



syngenta

An emulsifiable concentrate plant growth regulator which decreases the foliar growth rate of grasses, increases the sucrose content of sugarcane, and reduces plant height of barley and wheat in the Western Cape

GROUP	3	PLANT GROWTH REGULATOR
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active Ingredient:  
trinexapac-ethyl..... 250 g/l

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WARNING

Reg. No. L8565 Act No. 36 of 1947

**Hazard statements:** May cause an allergic skin reaction. May cause damage to organs (gastrointestinal tract) through prolonged or repeated exposure. Very toxic to aquatic life with long-lasting effects.

**Precautionary statements: Prevention:** Do not breathe mist or vapours. Wear protective gloves.

**Response:** Get medical advice/attention if you feel unwell. If skin irritation or rash occurs, get medical advice/attention. Take off contaminated clothing and wash it before re-use. Collect spillage.

In case of poisoning, call the following number  
**EMERGENCY TEL NO.:**  
**+27 82 446 8946 (Griffon)**

UN 3082

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Registration holder  
**Syngenta South Africa (Pty) Ltd**  
Co. Reg. No. 1998/013761/07  
Private Bag X 60  
HALFWAY HOUSE, 1685  
Tel.: +27 11 541 4000

## 1. WARNINGS:

**Hazard statements:** May cause an allergic skin reaction. May cause damage to organs (gastrointestinal tract) through prolonged or repeated exposure. Very toxic to aquatic life with long-lasting effects.

**Withholding periods:** Minimum number of days between last application and harvest.

**BARLEY..... 42 days** (grazing)  
**SUGARCANE..... 70 days**  
**WHEAT..... 21 days** (grazing)

- Handle with care.
- Store in a cool place.
- Keep out of reach of children and uninformed persons.
- Store away from food and feed.
- When using do not eat, drink, or smoke.
- Dispose of this material and container in a safe way.
- Wear suitable protective clothing, eye protection and gloves.
- **Flammable:** Keep away from open flames.
- Harmful if swallowed.
- Risk of serious damage to the eyes.
- Harmful by inhalation.
- Irritating to respiratory system.
- Very toxic to the aquatic environment.
- **Aerial application (sugarcane, barley and wheat):** Notify all inhabitants in the immediate vicinity of the area to be sprayed and issue the necessary warnings.
- Do not spray over or allow drift to contaminate adjacent areas or water sources.
- **In case of poisoning:** Call a doctor and present this label.
- **Re-entry:** Do not enter treated area within one (1) day after application unless wearing protective clothing.

Although this remedy has been extensively tested under a large variety of conditions, the registration holder does not warrant that it will be efficacious under all conditions because the action and effect thereof may be affected by factors such as abnormal soil, climatic and storage conditions, quality of dilution water, compatibility with other substances

not indicated on the label and the occurrence of resistance against the remedy concerned, as well as by the method, time and accuracy of application. The registration holder furthermore does not accept responsibility for damage to crops, vegetation and the environment, or harm to people or animals or for lack of performance of the remedy concerned due to failure of the user to follow the label instructions or to the occurrence of conditions, that could not have been foreseen in terms of the registration. Consult the supplier in the event of any uncertainty.

## 2. PRECAUTIONS:

**Precautionary statements: Prevention:** Do not breathe mist or vapours. Wear protective gloves. **Response:** Get medical advice/attention if you feel unwell. If skin irritation or rash occurs, get medical advice/attention. Take off contaminated clothing and wash it before re-use. Collect spillage.

- Avoid inhaling spray mist.
- Wash with soap and water after use.
- Wear suitable protective clothing, eye protection and gloves.
- Avoid drift of spray onto areas not under treatment.
- Prevent contamination of food, feed, drinking water and eating utensils.
- Destroy empty container in the prescribed manner and do not use it for any other purpose.
- Beware not to contaminate water sources used for irrigation or domestic purposes, as well as water areas, such as dams, rivers, drainage systems, etc. by disposal of product waste.

## First Aid and Medical Treatment

Have the product container, label or material safety data sheet (MSDS) with you when calling the poison control centre, a doctor, or when going for treatment.

- **Inhalation:** Remove patient to fresh air. If breathing is irregular or has stopped, administer artificial respiration. Keep patient warm and at ease. Call a doctor or poison control centre immediately.

- **Skin contact:** Immediately take off all contaminated clothing. Immediately wash contaminated area with plenty of water. If skin irritation persists, call a doctor. Wash contaminated clothing before re-use.
- **Eye contact:** Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Remove contact lenses. Immediate medical attention is required.
- **Ingestion:** If swallowed seek medical advice immediately and present this container or label. Do not induce vomiting.

**Note to doctor:** There is no specific antidote available. Treat symptomatically.

### 3. RELEVANT SUBSTANCES:

Chemical name	
trinexapac-ethyl (ISO)	
Cas no.	Concentration (% w/w)
95266-40-3 607-752-00-4	≥ 2,5 - < 10

### 4. USE RESTRICTIONS:

#### BARLEY AND WHEAT

- **DO NOT** apply to crops under stress, suffering from nutrient deficiency, disease, drought stress, insect or nematode damage, herbicide effects or frost.

#### SUGARCANE

- Apply **MODDUS** only to sugarcane growing in soils with adequate soil moisture.
- Apply **MODDUS** only to healthy, vigorous and active growing sugarcane.

### 5. GENERAL:

- **MODDUS** is a plant growth regulator that causes a reduction in internodal elongation at the growth point.
- **MODDUS** is absorbed by the leaves and stems and has no root or soil activity.
- **MODDUS** is absorbed quickly into the plant tissue and rapidly translocated to the growing parts.
- **MODDUS** is rain fast within two (2) hours after application.
- In general **MODDUS** should be applied under good growing conditions with adequate soil moisture.
- **MODDUS** slows down new stalk and leaf development, thus lowering sucrose consumption favouring the growth processes.
- The net result is a reduction in the length of stalks and crop with an increase in sucrose content in sugarcane.

**6. DIRECTIONS FOR USE:** Use only as indicated.

#### 6.1 Compatibility

**MODDUS** should not be tank-mixed with other pesticides commonly used on barley, wheat or sugarcane.

#### 6.2. Mixing Instructions

**MODDUS** is an emulsifiable concentrate (EC) formulation

that mixes readily with water and is applied as a spray.

- Partially fill the spray tank with water.
- Start agitation.
- Add the correct amount of product to the spray tank with the agitation system running.
- Continue agitation while topping up the tank with water and while spraying.

### 6.3 Barley and Wheat

- **MODDUS** should be applied under good growing conditions with adequate soil moisture.
- **MODDUS** should not be applied to crops that are under stress due to dry or very wet, frosty conditions, nutrient deficiency or high insect pressure, as this may give less than reliable results.

### 6.4 Sugarcane

- **MODDUS** is a plant growth regulator that acts by inhibiting the production of gibberelic acid. It shortens the internodes of sugarcane which, when used correctly within 10 weeks of harvest, maintains or improves the sugar content. **MODDUS** is rapidly absorbed by the foliage and the plant growth regulator effects do not occur through soil uptake. In addition to helping increase sugar yield, **MODDUS**-treated sugarcane is shorter, has a greater stalk diameter and is more upright.
- **MODDUS** is absorbed through the leaves and the active compound transiently over a 4 - 6 week period inhibits the production of gibberellic acid resulting in the inhibition of internode elongation which lowers sink demand with a concomitant acceleration of sucrose storage (ripening) within the stalk.
- As **MODDUS** does not kill the stalk apical meristem, **MODDUS**-treated sugarcane will ultimately resume normal growth, which minimizes the risk of adverse effects developing when harvesting is disrupted or during unintended carry-over to the following season.
- DO NOT apply **MODDUS** to sugarcane under stress due to very dry or very wet, frosty conditions, suffering from nutrient deficiency, high disease pressure, drought stress, high insect damage or herbicide effects as this may not give optimum results.
- **MODDUS** should be applied by either ground application or aerial application. Ensure that complete spray coverage of all leaves and stems are obtained.

### 7. APPLICATION:

**Avoid chemical drift at all times.**

**MODDUS** can be applied by a tractor sprayer, aircraft or knapsack sprayer (spot treatment). Use only **clean** water and correctly calibrated equipment, operating at pressures of 100 - 300 kPa. Do not apply if rain is expected within two (2) hours.

#### 7.1 Aerial Application

Aerial application of this product may only be done by a registered aerial application operator using a correctly

calibrated, registered aircraft according to the instructions of SANS 10118 (Aerial Application of Agricultural Remedies). It is important to ensure that the spray mixture is distributed evenly over the target area and that the loss of spray material during application is restricted to a minimum. It is therefore essential that the following criteria are met:

a) Application parameters:

- **Volume:** A volume of 30 - 35 ℓ/ha is recommended. As this product has not been evaluated at a reduced volume rate, the registration holder cannot guarantee efficacy or be held responsible for any adverse effects if the product is applied aerially at a lower volume rate than recommended above.
- **Droplet coverage:** A droplet coverage of 30 - 45 droplets per cm<sup>2</sup> must be recovered at the target.
- **Droplet size:** A droplet spectrum with a VMD of 300 - 350 micron is recommended. Ensure that the production of fine droplets (less than 150 micron - high drift and evaporation potential) is restricted to a minimum.
- **Flying height:** The height of the spray boom should be maintained at 3 - 4 metres above the target. Do not spray when aircraft is in a climb, at the top, during a dive, or when banking.

b) Equipment:

- Use suitable atomising equipment (hydraulic nozzles or rotary atomizers) that will produce the desired droplet size and coverage, but which will ensure the minimum loss of product either through endodrift (within target field) or exodrift (outside target field).
- The operator must use a set-up that will produce a droplet spectrum with the lowest possible relative span.
- All nozzles/atomisers should be positioned within the inner 60 - 75% of the wingspan to prevent droplets from entering the wingtip vortices.

c) Meteorological conditions:

- The difference in temperature between the wet and dry bulb thermometers, of a whirling hygrometer, should not exceed 8°C. The addition of a suitable anti-evaporant is recommended if the VMD of the droplets is less than 200 - 250 micron.
- Stop spraying if the wind speed exceeds 15 km/h or reduces to less than 5 km/h.
- Aerial application of **MODDUS** must not be done under turbulent, unstable conditions during the heat of the day when rising thermals and downdraughts occur.
- Also note that the application of this product under temperature inversion conditions (spraying in or above the inversion layer) may lead to the following:
  - Reduced efficacy due to suspension and evaporation of small droplets in the air (inadequate coverage).
  - Damage to other sensitive crops and/or non-target areas through the movement of the suspended spray cloud away from the target field.
- Under the following climatic conditions it can cause serious damage as far as 3 - 5 km from the nearest spray path of the aircraft:
  - Cloudy weather with relative humidity above 80% and low air movement of less than 5 km/h. When such conditions prevail, aerial application should NOT be carried out where non-target crops the spray path of the aircraft. Drift on sugarcane not

intended for harvest can result in serious yield losses.

Ensure that the aerial spray operator knows which fields to spray. Supply the precise identification to the operator of the fields to be sprayed, preferably by means of a map or GPS coordinates. Indicate to the operator adjacent environmentally sensitive areas or sensitive neighbouring crops, beehives or water sources that could be affected by the plant growth regulator.

**Obtain assurance from the aerial spray operator that the above requirements will be met and that relevant data will be compiled in a logbook and kept for future reference.**

## 7.2 Application in Barley and Wheat

**MODDUS** may be applied by boom spray or aircraft. Ensure complete coverage of all leaves and stems is obtained.

**Boom Application:** As a guide, apply using spray volumes as specified in the table below. The use of flat fan nozzles are recommended to ensure a medium quality spray pattern. Consult the Mobile Application Cropwise Spray Assist.

**Aerial Application:** As a guide, apply using spray volumes as specified in the table below with the lower rate being used when applications are made with a cross wind of not less than 5 km/h. Use the higher rates when applying to dense crops.

Crop	Water volume (ℓ/ha)	
	Ground application	Aerial application
Barley	100 - 200	30 - 35
Wheat		

## 8. APPLICATION RATES:

### BARLEY

Reduces lodging, enhances yield and suppresses head loss in barley

Use	Product/ha	Critical comments
Reduction in peduncle length	200 - 400 mℓ/ha	<ul style="list-style-type: none"> <li>• Apply to actively growing, healthy crops.</li> <li>• Apply at the beginning of stem elongation (BBCH 30-32) when the second node is detectable on the main tiller and the majority of the other tillers have the first node detectable above ground level or at BBCH 37-39 when the flag leaf is just visible to flag leaf fully-emerged.</li> <li>• DO NOT apply after BBCH 39 (flag leaf fully-emerged).</li> <li>• Use the higher rates (300 - 400 mℓ/ha) when a barley variety has a long peduncle combined with a high yielding ear.</li> <li>• Where conditions favour crop growth compensation (bounce-back), an additional application of 200 mℓ/ha can</li> </ul>

## BARLEY cont.

Use	Product/ha	Critical comments
Reduction in peduncle length	200 - 400 mℓ/ha	be made at BBCH 37–39, flag leaf just visible to flag leaf fully-emerged.
Increase grain yield by reducing lodging, reducing excessive crop biomass, enhancing general crop development	300 - 400 mℓ/ha	<ul style="list-style-type: none"> <li>Apply to actively growing, healthy crops.</li> <li>Apply at the beginning of stem elongation (BBCH 30–32) when the second node is detectable on the main tiller and the majority of the other tillers have the first node detectable above ground level.</li> <li>Use the higher rate when plant populations, soil moisture and nutritional levels favour high biomass crop development.</li> <li>In some situations crop development may be delayed by up to 7 -10 days at anthesis but total days to maturity will not generally be affected.</li> </ul>
	200 - 400 mℓ/ha	<ul style="list-style-type: none"> <li>Where conditions favour crop growth compensation (bounce-back), an additional application can be made at BBCH 37–39, flag leaf just visible to flag leaf fully-emerged.</li> <li>DO NOT apply after BBCH 39 (flag leaf fully-emerged).</li> <li>Apply to actively growing, healthy crops.</li> <li>Use the higher rates when plant populations, soil moisture and nutritional levels favour high biomass crop development.</li> <li>In some situations crop development may be delayed by up to 7 - 10 days at anthesis but total days to maturity will not generally be affected.</li> </ul>

## WHEAT

Use	Product/ha	Critical comments
Reduction in peduncle length	400 mℓ/ha	<ul style="list-style-type: none"> <li>Apply to actively growing, healthy crops.</li> <li>Apply at the beginning of stem elongation (BBCH 30–32) when the second node is detectable on the main tiller and the majority of the other tillers have the first node detectable above ground level or at BBCH 37–39 when the flag leaf is just visible to flag leaf fully-emerged.</li> <li>DO NOT apply after BBCH 39 (flag leaf fully-emerged).</li> <li>Use the rate (400 mℓ/ha) when a wheat variety has a long peduncle combined with a high yielding ear.</li> </ul>

## SUGARCANE

(Irrigated and rain fed sugarcane, ratoon cane and plant cane)

Apply **MODDUS** to healthy, vigorous and active growing sugarcane.

Use	Product/ha	Critical comments
Increases sucrose content in the stalk	<b>Single application</b> <b>Ground and aerial application</b> 1 000 mℓ/ha	<ul style="list-style-type: none"> <li>Apply <b>MODDUS</b> 49 - 70 days before harvest.</li> </ul>
	<b>Sequential application</b> <b>Ground and aerial application</b> 800 mℓ/ha	<ul style="list-style-type: none"> <li>Apply <b>MODDUS</b> 70 ± two (2) days before harvest.</li> <li>Apply a follow-up application of <b>FUSILADE FORTE</b> (L7304) at 225 mℓ/ha 28 ± two (2) days later, but at 42 days (6 weeks) before harvest.</li> </ul>
Varietal differences in the ripening response may occur.		

The requirements for a good response from **MODDUS** as a sugarcane yield and quality enhancer are:

- Vigorous growth of the sugarcane (indicated by more than eight (8) green leaves together with long upper internodes).
- Sufficient soil water to promote vigorous growth.
- For ripening purposes the juice purity should be 85% and lower when Moddus is applied

After spraying, conditions for a high photosynthesis rate are required. This is ensured by:

- Good soil water supply.
- Sunlight and acceptable temperatures.
- Good plant nutrient status.
- Good plant health.

Timing when using **MODDUS** as a ripener:

- When crop growth is rapid, the time between spraying and harvesting will be shorter than when conditions are cooler and growth is slower (Refer to SASRI information sheet 12.5).
- Crops must be growing actively when sprayed, i.e., not suffering from nutrient, moisture, or any other stress factor.

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