and symptomatically.

RESISTANCE WARNING

For resistance management, **ADAMA ABAMECTIN** is a group code **6** insecticide. Any insect/mite population may contain individuals naturally resistant to **ADAMA ABAMECTIN** and other group code **6** insecticides. The resistant individuals can eventually dominate the insect/mite population if these insecticides are used repeatedly. These resistant insects/mites may not be controlled by **ADAMA ABAMECTIN** or any other group code **6** insecticide.

To delay insecticide resistance:

- Avoid exclusive repeated use of insecticides from the same insecticide group code. Alternate or tank-mix with products from different insecticide group codes,
- Integrate other control methods (chemical, cultural, biological) into insect/mite control programmes.

It is recognized that resistance of insects and mites to insecticides can also result from enhanced metabolism, reduced penetration or behavioural changes that are not linked to any site of action classification but are specific for individual chemical groupings. Despite this, alteration of compounds from different chemical classes remains a viable management technique.

Due to the inherent risk of resistance development to any product, it is strongly recommended that **ADAMA ABAMECTIN** is used in a good resistance prevention programme. This programme should include the use of products with different modes of action and from different chemical groups. Applications should only be made based on scouting results for the pests.

Do not apply

- more than 3 sprays of **ADAMA ABAMECTIN** per season on cotton,
- more than 4 sprays of the lowest rate recommended per season on apples and pears,
- more than 4 sprays per growing season on strawberries and
- more than 5 sprays per season on tomatoes.

For specific information on resistance management contact the registration holder of this product.

MODE OF ACTION

6: Glutamate-gated chloride channel (GluCl) allosteric modulators – Allosterically activate glutamate-gated chloride channels (GluCl_s), causing paralysis. Glutamate is an important inhibitory neurotransmitter in insect.

DIRECTIONS FOR USE

Use only as directed.

- Use only clean water in the spray mixture.
- Always ensure that spray equipment is clean, free of sediment and correctly calibrated before spraying.
- **ADAMA ABAMECTIN** is effective for the control of adult and immature stages of spider mites, thrips and larval stages of American leafminer.
- Thorough and even spray coverage of the crop is essential.
- **ADAMA ABAMECTIN** is rapidly absorbed into the plant issue.
- Over-spraying may result in less effective control due to loss of active material because of run-off from the leaf surfaces.
- **ADAMA ABAMECTIN** can be used as preventative or corrective treatment in cotton or tomatoes for the control of red spider mites.
- **ADAMA ABAMECTIN** has the minimum effect on natural enemies of mites, thrips and American leafminer.
- On apples and pears, **ADAMA ABAMECTIN** is most suited for use in the Integrated Pest Management (IPM) programme, as well as where adequate control of spider mites is not being maintained by natural enemies.
- **ADAMA ABAMECTIN** is in general slow acting and although mites and leafminers become immobilised soon after exposure, between 3 and 5 days is necessary, depending on ambient temperatures, to achieve maximum mortality. During this period feeding and plant damage by the pest is minimal.

Compatibility

- **ADAMA ABAMECTIN** may be mixed with molasses for aerial application on cotton.
- If tank mixtures with synthetic pyrethroids are applied on cotton, use the lowest recommended pyrethroid dose for weekly protection.
- **ADAMA ABAMECTIN** is compatible with an approved light mineral spray oil on apples, pears (see 'Apples' and 'Pears' under directions for 'Application').
- **ADAMA ABAMECTIN** does not require the addition of surfactants/adjuvants to the spray

mixture.

- Since all combinations and sequences of other remedies in tank mixtures used have not been fully evaluated, it is recommended not to tank mix with **ADAMA ABAMECTIN** until greater experience is gained. Consult your nearest distribution for latest information on spray tank mixtures.

Mixing instructions

- Measure out the required quantity of **ADAMA ABAMECTIN** and premix this with at least 10 L water.
- Half fill the spray tank with clean water and add the premixed **ADAMA ABAMECTIN** to the spray tank.
- If any other product e.g. light mineral spray oil is to be mixed with **ADAMA ABAMECTIN** the required volume of that product must be premixed in similar fashion.
- **ADAMA ABAMECTIN** and oil must be premixed with each other before adding to the spray tank.
- Agitate the water in the spray tank and add the premixed product(s) to the tank.
- Fill the spray tank with clean water while maintaining agitation to ensure thorough mixing.
- Maintain agitation during spraying.
- Use the prepared spray mixture immediately. Do not allow to stand overnight.
- **ADAMA ABAMECTIN** can be mixed with waters of different pH values and hardness, normally encountered in agricultural conditions.
- The optimal pH values are between 5 and 9.

APPLICATION

- Always ensure the spray equipment is clean.
- Remove sediments e.g., residues of pesticides, such as leftovers of wettable powers, rust and dust from spray tanks before using **ADAMA ABAMECTIN**.
- Avoid the use of hard or muddy water with a high colloidal content derived from soils high in organic matter.
- Correctly calibrate all sprayers under field conditions prior to application.
- It is not necessary to spray to the point of run-off, but essential to ensure even and complete coverage of the target plants.
- **Even applications are essential for good results.**

Ground application

- **ADAMA ABAMECTIN** can be applied with conventional ground equipment (tractor mounted booms, knapsack, etc.).
- Optimum spray deposits are obtained with ground equipment calibrated to spray volume of 50 to 3000 L per hectare with suitable nozzles to ensure adequate coverage.
- When drift is a problem, do not exceed 2 bar.
- Use only the pressures recommended for specific nozzles to avoid drift.

Cotton

Ground application

- Apply in up to 200 L water per hectare, depending on the spray equipment used.
- **ABAMECTIN** has been shown not to have a detrimental effect on lint quality.

“Tramline” application

- Apply to dryland cotton planted in “tramlines” using 50 to 100 L spray mixture per hectare, depending on plant size.
- Position at least 5 hollow-cone nozzles of suitable size over the tramlines.
- One nozzle must spray over the top of each row and one nozzle must spray between the two rows and two nozzles must be positioned to point 45 degrees upwards, mounted on drop-arms on the outside of each of the two rows.

Tomatoes

- Use a fine spray at high pressure and only apply to point of incipient run-off.

Apples and pears

- Apply as a high-volume, high-pressure cover spray to point of incipient run-off.
- Add 0.25% volume of a light mineral spray oil to the spray mixture.
- Thorough coverage is essential.
- It is recommended not to apply captan or sulphur sprays, 14 days prior to or after an application of oil as the oil may cause spotting on the fruit and leaves.

Strawberries

- Apply as a high-volume, high-pressure cover spray.
- Thorough coverage of both the upper- and undersides of leaves is required to control spider mites.
- Thorough coverage is essential.

Aerial application (on Cotton Only)

Aerial application of **ADAMA ABAMECTIN** may only be done by a registered Aerial Application Operator using a correctly calibrated, registered aircraft according to the instructions of SANS Code 10118 (Aerial Application of Agricultural Pesticides). Ensure that the spray mixture is distributed evenly over the target area and that the loss of spray material during application is restricted to a minimum. It is therefore essential that the following criteria be met:

- Volume: A spray mixture volume of 30 L per hectare is recommended. As this product has not been evaluated at a reduced volume rate, the registration holder cannot guarantee efficacy, or be held responsible for any adverse effects if this product is applied aerially at a lower volume rate than recommended above.
- Droplet coverage: 30 to 40 droplets per cm² must be recovered at the target area.
- Droplet size: A droplet spectrum with a VMD of 250 to 280 micron is recommended. Limit the production of fine droplets less than 150 micron (high drift and evaporation potential) to a minimum.
- Flying height: Maintain the height of the spray boom at 3 to 4 metre above the target. Do not spray when aircraft dives, is in a climb or when banking.
- Use suitable atomising equipment that will produce the desired droplet size and coverage, but which will ensure the minimum loss of product. The spraying system must produce a droplet spectrum with the lowest possible Relative Span.
- Position all the atomisers within the inner 60 to 75% of the wingspan to prevent droplets from entering the wingtip vortices.
- The difference in temperature between the wet and dry bulb thermometers, of a whirling hygrometer, should not exceed 8 °C.
- Stop spraying if the wind speed exceeds 15 km/h.
- Stop spraying under turbulent, unstable and dry conditions during the heat of the day.
- Spraying under temperature inversion conditions (spraying in or above the inversion layer) and/or high humidity conditions (relative humidity 80 % and above) may lead to the following:
 - a) reduced efficacy due to suspension and evaporation of small droplets in the air (inadequate coverage).
 - b) damage to other sensitive crops and/or non-target areas through drifting of the suspended spray cloud away from the target field.

- Ensure that the Aerial Spray Operator knows exactly which fields to spray.
- Obtain an assurance from the Aerial Spray Operator that the above requirements will be met and that relevant data will be compiled in a logbook and kept for future reference.

APPLICATION DOSAGE RATES

CROP AND PEST	DOSAGE RATE	REMARKS
<p>Apples and pears</p> <p>Red spider mite (<i>Tetranychus urticae</i>)</p> <p>European red mite (<i>Panonychus ulmi</i>)</p>	<p>35 ml plus 250 ml light mineral oil/100 L water</p> <p>(750 – 1500 ml/ha plus 0.25% oil)</p>	<p>Apply as soon as the red spider mite population reaches the economic threshold level (refer to “Economic Threshold Levels” below). Repeat when necessary.</p> <p>If less than 2150 L spray mixture per hectare is applied, use a minimum of 750 ml ADAMA ABAMECTIN plus 0.25% spray oil per hectare in sufficient water to obtain thorough coverage.</p> <p>Never exceed 1500 ml ADAMA ABAMECTIN per hectare per application or 3000 ml ADAMA ABAMECTIN per hectare in one growing season.</p> <p>Apples: Apply only to orchards where the IPM programme is not maintaining effective control of mites.</p>
<p>Strawberries</p> <p>Red spider mite (<i>Tetranychus urticae</i>)</p>	<p>1200 ml/ha</p>	<p>Apply ADAMA ABAMECTIN in at least 500 L water per hectare as a high volume, high pressure and full cover spray at first signs of infestation</p> <p>Apply initially 2 sprays, 7 to 10 days apart. Repeat as necessary.</p> <p>Thorough coverage of all plant surfaces is essential.</p> <p>Never exceed 4800 ml ADAMA ABAMECTIN per hectare per growing season.</p>

CROP AND PEST	DOSAGE RATE	REMARKS
<p>Cotton</p> <p>Red spider mite (<i>Tetranychus urticae</i>)</p>	<p>300 to 600 ml/ha</p>	<p>ADAMA ABAMECTIN can be used as a preventive or corrective control measure.</p> <p>Ensure thorough coverage of the plants. Repeat application as required to maintain the mite population below the economic threshold level (refer to "Economic Threshold Levels" below).</p> <p>Ground application:</p> <p>Apply in 100 to 200 L water per hectare. Do not use less than 300 ml ADAMA ABAMECTIN per hectare.</p> <p>Aerial application:</p> <p>Apply in 30 L water per hectare. Do not use less than 300 ml ADAMA ABAMECTIN per hectare.</p>
	<p>300 ml/100 L water</p> <p>(3 - 6 ml/100 m row)</p>	<p>"Tramline" Application:</p> <p>Apply 50 to 100 L spray mixture per hectare to dryland cotton, depending on plant size. Do not use less than 3 ml ADAMA ABAMECTIN per 100 metre row.</p> <p>Preventative Control Measure:</p> <p>Apply at 300 ml per hectare when spider mite population show sudden weekly increase, but before the economic threshold level is reached (refer to "Economic Threshold Levels" below).</p> <p>Corrective Control Measure:</p> <p>Apply 300 ml ADAMA ABAMECTIN per hectare when the economic threshold level has been reached or exceeded for a given stage of the crop, based on weekly scouting results.</p> <p>Emergency Control Measure:</p> <p>Apply ADAMA ABAMECTIN at 600 ml per hectare under conditions of very severe red spider mite infestations and when climatic conditions favour the rapid increase of mite populations (very hot and dry weather).</p> <p>Note: An application at 600 ml per hectare near harvest may delay normal plant defoliation, caused by red spider mites.</p>

CROP AND PEST	DOSAGE RATE	REMARKS
<p>Tomatoes</p> <p>Red spider mite (<i>Tetranychus urticae</i>) and</p> <p>Larvae of American leafminer (<i>Liriomyza trifolii</i>)</p>	<p>60 ml/100 L water (300 - 1200 ml/ha)</p>	<p>Apply ADAMA ABAMECTIN at the first signs of infestation as a high volume, high pressure, full cover spray to point of runoff, using up to 2000 L spray mixture per hectare. Ensure good coverage of all leaf surfaces.</p> <p>If less than 500 L spray mixture is applied, when spraying young plants, a minimum of 300 ml ADAMA ABAMECTIN per hectare must be applied in sufficient water to provide a full cover spray. Never exceed 1200 ml ADAMA ABAMECTIN per hectare.</p> <p>Red spider mite: Repeat application as necessary.</p> <p>American leafminer: Repeat application every 7 days if necessary, to ensure control.</p>
<p>Flowers and ornamentals</p> <p>Red spider mite (<i>Tetranychus urticae</i>)</p> <p>Chrysanthemums</p> <p>American leafminer (<i>Liriomyza trifolii</i>)</p>	<p>25 ml/100 L water (560 – 1500 ml/ha)</p>	<p>Apply ADAMA ABAMECTIN at first signs of infestation as a high volume, high pressure and full cover spray to point of run-off. Use a minimum of 2250 L spray mixture per hectare.</p> <p>If less than 2250 L of spray mixture are applied (i.e. when spraying young plants), a minimum of 560 ml ADAMA ABAMECTIN per hectare must be applied in sufficient water to provide a full cover spray.</p> <p>Never exceed 1500 ml ADAMA ABAMECTIN per hectare. Ensure that all foliage surfaces are thoroughly wetted by the spray to point of run-off.</p> <p>Red spider mite: Repeat application as necessary. American leafminer: Repeat application every 7 days or as needed to maintain control.</p>

ECONOMIC THRESHOLD LEVELS

APPLES	2 adult females per leaf up to the end of March and thereafter 1 female per leaf.						
PEARS	1 adult female per leaf throughout the season.						
COTTON	Weeks after emergence:	3 to 10	12	14	16	18	20
	Red spider mite population index:	0.5	0.8	1.1	1.4	1.7	2.0

DETERMINE RED SPIDER MITE POPULATION INDEX

- Randomly select 48 plants per land.
- Count the number of female mites on three leaves per plant.
- Calculate the average number of mites on 48 plants per land.
- Determine the red spider mite population index per plant as follows:

Total number of female mites/3 leaves/plant:	Spider Mite Population Index:
0 adult females:	0
1 to 10 adult females:	1
11 to 30 adult females:	2
31 and more:	3