

# MIGHTY MESSENGER

Increased plant health and stamina

Suitable for foliar application

Group 2 Fertiliser Reg No B 4761 Act 36 of 1947

Harpin Protein	1 %
Food grade products	99 %

The Dux Trust  
Reg. No. . IT 020057/2014  
P.O. Box 1597  
Tzaneen  
0850  
Tel: 083 543 9810

## GENERAL INFORMATION

**Mighty Messenger** is formulated to assist the plant to increase its own health. A unique signal throughout the plant is sent when **Mighty Messenger** is applied as a foliar application.

## APPLICATION RECOMMENDATIONS

CROP	DOSAGE Grams / Ha / application	Applications* (foliar)
Avocado	150	1 <sup>st</sup> pre-flowering 2 <sup>nd</sup> Application at fruit set 3 <sup>rd</sup> application 21 days after fruit set 4 <sup>th</sup> application 21 days later or before November drop 5 <sup>th</sup> application 21 days later  <b>OR</b>  100 grams every 14 days can be applied from Pre-flowering with a minimum of 5 applications

Banana	100	Apply to young trees after transplant every 14 - 21 days with a minimum of 3 applications.
Berries	100	Apply bi-weekly during the fruiting season.  <b>OR</b>  50 grams every 14 days can be applied from Pre-flowering with a minimum of 8 applications
Citrus	150 - 200	1 <sup>st</sup> application during Pre - flowering 2 <sup>nd</sup> application at fruit set 3 <sup>rd</sup> Application 21 days later 4 <sup>th</sup> application 21days later  <b>OR</b>  150 grams every 14 days can be applied from Pre-flowering with a minimum of 5 applications
Coffee	150 - 200	1 <sup>st</sup> Pre flowering 2 <sup>nd</sup> application at fruit set 3 <sup>rd</sup> application 21 days later 4 <sup>th</sup> application 21days later  <b>OR</b>  100 grams every 14 days can be applied from Pre-flowering with a minimum of 5 applications
Forestry	150	Apply 7 - 10 days before transplant in the nursery and repeat at planting. 150 grams / Ha or 0,3 grams / 1 L water.
Herbs	100 - 150	Apply every 14 days from 4 - 6 leaf stage
Hops	100 - 150	1 <sup>st</sup> Pre flowering 2 <sup>nd</sup> application at fruit set 3 <sup>rd</sup> Application 21 days later 4 <sup>th</sup> application 21days later  <b>OR</b>  100 grams every 14 days can be applied from Pre-flowering with a minimum of 5 applications
Kiwi Fruit		1 <sup>st</sup> application at pre-flowering 2 <sup>nd</sup> application at fruit set 3 <sup>rd</sup> application 21 days after fruit set 4 <sup>th</sup> application 21 days later 5 <sup>th</sup> application 21 days later  <b>OR</b>  100 grams every 14 days can be applied from Pre-flowering with a minimum of 5 applications

Lawn / Turf / Golf courses	100 -150	Apply every 10 - 14 days
Litchis	100 - 150	<p>1<sup>st</sup> application at pre-flowering  2<sup>nd</sup> application at fruit set  3<sup>rd</sup> application 21 days after fruit set  4<sup>th</sup> application 21 days later or before  November drop  5<sup>th</sup> application 21 days later</p> <p><b>OR</b></p> <p>100 grams every 14 days can be applied from  Pre-flowering with a minimum of 5 applications</p>
Macadamia	150	<p>1<sup>st</sup> application pre-flowering at bud initiation  2<sup>nd</sup> application 21 days later  3<sup>rd</sup> application at fruit set  4<sup>th</sup> application 21 days later or 7 - 10 days  before November drop  5<sup>th</sup> application 21 days later during oil fill</p> <p><b>OR</b></p> <p>Every 21 days can be applied from Pre-  flowering with a minimum of 4 applications</p>
Mangoes	100 - 150	<p>1<sup>st</sup> pre-flowering  2<sup>nd</sup> application at fruit set  3<sup>rd</sup> application 21 days after fruit set  4<sup>th</sup> application 21 days later or before  November drop  5<sup>th</sup> application 21 days later</p> <p><b>OR</b></p> <p>100 grams every 21 days can be applied from  Pre-flowering with a minimum of 5 applications</p>
Olives	150 - 200	<p>1<sup>st</sup> Pre flowering  2<sup>nd</sup> application at fruit set  3<sup>rd</sup> application 21 days later  4<sup>th</sup> application 21days later</p> <p><b>OR</b></p> <p>100 grams every 14 days can be applied from  Pre-flowering with a minimum of 5 applications</p>
Onions	100 - 150	<p>1<sup>st</sup> application to start at 4 - 6 true leaf stage  and repeat every 14 - 21 days with a minimum  of 3 applications.</p>

Ornamentals	100 - 150	Apply every 14 – 21 days during the season  <b>OR</b>  0.3 grams / 1 L water every 7 – 14 days
Papayas	150	Apply after transplant every 14 - 21 days with a minimum of 4 applications
Pecan Nuts	150 - 200	1 <sup>st</sup> application during flowering 2 <sup>nd</sup> application 21 days later 3 <sup>rd</sup> application 21 days later or before November drop 4 <sup>th</sup> application 21 days later 5 <sup>th</sup> application 21 days later
Pineapples	100 - 150	Apply every 21 days after transplant with a minimum of 6 applications
Pome fruit	150 - 300	1 <sup>st</sup> application at full bloom 2 <sup>nd</sup> Application at 90% petal drop 3 <sup>rd</sup> application 14 days later 4 <sup>th</sup> application 21 days later  <b>OR</b>  100 grams every 14 days can be applied from full bloom with a minimum of 6 applications
Potatoes	100 - 150	1 <sup>st</sup> application directly on tuber during planting or treated before planting. 2 <sup>nd</sup> Application at 100 % emerge 3 <sup>rd</sup> application 21 days later 4 <sup>th</sup> application 21 days later
Seedlings	100	Apply every 7-10 days  100 grams / Ha <b>OR</b> 0,3 grams / 1 L water.
Stone Fruit	150 - 300	1 <sup>st</sup> application at full bloom 2 <sup>nd</sup> Application at 90% petal drop 3 <sup>rd</sup> application 14 days later 4 <sup>th</sup> application 21 days later  <b>OR</b>  100 grams every 14 days can be applied from full bloom with a minimum of 6 applications
Tea	100	Apply 7-10 days before harvest and follow up after cutting every 14 - 21 days.
Tobacco	100 - 150	1 <sup>st</sup> application 7 -14 days after transplant 2 <sup>nd</sup> Application 14 - 21 days later 3 <sup>rd</sup> application 14 - 21 days later

Vegetables	50 -100	Apply first application 7 - 14 days after transplant or from the 6 leaf stage. Continue with applications every 14 days until harvest.
Vineyards Table Grapes	100 - 150	1 <sup>st</sup> application at 30cm shoot length 2 <sup>nd</sup> application pre-flowering 3 <sup>rd</sup> application at fruit set 4 <sup>th</sup> application 14 - 21 days after fruit set 5 <sup>th</sup> application 14 - 21 days later 6 <sup>h</sup> application 10 - 14 days before harvest  <b>OR</b>  100 grams every 14 - 21 days can be applied from Pre-flowering with a minimum of 5 applications
Vineyards Wine Grape	50 - 100	1 <sup>st</sup> application Pre-flowering 2 <sup>nd</sup> application at Fruit set 3 <sup>rd</sup> application 21 days later 4 <sup>th</sup> application 7 - 10 days before harvest

Application rates depend on the stage of crop development. In general, bigger and older crops require higher rates. We recommend that **Mighty Messenger** be used as part of a specifically designed nutritional program based on reliable soil and tissue analysis.

For best results include Myconate to enhance the soil, within the same program.

### DIRECTIONS FOR USE

**Mighty Messenger** is used as a foliar application or tuber treatment and needs to be dissolved very well to rehydrate the product. Mix in a bucket of water for 10 minutes before adding into spray tank.

### COMPATIBILITY

**Mighty Messenger** is compatible with the majority of the commonly used agrochemicals. **Mighty Messenger** needs to be added to a spray tank before adding other agrochemicals products, to ensure complete rehydration of the Harpin Protein. It is best to dissolve the product in a bucket of water for 10 minutes before adding into the spray tank.

**Mighty Messenger** is compatible with most herbicides, fungicides, insecticides and foliar feeds.

### SAFETY INSTRUCTIONS

**HANDLING:** Use the recommended safety equipment (overalls, safety glasses, and mask). Do not eat or smoke during the applications.

**WARNING:** Avoid contact with eyes and skin.

**FIRST AID:** Product may cause skin and eye irritation.

**ENVIRONMENTAL PROTECTION MEASUREMENTS:** Dispose of all waste in accordance with applicable government regulations. Do not pollute water bodies, especially those with fish or where the water is used for animal or human consumption.

**STORAGE:** Do not store or ship with food, clothes or fodder. Store in a cool, dry place.

**WARRANTY:** Since weather, crops, soil, and other conditions may vary, the seller gives no warranty of any kind, express or implied, concerning this product. The user assumes all risk of use and handling whether or not in accordance with directions or suggestions.

Manufactured by: Plant Health Care  
Distributed by: Dux Agri (Pty) Ltd



CALCIUM  
ACTIVATOR

***Messenger***

MSDS

Material Safety Data Sheet



DUX<sup>AGRI</sup>

# Mighty Messenger

## Material Safety Data Sheet

Product:..... Mighty Messenger  
Company:..... DuxAgri  
Address:..... P.O. Box 1597  
                    Tzaneen  
                    0850  
Contact number:..... +27 (0)83 543 9810

### SECTION 1.

EPA Registration: 71771-3.  
Chemical Name: Not Applicable.  
Common Name: Not Applicable

### SECTION 2. SAFETY INFORMATION ON INGREDIENTS

MATERIAL CAS # OSHA PEL ACGIH TLV

Harpin protein (active ingredient) Ethylenediamine tetraacetic acid (EDTA) Sodium Thiosulfate; Pentahydrate or Anhydrous Tris(hydroxymethyl)aminomethane  
64-02-8 10102-17-7 7772-98-7 77-86-1

None Established None Established None Established None Established None  
Established None Established None Established None Established None Established  
None Established

### SECTION 3. HAZARDS IDENTIFICATION

Ingestion:..... Minimal Hazard.

Eye Contact:..... Minimally irritating.

Skin Contact:..... Minimally irritating.

Inhalation As Dust:..... Large quantities may cause irritation of the respiratory tract and/or coughing.

Other Toxic Effects:..... N/A.

### SECTION 4. FIRST AID MEASURES

- IF IN EYES: Flush eyes with plenty of water. Call a physician if irritation persists.
- IF ON SKIN: Wash with plenty of soap and water. Get medical attention if irritation persists.
- IF INHALED: Remove victim to fresh air. If not breathing, give artificial respiration and get medical attention.

# Mighty Messenger

## Material Safety Data Sheet

### SECTION 5. FIRE FIGHTING MEASURES

Flash Point (Method):..... N/A. Flammable Limits (Vol. % in air):..... N/A.  
Auto-ignition Temperature:... N/A. Extinguishing Media:..... Water.  
Unusual Fire and Explosion Hazards:.... None known.

### SECTION 6. ACCIDENTAL RELEASE MEASURES

Sweep up and dispose of in compliance with all federal, state and local laws.  
PLANT HEALTH CARE, Inc. EMERGENCY CONTACT: 1-800-421-9051 ProAct

### SECTION 7. HANDLING AND STORAGE

Store in original sealed container in an area not accessible to children or unauthorized persons. Keep products away from sunlight, moisture and heat. After opening, use promptly.  
Do not contaminate food, water or feed by handling and storage.

### SECTION 8. EXPOSURE CONTROL/PERSONAL PROTECTION

Protective Clothing: Waterproof gloves, long sleeve shirt, pants or overalls, shoes and socks.  
Respiratory Protection: Particulate dust mask.  
Eye Protection: Chemical goggles or safety glasses with side shields recommended.  
Ventilation: Use product outdoors or in a well-ventilated area.

### SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

pH  
Boiling Point  
% Volatile  
Melting Point Evaporation Rate Freezing Point  
Solubility in Water  
Bulk Density Appearance and Odour Vapor Pressure @ 25C:  
6.0-8.5 @ 22C. N/A  
Unknown Unknown  
N/A  
N/A  
Soluble  
ca. 0.47 g/mL.  
Tan/blue-colored granules, no discernable odour N/A

### SECTION 10. STABILITY AND REACTIVITY

Stability:..... Stable. Conditions to Avoid:..... None known.  
Incompatibility:..... None known.  
Hazardous Decomposition Products:.... None known.



# Mighty Messenger

## Material Safety Data Sheet

### SECTION 11. TOXICOLOGICAL INFORMATION

#### TOXICITY DATA:

Rat:..... Oral LD50 > 5050 mg/kg.

Rat:..... Dermal LD50 > 5050 mg/kg.

Rat:..... Inhalation 4 hr. LC50 > 0.83 mg/L (max. achievable air concentration).

Rabbit:..... Dermal Irritation: Non-irritant.

Rabbit:..... Eye Irritation: Non-irritant.

No known incidents of hypersensitivity.

### SECTION 12. ECOLOGICAL INFORMATION

#### ECOTOXICITY DATA:

Cladoceran (Daphnia):..... EC50 =1473 mg/L; NOEC = 626 mg/L.

Honeybee:..... No observed toxicity at 13 g a.i. per bee.

A closely related harpin protein (harpinEA) is classified as practically non-toxic to birds and fish.

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### SECTION 13. DISPOSAL CONSIDERATIONS

Reseal in original container and dispose of in accordance with all federal, state and local laws

### SECTION 14. TRANSPORT INFORMATION

DOT Proper Shipping Name: Not subject to DOT Hazardous Material regulations as found in 49 CFR Part 171-180.

DOT Hazard Classification:..... N/A.

DOT Labeling Requirements:.... N/A.

### SECTION 15. REGULATORY INFORMATION

Hazardous Substance:..... N/A. Reportable Quantity: N/A.

### SECTION 16. OTHER INFORMATION

Plant Health Care, Inc. believes that the information and recommendations contained here in are accurate as of the date hereof. The information provided herein applies only to the specific product designated and may not be valid where said product is used in combination with any other material or in any process. It is the user's responsibility to determine the suitability of the information for their purposes.

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