

**CAUTION**  
**KEEP OUT OF REACH OF CHILDREN**  
**READ SAFETY INSTRUCTIONS BEFORE OPENING OR USING**



# Waldo Miticide

**ACTIVE CONSTITUENT: 500 g/L DIAFENTHIURON**

GROUP	<b>12A</b>	INSECTICIDE
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**For the Control of Couchgrass Mite in Turf  
as per the Directions for Use**

**IMPORTANT: READ THIS LEAFLET THOROUGHLY BEFORE OPENING OR  
USING THIS PRODUCT**

APVMA Approval No.: 81888/104348



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**DIRECTIONS FOR USE****Restraints**

DO NOT apply to turf under heat or moisture stress.  
 DO NOT apply if rainfall is imminent.  
 DO NOT apply by backpack.  
 DO NOT apply by aircraft.  
 DO NOT apply through any type of irrigation system or ultra low volume spray system.  
 DO NOT apply with a nozzle height greater than 50 cm above the ground.  
 DO NOT apply consecutive sprays or apply within 6 weeks of previous spray.  
 The effect of this product could be diminished if rain falls within 6 hours of application.

Situation	Pest	Rate	Critical Comments
Turf	Couchgrass Mite ( <i>Aceria cynodoniensis</i> , formerly <i>Eriophyses</i> <i>cynodoniensis</i> )	500 mL/ha or 5 mL per 100 m <sup>2</sup>	<p>Apply Waldo Miticide in an early curative situation (after first symptoms are apparent). Best results are achieved if applied as populations begin to build rather than at the peak of population growth.</p> <p>The addition of a quality non-ionic surfactant (1000 g/L – non-buffering type) is essential at a rate of 250 mL/100 L (0.25 % v/v) of final spray volume.</p> <p>Alternate every Waldo Miticide application with an alternative mode of action miticide.</p> <p>Refer to Application section in the General Instructions section of this label for detailed information, such as water volumes and nozzle selection.</p>

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

**WITHHOLDING PERIOD**

**DO NOT GRAZE TREATED TURF/LAWN OR FEED TURF/LAWN CLIPPINGS FROM ANY  
 TREATED AREA TO POULTRY OR LIVESTOCK**

**GENERAL INSTRUCTIONS**

Waldo Miticide contains 500 g/L diafenthiuron in the form of a suspension concentrate.

**Couch Mite**

For Couch Mite control, Waldo Miticide is an acaricide with contact and stomach action, with some ovicidal action. Waldo Miticide is active against all mite leaf feeding stages, controlling nymphs and adults.

The active ingredient in Waldo Miticide, diafenthiuron, is a thiourea, which is not active itself but rather has to be converted to its carbodiimide derivative. This occurs either in the presence of sunlight or via metabolism within the insect/pest.

Foliage-feeding mites ingest or contact Waldo Miticide, which acts by disrupting mitochondrial function. Mitochondria are intra-cellular structures that are responsible for cellular respiration. The cessation of respiration leads to paralysis almost immediately and death usually occurs within 4 - 6 days after application. Therefore, full control is not achieved until after at least 6 days.

Following application, Waldo Miticide exhibits translaminar movement through the leaf and fumigant activity to target the pests where they hide, resulting in immediate paralysis after contact or ingestion. Waldo Miticide's translaminar activity penetrates the leaf tissue where it allows control of mites in the turf canopy and on the underside of the leaves when they feed (including hidden mites deep in the turf canopy), this provides extended residual control of mites. It is taken up by mites feeding on both the upper and lower surfaces of leaves and remains in the leaves for several weeks offering residual control of sucking mites. Waldo Miticide's fumigant activity helps control mites on the lower leaf

surface in dense turf canopies, not sprayed directly with the product.

Reduced efficacy may occur if water volumes higher than recommended are used due to Waldo Miticide washing off the leaf. This will not allow Waldo Miticide to penetrate the leaf tissue hence reducing the residual control of mites.

**Mites:** Upon hatching the nymphs molt twice (2 instars) and molt again into a sexually mature adult. In most cases adult mites must feed prior to laying eggs. This is where the correct water volume to achieve maximum leaf tissue penetration is vital as the mite will feed on the plant, ingest Waldo Miticide and die prior to laying eggs, hence stopping future generations from evolving. No eggs laid means nothing to hatch.

The complete life cycle from egg to adult is 7 to 10 days, and is faster with higher temperatures. Each female produces approximately a dozen eggs.

Waldo Miticide is ideal for either newly sown/planted or established turf.

It is best to apply Waldo Miticide in an early curative situation (after first symptoms are apparent) to control current and prevent further mite from breeding and building up damaging populations quickly (i.e. an early season application).

If applying Waldo Miticide when pest populations are at peak damage levels and the turf stand requires an immediate reprieve from pest attack, please keep in mind that if the turf is growing at a fast rate your residual control period will be shorter than slower turf growth periods (see Translaminar Activity statement).

### **Translaminar Activity**

When applying Waldo Miticide keep in mind its longevity is linked to its translaminar activity. Translaminar movement is the ability of the active ingredient of the insecticide to penetrate the leaf cuticle and move into the leaf tissue. Products with translaminar movement can offer control of insects/pests feeding on the unexposed/undersheath side of the leaf, as well as from sucking/feeding insects/pests that feed from plant juices inside the leaf. In addition, the movement of translaminar products into the leaf means their insecticidal activity has been protected from UV degradation and from wash-off from rain or dew.

Therefore, translaminar products, such as Waldo Miticide, will give residual control of mites but this residual control is based on the product still being in the leaf. Translaminar activity does not move downwards (towards the crown) or upwards (towards the leaf tip), it only moves through the leaf where it is physically touching the plant/leaf. Which is why good even spray coverage of the whole turf canopy is essential. As it does not move downwards or upwards, when the turf grows the product will slowly move with the growth of the plant/leaf and hence be physically removed by cutting (mowing). So during early season applications when your turf is growing slowly you will get longer residual control, compared to faster turf growth periods which is when you will get shorter residual control periods.

### **Turf Monitoring**

Effective mite control depends upon regular monitoring of the turf. Check the turf area regularly remembering that mite activity will be first noticed on developing shoots and it is important to protect the new growth.

Damage is characterised by a yellowing of the tips of the leaves, a turning upward and inward of the leaves and shortening of the internodes, and a rosetting or tufting of the grass (usually described in the turf industry as 'witches broom').

The thinning of turf can be caused by several factors and damage by Couch mite is often misdiagnosed as mutation or nematode infestation. Therefore, it is always a good idea to collect samples of live plants from the affected areas (i.e. witches brooms). Samples should be sealed in a plastic bag and sent to your local turf laboratory/insect specialists for identification.

Remember that chemical control will treat the pest but not repair the turf damage.

### Mixing

Add the required amount of Waldo Miticide to clean water in half filled spray tank with the agitator or by-pass in operation. Maintain agitation while filling tank with remainder of water. Agitation must also be maintained throughout the spray operation.

**Non-ionic Surfactants:** The addition of a quality non-ionic surfactant (1000 g/L – non-buffering type) is essential at a rate of 250 mL/100 L (0.25 % v/v) of final spray volume.

### Compatibility

DO NOT mix with products or fertiliser with high salt content, i.e. ferrous sulphate or ammonium sulphate. As formulations of other manufacturer's products are beyond the control of Turf Culture Pty Ltd, all mixtures should be tested before addition to a spray tank and before application to turf to establish safety.

### Application

Apply by ground boom sprayer, low-pressure hand wand or handgun sprayer.

To be effective Waldo Miticide requires thorough spray coverage. Ensure that equipment is properly calibrated to give an even distribution at the correct volume. Application volume should be adequate to ensure thorough and even coverage of turf leaves with penetration into the crowns. Total application volume should be 300 to 500 L of water/ha. Use coarse droplets (e.g. Air Induction flat fan 025 to 04 nozzles). In higher cut turf (>15 mm) a significant spray shielding effect can occur, impacting negatively on spray penetration and even coverage at low application volumes, therefore be sure to use the higher water volume (500 L of water/ha) in situations of high cut turf (>15 mm).

Do not make applications when unusually hot conditions are present or expected within 24 hours after application, or under poor or slow drying conditions.

### Application Records

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 to be recorded are:

1. Date, with start and finish times of application
2. Location / address of area(s) sprayed
3. Full name of the product, product batch number (BN) and date of manufacture (DOM)
4. Amount of product used per hectare and the number of hectares treated
5. Turf species/situation and weed/pest
6. Wind speed and direction during application
7. Air temperature and relative humidity during application
8. Spray irrigation or rainfall after application, start time, duration and amount (mm)
9. Equipment used; nozzle brand, type, spray angle, operating pressure and total water volume applied per hectare
10. Name of person applying this product

(Additional record details may be required by the State or Territory where this product is used)

### INSECTICIDE RESISTANCE WARNING

GROUP	12A	INSECTICIDE
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For insecticide resistance management Waldo Miticide is a Group 12A insecticide. Some naturally occurring insect biotypes resistant to Waldo Miticide and other Group 12A insecticides may exist through normal genetic variability in any insect population. The resistant individuals can eventually dominate the insect population if Waldo Miticide and other Group 12A insecticides are used repeatedly. The effectiveness of Waldo Miticide on resistant individuals could be significantly reduced. Since occurrence of resistant individuals is difficult to detect prior to use, Turf Culture Pty Ltd accepts no liability for any losses that may result from failure of Waldo Miticide to control resistant insects. Waldo Miticide may be subject to specific resistance management strategies. For further information contact your supplier, Turf Culture representative or local agricultural department agronomist.

## PRECAUTION

### Re-Entry Period

#### General Public

DO NOT allow entry access to treated areas until spray has dried.

#### Grounds Staff / Professional Operators

*Low exposure activities:* DO NOT undertake low exposure occupational re-entry activities such as irrigation and mowing on treated turf until the spray has dried.

*High exposure activities:* DO NOT undertake high exposure occupational re-entry activities such as hand weeding or transplanting of turf until 15 days after application, unless wearing cotton overalls buttoned to the neck and wrists (or equivalent clothing) and elbow length chemical resistant gloves.

## PROTECTION OF WILDLIFE, FISH, CRUSTACEANS AND ENVIRONMENT

Very dangerous to fish and crustaceans. DO NOT contaminate streams, rivers or waterways with the chemical or used containers. Dangerous to bees. DO NOT spray any plants in flower while bees are foraging.

## STORAGE AND DISPOSAL

Store in the closed, original container in a cool, well-ventilated area. DO NOT store for prolonged periods in direct sunlight. Triple or preferably pressure 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 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 disposal pit specifically marked and set up for this purpose clear of waterways, desirable vegetation and tree roots, in accordance with relevant Local, State or Territory government regulations. DO NOT burn empty containers or product.

## SAFETY DIRECTIONS

Harmful if swallowed or inhaled. Will irritate the eyes and skin. Avoid contact with eyes and skin. DO NOT inhale spray mist. When opening the container, mixing and loading the spray and using the prepared spray wear cotton overalls buttoned to the neck and wrist (or equivalent clothing), elbow length chemical resistant gloves and disposable mist facemask covering mouth and nose.

When using the prepared spray by low-pressure hand wand wear cotton overalls over normal clothing, buttoned to the neck and wrist, elbow length chemical resistant gloves and disposable mist facemask covering mouth and nose.

Wash hands after use. After each day's use, wash gloves and contaminated clothing.

## FIRST AID

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

## SAFETY DATA SHEET

For further information refer to the Safety Data Sheet (SDS), which is available from the supplier or from the manufacturer's website: [www.turfculture.com.au](http://www.turfculture.com.au)

## CONDITIONS OF SALE

The use of Waldo Miticide being beyond the control of the manufacturer, no warranty expressed or implied is given by Turf Culture Pty Ltd regarding its suitability, fitness or efficiency for any purpose for which it is used by the buyer, whether in accordance with the directions or not and Turf Culture Pty Ltd accepts with no responsibility for any consequences whatsoever resulting from the use of this product.

In a Transport Emergency Dial 000 Police or Fire Brigade