

READ SAFETY DIRECTIONS BEFORE OPENING OR USING



Spartan Herbicide

ACTIVE CONSTITUENT: 480 g/L PRODIAMINE

For Pre-Emergent Control of Weeds in Established Turf & Lawns

IMPORTANT: READ THIS LEAFLET BEFORE USING THIS PRODUCT

APVMA Approval No.: 88727/138707HG



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HOW TO USE

Situation	Weeds Controlled	Rate	Critical Comments
Established Turf & Lawns species as listed: Bahia Grass # (<i>Paspalum notatum</i>), Buffalo Grass (<i>Stenotaphrum secundatum</i>), Carpet Grass (<i>Axonopus affinis</i> , <i>Axonopus compressus</i>), Common Couch (<i>Cynodon dactylon</i>), Hybrid Couch (<i>Cynodon dactylon x Cynodon transvaalensis</i>), Kikuyu (<i>Pennisetum clandestinum</i>), Qld Blue Couch (<i>Digitaria didactyla</i>), Seashore Paspalum (<i>Paspalum vaginatum</i>), Zoysia (<i>Zoysia japonica</i> , <i>Zoysia matrella</i>)	African Lovegrass (<i>Eragrostis curvula</i>), Bahia Grass (<i>Paspalum notatum</i>), Barnyard Grass (<i>Echinochloa crus-gali</i>), Crab Grass (<i>Digitaria sanguinalis</i>), Crowsfoot Grass (<i>Eleusine indica</i>), Kentucky Blue Grass (<i>Poa patensis</i>), Parramatta Grass (<i>Sporobolus africana</i>), Rat's Tail Fescue (<i>Vulpia myuros</i>), Summer Grass (<i>Digitaria sanguinalis</i>)	30 mL per 100 m ²	Apply prior to weed emergence in early spring for residual control of up to 6 months. A repeat application (3 to 4 months after initial application) may be needed in high weed pressure situations or during extended germination periods due to environmental conditions. Note: Crowsfoot Grass germinates later than Crab Grass and/or Summer Grass. In situations with multiple weeds present apply prior to your first target weeds germination to ensure adequate residual control. Refer to Timings & Application section for detailed information.
	Paspalum (<i>Paspalum dilatatum</i>)	40 mL per 100 m ²	Apply prior to weed emergence in early spring. Residual control of up to 6 months. A repeat application (3 to 4 months after initial application) may be needed in high weed pressure situations or during extended germination periods due to environmental conditions. Refer to Timings & Application section for detailed information.
	Winter Grass (<i>Poa annua</i>)	40 mL per 100 m ²	Apply prior to weed emergence in late summer to early autumn for residual control of up to 6 months. A repeat application (3 to 4 months after initial application) may be needed in high weed pressure situations or during extended germination periods due to environmental conditions. Refer to Timings & Application section for detailed information.
# Note: In the case of Bahia Grass, Spartan Herbicide will be safe to use on existing turf swards where established Bahia Grass plants can be tolerated or are desirable. Spartan Herbicide will only control newly germinating seed of Bahia Grass after it has been sprayed.			
An addition of a Soil Penetrant Wetting Agent is recommended to ensure an even matrix flow through the soil profile.			

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

HOW TO PREPARE

Note: Spartan Herbicide is a pre-emergent herbicide. It will not kill the weeds that are already present. It only stops weeds if applied before weed germination.

Preparation

Areas to be treated should be free of established weeds. Remove trash (weed residue, prunings, grass clippings etc.) from the surface before applying the product.

Dilution Rate / Mixture Rate

There is no standard or set Dilution Rate or Mixture Rate. The water volume **you** will use to cover the area needs to be measured, as each individual apply using different sprayers, pressure and walking speeds. This requires Calibration. Any and all sprayers can be calibrated.

Measure Spray Area & Calibrate

Before application, measure the lawn area to be sprayed, and determine the amount of Spartan Herbicide required. Then calibrate your spraying equipment to work out how much water you will be spraying to cover the area.

Example

- Let us use the 'Winter Grass' rate of 40 mL of Spartan per 100 m² rate as an example. This means apply 40 mL in a convenient amount of water per 100 m² (For Spartan, a minimum of 5 Litres of water per 100 m² is required).
- By spraying just water, establish the amount of water you spray over a set area (i.e. 100 m²), then add the product rate (in this example 40 mL of Spartan) into that volume of water to spray evenly over 100 m².
- Therefore, if you spray at 5 Litres per 100 m² then add 40 mL of Spartan into 5 Litres of water to spray 100 m², if you spray at 6.2 Litres of water per 100 m² then add 40 mL of Spartan into 6.2 Litres of water to spray 100 m².

To learn more about calibrating your spraying equipment visit <http://calibrate.turfculture.com.au>

IF YOU DO NOT CALIBRATE YOUR EQUIPMENT, IT IS HIGHLY LIKELY YOU WILL OVERDOSE – LEADING TO POTENTIAL TURF DAMAGE.

Application

Apply at a volume of greater than 5 L of water per 100m². To ensure evenness and accuracy, calibrate sprayer to ensure your water volume you are spraying at is known, then dose the Spartan application rate you have chosen from the HOW to USE table into the water volume you have calibrated too by following the MIXING steps below.

Observe sprayer nozzles frequently during the spraying operation to ensure that the spray pattern is uniform. Avoid overlapping of spray runs. Avoid application under conditions when uniform coverage cannot be obtained or when spray drift may occur.

Wash in with at least 6 mm rain or irrigation equivalent within 7 days of application.

DO NOT rely on forecast heavy rain or storms for Spartan Herbicide incorporation, as heavy rain can cause runoff. Runoff (surface water movement) caused by heavy rainfall or heavy irrigation is when the soil is receiving more water than it can absorb. Runoff or pooling will move any Spartan Herbicide just sprayed away from where the Spartan Herbicide was placed by the sprayer which results in poor weed control from where the Spartan Herbicide was moved from (by runoff). Relying on rainfall to incorporate Spartan Herbicide into the soil can be compromised if the rainfall is heavy and causing runoff or surface water pooling. The same can happen with heavy irrigation incorporation, heavy irrigation that is more than what the soil can absorb causes runoff or surface water pooling.

Mixing – Garden Sprayer

1. Prior to opening, shake bottle vigorously.
2. Add the required amount of water to your garden sprayer.
3. Add the required quantity of Spartan Herbicide to the pre-filled (with water) garden sprayer.
4. Agitate garden sprayer by way of shaking (ensure garden sprayer lid / screw top cap is closed completely to stop leaking), to achieve thorough mixing before application.
5. If the application of the garden sprayer mixture is paused, repeat Step 4, prior to resuming application.
6. Only mix sufficient chemical for application within the hour.

Compatibility

DO NOT mix with fertilisers or soil amendments products (i.e. kelps, seaweed, humic & fulvic acids etc). Spartan Herbicide is compatible with Impala Fungicide, Drench Soil Wetting Agent.

Planting / Replanting & Seeding / Overseeding Intervals (post application)

DO NOT plant / replant any crop, ornamentals or seed to treated areas for a period of;

Rate Applied of Spartan Herbicide	Interval - Months Before Planting / Replanting & Seeding / Overseeding
30 mL / 100m ²	10 Months
40 mL / 100m ²	13 Months

Spartan Herbicide will inhibit the development of turfgrass species overseeded after application. Follow rates and intervals in the table above for best overseeding / reseeding results.

CAUTION

DO NOT allow entry into treated areas until the spray has dried (including pets).

DO NOT apply to turf which is not well-established.

DO NOT apply to newly seeded, sodded or sprigged turf. Delay application until turf is at 100% cover and root system is developed beyond a 3 cm depth.

DO NOT apply to turf under stress.

DO NOT apply if heavy rain has been forecast within 48 hours.

DO NOT apply to waterlogged soil.

DO NOT irrigate to the point of run-off within 3 days of application.

DO NOT allow bystanders to come into contact with the spray cloud.

DO NOT apply by high pressure equipment.

DO NOT allow chemical containers or spray to get into drains, sewers, streams, ponds or waterways.

DO NOT graze treated turf / lawn or feed turf / lawn clippings from any treated area to poultry or livestock.

How Does Spartan Herbicide give Pre-Emergent Control of Weeds

Spartan Herbicide contains 480 g/L proflaminate in the form of a suspension concentrate (SC).

Spartan Herbicide is a selective pre-emergent herbicide that provides residual control of weeds in established turf. Spartan Herbicide controls susceptible weeds by interfering with cell division in the root tips of newly germinated weeds.

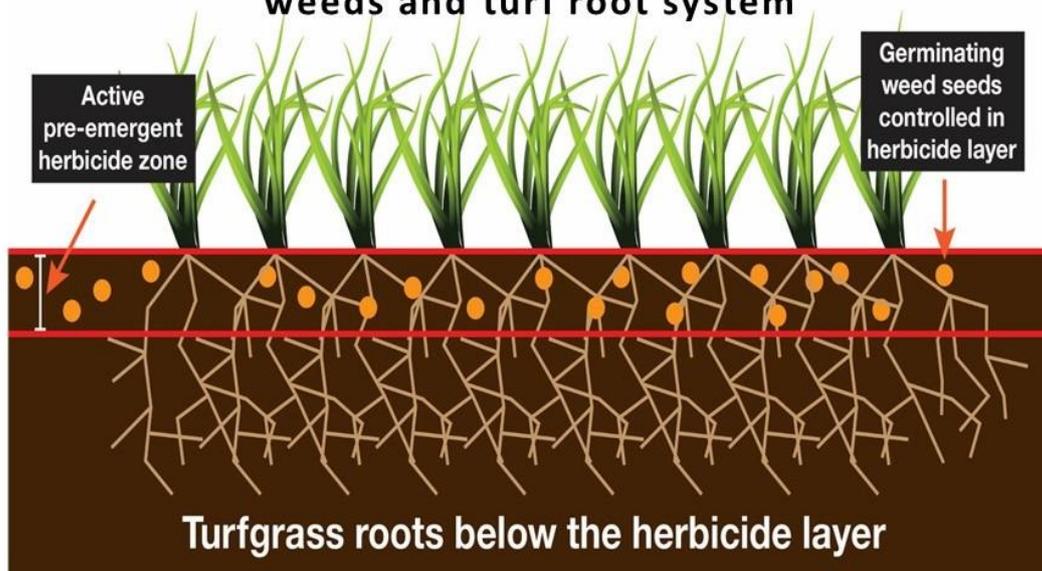
Spartan Herbicide is safe to use on the **established** turf species listed in the Situation column of the HOW TO USE table.

Spartan Herbicide is a selective pre-emergent surface applied herbicide that provides residual control of grass and broadleaf weeds in established turf. Spartan Herbicide controls susceptible weeds by preventing growth and development of newly germinated weeds.

Spartan Herbicide inhibits the steps in plant cell division responsible for chromosome separation and cell wall formation, therefore stopping root growth. Spartan Herbicide does not translocate through the roots into the stem and leaves.

Spartan Herbicide's selectivity is primarily through soil profile placement. Achieving this soil profile placement of the herbicide correctly is vital to obtain high efficacy; applicators should ensure an even matrix flow through the soil profile to achieve a consistent and even zone of herbicide activity (see graphic below – Note: graphic is not to scale).

Relationship of Spartan Herbicide zone, germinating weeds and turf root system



After application plants which have the majority of their root system in the herbicide profile zone cannot effectively absorb the water and nutrients required for root and plant development, hence good even coverage and incorporation is required to ensure the weeds cannot recover by establishing roots outside the zone of herbicide activity.

Small seeded plants (i.e. annual grass weeds) are affected more by the herbicide than established grasses as they germinate in the soil profile zone of herbicide placement (i.e. 100% of their germinating root system is affected by the herbicide).

Warm season grasses can be less prone to root inhibition due to the fact that they have multiple fibrous root systems with established roots beyond the depth of the zone of herbicide activity and are therefore still able to obtain moisture and nutrients.

Weed control in turf is most effective when Spartan Herbicide is activated by at least 6 mm of rainfall or irrigation equivalent before weed seeds germinate and within 7 days after application.

Timings

Apply prior to weed emergence in early spring (summer weeds) or late summer to early autumn (Winter Grass, *Poa annua*).

Spartan Herbicide has excellent efficacy on annual germinating weeds such as Winter Grass, Crab Grass, Summer Grass, Barnyard Grass, Crowsfoot Grass, Parramatta Grass and Paspalum (as listed in the How to Use table). The timings for application is therefore before germination of these weeds. A guide to timing of applications per state/territory for season long control of the above-mentioned weeds are as follows (the below tables list application timings as a guide only, as climatic conditions and soil temperatures vary widely across each state/territory):

Winter Annual Weeds				
Winter Grass				
Region	SA & Vic	NSW / ACT	WA	Southern Qld
1st Application	Second week of February	Second week of February	Last week of February	Second week of March
2nd Application	<p>The 1st application can give residual weed control of up to 6 months, this is dependent on weed pressure. Weed pressure is dependent on many factors:</p> <ol style="list-style-type: none"> 1. Extended germination periods due to early seasonal rainfall, or above average rainfall 2. Extended germination periods due to temperature (i.e. colder than normal later in season) 3. Weed seed bank in the soil due to many seasons of weeds not being controlled and growing out to seeding stage <p>If you wish to continue weed control – a 2nd application can be applied 6 months after the 1st application however, it may be needed earlier (i.e. 3 to 4 months after 1st application) in high weed pressure situations.</p>			

Summer Annual Weeds					
Crab Grass, Summer Grass, Crowsfoot Grass, Barnyard grass					
Region	SA & Vic	NSW / ACT	WA	Sth Qld	Nth Qld
1st Application	Last week of August	Second week of August	Second week of August	Last week of July	Last week of July
2nd Application	<p>The 1st application can give residual weed control of up to 6 months, this is dependent on weed pressure.</p> <p>Weed pressure is dependent on many factors:</p> <ol style="list-style-type: none"> 1. Extended germination periods due to early seasonal rainfall, or above average rainfall 2. Extended germination periods due to temperature (i.e. hotter than normal later in season) 3. Weed seed bank in the soil due to many seasons of weeds not being controlled and growing out to seeding stage <p>If you wish to continue weed control – a 2nd application can be applied 6 months after the 1st application however, it may be needed earlier (i.e. 3 to 4 months after 1st application) in high weed pressure situations.</p>				

STORAGE AND DISPOSAL

Store in the closed, original container in a cool, well-ventilated, dry place out of reach of children and pets. DO NOT store in direct sunlight. Dispose of empty container by wrapping in paper, placing in plastic bag and putting in garbage.

SAFETY DIRECTIONS

May irritate the eyes and skin. Avoid contact with eyes and skin. DO NOT inhale spray mist. When preparing spray and using the prepared spray wear rubber gloves or disposable gloves. Wash hands after use.

FIRST AID INSTRUCTIONS

First Aid is not generally required. If in doubt, contact a Poisons Information Centre (*Phone Australia 13 11 26*) or a doctor.

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

CONDITIONS OF SALE

The use of Spartan Herbicide being beyond the control of the manufacturer, no warranty expressed or implied is given by Turf Culture 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 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