



Waldo Miticide

For the Control of Couchgrass Mite in Turf

Technical Brief

Active Ingredient:	500 g/L diafenthiuron
Mode of Action Group:	12A - Inhibitors of mitochondrial ATP synthase (Energy metabolism)
Formulation:	Suspension Concentrate
Mode of Action:	<p>Broad spectrum, contact and stomach action with some ovicidal activity, acts by inhibiting oxidative phosphorylation.</p> <p>Diafenthiuron is a pro-insecticide, which is not active itself but converts to carbodiimide either in the presence of sunlight, inside the plant or via metabolism within the insect. It is this conversion (to enter its biologically active state) that is toxic to the target insect. Diafenthiuron acts by disrupting mitochondrial function. Mitochondria are intracellular 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.</p>
Behaviour in Plants:	<p>Diafenthiuron exhibits translaminar movement through the leaf and fumigant (vapour) activity to target the pests where they hide, resulting in immediate paralysis after contact or ingestion. Diafenthiuron 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. Diafenthiuron's fumigant (vapour) activity helps control mites on the lower leaf surface in dense turf canopies, not sprayed directly with the product. Shortly after exposure, the pest stops feeding, becomes irreversibly paralysed and there is no further damage to the plants.</p>

Benefits

- Strong contact, translaminar and fumigant (vapour) activity resulting in immediate paralysis after contact or ingestion
- Fumigant (vapour) activity targets the pests where they hide – i.e. pests on the underside of leaves not directly contacted are vulnerable to vapour action
- Leaf penetration to form a reservoir inside the young foliage
- Extended control of mites from a single early season application
- Long residual period of control
- A novel mode of action
- Movement into the leaf for rainfast protection
- Effective against all mite leaf feeding stages (controlling nymphs and adults)
- Some ovicidal action (eggs)
- Mite feeding and mobility inhibited immediately, mites become irreversibly paralysed.
- Ideal rotation partner with Thumper Insecticide

Mite Management

Situation	Pest	Rate	Critical Comments
Turf	Couchgrass Mite (<i>Aceria cynodoniensis</i> , formerly <i>Eriophyes cynodoniensis</i>)	500 mL/ha or 5 mL per 100 m ²	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. 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. Alternate every Waldo Miticide application with an alternative mode of action miticide. Refer to Application section in the General Instructions section of this label for detailed information, such as water volumes and nozzle selection.

Note: The above table represents only a modified extract from the full registered label. Always read the full product label before use.

How to get the most out of your application

- 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 (no penetration into the leaf means no translaminar activity, hence no control by ingestion).
- DO NOT use if rainfall is expected before spray has dried as reduced efficiency may result.
- Delay irrigation until spray has dried as reduced efficiency may result.
- Maintain continuous agitation.
- Do not make applications when unusually hot conditions are present or expected within 24 hours after application, or under poor or slow drying conditions.
- 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.
- 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).

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).

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.

Application Timings

	Thumper Insecticide	Waldo Miticide
Week 1		
Week 2		
Week 3		
Week 4		
Week 5		
Week 6		

- Approximate Thumper residual expected during peak pest pressure
- Approximate Waldo residual expected during peak pest pressure
- Approximate timing for applications

Packaging

Pack sizes: 1L, 5L

