



# Malice Duo Advanced

## Miticide

*Dual active Miticide for  
Generational Management of Couch Mite*

### Product Overview

Malice Duo Advanced Miticide is a dual active miticide, containing the active ingredients Abamectin 18g/L and Clofentezine 187.5g/L

Malice Duo Advanced Miticide is a suspension concentrate formulation

Malice Duo Advanced Miticide is registered for the control of Couch Mite in all turf situations

Malice Duo Advanced Miticide has been developed and manufactured in Australia

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## Key Features

- > Effective knockdown and residual activity of mite populations. Controls feeding stages of mites, whilst also controlling the egg and early mite larval stages. Provides more complete control of the population.
- > Provides residual control for up to 4-6 weeks.
- > Multiple modes of action used: Group 10A and Group 6. There are no limitations on number of treatments per season. This is unlike some other miticide chemistry on the market.
- > Suspension Concentrate (SC) formulation, specifically developed for reduced odour in turfgrass situations.
- > No solvents within formulation, limiting cuticle impact on the plant.
- > Researched formulation. Malice Duo Advanced Miticide has been extensively researched and trialed in turf situations.
- > Useful product to be used in an integrated approach to mite management.
- > Proven turf safety. Tested on more than 15 turf species without causing any damage.
- > Limited re-entry period restrictions, providing ease of use in the urban environment.



## Mode of Action

**GROUP 10A | 6 | INSECTICIDE**

Abamectin blocks the transmission of electrical activity in invertebrate nerve and muscle cells mostly by enhancing the effects of glutamate (an important inhibitory neurotransmitter in insects) at the glutamate-gated chloride channel.

By activating glutamate-gated chloride channels, the mite becomes paralysed, stops feeding and dies. Abamectin has contact toxicity, but its stomach toxicity is much stronger.

After 2-3 days of spraying abamectin, its insecticidal efficacy will be best and the longevity of residues will last about 7-15 days.

Abamectin moves via translaminar activity (one side of leaf to the other) to kill mites that hide in the internal leaf sheath's.

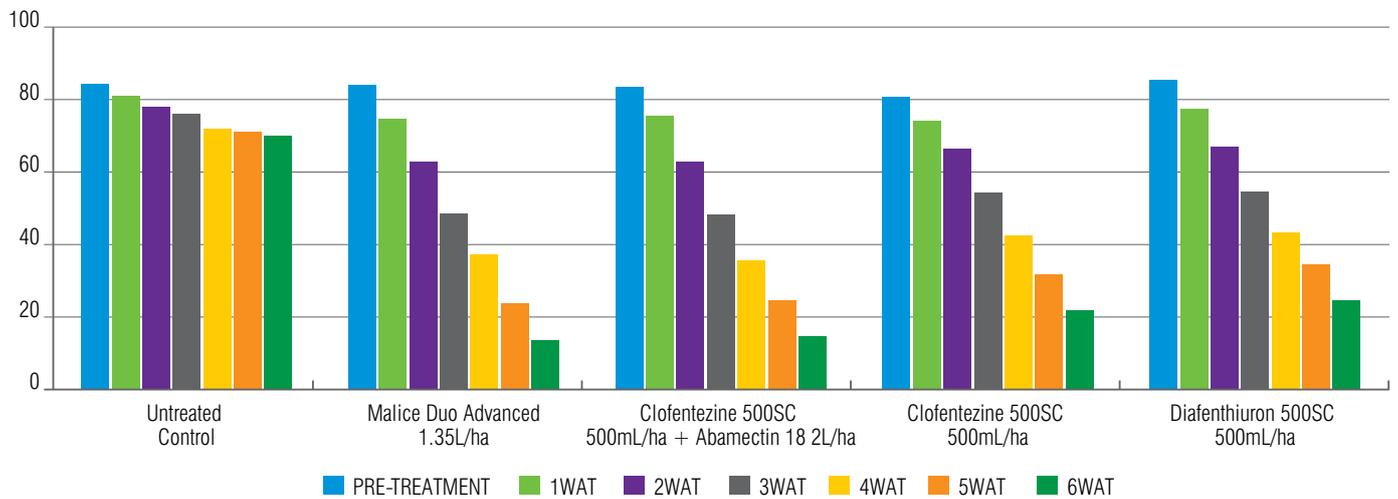
Clofentezine is a specific acaricide with contact action, and long residual activity.

It acts primarily by interfering with cell growth and differentiation during the final stages of embryonic (ovicide), and early larval development.

IRAC (Insecticide Resistance Action committee) class Clofentezine as an insect or acaricide growth regulator. Clofentezine mimics growth hormones by directly affecting cuticle formation or lipid biosynthesis, halting their ability to develop any further and essentially preventing their lifecycle completion (IRAC, 2016).

## Malice Duo Advanced – Field Research Performance

Deformed & infested Couch terminal counts conducted pre and post application with several turf miticides:  
Plant Breeding Institute Cobitty NSW, Trial conducted by Westgate Research





## Malice Duo Advanced – Impact on the Couch Mite Lifecycle

Miticidal Activity	CLOFENTEZINE Activity Zone		ABAMECTIN Activity Zone		
Mite Lifecycle Stage	Stage 1 >	Stage 2 >	Stage 3 >	Stage 4 >	Stage 5
Mite Lifecycle Description	Females lays eggs beneath leaf sheath of new growth in spring	Egg Hatches in 2-3 days	Nymph – 2 stages	Molts to become adult after 6 days	Breeds & females lay eggs for 2-4 days
Mite Size	Up to 200 mites under one leaf sheath	0.07mm	0.1-0.15mm	0.2mm	



### Couch Mite

*Aceria cynodontiensis* (Eriophyid mite)

These are tiny mites about 0.2mm in length, translucent and hard to see even under a microscope, though a dark background helps.



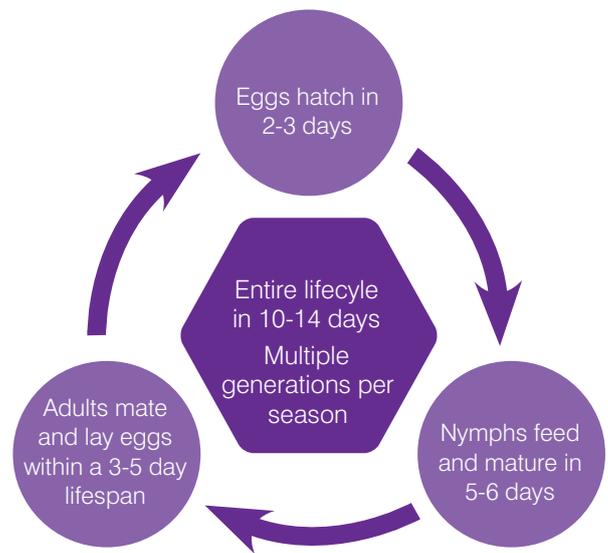
They have two pairs of legs where other mites have four. They normally cause “Witches’ Broom” rosetting at the runner nodes.

### Monitoring Couch Mite Activity

Effective Couch Mite control depends upon regular monitoring of the turf. Check the turf area regularly remembering that mite activity is 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 (‘witches broom’). Thinning of turf can be caused by several factors and damage to Couch Mite can be misdiagnosed as other factors. Therefore, it is recommended to collect sample of live plants from effected areas (i.e. witches brooms).

Samples should be sealed in a plastic bag and sent to your local turf laboratory/insect specialists for identification. It is important to note that chemical control will treat the pest but not repair turf damage. Good nutrition and growing practices will enhance plant response.



### Malice Duo Advanced – Use Rates & Label Recommendations

SITUATION	PEST	RATE	COMMENTS
Couch turf including but not limited to golf greens, tees and fairways, bowling clubs, sports fields and racetracks	Couch Mite ( <i>Aceria cynodontiensis</i> )	1.35L/ha in 400-800L of water per hectare	Apply product 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.



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### Maximising performance

- > To maximise performance Malice Duo Advanced Miticide should be applied with a non-ionic surfactant to ensure uptake.
- > To be effective Malice Duo Advanced 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 400 to 800L/ha. Use coarse droplets (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.
- > Do not spray while bees are actively foraging. Do not allow spray drift to flowering plants in the vicinity of the treatment area.
- > Do not graze treated turf/lawn or feed turf/lawn clippings from any treated area to poultry or livestock.
- > Malice Duo Advanced Miticide should not be applied if rainfall is imminent.

### Key application information

- > Apply by ground boom sprayer, low pressure hand wand or hand gun sprayer. To be effective Malice Duo Advanced 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 400-800L/ha. Use coarse droplets (e.g. Air Induction flat fan 025 to 04 nozzles).
- > In higher cut turf (> 15mm) a significant spray shielding effect can occur, impacting negatively on spray penetration and even coverage at low application volumes.
- > Don't apply to turf under heat or moisture stress.
- > Don't apply if rainfall imminent. The effect of this product could be diminished if rain falls within 6 hours of application.
- > Don't apply through any type of irrigation system or ultra low volume spray system.
- > Don't apply with a nozzle height greater than 50cm above the ground.

### About Us

Indigo Specialty Products is a privately-owned business, formed and owned by a small team of industry professionals with extensive experience in manufacture, distribution, development and product registration. We are a business focused on production & supply of plant protection, pest control, plant nutrition, soil, water management & biological products. Specialising in Australasian non-crop and niche horticultural markets, including Turf & Amenity, Nursery Production, Industrial Vegetation Management, Forestry, Pest Control and Consumer Home Garden & Pest Management.



### Formulated in Australia

Our goal is to manufacture the Indigo product ranges in Australia as much as possible, where we can oversee product quality processes, whilst allowing us the flexibility to modify products to overcome ever changing challenges. Our ProForce and HydroForce range of products will be formulated in Australia using imported materials. Our Xcel Fertiliser and BioForce Biological range will be manufactured in Australia to the highest possible standards.



### Developed & Researched for local conditions

We are heavily focused on local research and development to ensure our products perform at their peak in the Australian markets. We actively invest in field trial research programs and modify our formulations to match the local conditions of the key markets in which we operate to maximise performance.



### Focused on Specialty markets

We strive to be relevant in our core markets, by adding value via overcoming issues and obstacles that are present in the markets we operate within. We do this by focusing on control of key pests or diseases or by solving key management issues that our valued end user customers have. We also strive to be active in the core markets in which we operate by working closely with our allied distributor network, offering support, service and advice where required.



### Diagnostic Services

We offer a complete diagnostic services package, known as TechForce, designed to evaluate and identify key agronomic problems, so we can be better informed in recommending products for the specific situation. We also believe that by offering these services, our customers and users of our products can evaluate performance of the portfolio in a quantifiable and scientific approach. We use some of Australia's leading laboratories in delivering results for our services including Phoyson Analytical, Westgate Labs, Botanic Research, Biological Crop Protection and Royal Botanic Gardens.

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