



# HARMONIX®

## Turf Defense

### Fungicide

For use only as a horticultural fungicide.

GROUP	BM 02	FUNGICIDE
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Harmonix Turf Defense is a foliar fungicide for the reduction of damage caused by microdochium patch (*Microdochium nivale*), anthracnose (*Colletotrichum graminicola*) and dollar spot (*Sclerotinia homeocarpa*) on golf courses (tees, greens and fairways) and sports turf (football and rugby pitches, tennis, bowls and cricket pitches).

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A suspension concentrate formulation containing 969.8 g/L (a minimum of  $1 \times 10^9$  CFU/g equivalent) *Bacillus amyloliquefaciens* strain QST 713 (including fermentation residues and water).

MAPP 20569

PCS No. 06739

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GBI D00000392A - A1 - **ARTICLE D00000052**



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## Turf Defense

Contains *Bacillus amyloliquefaciens* QST 713. Micro-organisms may have the potential to provoke sensitising reactions

### Safety Information

#### HARMONIX TURF DEFENSE

**UFI: 4VR1-K0TQ-C008-H1EM**

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Dispose of contents/container to a licensed hazardous-waste disposal contractor or collection site except for triple rinsed empty containers which can be disposed of as non-hazardous waste.

**To avoid risks to human health and the environment, comply with the instructions for use.**

**MAPP 20569 - PCS No. 06739**

### IMPORTANT INFORMATION

#### FOR USE ONLY AS A PROFESSIONAL FUNGICIDE


Situation	Maximum individual dose	Maximum number of treatments	Interval between applications	Latest time of application
Managed amenity turf Amenity grassland	25 L/Ha	10 per year	7 days	May be applied all year round to established turf

**READ THE LABEL BEFORE USE. USING THIS PRODUCT IN A MANNER THAT IS INCONSISTENT WITH THE LABEL MAY BE AN OFFENCE. FOLLOW THE CODE OF PRACTICE FOR USING PLANT PROTECTION PRODUCTS.**

24 hours emergency information contact: Telephone +44 20 3807 3798

Or

 **GB:** nearest National Poisons Information Centre

 **IE:** For information or to report a poisoning incident contact The National Poisons Information Centre, Beaumont Hospital, Dublin (01-8092166), retain the label for reference.

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Batch Number : see on the pack

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#### Authorisation Holder

Bayer CropScience Ltd.  
230 Cambridge Science Park  
Milton Road  
Cambridge  
CB4 0WB  
United Kingdom

#### Marketing company:

2022 Environmental Science FR SAS  
Milton Hall, Ely Road  
Milton  
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## **SAFETY PRECAUTIONS**

### **Operator Protection**


Engineering control of operator exposure must be used where reasonably practicable in addition to the following personal protective equipment.

WEAR SUITABLE PROTECTIVE CLOTHING (COVERALLS), SUITABLE PROTECTIVE GLOVES AND SUITABLE RESPIRATORY PROTECTIVE EQUIPMENT\* when handling the product or applying the product.


\*Disposable filtering facepiece respirator to at least EN149 FFP3 or equivalent.

 **GB:** However, engineering controls may replace personal protective equipment if a COSHH assessment shows they provide an equal or higher standard of protection

### **Environmental Protection**

 **GB:** Dangerous to bees. To protect bees and pollinating insects, do not apply to crop plants when in flower. Do not use where bees are actively foraging. Do not apply when flowering weeds are present.

Do not contaminate water with the product or its container (Do not clean application equipment near surface water/Avoid contamination via drains from farmyards and roads).

 **GB:** To protect aquatic organisms respect an unsprayed buffer zone to surface water bodies in line with LERAP requirements.

DO NOT ALLOW DIRECT SPRAY from horizontal boom sprayers to fall within 5 m of the top of the bank of a static or flowing water body, unless a Local Environment Risk Assessment for Pesticides (LERAP) permits a narrower buffer zone, or within 1 m of the top of a ditch which is dry at the time of application.

DO NOT ALLOW DIRECT SPRAY from hand-held sprayers to fall within 1 m of the top of the bank of a static or flowing water body. Aim spray away from water.

This product qualifies for inclusion within the Local Environment Risk Assessment for Pesticides (LERAP) scheme. Before each spraying operation from a horizontal boom sprayer, either a LERAP must be carried out in accordance with CRD's published guidance or the statutory buffer zone must be maintained. The results of the LERAP must be recorded and kept available for three years.

Use appropriate containment to avoid environmental contamination.

This material and its container must be disposed of in a safe way.

  **GB and IE: Storage and Disposal**

RINSE CONTAINER THOROUGHLY by using an integrated pressure rinsing device or manually rinsing three times.

Add washings to sprayer at time of filling and dispose of safely.

WASH OUT CONTAINER THOROUGHLY and dispose of safely.

  **GB and IE: COMPANY ADVISORY INFORMATION**

This section is not part of the Product Label under Regulation 1107/2009. It provides additional advice on product use at the discretion of the applicant.

Harmonix Turf Defense is a naturally occurring biological control agent suitable for use in organic growing systems. It is approved for use in organic farming under EC Regulation No.834/2007 & 889/2008 by IMO Switzerland.

However, it is advisable to check with your organic certification scheme before use.

**READ ALL INSTRUCTIONS CAREFULLY BEFORE USE.**

## GB and IE: RATE OF USE

Situation	Maximum individual dose	Maximum number of treatments	Interval between applications	Latest time of application
<b>GB:</b> Managed amenity turf <b>IE:</b> Amenity grassland	25 L/Ha	10 per year	7 days	May be applied all year round to established turf (BBCH 29 – 33)

## GB and IE: DIRECTIONS FOR USE

IMPORTANT: This information is approved as part of the product label. All instructions within this section must be read carefully in order to obtain safe and successful use of this product.

## GB and IE: INTRODUCTION

Harmonix Turf Defense is a biofungicide containing *Bacillus amyloliquefaciens* QST 713, naturally occurring bacteria that are not genetically modified.

It is recommended to apply Harmonix Turf Defense at the very first symptoms of the target pathogen, thus in a preventative to early curative disease situation. Harmonix Turf Defense prevents plant diseases by first creating a zone of inhibition on the leaf and preventing attachment and penetration of the pathogens. Biological compounds produced by *Bacillus amyloliquefaciens* QST 713 act to destroy germ tubes and mycelia of pathogenic fungi by puncturing their cell membranes. By preventing spore germination and penetration into the plant, the infection is stopped and disease is prevented from spreading to the rest of the plant. Furthermore, compounds produced by *Bacillus amyloliquefaciens* QST 713 induce the systemic resistance response of the plant, indicated by enhanced peroxidase activity.

Harmonix Turf Defense may be applied as a foliar spray alone or in alternating spray programmes with other registered crop protection products. Alternating with fungicides of different modes of action, along with the use of cultural control methods, is advisable for resistance management.

### Restrictions and Warnings

Do not apply using irrigation equipment.

Micro-organisms may have the potential to provoke sensitising reactions.

### Diseases Targeted

Microdochium patch (*Microdochium nivale*), anthracnose (*Colletotrichum graminicola*) and dollar spot (*Sclerotinia homeocarpa*).

## GB and IE: SITUATION SPECIFIC INFORMATION

For the reduction of damage by microdochium patch, anthracnose or dollar spot. Apply as a MEDIUM quality spray (BCPC). Apply Harmonix Turf Defense at a maximum rate of 25 L/ha to established turf (BBCH 29 – 33) using a tractor-mounted/trailed horizontal boom sprayer or a knapsack/hand lance, in the authorised water volume (IE: 200 - 600 litres of water per hectare, or UK: 500 – 600 litres of water per hectare). Harmonix Turf Defense may be used up to a maximum of ten applications per year. A minimum of seven days should fall between applications. Harmonix Turf Defense works preventatively and with a contact mode of action, so for optimum control it is vital to achieve complete cover when spraying.

### Mixing and Spraying

Before use ensure that all spray equipment is clean.

Add half the volume of water required and then start agitating.

Agitate product container well and add the required amount of Harmonix Turf Defense, continue filling spray tank with the required volume of water.

Keep agitating until spraying completed.

All application equipment must be thoroughly cleaned with water prior to storage or use on another crop.

Harmonix Turf Defense should be applied in sufficient water to ensure good crop cover, with a minimum of 500 L/ha.

The optimum water volume is 500 L/ha.

### **Storage**

Harmonix Turf Defense is a biological product and so should be treated with some care. It can be stored at room temperature for two years, storage at higher temperatures may reduce its shelf-life.



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