



For the Regulation of Leaf and Stem Growth of Grass Species and as an Aid in Turf Management

Astro 120 ME Growth Regulator

Technical Brief

Active Ingredient:	120 g/L trinexapac-ethyl
Chemical Family:	Cyclohexanecarboxylate derivative
Formulation:	Micro Emulsion Concentrate (ME)
Mode of Action:	Trinexapac-ethyl inhibits gibberellic acid biosynthesis (late in the pathway), resulting in decreased cellular elongation and internode length. After application, any new growth has shortened internodes, more tillers, and reduced vertical growth compared to untreated turf.
Behaviour in Plants:	Trinexapac-ethyl is rapidly absorbed by the leaves and crowns of the plant, mostly within one hour of treatment. Absorption through roots is negligible. It is transported acropetally (upwards) in the xylem to the meristem, where cell elongation occurs. This systemic translocation contributes to even distribution of the active ingredient within the plant tissue.

Benefits

- For the regulation of leaf and stem growth of grass species and as an aid in turf management
 - Improves colour, lateral stems, and root mass development
 - Reduces vertical growth whilst improving blade health and durability
 - Increases quality of cut, especially in high maintenance situations
 - Reduces clippings for efficient mowing
- Efficient and versatile turf management tool that maximizes turf quality, pre-conditions for stress prevention, and optimises resources
- Improves turf stand, uniformity and health to provide a smooth, tightly knit cover that is better able to withstand stress
- Increases the lateral spread and turf density, in addition to slowing the vertical growth of the grass. This enhances the playability of many surfaces including fairways, greens and tees on golf courses as well as sport fields and other playing surfaces
- Micro emulsion formulation, ideal for use in sensitive turf plants. With low odour / no petroleum solvents and easily tank mixed
- Low poison schedule (Schedule 5)
- The longevity of fungicides and insecticides with translaminar movement are generally extended when used in conjunction with a growth regulation programme of Astro 120 ME Growth Regulator
- Can be continuously used for up to 12 months of the year, as long as active growth occurs

How to get the most out of your application

For optimum turf quality, use in conjunction with turf management practices that promote good plant health. Use the lower rate for the first application, to condition the turf at the start of the Astro 120 ME Growth Regulator programme.

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.

The recommended use rates are designed to give approximately a 20 to 50% reduction in clippings over a 2 to 6 week period. Full growth regulation begins about 3 to 5 days after application. In practice, the amount of growth reduction 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 practises 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. Areas treated should continue to receive regular maintenance practises, including irrigation, fertilisation; and weed, disease and insect control where necessary, as recommended for quality turf.

Stay within the spray water volume ranges as per the label directions, excessive water volumes will lead to spray running past the leaf and crown which will be wasted as absorption through roots is negligible.

Restraints

- 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 with 1 hour, and DO NOT irrigate for at least 1 hour after application.
- DO NOT apply to Kentucky Bluegrass as damage may occur.

Turf Growth Management (Growth Regulation)

Situation	Grasses	Rate		Critical Comments
		Low Volume Spray /ha	Knapsack Application /100m ²	
Golf course greens	Bent Grass	1.05 to 2.1 L	10 to 21 mL	Apply Astro 120 ME Growth Regulator 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 reduction is required or when used in a program.
	Hybrid Couch	150 to 600 mL	1.5 to 6 mL	
Golf course fairways	Carpet grass, Kikuyu	1.65 to 4.15 L	17 to 42 mL	Apply rates towards the higher end of the rate range when growth is vigorous or when longer periods of 4 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 lawns and turf surfaces are those that receive at least weekly mowing and good levels of water and fertility are maintained.
	Common couch	830 mL to 1.65 L	8 to 17 mL	
	Couch varieties: Greenlees Park, Santa ana, Wintergreen	625 mL to 1.25 L	6 to 13 mL	
	Fescue, Perennial Ryegrass	1.65 to 3.1 L	17 to 31 mL	
Golf course short roughs, well-maintained lawns and turf surfaces	Bent Grass, Fescue, Perennial Ryegrass	2.1 to 4.15 L	21 to 42 mL	Refer to Application section for detailed information.
	Buffalo grass	1.05 to 2.1 L	10 to 21 mL	
	Common Couch, Hybrid couch			
	Kikuyu	1.65 to 6.25 L	17 to 63 mL	
Golf course long roughs, parks, ovals, lawns, general grassed areas	Bent Grass, Fescue, Perennial Ryegrass	2.1 to 6.25 L	21 to 63 mL	
	Buffalo grass	1.05 to 4.15 L	10 to 42 mL	
	Common Couch, Hybrid couch			
	Kikuyu	2.1 to 8.35 L	21 to 83 mL	
Bunker facing, path and garden edging, footpath and kerbside edging, fencelines, around trees	Bent Grass, Common Couch, Perennial Ryegrass	4.15 to 6.25 L	42 to 63 mL	Apply Astro 120 ME Growth Regulator at least 6 hours before or after mowing and when turf is actively growing. On difficult to mow areas apply Astro 120 ME Growth Regulator to actively growing turf and mow 3 to 4 days after application. Apply in a strip about 25 to 50 cm wide. Use the lowest rate of Astro 120 ME Growth Regulator 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	4.15 L	42 mL	
	Couch varieties: Greenlees Park, Wintergreen, Santa ana			
	Kikuyu	6.25 to 8.35 L	63 to 83 mL	

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

Winter Grass (*Poa Annua*) Management

Situation	Grasses	Rate		Critical Comments
		Low Volume Spray /ha	Knapsack Application /100m ²	
Golf course fairways or Bent grass golf greens	Winter Grass (<i>Poa annua</i>)	420 mL to 1.05 L	4 to 10 mL	See Winter Grass (<i>Poa annua</i>) Management in GENERAL INSTRUCTIONS regarding information for reduction of Winter Grass swards in Bent Grass golf greens. See Critical Comments aligned with Golf course greens situation/use for application recommendations.

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Application

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

Application Volume: Apply in 100 to 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 cm) 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 Astro 120 ME Growth Regulator to a known area of turf. The water volume used is not as important providing good coverage is achieved. Apply between 2 and 10 L of water / 100 m² of turf. Preferably use flat fan nozzles and ensure even coverage is achieved.

Golf Course and Bowling Greens: Ensure product placement as uniformly as possible onto leaves and into crowns. Ideal application volume should be 350 to 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/hr 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 to 500 L/ha. For best results use medium [XR Teejet* (11004 to 11005)] to coarse [Turbo Teejet* or AIXR Teejet* (11004 or 11005)] nozzles, at 8 km/hr and 3 bar pressure. Boom height should not exceed 50 cm above the ground.

Application Near and Around Monuments and Hardscape Materials

Astro 120 ME Growth Regulator, at normal dilution rates, should not stain brass, bronze, concrete, granite, marble or other types of stone. Before using Astro 120 ME Growth Regulator around other materials, test on a small-scale basis first.

Compatibility

Astro 120 ME Growth Regulator is compatible with Azoxy 95 Fungicide and Thumper Insecticide.

For Common Couch, Hybrid Couch, and Kikuyu turf grasses only:

Astro 120 ME Growth Regulator is compatible with some formulations of products containing the following chemicals: 2,4-D amine, bromoxynil, MCPA/bromoxynil/dicamba, MCPA ester, 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 Astro 120 ME Growth Regulator and the broadleaf weed herbicides separately, allowing at least 10 days between an application of Astro 120 ME Growth Regulator and the broadleaf weed herbicides.

Packaging

Pack size: 1 L, 10 L



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Ph 1300 11 8873 (Ph: 1300 11 TURF)