

# RUGBY® 10 G

REG. no./nr. L4110: ACT / WET no./nr. 36 of/van 1947

A granule contact nematicide for the control of nematodes in the crops listed.

'n Korrel kontak aalwurmdoder vir die beheer van aalwurms in die genoemde gewasse.

**INSECTICIDE GROUP CODE**

**1B**

**INSEKDODERGROEPKODE**

**Active Ingredient:**

Cadusafos  
(organophosphate).....100g/kg

**Actiewe bestanddeel:**

.....Kadusafos (organofosfaat)

**NET MASS 10kg NETTO MASSA**

**REGISTERED BY /  
GEREGISTREER DEUR:**

FMC Chemicals (Pty) Ltd  
Co. Reg. No.: 1988/001451/07  
P O Box / Posbus 44  
Postnet Menlyn  
Waterkloof Glen  
0181

**For any emergency or poisoning  
contact: Griffon Poison  
Information Centre (24 hrs)**

**+27-(0)-82-446-8946**

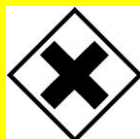
**UN No. / VN Nr. 2783**

BATCH NUMBER

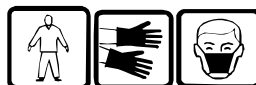
DATE MANUFACTURED


LOTNOMMER

DATUM VERVAARDIG



**HARMFUL  
SKADELIK**



Copyright © FMC, All rights reserved. ™ and ® are trademarks of FMC Corporation or an affiliate.



## **WARNINGS:**

**Potatoes:** Do not apply within 56 days of harvesting potatoes.

**Tobacco:** Do not harvest within 80 days of treatment

- Handle with care.
- Poisonous when absorbed through the skin or swallowed or inhaled.
- Toxic to fish, bees and wildlife. Ensure immediate incorporation or washing in by rain or irrigation water to minimize risk to birds and other animals. Take special precautions at the end of the orchard fields where spillage may occur.
- Store under lock and key in original container in a cool ventilated place away from food and feed
- Keep out of the reach of children, uninformed persons and animals.
- Inform staff (labourers, wives and children) of the potential danger of the product and give full instructions on what to do in case of poisoning. It is advisable to mark treated areas with appropriate danger signs.
- Re-entry interval: Do not enter treated area within 1 day after treatment unless wearing protective clothing. For the first 30 days after treatment it is advisable that rubber gloves and rubber boots be worn when handling the soil and when irrigating.
- In case of poisoning, call a doctor and make this label available to him/her
- 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 therefore may be affected by factors such as abnormal soil, climatic and storage conditions: compatibility with other substances not indicated on the label and the occurrence of resistance of the pest 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, the environment or harm to man or animal 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 which could not have been foreseen in terms of the registration. consult the supplier in the event of any uncertainty.

## **PRECAUTIONS:**

- Avoid skin contact with the granules as well as inhalation of dust.
- Wear protective clothing – overall, rubber gloves, boots and a suitable facemask. Wash contaminated clothing after use.
- Wash with soap and cold water after use.
- Do not eat, drink or smoke during application or before washing hands and face.
- Keep unprotected persons away from operating areas and treated areas.
- Clean applicator after use or before using with other remedies. Dispose of wash water where it will not contaminate crops, grazing, rivers, dams.
- Thoroughly shake out the bags into the application hopper and dispose of bags in the prescribed manner
- Destroy empty bags by burying or burning and never use for any other purpose. When burning – do not inhale smoke,
- Prevent contamination of food, feed drinking water or eating utensils.
- Prevent contamination of springs, dams and rivers.

## **SYMPTOMS OF POISONING:**

Symptoms of overexposure includes the following: Headaches, light-headedness, weakness, abdominal cramps, nausea, excessive salivation, perspiration, blurred vision, tearing, pin-point pupils, blue skin colour, convulsions, tremor and coma.

## **FIRST AID TREATMENTS:**

Eyes: Immediately irrigate with water for at least 15 minutes. If irritation occurs and persists, obtain medical attention.

Skin: Immediately flush with plenty of water while removing contaminated clothing and/or shoes and thoroughly wash with water. See a medical doctor immediately. Inhalation: Remove to fresh air. If breathing difficulty or discomfort occurs and persists, see a medical doctor. If breathing has stopped, give artificial respiration and see a medical doctor immediately. Ingestion: Drink 1 to 2 glasses of water and induce vomiting by touching the back of the throat with a

finger or by syrup of ipecac. Never induce vomiting or give anything by mouth to an unconscious person. Contact a medical doctor.

### **NOTE TO PHYSICIAN:**

Rugby 10G is expected to be toxic if the dust is inhaled and is moderately toxic if swallowed or absorbed through the skin. It is mildly irritating to the eyes and non-irritating to the skin. Rugby 10G contains a potent cholinesterase inhibitor. Atropine sulphate is antidotal. Support respiration as needed with removal of secretions, maintenance of a patient's airway and if necessary, artificial ventilation. If cyanosis is absent: Adults – start treatment by giving 2mg atropine intravenously or intramuscularly, if necessary and repeat with 0.4 – 2.0mg atropine at 15 minute intervals until atropinization occurs (tachycardia, flushed skin, dry mouth, mydriasis): *Children under 12* – initial dose = 0.05 mg/kg body weight and repeat dose = 0.02 – 0.05 mg/kg body weight. Start 2-PAM (Protopam® product, Ayerst® product) at the same time, following manufacturers recommended dosages and administration. Morphine reserpine, phenothiazines and theophylline are probably contraindicated. At the first sign of pulmonary oedema, the patient should be given supplemental oxygen and treated symptomatically. Observe patient to ensure that these symptoms do not recur as atropinization wears off. If in eyes instil one drop of homatropine. Treatment is otherwise controlled removal of exposure followed by symptomatic and supportive care. Some individuals have a genetically determined low level of plasma pseudocholinesterase. These persons are particularly vulnerable to the action of the muscle paralyzing drug succinylcholine, often administered to surgical patients. They may be unusually sensitive to organophosphate toxicity - this has not been proven. Patient with advanced liver disease, malnutrition, chronic alcoholism and dermatomyositis exhibit low plasma cholinesterase activities. Some cholinesterase depression may occur during early stages of pregnancy or with use of birth control pills.

### **RESISTANCE WARNING:**

For resistance management **RUGBY 10G** is a group code 1B pesticide. Any insect population may contain individuals naturally resistant to **RUGBY 10G** and other group code 1B pesticides.

The resistant individuals can eventually dominate the insect population if these pesticides are used repeatedly.

These resistant insects may not be controlled by **RUGBY 10G** or any other group code 1B pesticide.

To delay pesticide resistance:

- Avoid exclusive repeated use of pesticides from the same pesticide group code. Alternate or tank mix with products from different pesticide group codes.
- Integrate the control methods (chemical, cultural, biological) into pest control programmes.

For specific information on resistance management contact the registration holder of this product.

### **DIRECTIONS FOR USE: USE ONLY AS DIRECTED**

#### **MODE OF ACTION:**

**N.B. RUGBY WORKS BY CONTACT ACTION ONLY AND WILL ONLY CONTROL THE MOBILE STAGES OF THE NEMATODES WHILE THEY ARE ACTIVE IN THE SOIL. EGGS IN THE SOIL AND LARVAE THAT HAVE ALREADY PENETRATED THE ROOTS ARE NOT CONTROLLED. RUGBY WHEN CORRECTLY APPLIED AND INCORPORATED WILL ESTABLISH A BARRIER LAYER IN THE SOIL AND WILL ONLY PROVIDE PROTECTION FOR THE TUBERS AND ROOTS WITHIN THAT ZONE, THUS CORRECT PLACEMENT AND EVEN DISTRIBUTION OF THE PRODUCT IN THE TARGET ZONE IS ESSENTIAL. FURTHERMORE, MOISTURE IS ESSENTIAL TO ACTIVATE THE PRODUCT. SUFFICIENT SOIL MOISTURE MUST BE PRESENT AT APPLICATION FOLLOWED BY IRRIGATION / RAINFALL THEREAFTER (± 20 – 35mm). MOISTURE STRESS CAN NEGATIVELY AFFECT EFFICACY AND ROOT DEVELOPMENT.**

#### **ACCELERATED MICROBIAL DEGRADATION:**

This phenomenon can affect all soil-applied compounds. To minimize the possibility of accelerated microbial degradation from occurring, avoid long-term repeated applications of the same product / group of compounds.

#### **PERENNIAL CROPS:**

1. The objective is to protect the formation of new roots. Application programmes should therefore commence when this can best be achieved.

2. Apply RUGBY to a weed and trash free surface. Immediately wash into the top layer of pre-moistened soil preferably by sprinkler/micro-jet irrigation for optimum results.
3. **Bananas:** Application should be made at the onset of the rainy season and followed-up in January – February.
4. **Citrus:** Application should take place at two monthly intervals starting at the onset of the rainy season.
5. **Guavas & Litchis:** Application should be made at the onset of the rainy season and preferably after the first rains have fallen. Repeat annually.
6. **Stone fruit and pome fruit:** The objective is to enhance and protect the formation of new roots. Application programmes should therefore commence when this can best be achieved. Spring (especially young non-bearing trees) and post harvest (bearing trees) and are two critical periods of root growth that need to be protected preventively.
7. **Grapevines:** Application should start in spring when the first growth of new roots occurs.

#### **ANNUAL CROPS:**

1. **Chicory:** Rugby may only be used on chicory produced under the control of Chicory SA Ltd. and only when recommended by duly authorized officials of Chicory SA Ltd.
2. **Pineapples:** Apply as a broadcast treatment before planting and ensure thorough incorporation is followed up with irrigation.
3. **Potatoes:** Always plant certified nematode-free seed. Use only accurate and properly calibrated application equipment.  
 Table potatoes: Rugby can be applied as an overall broadcast soil treatment before planting (up to approximately 7 to 14 days). Ensure thorough incorporation by means of an off-set tandem disc or rotorvator operating at a maximum speed of 8kph to a depth of at least 15cm – the ideal depth is 15 to 25cm. There should always be a treated layer of soil below the planting depth to ensure protection of the roots and tubers. Application and incorporation should be followed the same day by irrigation with a minimum 20mm. Special care must be taken in sandy soils to avoid over-irrigation and possible wash-off.  
**Irrigation alone is insufficient for the incorporation of RUGBY to the recommended depth.**  
 To enhance nematode control and where potatoes are expected to remain in the soil for longer than 100 days, RUGBY must be used in a programme. It is recommended that an application of RUGBY at planting should be followed by a full Vydate® SL foliar application programme according to the Vydate® SL label (follow all Directions for use ). See Remarks below under Directions for Use on potatoes.  
**Seed potatoes:** Apply at planting and ensure even coverage and thorough mixing with the soil around the seed tuber. Follow all recommendations listed above.
4. **Tobacco:** Apply as an overall broadcast application up to 10 days before planting and incorporate to a depth of at least 15cm before ridges are made and follow up with irrigation (minimum 20mm).

#### **COMPATABILITY:**

Rugby 10G should not be mixed with any other chemical or fertilizer.

SOIL TYPE: Avoid the use of Rugby in soils with less than 10% clay

SOIL pH: Rugby can be used in soils with a pH level between 5 and 9. Do not use in soils with a pH>9.

## RECOMMENDATIONS:

CROP/PEST	DOSAGE RATE	REMARKS
<b>BANANAS</b>  Nematodes	15g/m <sup>2</sup> (twice annually)	Apply at the onset of the rainy season and follow up in January-February. Apply to weed and trash free surface of 1 m <sup>2</sup> mat around selected pseudostem. If sufficient rain does not fall immediately after application, wash the product into the top layer of soil by sprinkler or micro-irrigation. (20-25mm water). <b>SEE NOTES AND MODE OF ACTION</b>
<b>CITRUS</b>  Citrus nematode ( <i>Tylenchulus</i> <i>semipenetrans</i> )	3 applications of 15g/m <sup>2</sup>  or  2 applications of 20 g/m <sup>2</sup>	Apply at two monthly intervals starting application at the onset of the rainy season. Apply to moist soil. <u>Area to be treated (the number of square metres treated, depends on size of basin area/canopy):</u> Apply evenly to the soil in the tree basin (under the tree canopy) <b>or</b> treat the area covered by the micro-jet irrigation system. If sufficient rain does not fall immediately after application wash the product into the top layer of soil by sprinkler or micro-irrigation. (20-25mm water) <b>SEE NOTES AND MODE OF ACTION</b>

### Notes:

#### **CITRUS & BANANAS**

1. Ensure that the correct amount of granules is evenly distributed over the treated area.
2. RUGBY 10G may be used as a follow-up application after an initial Spring application of a systemic nematicide.

CROP/PEST	DOSAGE RATE	REMARKS
<b>CHICORY</b> <b>(produced under</b> <b>control of</b> <b>Chicory SA Ltd)</b>	30 kg per ha	Apply before ridging and planting as an overall application to a fine moist seedbed free from clods, pieces of organic material and weeds. Granules must be evenly distributed over the soil surface, properly incorporated and thoroughly mixed with the soil using a tandem disc. <b>USE ONLY ON RECOMMENDATION OF AUTHORISED OFFICIALS OF CHICORY SA LTD.</b> <b>SEE NOTES AND MODE OF ACTION</b>

### Notes:

#### **CHICORY:**

1. Rugby 10G can be applied with any suitable implement that can be calibrated properly to give even, uniform distribution of the granules on the soil surface.
2. The tandem disc or rotorvator must be operated at a depth of at least 15cm and at a speed of approximately 8km/h. to ensure adequate incorporation and mixing of the granules with the soil.
3. During the ridging process the ridger must not operate deeper than the depth of incorporation, to avoid the inclusion of untreated soil.
4. **WARNINGS:**
  - Sufficient moisture is essential to activate the product. Moisture levels close to field capacity are therefore needed when Rugby is applied and incorporated. Rainfall/irrigation (20-35mm) after application/incorporation is also essential to supplement mixing with and distribution into the soil.
  - The lower parts of the root may show nematode damage in the case of insufficient incorporation/moisture.

CROP/PEST	DOSAGE RATE	REMARKS
<b>GUAVAS</b>  Nematodes	15g/m <sup>2</sup>	Treat canopy area Application must be followed by 35mm irrigation / rainfall on sandy soils and 15mm irrigation/ rainfall on heavy soils, within one week. Repeat annually. <b>SEE MODE OF ACTION</b>
<b>LITCHIS</b>  Nematodes		
<b>STONE FRUIT &amp; POME FRUIT (APPLES &amp; PEARS)</b>  Nematodes Ring nematode ( <i>Criconebella xenoplax</i> ) and Dagger nematode ( <i>Xiphinema</i> spp.) Rootknot nematode ( <i>Meloidogyne</i> spp.)	1 to 3 applications of 15 g / m <sup>2</sup> 8 – 10 weeks apart (depending on infestation level)  <b>OR</b> 25 g/m <sup>2</sup> followed by 25g/m <sup>2</sup> 12 weeks later in high infestation pressure conditions	Use the higher rate on heavier infestations. (i) <b>Spring application</b> should be timed to protect new root flush. Apply follow-up treatment if necessary according to nematode soil analyses. (ii) <b>Autumn application</b> as a post-harvest treatment  Apply evenly to the soil in the tree basin (under tree canopy) or the area covered by the drip or micro-irrigation system. The number of square meters treated depends on size of basin area/canopy. If sufficient rain does not fall immediately after application, wash the product into the top layer of soil by sprinkler or micro-irrigation. (20 – 35 mm water). Best results will be obtained with young trees – first 2 years after planting. <b>SEE MODE OF ACTION</b>
<b>PINEAPPLES</b>  Nematodes	50 kg/ha	Apply as an overall broadcast treatment 7 to 15 days before planting and incorporate by disc ploughing to a depth of ± 15 - 20 cm as recommended for Chicory and tobacco. Ensure thorough irrigation. <b>SEE NOTE AND MODE OF ACTION.</b>

**Notes:**

**PINEAPPLES:**

- Best results are obtained when Rugby is followed up by another registered nematicide in a preventive programme.
- The lower part of the root system may show nematode damage in the case of insufficient incorporation / moisture.

CROP/PEST	DOSAGE RATE	REMARKS
<p><b>POTATOES</b>  <b>For soils with &gt;10% clay</b>  <b>Table Potatoes:</b></p> <p>Nematodes:  <i>Meloidogyne</i> species  (excluding  <i>M.chitwoodi</i>)</p> <p>.....</p>	<p>400 g per 100 m row length  (40kg/ha See notes)</p> <p>.....</p>	<p>Apply before planting as a broadcast treatment and incorporate with an offset tandem disk or rotorvator to a depth of 15 – 25cm before making the planting furrow to ensure even distribution (see notes) or in a band of approximately 30 cm wide during the planting process - distribute evenly and mix thoroughly with the soil between the seed potato and soil surface before making the planting furrow. Avoid excessive direct contact between the product and the tubers.</p> <p><u>Northern Cape and North West Province (winter plantings)</u> – Prieska, Hopetown, Douglas, P.K. Le Roux dam irrigation areas, Vaalharts irrigation area, Barkly West, Christiana, Louwna, Vryburg, Coetzersdam and Tosca, the soil <b>must be fumigated</b> prior to planting. Refer to point 3 under ANNUAL CROPS regarding the use of Vydate® SL foliar follow-up applications.</p> <p>.....</p>
<p><b>For soils with &lt;10% clay and</b>  <b>Seed Potatoes:</b></p> <p>Nematodes  <i>Meloidogyne</i> species  (excluding  <i>M.chitwoodi</i>)</p>	<p>600 g per 100 m row length  (60 kg/ha See notes)</p>	<p>Apply before planting as described above, ensuring that the product is evenly distributed and thoroughly mixed with the soil.</p> <p>Avoid excessive direct contact between the product and the seed potatoes.</p> <p><u>Northern Cape and North West Province (summer plantings)</u> – Prieska, Hopetown, Douglas, P.K. Le Roux dam irrigation areas, Vaalharts irrigation area, Barkly West, Christiana, Louwna, Vryburg, Coetzersdam and Tosca, the soil <b>must be fumigated</b> prior to planting and application of Rugby followed by a complimentary foliar applied nematicide programme (refer to point 3 under Annual crops) should be used.</p> <p><b>SEE NOTES AND MODE OF ACTION</b></p>

**Notes:**

**POTATOES:**

- Rugby 10G can also be applied broadcast pre-plant on potatoes using the method described for tobacco. In this case kg per ha rates must be used.
- Sufficient soil moisture is essential to activate the product. Moisture levels close to field capacity are therefore needed when Rugby 10G is applied and incorporated. Ensure that the correct amount of Rugby 10G is evenly distributed over the treated area.  
Rainfall/irrigation (20 - 35 mm) after application/incorporation, is also essential to supplement mixing with and incorporation into the soil. Incorporation of the product to the recommended depth is insufficient when irrigation alone is used for this action.
- Crops planted and growing in hot conditions (summer plantings, high temperatures) on very sandy soils, under centre pivot irrigation, in areas with a history of nematode infestations and variable performance of nematicides and source of irrigation water, are significantly more at risk of high levels of damage.
- In conditions such as the above and specifically for plantings in the Northern Cape and North West Province – Prieska, Hopetown, Douglas, P.K. Le Roux dam irrigation areas, Vaalharts irrigation area, Barkly West, Christiana, Louwna, Vryburg, Coetzersdam and Tosca, the soil **must be fumigated** prior to applying Rugby.
- The highest rate should be applied in the areas and under the conditions mentioned above.
- Always plant certified nematode-free seed

- Do not disturb the soil after planting otherwise the protective barrier layer of Rugby may be broken.
- The lower part of the root system and / or lower tubers may show nematode damage in the case of insufficient incorporation / moisture or where applications, soil, climatic and cropping conditions are not optimal..
- The nematicidal properties of Rugby 10 G have been clearly proven. **However, there are various factors outside FMC'S control, which can negatively influence the performance of Rugby 10 G.** Some of these factors are; monocropping, or a history of nematode susceptible crops on the potato land; high nematode populations; soil type e.g. very sandy soils, soils with a known history of accelerated microbial degradation; sub-optimal or excessive irrigation/rainfall.
- Should such factors occur substantial nematode damage **MUST BE EXPECTED**
- As SEED AND CHIPPING POTATOES need to be free from any nematode damage, should any such factors be suspected **DO NOT USE RUGBY 10 G.**
- In general a single application of Rugby in potatoes, when applied according to the recommendations above, should provide effective (approximately 80%) reduction in nematode numbers for approximately 90 to 100 days. The length of activity is influenced by a multitude of factors and local conditions will vary considerably.
- Potatoes left in the ground for > 100 days will be susceptible to attack by nematodes and will show symptoms of damage. Lift potatoes as soon as the crop potential has been reached, as late infestation can occur. Potatoes are particularly vulnerable to attack once the haulms have been slashed/burnt off as soil temperatures are likely to increase due to the lack of cover - this may stimulate the nematode life cycle resulting in a rapid multiplication and infestation of the tubers. If it is intended to keep the potatoes in the ground for a period longer than the residual activity of Rugby, a complementary preventive nematicide treatment is compulsory (Refer to point 3 under ANNUAL CROPS regarding the use of Vydate® SL foliar follow-up applications).

CROP/PEST	DOSAGE RATE	REMARKS
<b>TOBACCO (UNDER IRRIGATION)</b>  Nematodes	30 kg per ha	Irrigate to ensure moisture levels close to field capacity. Pre-application field preparation must be such that a fine tilth is obtained free from clods/pieces of organic material and weeds. Apply Rugby as an overall application before ridges are made. Granules must be evenly distributed over the soil surface, properly incorporated and thoroughly mixed with the soil using an off-set tandem disc or rotavator. Follow up with 25 mm of irrigation (rainfall). Do not ridge or plant within 3 days after application. <b>SEE NOTES AND MODE OF ACTION.</b>

**Notes:**

**TOBACCO:**

**DO NOT USE ON DRYLAND TOBACCO.**

**DO NOT USE ON VERY SANDY SOILS, i.e. LESS THAN 10% CLAY**

- Rugby 10 G can be applied with any suitable implement that can be calibrated properly to give even, uniform distribution of the granules on the soil surface.
- The tandem disc or rotavator must be operated at a depth of at least 15cm (preferably deeper) and at a speed of approximately 8km/h to ensure adequate incorporation and mixing of the granules with the soil.
- During the ridging process, the ridger must not operate deeper than the depth of incorporation to avoid the inclusion of untreated soil.
- **Warnings:**
  - Do not use on tobacco under drip irrigation.
  - Do not stress tobacco plants after planting in soil which has been treated with Rugby.
  - Sub-optimum results have been noted in fields where a dense stand of nutsedge was present.
  - The lower part of the root system may show nematode damage in the case of insufficient incorporation/moisture.



<p><b>GRAPEVINES</b></p> <p>Ring nematode (<i>Criconebella xenoplax</i>)</p> <p>Dagger nematode (<i>Xiphinema</i> spp.)</p> <p>Rootknot nematodes (<i>Meloidogyne</i> spp.)</p> <p>Spiral nematode (<i>Helicotylenhus</i> spp.)</p>	<p>1 to 3 applications of 15 g / m<sup>2</sup> 8 – 10 weeks apart (depending on infestation level)</p> <p>OR</p> <p>Two applications of 25 g/m<sup>2</sup> each 12 weeks apart under high infestation pressure conditions</p>	<p>Initial application in early Spring. Use the higher rate on heavier infestations.</p> <p>(i)<b>Spring application</b> should be timed to protect new root flush. Apply follow-up treatment if necessary according to nematode soil analyses.</p> <p>(ii)<b>Autumn application</b> as a post-harvest treatment</p> <p>Apply evenly to the soil in a 50 cm wide band on either side of the plant row or the area covered by the drip or micro-irrigation system. The number of square meters treated depends on extent of the irrigation coverage. If sufficient rain does not fall immediately after application, wash the product into the top layer of soil by sprinkler or micro-irrigation. (20 – 35 mm water).</p> <p><b>SEE MODE OF ACTION.</b></p>
---	---	---

Vydate® SL (L5057)

is the registered trademark and product of E.I Du Pont de Nemours & Co.