READ THE LABEL (AND LEAFLET) BEFORE USE
KEEP LOCKED AWAY AND OUT OF REACH OF CHILDREN

Chess®

syngenta

Reg. No. **L8104** Act No. 36 of 1947 **N-AR 1433** (Namibia) **W130595** (Botswana)

A water dispersible granular systemic insecticide for the control of aphids, whiteflies, leafhoppers and sucking bugs in a variety of crops as listed.

GROUP	9B	INSECTICIDE

Active Ingredient:
pymetrozine (pyridine azomethine).... 500 g/kg

WARNING

Hazard statements: Suspected of damaging fertility. Suspected of damaging the unborn child. Suspected of causing cancer. Very toxic to aquatic life with long-lasting effects.
Precautionary statements: Prevention: Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Wear protective gloves/protective clothing/eye protection/face protection/hearing protection. **Response:** If exposed or concerned, get medical advice/attention. Collect spillage. **Disposal:** Dispose of contents/container to an approved waste disposal plant.

EMERGENCY TEL NO.:
+27 82 446 8946 (Griffon)

UN 3077

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: Suspected of damaging fertility. Suspected of damaging the unborn child. Suspected of causing cancer. Very toxic to aquatic life with long-lasting effects.

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

ASPARAGUS	**170 days**
AVOCADO	**21 days**
CITRUS	**42 days**
COTTON	**21 days**
COTTON (grazing)	**14 days**
CRUCIFERAE	**7 days**
CUCURBITS	**3 days**
FRUITING VEGETABLES	**1 day**
LEAFY VEGETABLES	**7 days**
STONE FRUIT	**28 days**
STRAWBERRIES	**7 days**
TOBACCO	**14 days**
TOMATOES	**3 days**
TREE NUTS	**21 days**
TUBEROUS ROOT CORM VEGETABLES	**14 days**

- Handle with care.
- Harmful if swallowed.
- Keep away from children, uninformed persons and animals.
- Store away from food, feed and drinking water.
- Protect from direct sunlight and store in a cool, dry place. Keep in original container in a well-ventilated area.
- Avoid storage below 0°C and above 35°C.
- Avoid stacking higher than two (2) metres.
- Once container has been opened, the contents should be used within a few days.
- **Re-entry:** DO NOT allow entry into treated areas until the spray has dried. If prior entry is necessary, wear cotton overalls buttoned to the neck and wrist (or equivalent clothing) and chemical resistant gloves. Clothing must be washed after each day's use.

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 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 and the environment, or harm to people, 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: Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Wear protective gloves/protective clothing/eye protection/face protection/hearing protection. **Response:** If exposed or concerned, get medical advice/attention. Collect spillage. **Disposal:** Dispose of contents/container to an approved waste disposal plant.

- Wear suitable protective clothing during preparation: rubber gloves and a face shield; and application: overall and rubber boots.
- Avoid contact with skin, eyes, or clothing. In the case of accidental contamination change contaminated clothing immediately and wash the skin with soap and water.
- Do not inhale the dust or spray mist.
- Do not eat, drink, or smoke during mixing or application and wash hands and face before doing so.
- Wash clothing after use.
- Prevent drift of spray mist onto other crops, grazing, rivers, dams and areas not under treatment.

2.1 Environment

- Avoid contamination of soil and surface water.
- **CHESS** is practically non-toxic to birds, fish, earthworms

and bacteria.

- **CHESS** is suitable for integrated pest management (IPM) programs as it has a low toxicity to beneficial insects (including bees and mites). It can be used in IPM programs using beneficial insects and during periods of pollination. However, do not apply **CHESS** directly to bees that are actively foraging in the field.
- As a result of its narrow spectrum of activity, **CHESS** will not affect the natural enemies and predators of aphids and whiteflies.

2.2 Disposal

- After application clean the application device thoroughly.
- In the case of spillage or leakage, soak up with sand, sawdust or soil and dispose of in a safe place or a landfill site approved for pesticides.
- Dispose of excess pesticide, spray mixture or rinsate where it will not contaminate crops, grazing, rivers, dams, or boreholes.
- DO NOT use spilled product.
- Destroy empty container in the prescribed manner and never use for any other purpose.

3. RELEVANT SUBSTANCES:

Chemical name	
pymetrozine (ISO)	
Classification	**Concentration (% w/w)**
Carc. 2; H351 Repr. 2; H361fd Aquatic Chronic 1; H410 M-Factor (Chronic aquatic toxicity): 1	≥ 50 - < 70

4. RESISTANCE MANAGEMENT:

CHESS is a group code 9B insecticide. Any insect population may contain individuals naturally resistant to **CHESS** and other group code 9B insecticides. The resistant individuals can eventually dominate the insect population if these insecticides are used repeatedly and exclusively in programs. These resistant insects may not be controlled by **CHESS** or any other group code 9B insecticides.

To delay insecticide resistance:

- Avoid exclusive repeated use of insecticides from the same insecticide group code. Alternate or tank-mix with products from different insecticide group codes.
- Integrate other control methods (chemical, cultural, biological) into insect control programs.

Syngenta cannot accept responsibility for any losses that may result from the failure to control pests resistant to CHESS.

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

5. PRODUCT INFORMATION:

- **CHESS** is an insecticide derived from a novel-type chemistry with a new mode of action. It is especially suited for IPM programs and to control sucking pests that are resistant to existing chemical classes.
- It penetrates green leaves and is transported within the plant. Foliar pests not directly hit by the spray are also controlled.
- **CHESS** affects the feeding behaviour of stinkbugs, aphids and whiteflies which result in immediate cessation of feeding. There is no apparent knock-down effect; the pests stay alive and walk around but do not feed.
- **The effect of pymetrozine is irreversible. Death occurs a few days after application due to starvation.**

6. DIRECTIONS FOR USE: Use only as indicated.

6.1 Use Restrictions

- **CHESS** should be used on the following ornamental varieties only: impatiens, poinsettia and the following chrysanthemums varieties: polaris, regens, snowdown, victoria yellow, siglopink, stallion, Westland yellow, rhino white, lineker, lineker dark and Albert Heijn.
- DO NOT use a surfactant with **CHESS** in ornamentals.
- In cabbage, the use of a non-ionic surfactant is recommended.

6.2 Compatibility

The compatibility of **CHESS** with other products may be influenced by the formulation of the products involved as well as the quality of the water. Since the formulation of other products may change without the knowledge of Syngenta and the quality of water may vary from farm to farm, a physical compatibility test should always be carried out prior to application. **CHESS** is compatible with most standard insecticides and fungicides of neutral reaction. In the event of any doubt, a compatibility test should be carried out.

6.3 General Directions

6.3.1 Aerial application

Aerial application of this product on asparagus, avocados, cotton, cruciferae, cucurbits, fruiting vegetables, leafy vegetables, tree nuts, stone fruit, strawberries, tomatoes and tuberous root corm vegetables 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 minimum volume of 30 ℓ per hectare 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:** Droplet coverage of 25 - 30 droplets per cm^2 must be recovered at the target.
- **Droplet size:** A droplet spectrum with a VMD of 280 - 300 microns is recommended. Ensure that the

production of fine droplets (less than 150 microns - 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 atomisers) 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 microns.
- Stop spraying if the wind speed exceeds 15 km/h.
- Aerial application of this product 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.

Obtain assurance from the aerial operator that the above requirements will be met.

7. APPLICATION RATES:

ASPARAGUS

Pest	Dosage	Remarks
Aphids *(Aphis fabae, Aphis gossypii, Macrosiphum euphorbiae)*	40 - 60 g/ 100 ℓ water	• Apply in sufficient water to ensure good coverage; use a minimum of 40 ℓ/ha when applied by air and 100 ℓ/ha when applied by ground. • To provide optimum coverage and penetration, add a penetrating-type spray adjuvant at the manufacturer's specified rate. • **Do not** apply more than 600 g/ha per application. **Do not** exceed a total of 1 200 g/ha per season. • Allow a minimum of 30 days between applications. • For control of aphids, apply to asparagus ferns after harvest has been completed. Allow a minimum of 30 days between applications. • Apply when aphids first appear, before populations build to damaging levels. • Additional applications may be needed to control persistent aphid populations, however do not apply more than the maximum amount permitted/season (1 200 g/ha).

ASPARAGUS cont.

Pest	Dosage	Remarks
Aphids *(Aphis fabae, Aphis gossypii, Macrosiphum euphorbiae)*	40 - 60 g/ 100 ℓ water	• 1 200 g/ha per season. • Allow a minimum of 30 days between applications. • For control of aphids, apply to asparagus ferns after harvest has been completed. Allow a minimum of 30 days between applications. • Apply when aphids first appear, before populations build to damaging levels. • Additional applications may be needed to control persistent aphid populations, however do not apply more than the maximum amount permitted/season (1 200 g/ha).

AVOCADO

Pest	Dosage	Remarks
Sucking bug complex *(Taylorilygus sp., Penthimiola bella, Nezara viridula, Coenomorpha nervosa, Atelocera raptoria)*	**Ground application** 40 g/100 ℓ water	• Ensure good coverage (diffuse wetting type) of the target area through a medium-cover spray as soon as threshold levels are reached. (Before flowering and up to the end of December (1 stinkbug/tree); from January onwards (2 stinkbugs/tree). • Repeat application after 28 days if necessary, but not later than 21 days before harvest. • Application timing is critical, a too early application, before threshold is reached, can result in reinfestation. • Small fruit may be partially damaged in case of a late application.
	Aerial application 1 200 g/ha	• Apply in 30 ℓ water/ha. • Apply during flowering (100%) or first fruitset.

CITRUS

Pest	Dosage	Remarks
Citrus leafhopper *(Penthimiola bella)* **Green citrus leafhopper** *(Empoasca distinguenda)*	40 g/100 ℓ water Minimum dosage 1.2 kg **CHESS**/ha	• Apply at the first signs of infestation. • Apply a maximum of 3 000 ℓ water/ha. • Apply a second application 7 - 10 days later, if necessary. • Do not exceed two (2) applications per season.
	Aerial application 1 200 g/ha	• Apply in 30 ℓ water/ha.

COTTON

Pest	Dosage	Remarks
Cotton aphid *(Aphis gossypii)*	400 g/ha	• Apply when the pest becomes numerous or when the pest population reaches economic threshold level. • Apply in no less than 150 ℓ water/ha to ensure thorough coverage of the leaves.
Cotton leafhopper *(Jacobiella facialis)*	500 g/ha	• A second application may be required 7 - 10 days later when pest numbers start to increase again.
Whiteflies [Suppression only - 60 - 90% control] *(Trialeurodes vaporariorum, Bemisia tabaci)*	400 - 600 g/ha	• Apply when adult whiteflies first appear, before populations build to damaging levels.

CRUCIFERAE

(Cabbage group: Includes broccoli, brussel sprouts, cabbage and cauliflower)

Pest	Dosage	Remarks
Cabbage aphids *(Brevicoryne brassicae, Myzus persicae, Lipaphis erysimi)* **Whiteflies [Suppression only - 60 - 90% control]** *(Trialeurodes vaporariorum,*	20 - 60 g/100 ℓ water	• Apply in sufficient water to ensure good coverage. • To provide optimum coverage and penetration, add a penetrating-type spray adjuvant at the manufacturer's specified rate. • **Do not** apply more than 600 g/ha per application. **Do not** exceed a total of

CRUCIFERAE cont.

Pest	Dosage	Remarks
Bemisia tabaci)	20 - 60 g/100 ℓ water	1 200 g/ha per crop per season. • Allow a minimum of seven (7) days between applications. • Make two (2) applications. The first application when infestation is first noticed and repeat 7 - 10 days later. • Apply 250 - 500 ℓ spray mixture per hectar. • The addition of a non-ionic surfactant to the spray mixture is recommended. • Apply when adult whiteflies first appear, before populations build to damaging levels.

CUCURBITS

(Includes cucumber, gherkin, pumpkin, squash and watermelon)

Pest	Dosage	Remarks
Aphids *(Aphis gossypii, Myzus persicae)* **Whiteflies [Suppression only - 60 - 90% control]** *(Trialeurodes vaporariorum, Bemisia tabaci)*	40 - 60 g/100 ℓ water	• Apply in sufficient water to ensure good coverage; use a minimum of 40 ℓ/ha when applied by air and 100 ℓ/ha when applied by ground. • To provide optimum coverage and penetration, add a penetrating-type spray adjuvant at the manufacturer's specified rate. • **Do not** apply more than 600 g/ha per application. **Do not** exceed a total of 1 200 g/ha per crop per season. • Allow a minimum of seven (7) days between applications. • Apply when aphids first appear, before populations build to damaging levels. • Apply a maximum of two (2) applications per season. • Apply when adult whiteflies first

CUCURBITS cont.

		appear, before populations build to damaging levels.

FRUITING VEGETABLES
(Includes eggplant and peppers)

Pest	Dosage	Remarks
Aphids *(Myzus persicae, Macrosiphum euphorbiae)* **Whiteflies [Suppression only - 60 - 90% control]** *(Trialeurodes vaporariorum, Bemisia tabaci)*	40 - 60 g/ 100 ℓ water	• Apply in sufficient water to ensure good coverage; use a minimum of 40 ℓ/ha when applied by air and 100 ℓ/ha when applied by ground. • To provide optimum coverage and penetration, add a penetrating-type spray adjuvant at the manufacturer's specified rate. • **Do not** apply more than 600 g/ha per application. **Do not** exceed a total of 1 200 g/ha per crop per season. • Allow a minimum of seven (7) days between applications. • Apply when aphids first appear, before populations build to damaging levels. • Apply a maximum of two (2) applications per season. • Apply when adult whiteflies first appear, before populations build to damaging levels.

LEAFY VEGETABLES
(Includes celery, lettuce, parsley, rhubarb and spinach)

Pest	Dosage	Remarks
Aphids *(Aphis fabae, Myzus persicae, Nasonovia ribisnigri, Macrosiphum euphorbiae)* **Whiteflies (Suppression only - 60 - 90% control)** *(Trialeurodes vaporariorum, Bemisia tabaci)*	40 - 60 g/ 100 ℓ water	• Apply in sufficient water to ensure good coverage; use a minimum of 40 ℓ/ha when applied by air and 100 ℓ/ha when applied by ground. • To provide optimum coverage and penetration, add a penetrating-type spray adjuvant at the manufacturer's specified rate. • **Do not** apply more

LEAFY VEGETABLES
(Includes celery, lettuce, parsley, rhubarb and spinach)

Pest	Dosage	Remarks
		than 600 g/ha per application. **Do not** exceed a total of 1 200 g/ha per crop per season. • Allow a minimum of seven (7) days between applications. • Apply when aphids first appear, before populations build to damaging levels. • Apply a maximum of two (2) applications per season. • Apply when adult whiteflies first appear, before populations build to damaging levels.

ORNAMENTALS
(In greenhouses only. Apply only to those ornamental varieties listed under USE RESTRICTIONS)

Pest	Dosage	Remarks
Impatiens: **Whiteflies (Suppression only - 60 - 90% control)** *(Trialeurodes vaporariorum)* Poinsettias Chrysanthe-mums: **Green peach aphid** *(Myzus persicae)*	40 - 60 g/ 100 ℓ water 30 g/100 ℓ water	• First application at the higher rate when infestation is first noticed. • Ensure thorough wetting of the foliage. • Repeat at the lower rate at 7-day intervals. • Do not apply more than three (3) times to the same crop. • First application when the pest is first noticed and repeat as necessary. • Ensure thorough coverage of the foliage. • Do not apply more than three (3) times to the same crop.

STONE FRUIT
(Includes apricots, cherries, nectarines, peaches and plums)

Pest	Dosage	Remarks
Aphids *(Myzus persicae, Brachycaudus persicae)*	20 - 40 g/ 100 ℓ water	• Apply at first sign of aphid infestation. • If water volumes exceed 2 000 ℓ/ha, total rate of **CHESS** must not exceed 400 g/ha.

STRAWBERRIES

Pest	Dosage	Remarks
Thrips **Whiteflies (Suppression only - 60 - 90% control)** *(Trialeurodes vaporariorum, Bemisia tabaci)*	40 - 60 g/ 100 ℓ water	• Apply in sufficient water to ensure good coverage; use a minimum of 40 ℓ/ha when applied by air and 100 ℓ/ha when applied by ground. • To provide optimum coverage and penetration, add a penetrating-type spray adjuvant at the manufacturer's specified rate. • **Do not** apply more than 600 g/ha per application. **Do not** exceed a total of 1 200 g/ha per crop per season. • Allow a minimum of seven (7) days between applications. • Apply when adult whiteflies first appear, before populations build to damaging levels. • Apply a maximum of two (2) applications per season.

TOBACCO

Pest	Dosage	Remarks
Green peach aphid *(Myzus persicae)* **Sucking bug complex** **Whiteflies (Suppression only - 60 - 90% control)** *(Trialeurodes vaporariorum, Bemisia tabaci)*	40 - 60 g/ 100 ℓ water 80 g/ 100 ℓ water but no less than 400 g product/ha	• Apply in sufficient water to ensure good coverage; use a minimum of 200 ℓ/ha when applied by ground. • **Do not** apply by air. • To provide optimum coverage and penetration, add a penetrating-type spray adjuvant at the manufacturer's specified rate. • **Do not** apply more than 600 g/ha per application. **Do not** exceed a total of 1 200 g/ha per crop per season. • Allow a minimum of seven (7) days between applications. • Apply when aphids first appear, before populations build to damaging levels. • Apply a maximum of two (2) applications per season.

TOBACCO cont.

		damaging levels. • Apply a maximum of two (2) applications per season.

TOMATOES

Pest	Dosage	Remarks
Whiteflies [Suppression only - 60 - 90% control] *(Trialeurodes vaporariorum, Bemisia tabaci)*	80 g/ 100 ℓ water	• Apply when adult whiteflies first appear, before populations build to damaging levels. • 2 - 3 applications may be needed to control persistent populations, at 7-day intervals.

TREE NUTS

(Includes almonds, macadamias, pistachios, walnuts, hazelnuts and pecan nuts)

Pest	Dosage	Remarks
Sucking bug complex *(Pseudotheraptus wayi, Bathycoelia natalicolia* and **stinkbugs** from the *Coreidae* and *Pentatomidae* families)	40 g/ 100 ℓ water Minimum dosage 1.2 kg **CHESS**/ha	• Ensure good coverage (diffuse wetting type) of the target area through a medium cover spray as soon as threshold levels are reached. (An average of 0.4 stinkbugs per tree using the dichlorvos technique). • Repeat application after 28 days if necessary, but not later than 21 days before harvest.

TUBEROUS ROOT CORM VEGETABLES

(Includes cassava: Bitter and sweet Chinese artichoke, ginger and sweet potato)

Pest	Dosage	Remarks
Aphids *(Myzus persicae, Aphis gossypii, Macrosiphum euphorbiae)*	400 - 600 g/ha	• Apply in sufficient water to ensure good coverage. • To provide optimum coverage and penetration, add a penetrating-type spray adjuvant at the manufacturer's specified rate. • **Do not** apply more than 600 g/ha per application. **Do not** exceed a total of 1 200 g/ha per crop per season. • Allow a minimum of seven (7) days between applications.

TUBEROUS ROOT CORM VEGETABLES cont.

		Remarks
		• Apply when aphids first appear, before populations build to damaging levels. • Apply a maximum of two (2) applications per season.

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