

CAUTION

KEEP OUT OF REACH OF CHILDREN
READ SAFETY DIRECTIONS BEFORE OPENING OR USING

Marvel[®] 175 EC

Plant Growth Regulator

ACTIVE CONSTITUENT: **175 g/L TRINEXAPAC-ETHYL**

For the reduction of leaf and stem growth of grass species and as an aid in turf management, as per the Directions for Use



Formulation type
Emulsifiable Concentrate **EC**

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CONTENTS: 1 - 1000 L

DIRECTIONS FOR USE

Restrictions

DO NOT apply to turf recovering from wear, renovation or turf affected by disease, waterlogging or other stresses.
DO NOT use where growth regulatory effects are likely following the application of a fungicide or any other material.
DO NOT apply to turf going into or coming out of dormancy.
DO NOT apply if rainfall is expected within 1 hour, and DO NOT irrigate turf for at least 1 hour after application.
DO NOT apply to Kentucky Bluegrass as damage may occur.

TURF GROWTH MANAGEMENT

SITUATION	GRASSES	RATE		CRITICAL COMMENTS
		Per ha	Per 100 m ²	
Golf Courses	Bent Grass	0.7 - 1.4 L	7 - 14 mL	Apply MARVEL [®] at least 6 hours before or after mowing and when turf is actively growing. Use the lower rates on turf with moderate growth rates where a lower level of growth regulation is required, or when used in a program. Apply rates towards the highest end of the rate range when growth is vigorous or when longer periods of up to 6 weeks regulation are required. Application made to turf growing under cool conditions or to turf with low nutrient levels or where growth rates are low may result in discolouration. Well maintained turf surfaces are those which receive at least weekly mowing and good levels of water and fertility are maintained. Refer to Application section for detailed information.
Golf course Fairways	Carpet Grass, Kikuyu	1 - 2.75 L	11 - 27 mL	
	Common Couch	0.5 - 1 L	5 - 11 mL	
	Couch varieties: Greenlees Park, Santa Ana, Wintergreen	0.4 - 0.8 L	4 - 8 mL	
	Fescue, Perennial Ryegrass	1 - 2 L	11 - 21 mL	

TURF GROWTH MANAGEMENT - continued

SITUATION	GRASSES	RATE		CRITICAL COMMENTS
		Per ha	Per 100 m ²	
Golf Course Short Roughs, Well Maintained Lawns, General Turf Surfaces	Bent Grass, Fescue, Perennial Ryegrass	1.4 - 2.75 L	14 - 27 mL	Apply MARVEL® at least 6 hours before or after mowing and when turf is actively growing. Use the lower rates on turf with moderate growth rates where a lower level of growth regulation is required, or when used in a program. Apply rates towards the highest end of the rate range when growth is vigorous or when longer periods of up to 6 weeks regulation are required. Application made to turf growing under cool conditions or to turf with low nutrient levels or where growth rates are low may result in discolouration. Well maintained turf surfaces are those which receive at least weekly mowing and good levels of water and fertility are maintained. Refer to Application section for detailed information.
	Buffalo Grass, Common Couch, Hybrid Couch	0.7 - 1.4 L	7 - 14 mL	
	Kikuyu	1 - 4 L	11 - 41 mL	
Golf Course Long Roughs, Parks, Ovals, Lawns, General Grassed Areas	Bent Grass, Fescue, Perennial Ryegrass	1.4 - 4 L	14 - 41 mL	
	Buffalo Grass, Common Couch, Hybrid Couch	0.7 - 2.75 L	7 - 27 mL	
	Kikuyu	1.4 - 5.5 L	14 - 55 mL	
Bunker Facing, Path and Garden Edging, Footpath and Curbside Edging, Fencelines, Around Trees	Bent Grass, Common Couch, Perennial Ryegrass	2.75 - 4 L	3 - 4 mL	Apply MARVEL at least 6 hours before or after mowing and when turf is actively growing. On difficult to mow areas apply MARVEL to actively growing turf and mow 3 - 4 days after application. Apply in a strip approximately 25 - 50 cm wide. Use the lower rates of marvel around bunker edges and the higher rates in the other situations. Application made to turf growing under cool conditions or to turf with low nutrient levels or where growth rates are low may result in discolouration.
	Buffalo Grass	2.75 L	27 mL	
	Couch varieties: Greenlees Park, Santa Ana, Wintergreen			
	Kikuyu	4 - 5.5 L	41 - 55 mL	

WINTER GRASS (*Poa Annua*) MANAGEMENT

SITUATION	GRASSES	RATE		CRITICAL COMMENTS
		Per ha	Per 100 m ²	
Golf Course Fairways, Golf Course Greens	Winter Grass (<i>Poa annua</i>)	275 - 700 mL	3 - 7 mL	See instructions under Winter Grass (<i>Poa annua</i>) Management for reduction of <i>Poa annua</i> swards in Bent Grass golf greens. See Golf course greens section above for application recommendations.

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

MARVEL® should be applied to actively growing turf, at least 6 hours before or after mowing. Good mowing management leading up to application is required to achieve a good quality turf surface and to obtain the best results from MARVEL®.

Growth Regulation

The recommended use rates are designed to give approximately a 20 - 50 % reduction in clippings over a 2 - 6 week period. In practice the amount of growth regulation achieved will vary between situations due to environmental conditions and management practices. To some extent, therefore, application rates will need to be adjusted to match growing conditions, management practices and the amount of growth regulation required by the turf manager.

Repeat applications can be made as soon as turf resumes growth or more suppression is required.

Winter Grass (*Poa annua*) Management

Different grasses vary in their sensitivity to MARVEL®. Since *Poa annua* is more sensitive to MARVEL® than Bent Grass, MARVEL® can be used to reduce the competitiveness of *Poa annua* in Bent Grass golf greens. MARVEL® can be integrated into existing *Poa annua* control programs. Low rates of MARVEL® (that provide growth suppression of *Poa annua*,

but not Bent Grass) applied during peak growth periods may enable a slow transition in the golf green sward composition away from *Poa annua* and towards a higher percentage of Bent Grass.

Couch Overseeding

An application of MARVEL® to couch will enhance the establishment of cool season turf grasses. MARVEL® is foliarly absorbed, so germination and seedling growth is not affected.

Apply MARVEL® before verticutting, scalping, spiking or other similar operations to the couch. Apply MARVEL® 1 - 5 days before seeding.

MIXING

MARVEL® is an emulsifiable concentrate (EC) with minimal odour as the product does not contain petroleum solvents. MARVEL® mixes completely with water and may be tank mixed with many commonly used fungicides and liquid fertilizers. Add the required quantity of MARVEL® directly to a spray tank containing 2/3 of the required spray volume. Add the rest of the water and ensure the mix is thoroughly agitated before application.

MARVEL® can be tank mixed with some formulations of azoxystrobin, chlorothalonil and propiconazole fungicides and trifloxysulfuron sodium herbicide.

APPLICATION

Ensure even application in order to achieve even growth reduction. Avoid overlapping sprays.

Application Volume: Apply in 100 - 500 L/ha water, using suitable flat fan nozzles. Application volume should be adequate to ensure thorough and even coverage of the turf leaves and penetration to the crowns. 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.

Knapsack: It is important to apply the correct quantity of MARVEL to a known area of turf. Apply between 2 and 10 L water/100 m² turf. Preferably use flat fan nozzles and ensure even coverage is achieved.

Golf Courses and Bowling Greens: Ensure product placement as uniformly as possible onto leaves and into crowns. Ideal application volume should be 350 - 500 L/ha. For best results use medium [XR Teejet* (11004 or 11005)] to coarse [Turbo Teejet* or AIXR Teejet* (11004 or 11005)] nozzles, at 5 km/h and 3 bar pressure. Boom height should not exceed 50 cm above the ground.

All Other Turf Areas: Ensure product placement as uniformly as possible onto leaves and into crowns. Ideal application volume should be 200 - 500 L/ha. For best results use medium [XR Teejet (11004 to 11008)] to coarse [Turbo Teejet or AIXR Teejet (11004 or 11005)] nozzles, at 8 km/h and 3 bar pressure. Boom height should not exceed 50 cm above the ground.

Application Near and Around Monuments and Hardscape Materials: MARVEL, at normal dilution rates, will not stain brass, bronze, concrete, granite, marble or other types of stone.

Before using MARVEL around other materials, test on a small scale basis first.

COMPATIBILITY

For Common Couch, Hybrid Couch and Kikuyu turfgrasses only MARVEL[®] is compatible with some formulations of products containing the following chemicals: 2,4-D amine, bromoxynil, MCPA/bromoxynil/dicamba, MCPA ester/bromoxynil, MCPA ester/bromoxynil/dicamba, MCPP/2,4-D amine/dicamba or MCPP/ dicamba.

However, some transient discolouration of the treated turf may occur after application of a tank mix.

For the treatment of broadleaf weeds in turf with herbicides other than those indicated above, it is recommended to apply MARVEL and the broadleaf weed herbicides separately, allowing at least 10 days between an application of MARVEL and the broadleaf weed herbicides.

PRECAUTION

Re-entry Period

DO NOT enter treated areas without protective clothing until spray has dried. DO NOT allow the public to enter treated areas until spray has dried.

PROTECTION OF WILDLIFE, FISH, CRUSTACEANS AND ENVIRONMENT

Dangerous to fish larvae and oysters. DO NOT contaminate dams, rivers, streams or storm water drains with concentrate or used container. Wash out spraying equipment, mixing and measuring utensils with water onto grass.

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 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.

SAFETY DIRECTIONS

Will irritate the eyes and skin. Repeated exposure may cause allergic disorders. Avoid contact with eyes and skin. When opening the container and preparing spray wear cotton overalls buttoned to the neck and wrist and elbow-length PVC gloves. 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 13 11 26.

SDS

Additional information is listed in the safety data sheet (SDS). A safety data sheet for MARVEL[®] 175 EC Plant Growth Regulator is available from adama.com or call Customer Service on 1800 423 262

CONDITIONS OF SALE: The use of MARVEL[®] 175 EC being beyond the control of the manufacturer, no warranty expressed or implied is given by Adama Australia regarding its suitability, fitness or efficiency for any purposes for which it is used by the buyer, whether in accordance with the Directions for Use or not. Adama Australia accepts no responsibility for any consequence whatsoever resulting from the use of this product.

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04/2017 8936

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