

**WARNING: TOXIC, ECOTOXIC
KEEP OUT OF REACH OF CHILDREN
READ LABEL BEFORE USE**



Smackdown NZ Moss & Broadleaf Herbicide

Active ingredient: Contains 240 g/litre carfentrazone-ethyl in the form of an emulsifiable concentrate.
Also contains 756 g/litre hydrocarbon liquid.

**For Control of Moss on Golf courses, Playing fields,
Amenity areas and Lawns and to Improve the Control of
hard-to-kill Broadleaf weeds in Turf**

Approved pursuant to the HSNO Act 1996, Approval Code HSR000436
See www.epa.govt.nz for approval conditions

IMPORTANT: READ THIS LEAFLET BEFORE USING THIS PRODUCT

NZ Supplier Contact:

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Manufacturer:

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NZ Emergency Number: 0800 764 766 (0800 POISON)



HSNO CLASSIFICATION: Flammable liquid Category 4, Aspiration Toxicity Category 1, Eye irritation Category 2, STOT (RE) Category 2, Aquatic Toxicity Category 1, Hazardous to soil organisms.



Eye Irritant



Chronic Toxic



Ecotoxic

HAZARDS

Warning - Combustible liquid. May be fatal if swallowed and enters airways. Causes serious eye irritation. May cause damage to liver through prolonged or repeated exposure.

Ecotoxic - Very toxic to aquatic life with long lasting effects. Hazardous to soil organisms.

Qualification Requirements: Persons mixing, loading, applying, or otherwise handling Smackdown NZ Moss & Broadleaf Herbicide must meet qualification requirements set out in the EPA Hazardous Substances (Hazardous Property Controls) Notice 2017 sub part C.

Record keeping: **Records of application must be kept** If 3 kg or more of the substance is applied within 24 hours, in a place where the substance is likely to enter air or water and leave the application area in accordance with the current Hazardous Substances (Hazardous Property Controls) Notice 2017 Sub part B.

PRECAUTIONS

Keep out of reach of children. Keep away from heat/sparks/open flames/hot surfaces. No smoking. Avoid skin and eye contact. Avoid breathing dust or spray mist. DO NOT eat, drink or smoke while using. When mixing or applying wear waterproof gloves, hat, overalls, safety goggles and footwear. Wash hands and face before meals and after work. Wash contaminated clothing before re-use. Avoid release to the environment.

Storage: Keep cool. Store in original container, tightly closed in a well-ventilated place and under lock and key. DO NOT store with Class 1, 2, 3.2, 4 or 5 substances or feed, seeds or foodstuffs. Stores containing more than 100 L of this product require secondary containment and are subject to signage. When stored appropriately, this product should show no significant degradation for 2 years from the date of manufacture. Contact your supplier for further information about the use of any product that is older than this.

Container disposal: Ensure the container is empty. Triple rinse empty container and add residue to spray tank. If recycling, replace cap and return clean containers to recycler or designated collection point (0800 247 326, www.agrecovery.co.nz). Alternatively, if allowed under local Authority District Plans, burn if circumstances, especially wind direction permit, otherwise crush and bury in an approved local authority facility. DO NOT reuse this container for any other purpose.

Product Disposal: Disposal of this product only by using according to this label, or at an approved landfill or other approved facility. Always follow local authority requirements.

Turf Culture Smackdown NZ Moss & Broadleaf Herbicide (hereinafter 'Smackdown NZ Herbicide') must not be applied onto or into water.

Smackdown NZ Herbicide must not be used on or around food or feed crops.

DIRECTIONS FOR USE**Restraints**

DO NOT apply onto or into water.

DO NOT apply if rain is expected within 3 hours.

DO NOT allow spray to contact the foliage of wanted plants.

DO NOT apply to turf under stress.

DO NOT apply to newly sown/planted turf; only apply to established turf areas.

DO NOT tank mix with other pesticides when product used for moss control.

DO NOT tank mix with any type of fertiliser.

SITUATION	PURPOSE	RATE / TIME OF APPLICATION	CRITICAL COMMENTS
<p>For use on turf areas; such as golf courses, playing fields, amenity areas and lawns</p> <p>Turf varieties (as listed):</p> <p>Creeping Red Fescue (<i>Festuca spp.</i>)</p> <p>Chewings Fescue (<i>Festuca spp.</i>)</p> <p>Hard / Sheeps Fescue (<i>Festuca spp.</i>)</p> <p>Tall Fescue (<i>Festuca arundinacea</i>)</p> <p>Ryegrass (<i>Lolium spp.</i>)</p> <p>Kentucky Bluegrass (<i>Poa pratensis</i>)</p> <p>Bentgrass (<i>Agrostis spp.</i>)</p> <p>Winter Grass (<i>Poa annua</i>)</p> <p>Common Couch (<i>Cynodon dactylon</i>)</p> <p>Hybrid Couch (<i>Cynodon dactylon</i> x <i>Cynodon transvaalensis</i>)</p>	<p>For the control of Moss</p>	<p>500 mL / ha (5 mL / 100 square metres)</p> <p>A second application must be applied 14 days after the first application to obtain effective control</p>	<ul style="list-style-type: none"> • Apply with 800 – 1600 L of water per ha (e.g. 1000 L/ha gives 10 litres per 100 square metres) • DO NOT tank mix with other pesticides (when product used for moss control). • DO NOT use where Kikuyu is the desired species. • Even spray coverage is essential for optimal performance (i.e. boom or knapsack sprayer). • Spray equipment preparation and cleaning is required before and after applications of Smackdown NZ Herbicide.
<p>For use on turf areas; such as golf courses, playing fields, amenity areas and lawns</p> <p>Turf varieties (as listed):</p> <p>Creeping Red Fescue (<i>Festuca spp.</i>)</p> <p>Chewings Fescue (<i>Festuca spp.</i>)</p> <p>Hard / Sheeps Fescue (<i>Festuca spp.</i>)</p> <p>Tall Fescue (<i>Festuca arundinacea</i>)</p> <p>Ryegrass (<i>Lolium spp.</i>)</p> <p>Kentucky Bluegrass (<i>Poa pratensis</i>)</p> <p>Bentgrass (<i>Agrostis spp.</i>)</p> <p>Winter Grass (<i>Poa annua</i>)</p> <p>Common Couch (<i>Cynodon dactylon</i>)</p> <p>Hybrid Couch (<i>Cynodon dactylon</i> x <i>Cynodon transvaalensis</i>)</p> <p>Kikuyu (<i>Pennisetum clandestinum</i>)</p> <p>Buffalo (<i>Stenotaphrum secundatum</i>)</p>	<p>To improve the control of hard-to-kill broadleaf weeds</p> <p>(and to broaden weed control spectrum)</p>	<p>25 - 75 mL / ha plus the recommended rate of 'Turf Culture Bow & Arrow NZ Herbicide'</p> <p>Apply to seedlings at 2-10 leaf stage</p>	<p>Use the lower rates on younger plants or plants growing under good conditions and the higher rates on older plants or plants growing under less optimum conditions.</p> <p>To improve the control of larger weeds and to broaden weed control spectrum, Smackdown NZ Herbicide can be tank mixed with:</p> <ul style="list-style-type: none"> • Turf Culture Bow & Arrow NZ Herbicide <p>The addition of Smackdown NZ Herbicide to the above product will increase the speed at which treated weeds develop visible symptoms (compared to results achieved without Smackdown NZ Herbicide) and hasten the weed death.</p> <p>Always add non-ionic surfactant (1000 g/L – non buffering type) at 250mL/100 L (0.25 % v/v) of final spray volume. The addition of crop oil concentrate may result in crop injury.</p> <p>If transient discolouration occurs when using Turf Culture Bow & Arrow NZ Herbicide on Kikuyu (<i>Pennisetum clandestinum</i>), Carpet grass (<i>Axonopus affinis</i>, <i>Axonopus compressus</i>), Queensland Blue Couch (<i>Digitaria didactyla</i>) or Buffalo (<i>Stenotaphrum secundatum</i>) then the use of this product may worsen the discolouration experienced.</p> <p>It is recommended that small areas be tested for turf safety before large-scale application occurs.</p>

NOTE: BEWARE: APPLY THIS PRODUCT CAREFULLY; SPRAY DRIFT MAY CAUSE SERIOUS DAMAGE TO OTHER DESIRABLE SPECIES

DO NOT GRAZE: MUST NOT BE APPLIED TO AREAS THAT MAY BE GRAZED BY ANIMALS

GENERAL INSTRUCTIONS

Turf Culture Smackdown NZ Moss & Broadleaf Herbicide (hereinafter 'Smackdown NZ Herbicide') is a contact herbicide with no significant soil life.

Smackdown NZ Herbicide is an emulsifiable concentrate formulation and is to be mixed with water and applied as per the labelled Directions for Use.

Moss Control

Smackdown NZ Herbicide works by effectively inhibiting a key enzyme in moss chlorophyll production. It is so effective that Smackdown NZ Herbicide will reduce up to 90 percent of moss when applied twice at a 14-day interval.

Broadleaf Weed Control

Smackdown NZ Herbicide is a fast acting, post-emergent contact herbicide and aids in the control of weeds through a process of membrane disruption. Application of Smackdown NZ Herbicide should target small, actively growing weeds. Subsequent germinations will not be controlled.

Smackdown NZ Herbicide can be used to improve the control of hard-to-kill broadleaf weeds (and to broaden weed control spectrum). Smackdown NZ Herbicide should be tank mixed with Turf Culture Bow & Arrow NZ Herbicide.

When used in a mixture to improve the control of a wide range of weeds, Smackdown NZ Herbicide is active against weeds such as large Capeweed (*Arctotheca calendula*), Speedwell (*Veronica spp.*), Clovers (*Trifolium spp.*) and is particularly suited for use in a mixture to improve the control of Marshmallow (*Malva parviflora*), Annual stinging nettles (*Urtica urens*) and other weeds that are not usually well controlled.

When tank-mixed with other herbicides Smackdown NZ Herbicide can have synergistic properties which can affect the efficacy of the tank-mixed product(s). Using Smackdown NZ Herbicide at higher than labelled rates can cause decreased weed control because rapid plant desiccation (burn-down) can destroy the weed tissue before Smackdown NZ Herbicide or the tank mixed partner product can be effectively translocated throughout the plant to fully control the target weed(s).

SYMPTOMS

Smackdown NZ Herbicide is rapidly absorbed through the foliage of plants.

Moss Control

Depending on the strain of moss being controlled Smackdown NZ Herbicide can be either swift or slow in showing signs of moss desiccation after one application. Regardless of the moss health after one application a second application 14 days after the first application is always required.

Broadleaf Weed Control

The foliar uptake of Smackdown NZ Herbicide is rapid and plant desiccation can occur within 4 days of application.

Extremes in environmental conditions e.g. temperature and moisture, soil conditions and cultural practices may affect the activity of Smackdown NZ Herbicide. Under warm, moist conditions, herbicide symptoms may be accelerated. While under very dry conditions, the expression of herbicidal symptoms is delayed, and weeds hardened off by drought are less susceptible to Smackdown NZ Herbicide.

TIMING

Most effective when applied to weeds that are actively growing.

Moss Control

Whilst Smackdown NZ Herbicide will control moss all year round, it is best to target moss at the time of year when it is growing at its healthiest. This will ensure maximum uptake and translocation in the plant.

Broadleaf Weed Control

Application should be made to small, actively growing weeds between 2 to 10 leaf in stage. As Smackdown NZ Herbicide is a contact herbicide, best control is achieved when weeds are exposed and are not shielded by other weeds.

RESISTANT WEEDS WARNING

GROUP	14	HERBICIDE
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Smackdown NZ Herbicide is a member of the Aryl triazoline group of herbicides. Its mode of action is through a process of membrane disruption, which is initiated by the inhibition of the enzyme protoporphyrinogen oxidase. This inhibition interferes with the chlorophyll biosynthetic pathway. For weed resistance management Smackdown NZ Herbicide is a Group 14 herbicide.

Some naturally occurring weed biotypes resistant to Smackdown NZ Herbicide and other Group 14 herbicides may exist through normal genetic variability in any weed population. The resistant individuals can eventually dominate the weed population if these herbicides are used repeatedly. These resistant weeds will not be controlled by Smackdown NZ Herbicide or other Group 14 herbicides. Since the occurrence of resistant weeds is difficult to detect prior to use, Turf Culture accepts no liability for any losses that may result from the failure of Smackdown NZ Herbicide to control resistant weeds.

MIXING

DO NOT store spray mixture overnight.

Moss Control

Add half the required volume of water to spray tank and start agitation. Add the measured amount of Smackdown NZ Herbicide directly into the water, then add the balance of required water to spray tank. Maintain good agitation at all times until spraying is completed.

Broadleaf Weed Control

Add half the required volume of water to spray tank and start agitation. Add the partner product, Turf Culture Bow & Arrow NZ Herbicide, directly into the water, next add the measured amount of Smackdown NZ Herbicide directly into the water. Then add balance of required water to spray tank and add a non-ionic surfactant as suggested in the Critical Comments. Maintain good agitation at all times until spraying is completed.

COMPATIBILITY

As formulations of other manufacturer's products are beyond the control of Turf Culture, and the quality of water may vary with location, all mixtures should be tested prior to mixing commercial quantities.

Moss Control

Smackdown NZ Herbicide should be applied alone when used for moss control as the active ingredient, carfentrazone-ethyl, can act as an accelerant when mixed with grass and broadleaf herbicides. The rate of Smackdown NZ Herbicide for moss control is far too high for tank mixing with other products.

Broadleaf Weed Control

Smackdown NZ Herbicide is compatible with Turf Culture Bow & Arrow NZ Herbicide. Smackdown NZ Herbicide is compatible with non-ionic surfactants. Always follow both product label instructions for the addition of surfactants.

APPLICATION

DO NOT apply by air or through any type of irrigation equipment.

DO NOT apply using spraying equipment carried on the back of the user.

DO NOT apply to turf which is not well established

Smackdown NZ Herbicide may be applied through any calibrated, well-maintained conventional spray equipment that does not cause off target spray drift.

Moss Control

Apply in a minimum of 800L water per hectare. Smackdown NZ Herbicide is best applied in overcast, dry conditions to avoid rapid evaporation. Please read the 'CRITICAL COMMENTS' in the Directions for Use table on this label for further application information.

Broadleaf Weed Control

Apply in sufficient water to obtain complete coverage of all parts of the weeds (i.e. 400 to 800 L water/ha). Higher volumes (i.e. 800 L water/ha) should be used for severe weed infestations and higher cut turf (>15 mm) to ensure adequate spray coverage. It is recommended that a non-ionic surfactant be added to the spray solution at 0.25 v/v ratio (250mL / 100 L water). Good weed coverage with the spray mixture is essential for optimum weed control. Observe sprayer nozzles frequently during the spraying operation to ensure that the spray pattern is uniform. Avoid overlapping of spray runs. Ensure that spray boom height for broadcast application does not exceed 50 cm above the leaf blades of the turf. Avoid application under conditions when uniform coverage cannot be obtained or when spray drift may occur. Please read the 'CRITICAL COMMENTS' in the Directions for Use table on this label for further application information.

INSTRUCTIONS TO AVOID SPRAY DRIFT

DO NOT allow spray to drift onto adjacent turf sites or ornamental plants as even small amounts may injure sensitive plants. When drift may be a problem, take steps to reduce spray drift including:

DO NOT spray if wind is greater than 10 km/hr or if winds are gusting.

Use extreme caution when conditions are favourable for drift i.e. high temperatures and low relative humidity, especially when sensitive plants are located nearby. All plants not listed as turf species, under 'SITUATION' in the Directions for Use table on this label, should be considered as sensitive plants.

If sensitive plants are downwind, extreme caution must be used under all conditions. Drift from applications of this herbicide is likely to result in damage to sensitive plants adjacent to the treatment site.

DO NOT apply unless there is a 30 metre downwind buffer distance between the treated areas and native vegetation.

DO NOT apply unless there is a 10 metre downwind buffer distance between the area being sprayed and natural water bodies.

RE-ENTRY

Do not allow entry into treated areas until the spray has dried, unless wearing cotton overalls buttoned to the neck and wrist (or equivalent clothing) and chemical resistant gloves. Clothing must be laundered after each day's use.

SPRAY PREPARATION & CLEAN UP

Smackdown NZ Herbicide's active constituent, carfentrazone-ethyl, is a fast acting herbicide product which acts through a process of membrane disruption, and to ensure optimum performance and turf tolerance, the product needs to be used in spray equipment that is thoroughly cleaned, with no residues from previous sprays.

To avoid injury to following crops/turf areas, immediately after spraying, thoroughly remove all traces of Smackdown NZ Herbicide from mixing and spray equipment. This can be achieved by using a specialist boom-cleaning product.

Any method of cleaning will only be effective if the cleaning solution comes into contact with every surface or contact point that may contain even minute carfentrazone-ethyl residues.

APPLICATION RECORDS

Users of this product MUST make an accurate written record of the details of each spray application within 24 hours following application and keep this record for a minimum of 3 years. The spray application details to be recorded are:

1. Date, with start and finish times of application
2. Location / address of area(s) sprayed
3. Full name of the product, product batch number (BN) and date of manufacture (DOM)
4. Amount of product used per hectare and the number of hectares treated
5. Turf species/situation and weed/pest
6. Wind speed and direction during application

7. Air temperature and relative humidity during application
 8. Spray irrigation or rainfall after application, start time, duration and amount (mm)
 9. Equipment used; nozzle brand, type, spray angle, operating pressure and total water volume applied per hectare
 10. Name of person applying this product
- (Additional record details may be required by the New Zealand Government where this product is used)

FIRST AID INSTRUCTIONS

IF SWALLOWED: DO NOT induce vomiting. Wash mouth with water. Immediately call a POISON CENTRE (0800 764 766) or doctor/physician. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. IF ON SKIN: If skin irritation occurs, Get medical advice/attention.

SPILLAGE

In case of spillage: Shut off ignition. No smoking or flares. Keep people away and upwind. When entering area wear self-contained breathing apparatus, and protective clothing including boots and gloves. Try to remove leaking containers and put them into leak-proof containers. Absorb spills in earth or sand and sweep up. Dispose of waste material at an approved landfill. Prevent liquid from entering sewers or bodies of water.

SAFETY DATA SHEET

If additional hazard or safety information is required, refer to the Safety Data Sheet (SDS), which is available from the supplier or from the manufacturer's website: www.turfculture.co.nz

CONDITIONS OF SALE

The use of Turf Culture Smackdown NZ Moss & Broadleaf 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.