



Dow AgroSciences

# RUNNER™ 240 SC

**INSECTICIDE**

REG. NO. L7779 ACT NO 36 OF 1947 / WET NR 36 VAN 1947  
N-AR 1682

A SUSPENSION CONCENTRATE SELECTIVE CONTACT AND STOMACH INSECTICIDE (MOULT ACCELERATING COMPOUND) FOR THE CONTROL OF INSECT PESTS ON CROPS AS LISTED.	'N SUSPENSIEKONSENTRAAT SELEKTIEWE KONTAK- EN MAAGINSEKDODER (VERVELLINGSVERSNELLINGSMIDDEL) VIR DIE BEHEER VAN INSEKPLAE IN GEWASSE SOOS AANGEDUI.
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## CHEMICAL GROUP 18 CHEMIESE GROEP

### Active Ingredient/Aktiewe Bestanddeel

methoxyfenozide ..... 240 g/l ..... methoxyfenozide  
(diacylhydrazine) (diasielhidrasien)

Net volume ..... l ..... Netto volume

**REGISTRATION HOLDER / REGISTRASIEHOUER**  
DOW AGROSCIENCES SOUTHERN AFRICA (PTY) LTD / (EDMS) BPK  
REG NO 1967/007147/07  
PRIVATE BAG X160 PRIVAATSAK  
BRYANSTON 2021

™Trademark of/Handelsmerk van Dow AgroSciences

Batch No. ....  ..... Lot Nr.  
Date of Manufacture .....  ... Datum van Vervaardiging

UN NO: N/R

Griffon Poison Information Centre: +27(0)82-446-8946  
Poisons Helpline: +27(0)861-555-777  
24 Hour Emergency Tel No: +27(0)82-887-8079  
Information Hotline Tel No: +27 (0)12 361-8112

*RUNNER™ 240 SC/2013-07-10*



**CAUTION  
VERSIGTIG**



## WARNINGS

### Withholding period - Minimum time between last application and harvest:

Apples .....	10 days
Avocados .....	30 days
Citrus .....	30 days
Cruciferae (cabbage, cauliflower, broccoli and Brussels sprout) .....	7 days
Cucurbits .....	7 days
Lettuce .....	14 days
Litchis .....	30 days
Pears .....	10 days
Peas .....	7 days
Peppers .....	3 days
Spinach .....	14 days
Tree nuts (macadamia, pecans, almonds, pistachio and hazel nuts) .....	14 days

NOTE: Above withholding periods are based on local requirements for residue levels. Withholding periods may differ in other countries to which treated fruit may be sent.

- Handle with care.
- May cause eye irritation.
- This product is toxic to fish and aquatic invertebrates. Do not apply directly to open water.
- Store in a cool and dry place, away from food and feedstuffs.
- Keep out of reach of children, uninformed persons and animals.
- Beneficial insects:
  - \* Relatively harmless to bees and young bees.
  - \* Relatively harmless to parasitoids, predatory insects and predatory mites.

**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 climatic and storage conditions; quality of dilution water; 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 use 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

Store in original labeled container only.

Avoid inhalation of spray mist.

Wash with soap and water after use or accidental skin contact.

Wear gloves and face shield when handling.

Avoid contamination of skin and eyes. In case of accidental contact with eyes, wash with running water for at least 15 minutes. Get medical attention if irritation persists.

Do not eat, drink or smoke whilst mixing or applying.

Wash hands and face before eating, drinking, smoking or using the toilet

Avoid spray drift onto adjacent crops, grazing, rivers and dams.

Clean applicators before using for other remedies and dispose of wash water where it will not contaminate crops, grazing, rivers, dams and water sources.

Invert the empty container for at least 30 seconds after the flow has slowed down to a drip. Thereafter rinse empty container three times with a volume of water equal to a minimum of 10 % of that of the container. Add the rinsings to the contents of the spray tank before destroying the container by perforation, flattening and burying and do not use for any other purpose.

Prevent contamination of food, feedstuffs, drinking water and eating utensils by handling, storage or disposal.

## DIRECTIONS FOR USE:

**Use only as indicated**

**RUNNER 240 SC** is a suspension concentrate, which should be mixed with water and applied as a foliar spray with ground equipment equipped for conventional insecticide application.

### **Insecticide Resistance Management (IRM)**

The classification scheme of insecticides is based on "mode of action". **RUNNER 240 SC** is classified as a diacylhydrazine (group 18) insecticide.

Any insect population may contain individuals naturally resistant to **RUNNER 240 SC**. The resistant individuals will eventually dominate the insect population if these insecticides are used repeatedly over long periods or to consecutive generations. **RUNNER 240 SC** or other related insecticides may not control these resistant insects. Local experts should be consulted for resistance strategies and specific recommendations. It is recognised that resistance of insects and mites to insecticides and acaricides can also result from enhanced metabolism, reduced penetration or behavioural changes that are not linked to

any site of action classification but are specific for individual chemicals or chemical groupings. Despite this, alteration of compounds from different chemical classes remains a viable anti-resistance management technique.

To delay insecticide resistance

- Avoid the exclusive repeated use of insecticides from the same chemical subgroup.
- Do not use less than recommended label rates of any insecticides.
- Target applications preferably against early instar larvae and eggs of the pest whenever possible.
- Include proven cultural and biological control practices within an Integrated Pest Management Programme.

### **Integrated Pest Management (IPM) Programme:**

**RUNNER 240 SC** can be recommended for IPM programmes in apple, pear and citrus crops. **RUNNER 240 SC** should be applied as preventative sprays when field scouting and/or monitoring indexes indicates that the target pest will reach economic thresholds. The best positioning of **RUNNER 240 SC** applications are at the beginning of peak moth flight or before egg hatch where degree day models are followed (e.g. Codling Moth) or before egg hatch of peak moth flights. This will ensure that the majority of eggs are laid on treated surfaces and emerging larvae are exposed to **RUNNER 240 SC** before any damage is caused.

A maximum of 2 sprays per season are allowed for control of Codling Moth and False Codling moth in pome and citrus fruit.

**RUNNER 240 SC** is a selective insecticide and only controls the larval stage of insects of the Lepidoptera group. **RUNNER 240 SC** used under GAP, does not have a significant impact on certain parasitic or predaceous insects and mites, including ladybirds, lacewings, assassin bugs, predatory mites, etc.

If **RUNNER 240 SC** is tank mixed with any insecticide that reduces its selectivity in preserving beneficial predatory insects, then the full benefit of **RUNNER 240 SC** to the IPM programme may be reduced.

### **MODE OF ACTION:**

**RUNNER 240 SC** is a molting acceleration product and is most effective. After being ingested by young larvae, it also has good ovicidal effect, but minimal contact effect on older larvae. The active ingredient methoxyfenozide, mimics the action of the molting hormone of *lepidopterous* larvae (L1 – L2 stages), and differs from other insect growth regulators like chitin-biosynthesis-inhibitors or juvenile-hormone mimic products. Upon ingestion, larval stages of the order *Lepidoptera* undergo an incomplete and developmentally lethal premature molt. After ingestion larvae cease feeding within 4-8 hours. The larvae die on account of their inability to feed and complete the molting process.

This mode of action therefore requires thorough spray coverage of the plant surface with **RUNNER 240 SC**.

pH: **RUNNER 240 SC** is stable in a water suspension with a pH of 4-9.

## **MIXING INSTRUCTIONS:**

### **Mixing RUNNER 240 SC alone:**

Fill the spray tank with water to about half of the total spray volume required. Start agitation and add the required amount of **RUNNER 240 SC** to the spray tank. Continue mixing and agitation while filling the spray tank to the required spray volume. Maintain sufficient agitation during application to ensure uniformity of the spray mix. Do not allow water or spray mixture to back-siphon into the water source.

**Tank mixing:** **RUNNER 240 SC** is compatible with fungicides and insecticides normally used on apples, pears, citrus and other crops.

Before tank mixing **RUNNER 240 SC** with other products, a compatibility test (jar test) using relative proportions of tank mix products should be conducted prior to mixing in the spray tank.

If foliar fertilisers are used, the compatibility test should be repeated with each batch of fertiliser utilising the mixing water source.

Vigorous, continuous agitation during mixing, filling and throughout application is required for all tank mixes. Back flow sparger pipe agitators, at the bottom of the spray tank, generally provide the most effective agitation in spray tanks. To prevent foaming in the spray tank, avoid mixing air into the spray mixture.

### **Mixing Sequence for Tank Mixes:**

Fill the spray tank with water to approximately one quarter of the total spray volume required. Start agitation. Add different formulation types in the order indicated below, allowing time for complete mixing and dispersion after addition of each product. Allow extra mixing and dispersion time for Dispersible granule flowable (WG) products.

Add different formulation types in the following order:

1. Water dispersible granules. (After pre-mixing with water)
2. Wettable powders. (After pre-mixing with water)
3. **RUNNER 240 SC** and other aqueous suspensions.  
*Maintain agitation and fill spray tank to three-quarters of total spray volume.*  
*Then add:*
4. Emulsifiable concentrates.
5. Foliar Fertilizers.

6. Continue filling the spray tank to the required volume while maintaining continuous agitation during mixing, final filling and throughout application. If spraying and agitation must be stopped before the spray tank is empty, settled materials must be resuspended before spraying is resumed. A back flow sparger agitator at the bottom of the tank is particularly useful for this purpose.

### **Premixing:**

Dispersible granule (WG) and Wettable Powder (WP) formulations may be pre-mixed with water (slurried) and added to the spray tank through a 20 - 35 mesh screen. This procedure assures good initial dispersion of these formulation types.

## **APPLICATION**

Proper application techniques help ensure thorough spray coverage and the correct dosage necessary to obtain optimum control of insect pests. The following recommendations are provided for effective application of **RUNNER 240 SC**. To ensure adequate spray coverage, attention should be given to ground speed and calibration, wind speed, and foliar canopy.

### **Application for Fruit tree crops:**

Use conventional orchard spray equipment correctly calibrated to provide thorough coverage of the target crop and correct rate per ha.

### **Addition of adjuvants:**

If the surface of the fruit to be treated is waxy or difficult to wet, the use of a registered adjuvant at the registered rate is recommended.

**RUNNER 240 SC** should be sprayed as a high volume (HV) application. On Pome fruit rate per ha should preferably be calculated according to the formula for HVR, using "Unrath's Formula" for "Tree Row Volume" (TRV).

$$\text{TRV} \times 937 = \frac{\text{Tree Height (TH)} \times \text{Tree Width (TW)} \times 937}{\text{Distance between Rows (RW)}} = \text{HVR in liters per ha}$$

\*(Tree height and tree width should be measured during summer when trees are in full flush)

Directions for Application Volumes (AV) at different growth stages and the calculation of rate per ha, based on High Volume Requirements (HVR)

**FOR APPLES AND PEARS:**

Growth Stage	Application Volume
Bud Break to Full Blossom	60 % x HVR
75 % Petal Fall to One Month Later (Mid Season)	80 % x HVR
Mid Season to Post Harvest, Before Leaf Drop	100 % x HVR

$$\text{Rate per ha} = \frac{\text{HVR in } \ell / \text{ha} \times \text{Rate per 100 } \ell}{100}$$

CROP/PEST	DOSAGE/100 ℓ WATER	REMARKS
<b>APPLES AND PEARS</b> Codling Moth <i>(Cydia pomonella)</i>	60 ml <b>RUNNER 240 SC</b>	<p>Apply <b>RUNNER 240 SC</b> as a high volume, full cover application. Thorough coverage is essential.</p> <p>Start applications of <b>RUNNER 240 SC</b> at the beginning of a moth generation, or in the case of the first generation, at ¾ petal fall and repeat at 14 day intervals for a maximum of 2 consecutive applications. To comply with resistance management strategies, <b>RUNNER 240 SC</b> should not be used in total more than two (2) times per season on any Apple or Pear orchard. Other registered products should be used for the treatment of the remainder of the spray programme.</p> <p>If <b>RUNNER 240 SC</b> is applied for the control of the last generation of the season, then a product with a different mode of action must be used for control of the first generation in the following season.</p> <p>Although <b>RUNNER 240 SC</b> can be used on any generation of Codling moth, the positioning of <b>RUNNER 240 SC</b> will be determined by the specific control strategy that is followed. Although not necessarily, as a general guide <b>RUNNER 240 SC</b> may be considered for use in the 2<sup>nd</sup> generation.</p>

CROP/PEST	DOSAGE/100 ℓ WATER	REMARKS
<b>AVOCADOS</b> False Codling Moth ( <i>Thaumatotibia leucotreta</i> )	60 ml	Apply <b>RUNNER 240 SC</b> as a high volume application. Apply at 8 and 4 weeks prior to harvest or when infestations are expected to occur.  <u><b>Resistance management:</b></u> For control of False Codling moth do not apply <b>RUNNER 240 SC</b> in total more than three (3) times per season to any one block of Avocados. Alternate the use of <b>RUNNER 240 SC</b> with registered insecticides with a different mode of action.
<b>CITRUS</b> False Codling Moth ( <i>Thaumatotibia leucotreta</i> )	60 ml	Apply <b>RUNNER 240 SC</b> as a high volume, full cover application. Apply 8 and 4 weeks prior to harvest.  <u><b>Resistance management:</b></u> For control of False Codling Moth do not apply <b>RUNNER 240 SC</b> in total more than 2 times per season to any one block of Citrus. Use registered insecticides with a different mode of action for further control measures e.g. Delegate 250 WG.
<b>CRUCIFERAE</b> (Cabbage, Cauliflower, Broccoli and Brussels sprouts) African/American Bollworm ( <i>Helicoverpa armigera</i> )	60 ml (300 – 600 ml/ha) A registered wetter may be added if required.	Apply as soon as pest is noticed as a full cover application at 500 – 1000 ℓ/ha spray mixture. Apply a follow-up application if necessary.  <u><b>NOTE:</b></u> As a single corrective application against bollworm, <b>RUNNER 240 SC</b> is more effective against early instar larvae.  <u><b>Resistance management:</b></u> For resistance management, <b>RUNNER 240 SC</b> should not be applied in total more than three (3) times per season to any block of Cruciferae.



CROP/PEST	DOSAGE/100 ℓ WATER	REMARKS
<b>CUCURBITS</b> African/American Bollworm ( <i>Helicoverpa armigera</i> )	60 ml (300 – 600 ml/ha) A registered wetter may be added if required.	Apply as soon as pest is noticed as a full cover application at 500 – 1000 ℓ/ha spray mixture. Apply a follow-up application if necessary.  <b>NOTE:</b> As a single corrective application against bollworm, <b>RUNNER 240 SC</b> is more effective against early instar larvae.  <b>Resistance management:</b> For resistance management, <b>RUNNER 240 SC</b> should not be applied in total more than three (3) times per season to any block of Cucurbits.
<b>LETTUCE</b> African/American Bollworm ( <i>Helicoverpa armigera</i> )	60 ml (300 – 600 ml/ha) A registered wetter may be added if required.	Apply as soon as pest is noticed as a full cover application at 500 – 1000 ℓ/ha spray mixture. Apply a follow-up application if necessary.  <b>NOTE:</b> As a single corrective application against bollworm, <b>RUNNER 240 SC</b> is more effective against early instar larvae.  <b>Resistance management:</b> For resistance management, <b>RUNNER 240 SC</b> should not be applied in total more than three (3) times per season to any block of Lettuce.
<b>LITCHIS</b> False codling moth ( <i>Thaumatotibia leucotreta</i> )	60 ml	Apply <b>RUNNER 240 SC</b> as a high volume. Apply at 8 and 4 weeks prior to harvest or when infestations are expected to occur.  <b>Resistance management:</b> For control of False Codling moth do not apply <b>RUNNER 240 SC</b> in total more than three (3) times per season to any one block of Litchis. Alternate the use of <b>RUNNER 240 SC</b> with registered insecticide with a different mode of action.

CROP/PEST	DOSAGE/100 ℓ WATER	REMARKS
<p><b>PEAS</b> African/American Bollworm (<i>Helicoverpa armigera</i>)</p>	<p>60 ml (300 – 600 ml/ha) (A registered wetter may be added if required)</p>	<p>Apply as soon as pest is noticed as a full cover application at 500 – 1000 ℓ/ha spray mixture. Apply a follow-up application if necessary.</p> <p><b>NOTE:</b> As a single corrective application against bollworm, <b>RUNNER 240 SC</b> is more effective against early instar larvae.</p> <p><b>Resistance management:</b> For resistance management, <b>RUNNER 240 SC</b> should not be applied in total more than three (3) times per season to any block of Peas.</p>
<p><b>PEPPERS</b> African/American Bollworm (<i>Helicoverpa armigera</i>)</p>	<p>60 ml (300 – 600 ml/ha) A registered wetter may be added if required.</p>	<p>Apply as soon as pest is noticed as a full cover application at 500 – 1000 ℓ/ha spray mixture. Apply a follow-up application if necessary.</p> <p><b>NOTE:</b> As a single corrective application against bollworm, <b>RUNNER 240 SC</b> is more effective against early instar larvae.</p> <p><b>Resistance management:</b> For resistance management, <b>RUNNER 240 SC</b> should not be applied in total more than three (3) times per season to any block of Peppers.</p>
<p><b>SPINACH</b> African/American Bollworm (<i>Helicoverpa armigera</i>)</p>	<p>60 ml (300 – 600 ml/ha) A registered wetter may be added if required.</p>	<p>Apply as soon as pest is noticed as a full cover application at 500 – 1000 ℓ/ha spray mixture. Apply a follow-up application if necessary.</p> <p><b>NOTE:</b> As a single corrective application against bollworm, <b>RUNNER 240 SC</b> is more effective against early instar larvae.</p> <p><b>Resistance management:</b> For resistance management, <b>RUNNER 240 SC</b> should not be applied in total more than three (3) times per season to any block of Spinach.</p>

CROP/PEST	DOSAGE/100 ℓ WATER	REMARKS
<b>TREE NUTS</b> <b>(Macadamia, Pecan, Almonds, Pistachio and Hazelnuts)</b> False Codling Moth <i>(Taumatotibia leucotreta)</i>	60 ml	<p>Apply <b>RUNNER 240 SC</b> as a high volume application.</p> <p>Start application in the susceptible period. Normally from the beginning of November to the end of December. Recognized monitoring practices need to be carried out to determine presence of pest.</p> <p><b><u>Resistance management:</u></b> For control of False Codling moth do not apply <b>RUNNER 240 SC</b> in total more than three (3) times per season to any one block of macadamias, Pecans, etc. Alternate the use of <b>RUNNER 240 SC</b> with registered insecticide with a different mode of action.</p>

**24 HOUR EMERGENCY TEL. NO. 082-887-8079**

**INFORMATION HOTLINE : TEL. NO.: (012) 361-8112**

## WAARSKUWINGS

**Onthoudingsperiode** - Minimum tyd wat tussen die laaste toediening en oes moet verstryk:

Appels .....	10 dae
Avokado's .....	30 dae
Blaarslaai .....	14 dae
Ertjies .....	7 dae
Koolgewasse (kopkool, blomkool, brokkoli, Brusselse spruite) .....	7 dae
Lietsjies .....	30 dae
Pampoengewasse .....	7 dae
Neutboomgewasse (Makadamia-, Pekan-, amandel, pistachio- en haselneute) .....	14 dae
Pere .....	10 dae
Sitrus .....	30 dae
Soetrissies .....	3 dae
Spinasie .....	14 dae

**LET WEL:** Bogenoemde onthoudingsperiodes is gebaseer op plaaslike vereistes vir residuvlakke en mag verskil van ander lande waarheen behandelde produkte moontlik uitgevoer mag word.

- Hanteer die produk versigtig.
- Mag oogirritasie veroorsaak.
- Hierdie produk is giftig vir vis en ander waterorganismes. Moenie oor oop waterbronne toedien nie.
- Berg in 'n koel droë plek en verwyderd vanaf voedsel en veevoer.
- Hou buite bereik van kinders, oningeligte persone en diere.
- Voordelige insekte:
  - \* Relatief skadeloos vir bye en jong bye.
  - \* Relatief skadeloos vir parasitoïde, predatoriese insekte en roofmyte.

**Alhoewel hierdie middel omvattend onder 'n groot verskeidenheid toestande getoets is, waarborg die registrasiehouer nie dat dit onder alle toestande doeltreffend sal wees nie, aangesien die werking en effek daarvan beïnvloed kan word deur faktore soos abnormale klimaats- en bergingstoestande; kwaliteit van verdunningswater; verenigbaarheid met ander stowwe wat nie op die etiket aangedui is nie en die voorkoms van weerstand van die plaag teen die betrokke middel sowel as die metode, tyd en akkuraatheid van toediening. Verder aanvaar die registrasiehouer nie verantwoordelikheid vir skade aan gewasse, plantegroei, die omgewing of vir nadelige effek op mens of dier of vir 'n gebrek aan prestasie van die betrokke middel as gevolg van die versuim van die gebruiker om etiketaanwysings na te kom of as gevolg van die ontstaan van toestande wat nie kragtens die registrasie voorsien kon word nie. Raadpleeg die verskaffer in die geval van enige onsekerheid.**

## **VOORSORGMATREËLS**

Berg altyd in die oorspronklike ge-etiketeerde houer.

Vermyn die inaseming van sproeinewel.

Was met water en seep in geval van toevallige kontak met vel.

Dra handskoene en 'n gesigskerm wanneer hanteer word.

Vermyn vel- en oogkontaminasie. In geval van toevallige oogkontak, spoel oë met lopende water vir ongeveer 15 minute. Verkry mediese hulp indien oogirritasie nie sou opklaar nie.

Moenie eet, drink of rook terwyl gemeng of toegedien word nie.

Tydens vermenging of toediening moet die hande en gesig altyd gewas word voordat geëet, gedrink, gerook of die toilet besoek word.

Vermyn wegdrywing van spuitnewel na aangrensende gewasse, weidings, riviere of damme.

Maak toerusting skoon voordat vir ander middels gebruik word en gooi spoelwater weg waar dit nie gewasse, weiding, riviere, damme en waterbronne sal besoedel nie.

Ledig houers deur dit vir ongeveer 30 sekondes omgekeer te hou totdat die uitvloeï van die inhoud tot 'n stadige drup verlangsaam. Spoel die leë houer daarna drie maal uit met water gelykstaande aan ongeveer 10 % van die volume van die houer en voeg die spoelwater by die inhoud van die spuitenk. Vernietig die leë houer deur gate in te kap, plat te slaan en te begrawe. Moet nooit leë houers vir enige ander doel aanwend nie.

Voorkom die besoedeling van kos, voedingstowwe, drinkwater en eetgerei tydens opberging, hantering en wegdoening

**GEBRUIKSAANWYSINGS:**                      **Gebruik slegs soos aangedui.**

**RUNNER 240 SC** is 'n suspensiekonsentraat wat vooraf met water vermeng moet word om deur middel van konvensionele spuitapparaat as loof-toedienings op plante toegedien te word.

## Weerstandbestuur van insekmiddels

Insekdoders word geklassifiseer op grond van hul werkingswyse. ("Mode of Action"). **RUNNER 240 SC** is geklassifiseer as 'n diasielhidrasien (diacylhydrazine) (groep 18) insekdoder.

Enige insekpopulasie mag individue met 'n natuurlike weerstand teen **RUNNER 240 SC** of ander insekdoders binne dieselfde chemiese groep insluit. Indien **RUNNER 240 SC**, of insekdoders van dieselfde chemiese groep, herhaaldelik oor lang periodes, of teen opeenvolgende generasies van insekte aangewend word, sal die weerstandbiedende individue uiteindelik oorheersend in die populasie voorkom. Hierdie weerstandbiedende insekte sal nie deur **RUNNER 240 SC**, of ander insekdoders binne dieselfde chemiese groep, beheer word nie. Lokale kundiges moet oor 'n weerstandstrategie of oor aanbevelings in die verband geraadpleeg word. Dit is bekend dat weerstand van insekte en myte teen insek- en mytdoders ook kan ontstaan as gevolg van verhoogde metabolisme, verlaagde penetrasie of veranderde gedragspatroon. Hierdie tipe weerstand hou nie verband met enige werkingswyse-klassifikasie nie, maar sal spesifiek wees tot 'n bepaalde middel of chemiese groepering. Ten spyte van bogenoemde, bly die afwisseling van middels tussen verskillende chemiese groepe steeds 'n lewensvatbare anti-weerstandstegniek.

Om insekweerstand te vertraag

- Vermy die eksklusiewe gebruik van insekdoders van dieselfde subgroep.
- Moenie insekdoders teen laer dosisse, as wat op die etiket voorgeskryf word, aanwend nie.
- Rig toedienings verkieslik en waar enigsins moontlik, teen die jonger larwale- of die eierstadium van 'n betrokke plaag.
- Sluit ook ander bewese landboukundige of biologiese beheerpraktyke by geïntegreerde plaagbestuursprogramme in.

## Geïntegreerde Plaagbestuursprogram

**RUNNER 240 SC** kan in GPB programme van appels, pere en sitrus gewasse aanbeveel word. **RUNNER 240 SC** moet eerder as voorkomende bespuiting aangewend word. Veral waar die voorkoms van plaegemonitor word en toedienings eers oorweeg word wanneer daar verwag word dat die ekonomiese drumpelwaarde vir die plaeg op die betrokke gewas bereik of oorskry gaan word. Waar gebruik gemaak word van daggrade modelle (bv. Kodlingmot) is die beste stadium om **RUNNER 240 SC** te plaas aan die begin van mot piek vlugte of net voordat maksimum eierlegging verwag word. Dit sal verseker dat die meeste eiers op behandelde oppervlak gelê word en pas uitgebreide larwes aan **RUNNER 240 SC** blootgestel word, voordat enige skade gedoen kan word.

Vir die beheer van Kodlingmot en Vals Kodlingmot by kern- en sitrusvrugte word 'n maksimum van 2 bespuitings per seisoen toegelaat.

**RUNNER 240 SC** is 'n selektiewe insekdoder en beheer slegs die larwale stadium van insekte van die Lepidoptera groep. Wanneer **RUNNER 240 SC**, binne GLP riglyne aangewend word, het dit geen beduidende nadelige invloed op parasitiese en predatoriese insekte en roofmyte soos skilpadkewers, goudogies, roofwantse, predatoriese myte, ens. nie.

Indien **RUNNER 240 SC** met ander insekdoders gemeng word, wat die selektiwiteit van **RUNNER 240 SC** ten opsigte van die voordelige insekte benadeel, sal die voordeel van **RUNNER 240 SC** in die GPB program nie ten volle benut kan word nie.

### **Werkingswyse:**

**RUNNER 240 SC** is 'n vervellingsversnellingsmiddel en werk die mees effektiefste nadat dit deur jong pas uitgebroeide larwes ingeneem is. Dit het goeie eierdodende werking, maar minimale kontakdodende effek op groter (>L2) larwes. Die aktiewe bestanddeel methoxyfenozide is 'n mimiek van die vervellingshormoon, ekdisoon en werk hoofsaaklik op jong (L1 – L2) larwale stadium van Lepidoptera deur inname. Die uitwerking op larwes is vinnig en verskil van ander insek-groei-reguleerders soos chitien-biosintese-inhibeerders of jeughormoon-mimiek-middels. Die versnelde vervellingsproses begin feitlik onmiddellik na inname en larwes hou binne 4 – 8 ure na inname op met voed. Die larwes vrek deurdat hul vermoë om te voed belemmer word en hul nie die vervellingsproses kan voltooi nie.

Hierdie werkingswyse vereis dus 'n deeglike bedekking van die plantoppervlak met **RUNNER 240 SC**.

### **pH Gevoeligheid:**

**RUNNER 240 SC** is stabiel in water suspensies met pH 4 – 9.

### **Menginstruksies:**

#### **RUNNER 240 SC alleenlik:**

Vul die spuittenk tot die helfte van die totale volume water benodig. Voeg die verlangde hoeveelheid **RUNNER 240 SC** in die spuittenk terwyl die water aanhoudend geroer word en vul die tenk verder aan tot die verlangde volume. Handhaaf roering gedurende bespuiting om univorme verspreiding van die middel in die tenk te verseker. Vermy die terugvloei van water of spuitmengsel na die waterbron.

### **Tenkvermenging:**

**RUNNER 240 SC** is mengbaar met swamdoders en ander insekdoders, wat normaalweg op appels, pere, sitrus en ander gewasse gebruik word.

Voordat **RUNNER 240 SC** met ander middels in die spuittenk vermeng word, moet daar eers 'n verenigbaarheidstoets, op klein skaal en in die regte verhoudings, gedoen word alvorens die middels in die tenk gevoeg word.

In die geval van blaarvoedings moet 'n afsonderlike verenigbaarheidstoets vir elke lot, in die betrokke water gedoen word.

In die geval van tenkmengsels word hewige en deurlopende roering tydens vermenging, vulling en toediening vereis. Terugvloei-pype met sywaartse uitlate op die bodem van die tenk, verskaf normaalweg die mees doeltreffendste roering. Om die vorming van skuim te beperk, moet enige aksie wat die vermenging van lug met die spuitmengsel veroorsaak, voorkom word.

### **Mengvolgorde vir Tenkmengsels:**

Vul spuitenk tot ongeveer 'n kwart van totale volume spuitwater verlang. Terwyl die inhoud van die spuitenk geroer word, voeg die verskillende formulasiesoorte in volgorde soos hieronder genoem, by die spuitwater in die tenk. Na byvoeging van elke produk, laat voldoende tyd vir volledige vermenging en verspreiding toe, voordat die volgende produk bygevoeg word. Laat addisionele meng- en dispergeringstyd vir waterdispergeerbare produkte toe.

Meng verskillende formulase in die volgende volgorde:

1. Water dispergeerbare korrels (Na vooraf vermenging met water).
2. Benatbare poeiers (Na vooraf vermenging met water).
3. **RUNNER 240 SC** en ander watersuspensies.

Terwyl voortdurend geroer word, vul die spuitenk tot driekwart van die totale volume verlang en voeg dan die ander formulasies soos volg by:

4. Emulsifiseerbare konsentrate.
5. Benattings- of bevorderingsmiddels.
6. Blaarvoedings.

Terwyl deurlopend geroer word, vul tenk tot verlangde volume. Hou die inhoud van die tenk in roering vir die volle duur van vermenging en bespuiting. In geval van 'n spuitonderbreking terwyl die tenk nog nie leeg is nie, moet die spuitmengsel eers weer deur deeglike roering in suspensie gebring word, voordat bespuiting hervat word. 'n Terugvloei pyp met sywaartse uitlate op die bodem van die spuitenk is baie geskik vir die doel.

### **Voorafvermenging**

Dispergeerbare korrel (WG) en benatbare poeier (WP) formulasies kan vooraf met water in 'n pasta vermeng word en deur 'n 20 – 30 maas sif, by die spuitwater gevoeg word. Die prosedure verleen sodoende 'n goeie aanvanklike dispergering van die formulase soorte.



## TOEDIENING

Deur gebruik te maak van behoorlike toedieningstegnieke word verseker dat deeglike bedekking verkry word en die regte dosisse van **RUNNER 240 SC** per ha toegedien word om optimum beheer van insekplae te verseker. Vir die doeltreffende toediening van **RUNNER 240 SC** en goeie bedekking van die gewas, moet die volgende faktore in aanmerking geneem word: Grondspoed en kalibrasie, windspoed, plantgrootte en digtheid van die blaredek.

### **Toediening op Vrugtebome:**

Gebruik konvensionele boordspuit toerusting wat op korrekte wyse gekalibreer is om deeglike bedekking van die teikengewas en korrekte dosis per ha te verseker.

### **Bevorderingsmiddels:**

Indien die vrugoppervlak wat behandel moet word wasagtig of moeilik benatbaar is, word die gebruik van 'n geregistreerde benattingsmiddel teen die geregistreerde dosis aanbeveel.

**RUNNER 240 SC** moet teen hoëvolume (HV) toegedien word. Vir toediening op Kernvrugte moet die dosis per ha verkieslik volgens die formule vir HVB bereken word deur van “*Unrath se formule*” vir “*Boomry Volume*” (BRV) gebruik te maak.

$$BRV \times 937 = \frac{\text{Boomhoogte (BH)}^* \times \text{Boomwydte (BW)}^* \times 937}{\text{Afstand tussen Rye (RW)}} = \text{HVB in liters per ha}$$

\*(Boomhoogte en Boomwydte moet gedurende die somer, wanneer bome in volblad is, bepaal word.)

Voorgestelde toedieningsvolumes (TV) by verskillende groeistadiums en die formule vir die berekening van dosis per ha, gebaseer op Hoëvolume Behoefte (HVB)

### **VIR APPELS EN PERE:**

Groeistadium	Toedieningsvolume
Bot tot Volblom	60 % x HVB
75 % Blomblaarval tot Een Maand Later (Midseisoen)	80 % x HVB
Midseisoen tot Na-oes, Voor Blaarval	100 % x HVB

$$\text{Dosis per ha} = \frac{\text{HVB (l/ha)} \times \text{Dosis} / 100\%}{100}$$

GEWAS	DOSIS/100 ℓ WATER	OPMERKINGS
<p><b>APPELS EN PERE</b> Kodling mot (<i>Cydia pomonella</i>)</p>	<p>60 ml <b>RUNNER 240 SC</b></p>	<p>Dien <b>RUNNER 240 SC</b> as 'n hoë volume, volle dekbespuiting toe. Goeie bedekking is noodsaaklik.</p> <p>Toedienings van <b>RUNNER 240 SC</b> moet aan die begin van 'n mot generasie, of in die geval van die eerste generasie, by <math>\frac{3}{4}</math> blomblaarval in aanvang neem en daarna met 14 dae intervalle, tot 'n maksimum van 2 toedienings, herhaal word.</p> <p>Om te voldoen aan die weerstandsbestuurstrategie moet <b>RUNNER 240 SC</b> in totaal nie meer as twee (2) maal lper seisoen in enige blok Appels of Pere aangewend word nie. Geregistreerde middels met 'n ander werkingswyse moet vir die behandeling van die res van die program gebruik word. Indien <b>RUNNER 240 SC</b> vir die beheer van die laaste generasie van die seisoen aangewend word, moet 'n middel met 'n ander werkingswyse vir die beheer van die eerste generasie in die daaropvolgende seisoen gebruik word. Alhoewel <b>RUNNER 240 SC</b> op enige generasie van kodlingmot aangewend kan word, sal die posisionering van <b>RUNNER 240 SC</b> in 'n spuitprogram bepaal word deur die spesifieke beheerstrategie wat gevolg word. Alhoewel nie noodwendig nie, kan die oorweging van <b>RUNNER 240 SC</b> gedurende die tweede generasie as algemene riglyn dien.</p>
<p><b>AVOKADOS</b> Vals kodlingmot (<i>Thaumatotibia leucotreta</i>)</p>	<p>60 ml</p>	<p>Dien <b>RUNNER 240 SC</b> toe as 'n hoë volume toediening 8 en 4 weke voor oes, of wanneer infestاسies voorkom.</p> <p><b><u>WEERSTANDSTRATEGIE:</u></b> Moenie <b>RUNNER 240 SC</b> meer as drie (3) maal per seisoen op Avokados toedien nie. Wissel die gebruik van <b>RUNNER 240 SC</b> af met insekdoders wat 'n ander werkingswyse het.</p>

GEWAS	DOSIS/100 ℓ WATER	OPMERKINGS
<b>BLAARSLAAI</b> Afrika/Amerikaanse Bolwurm <i>(Helicoverpa armigera)</i>	60 mℓ (300 – 600 mℓ/ha) ('n Geregistreeerde benatter mag bygevoeg word indien nodig)	<p>Dien <b>RUNNER 240 SC</b> as 'n voldekbespuiting toe sodra plaag waargeneem word. Doen 'n opvolgbespuiting indien nodig.</p> <p>Dien toe in 500 – 1000 ℓ/ha spuitmengsel toe.</p> <p><b>Nota:</b> <b>RUNNER 240 SC</b> as enkel of korrektiewe bespuiting teen bolwurm is meer effektief teen jonger larwes.</p> <p><b>Weerstandstrategie:</b> Moenie <b>RUNNER 240 SC</b> meer as drie (3) maal per seisoen op Blaarslaai toedien nie. Wissel die gebruik van <b>RUNNER 240 SC</b> af met insekdoders wat 'n ander werkingswyse het.</p>
<b>ERTJIES</b> Afrika/Amerikaanse Bolwurm <i>(Helicoverpa armigera)</i>	60 mℓ (300 – 600 mℓ/ha) ('n Geregistreeerde benatter mag bygevoeg word indien nodig)	<p>Dien <b>RUNNER 240 SC</b> as 'n voldekbespuiting toe sodra plaag waargeneem word. Doen 'n opvolgbespuiting indien nodig.</p> <p>Dien toe in 500 – 1000 ℓ/ha spuitmengsel.</p> <p><b>Nota:</b> <b>RUNNER 240 SC</b> as enkel of korrektiewe bespuiting teen bolwurm is meer effektief teen jonger larwes.</p> <p><b>Weerstandstrategie:</b> Moenie <b>RUNNER 240 SC</b> meer as drie (3) maal per seisoen op Ertjies toedien nie. Wissel die gebruik van <b>RUNNER 240 SC</b> af met insekdoders wat 'n ander werkingswyse het.</p>

GEWAS	DOSIS/100 ℓ WATER	OPMERKINGS
<p><b>KOOLGEWASSE</b> (Kopkool, Blomkool, Brokkoli, Brusselse spruite) Afrika/Amerikaanse Bolwurm (<i>Helicoverpa armigera</i>)</p>	<p>60 ml (300 – 600 ml/ha) (’n Geregistreerde benatter mag bygevoeg word indien nodig)</p>	<p>Dien <b>RUNNER 240 SC</b> as ’n voldekbespuiting toe sodra plaag waargeneem word. Doen ’n opvolgbespuiting indien nodig.</p> <p>Dien toe in 500 – 1000 ℓ/ha spuitmengsel toe.</p> <p><b>Nota:</b> <b>RUNNER 240 SC</b> as enkel of korrektiewe bespuiting teen bolwurm is meer effektief teen jonger larwes.</p> <p><b>Weerstandstrategie:</b> Moenie <b>RUNNER 240 SC</b> meer as drie (3) maal per seisoen op Koolgewasse toedien nie. Wissel die gebruik van <b>RUNNER 240 SC</b> af met insekdoders wat ’n ander werkingswyse het.</p>
<p><b>LIETSJIES</b> Vals kodlingmot (<i>Thaumatotibia leucotreta</i>)</p>	<p>60 ml</p>	<p>Dien <b>RUNNER 240 SC</b> toe as ’n hoë volume toediening 8 en 4 weke voor oes, of wanneer infestasies voorkom.</p> <p><b>WEERSTANDSTRATEGIE:</b> Moenie <b>RUNNER 240 SC</b> meer as drie (3) maal per seisoen op Lietsjies toedien nie. Wissel die gebruik van <b>RUNNER 240 SC</b> af met insekdoders wat ’n ander werkingswyse het.</p>
<p><b>NEUTBOOMGEWASSE</b> (Makadamia-, Pekan-, Amandel-, Pistachio en Haselneute) Vals kodlingmot (<i>Thaumatotibia leucotreta</i>)</p>	<p>60 ml</p>	<p>Dien <b>RUNNER 240 SC</b> toe as ’n hoë volume toediening. Begin met toedienings wanneer gewasse vatbaar is. Die vatbare periode is gewoonlik vanaf begin November tot aan die einde van Desember. Erkende moniteringspraktyke moet gebruik word om teenwoordigheid van plaag te bepaal.</p>

GEWAS	DOSIS/100 ℓ WATER	OPMERKINGS
<b>NEUTBOOMGEWASSE</b> (verv.)		<b><u>WEERSTANDSTRATEGIE:</u></b> Moenie <b>RUNNER 240 SC</b> meer as drie (3) maal per seisoen op enige blok Neutboomgewasse toedien nie. Wissel die gebruik van <b>RUNNER 240 SC</b> af met insekdoders wat 'n ander werkingswyse het.
<b>PAMPOENGWASSE</b> Afrika/Amerikaanse Bolwurm ( <i>Helicoverpa armigera</i> )	60 mℓ (300 – 600 mℓ/ha) (‘n Geregistreerde benatter mag bygevoeg word indien nodig)	Dien <b>RUNNER 240 SC</b> as 'n voldekbepuiting toe sodra plaag waargeneem word. Doen 'n opvolgbepuiting indien nodig.  Dien toe in 500 – 1000 ℓ/ha spuitmengsel toe.  <b><u>Nota:</u></b> <b>RUNNER 240 SC</b> as enkel of korrektiewe bepuiting teen bolwurm is meer effektief teen jonger larwes.  <b><u>Weerstandstrategie:</u></b> Moenie <b>RUNNER 240 SC</b> meer as drie (3) maal per seisoen op Pampoengewasse toedien nie. Wissel die gebruik van <b>RUNNER 240 SC</b> af met insekdoders wat 'n ander werkingswyse het.
<b>SOETRISIES</b> Afrika/Amerikaanse Bolwurm	60 mℓ (300 – 600 mℓ/ha) (‘n Geregistreerde benatter mag bygevoeg word indien nodig)	Dien <b>RUNNER 240 SC</b> as 'n voldekbepuiting toe sodra plaag waargeneem word. Doen 'n opvolgbepuiting indien nodig. Dien toe in 500 – 1000 ℓ/ha spuitmengsel toe.  <b><u>Nota:</u></b> <b>RUNNER 240 SC</b> as enkel of korrektiewe bepuiting teen bolwurm, is meer effektief teen jonger larwes.  <b><u>Weerstandstrategie:</u></b> Moenie <b>RUNNER 240 SC</b> meer as drie (3) maal per seisoen op soetrisies toedien nie. Wissel die gebruik van <b>RUNNER 240 SC</b> af met insekdoders wat 'n ander werkingswyse het.

GEWAS	DOSIS/100 ℓ WATER	OPMERKINGS
<b>SITRUS</b> Vals kodlingmot ( <i>Thaumatotibia leucotreta</i> )	60 mℓ	Dien <b>RUNNER 240 SC</b> as 'n hoë volume, volle dekbespuiting toe. Dien 8 en 4 weke voor oes toe.  <b>Weerstandstrategie:</b> Vir beheer van Vals kodlingmot, moet <b>RUNNER 240 SC</b> nie meer as twee (2) keer per seisoen op enige blok Sitrus toegedien word nie. Wissel die gebruik van <b>RUNNER 240 SC</b> af met geregistreerde insekdoders wat 'n ander werkingswyse het, bv Delegate 250 WG.
<b>SPINASIE</b> Afrika/Amerikaanse Bolwurm ( <i>Helicoverpa armigera</i> )	60 mℓ (300 – 600 mℓ/ha) ('n Geregistreerde benatter mag bygevoeg word indien nodig)	Dien <b>RUNNER 240 SC</b> as 'n voldekbespuiting toe sodra plaag waargeneem word. Doen 'n opvolgbespuiting indien nodig.  Dien toe in 500 – 1000 ℓ/ha spuitmengsel toe.  <b>Nota:</b> <b>RUNNER 240 SC</b> as enkel of korrektiewe bespuiting teen bolwurm is meer effektief teen jonger larwes.  <b>Weerstandstrategie:</b> Moenie <b>RUNNER 240 SC</b> meer as drie (3) maal per seisoen op Spinasië toedien nie. Wissel die gebruik van <b>RUNNER 240 SC</b> af met insekdoders wat 'n ander werkingswyse het.

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