



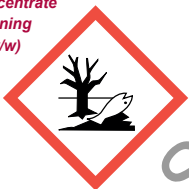
Cerami®

A selective insecticide for use in field vegetables, fruit crops and protected strawberry for the control of caterpillar pests and useful control of cabbage root fly and thrips including Western flower thrips.



INSECTICIDE

A suspension concentrate formulation containing 480 g/L (44.03 % w/w) spinosad.



RISK AND SAFETY INFORMATION

WARNING

Very toxic to aquatic life with long lasting effects.

Collect spillage.

Dispose of contents/container to a licensed hazardous-waste disposal contractor or collection site except for triple rinsed empty containers which can be disposed of as non-hazardous waste.

Contains 1,2-benzisothiazolin-3-one. May produce an allergic reaction.

To avoid risks to human health and the environment, comply with the instructions for use.

UF1: 40TO-EODN-100P-AWDU

FOR PROFESSIONAL USE ONLY

PCS no. 07069



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GROUP 5 INSECTICIDE

CONTENT:

500 ML e

PROTECT FROM FROST
SHAKE WELL BEFORE USE
STORE IN A COOL, DRY PLACE

REGISTRATION HOLDER:

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Globachem
Your Crop Counts

IMPORTANT INFORMATION
FOR USE ONLY AS A PROFESSIONAL INSECTICIDE



CROPS	Maximum individual dose:	Maximum number of treatments:	Maximum total dose:	Latest time of application:
Apple, pear, crab apple, quince	150 mL product/ha (pre-blossom) AND/OR	1 per crop	150 mL product/ha (pre-blossom)	7 days before harvest
	250 mL product/ha (post-blossom)	3 per crop	750 mL product/ha (post-blossom)	7 days before harvest
Broccoli, Brussels sprouts, cabbage, calabrese, Chinese cabbage & cauliflower (all field)	12 mL product/1000 module plants	1* per crop (See OSR)	12 mL product/1000 module plants	Pre-planting, 6 leaf stage
	200 mL product/ha	4 per crop	800 mL product/ha	3 days before harvest
Bulb onion, garlic, leek, salad onion & shallot (all field)	200 mL product/ha	3 per crop	600 mL product/ha	7 days before harvest
Strawberry (protected crops)	150 mL product/ha (15 mL per 100 litres of water)	3** per crop (See OSR)	450 mL product/ha	1 day before harvest

Other specific restrictions:

*Following Brassica pre-planting applications, only 2 further applications of spinosad may be made.

**For protected strawberry apply a maximum of 2 consecutive sprays followed by a minimum 28-day interval before any further applications.

- Module drench treatments to brassica crops must not be made by handheld equipment.
- In protected situations the total number of applications of any spinosad containing product must not exceed 6 per glasshouse/protected structure in a 12-month period, regardless of the crop being treated (including ornamentals).

READ THE LABEL BEFORE USE. USING THIS PRODUCT IN A MANNER THAT IS INCONSISTENT WITH THE LABEL MAY BE AN OFFENCE. FOLLOW THE CODE OF PRACTICE FOR USING PLANT PROTECTION PRODUCTS.

Emergency medical information: contact National Poisons Information Centre, Beaumont Hospital, Dublin, Ireland.

Telephone numbers:

01 809 2166 (8am to 10pm every day) for members of the public.

01 809 2566 or 01 837 9964 (24 hours) for healthcare professionals.

BATCH NUMBER: SEE BOTTLE



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Cerami® is a registered trademark for Globachem NV.

SAFETY PRECAUTIONS

OPERATOR PROTECTION

Engineering control of operator exposure must be used where reasonably practicable in addition to the following personal protective equipment:

WEAR SUITABLE PROTECTIVE GLOVES when handling the concentrate and when applying by hand-held equipment.

WASH HANDS AND EXPOSED SKIN before meals and after work.

WASH CONCENTRATE from skin or eyes immediately.

ENVIRONMENTAL PROTECTION

Do not contaminate water with the product or its container. Do not clean application equipment near surface water. Avoid contamination via drains from farmyards and roads. Horizontal boom sprayers: To protect aquatic organisms respect an unsprayed buffer zone of 5 m to surface water bodies.

Air-assisted sprayers: To protect aquatic organisms respect an unsprayed buffer zone of 40 m to surface water bodies.

STORAGE AND DISPOSAL

KEEP AWAY FROM FOOD, DRINK AND ANIMAL FEEDING STUFFS.

KEEP IN ORIGINAL CONTAINER, tightly closed, in a safe place.

RINSE CONTAINER THOROUGHLY by using an integrated pressure rinsing device or manually rinsing three times. Add washings to sprayer at time of filling and dispose of safely.

After rinsing, puncture the container and invert to dry at the time of use.

KEEP OUT OF REACH OF CHILDREN.

DO NOT RE-USE CONTAINER for ANY PURPOSE.

DIRECTIONS FOR USE

Important: This information is approved as part of the product label. All instructions within this section must be read carefully in order to obtain safe and successful use of the product.

WARNINGS

Only apply CERAMI against pests and crops on the label.

Taint tests have not been carried out. Growers should consult processors before use.

To allow CERAMI to become rainfast, do not use irrigation for 12 hours following application.

RESISTANCE

General

CERAMI contains spinosad which is classified as IRAC Group 5, the Spinosyns. It enters the insect primarily through contact and ingestion. Contact occurs by direct application or by insect movement on a treated surface. Ingestion occurs from feeding on treated surfaces.

Following entry, CERAMI acts on a unique neuro-receptor site of the insect. Symptoms appear almost immediately, and complete mortality occurs within a few hours. CERAMI is not systemic but does show translaminar movement.

To reduce the possibility of the development of resistance:

* Total reliance on one pesticide will fasten the development of resistance: Spinosad has a different mode of action from other insecticides and is most effective when applied in planned programmes with other insecticides with different modes of action.

* Avoid use of the same active ingredient or mode of action on consecutive generations of insects. However, multiple applications to reduce a single generation are acceptable. If uncertain of the generation cycle, no more than three consecutive applications (two for protected crops) should be used nor should there be continuous use for more than 30 days. Do not use CERAMI on consecutive generations for insects which show a high risk of resistance such as thrip species.

* Restrict the number of sprays to no more than six applications per glasshouse/protected structure in a 12 month period of any spinosad containing product regardless of crop being treated (including ornamentals).

* Do not use reduced label rates when applied alone or in tank mixtures.

Outdoor crops

Onion thrips have shown resistance to certain chemical groups including spinosad. Where resistance is confirmed, CERAMI is unlikely to give satisfactory control. Resistance management steps should be taken as it is considered a high resistance risk pest. Carry out careful monitoring.

Apply when onion thrips are first seen and importantly before the pest becomes established in the crop. Repeat the application if needed after 10 days for leeks, bulb onion, salad onion, garlic and shallot.

Apply no further sprays of CERAMI (or any other spinosad containing product) once the maximum number of foliar sprays have been applied (or a maximum of two foliar sprays on brassicas if a pre-planting modular drench application of CERAMI has already been made). If thrips are already established consider using a product with knockdown activity such as dimethoate before applying CERAMI.

On brassicas, only one pre-planting modular drench application should be made per crop to protect against attack from cabbage root fly with subsequent foliar applications restricted to 2 sprays per crop.

Carry out careful monitoring.

For caterpillar control apply CERAMI at egg hatch in top fruit and when pests are first seen in other field crops. Repeat applications at 10 day intervals only if needed.

Applications should be targeted against early insect developmental stages whenever possible. If possible, include multiple tactics (eg cultural or biological controls) when using Integrated Pest Management Programmes.

Use CERAMI in programmes with other effective insecticides of a different mode of action

to reduce the possibilities of resistance occurring.

Protected strawberry crops

Western flower thrips have shown resistance to certain chemical groups including spinosad. Where resistance is confirmed, CERAMI is unlikely to give satisfactory control. Resistance management steps should be taken as it is considered a high resistance risk pest in protected crops/plants, carry out careful monitoring.

Before spraying ensure the plants have not previously been treated with CERAMI or another spinosad containing product.

Carry out careful monitoring and apply when Western flower thrips are first seen making repeat applications at 7 day intervals only if needed, with a maximum of two consecutive spinosad sprays to protected strawberry. An interval of 28 days is required before any further applications of CERAMI (or any other spinosad containing product) in the structure (even if only treating some of the plants).

For protected strawberry crops restrict the total number of sprays to no more than three applications of CERAMI per strawberry crop.

In multi-cropping situations restrict the total number of sprays to no more than 6 in a 12-month period in the same glasshouse or structure of any spinosad containing product regardless of the crop being treated (including ornamentals and all year round (AYR) chrysanthemums).

DO NOT EXCEED 6 APPLICATIONS OF ANY PRODUCT CONTAINING SPINOSAD PER GLASSHOUSE/PROTECTED STRUCTURE IN A 12-MONTH PERIOD

Apply in programmes with other insecticides with a different mode of action and use no further sprays of CERAMI (or any other spinosad-containing product) once the maximum number of sprays have been applied.

If the final insecticide application to a crop was spinosad, choose a different insecticide active ingredient to begin spraying on the next crop.

Applications should be targeted against early insect developmental stages whenever possible. Do not use reduced label rates.

Whenever possible use an Integrated Pest Management programme.

Choose resistant cultivars.

INTEGRATED PEST MANAGEMENT

Whenever possible use an Integrated Pest Management programme.

Bees

Do not apply in the heat of the day when bees may be foraging as contact with direct spray may be harmful. Remove the hive during spraying as exposure to direct spray may be harmful to bees. Allow 24 hours following application for all spray residues to dry before returning hives. Water pools with residues of spinosad will continue to pose a risk and should be avoided.

Outdoor crops

CERAMI can be used in an integrated pest management strategy in top fruit as it has been found to have no long term adverse effects on predatory bugs *Anthocoris spp* or the predatory mite *Typhlodromus pyri*.

Overall applications of CERAMI to control pests in field brassicas, leeks, onions and strawberry are of low risk to predatory insects and mites both in the plant canopy and on the soil below. There is risk to parasitic *Hymenoptera* but these effects are of short duration (2 weeks) as the persistence of CERAMI is low and recovery of these highly mobile species would be rapid. CERAMI, when used according to good agricultural practice is unlikely to pose an unacceptable risk to honeybees and beneficial arthropods.

Modular Drench application

It is best practice to make module spray applications in a specific spray area away from other plants where beneficial insects may be present. If this is not possible do not use CERAMI where populations of beneficial insects and especially parasitic wasps are present in high numbers.

If module plants are raised as part of an integrated pest management system then follow the directions given for protected crops.

Protected crops

Inspect all incoming plant material for presence of Western flower thrip and treat if necessary. Monitor stock routinely to determine the need for control measures.

Use screens or barriers to prevent insects migrating.

Use predators and parasites.

Exposure to direct spray is harmful to bumble bees, but dry spray deposits are harmless. Carefully choose any chemical products used in the pesticide programme and consider any side effects on bees and beneficial arthropods.

The active ingredient, spinosad has been shown to be of low impact to many insect and mite predators but harmful to adults of most parasitic wasps (*Hymenoptera*).

When applied to plants where insect and mite predators are present CERAMI may cause a temporary reduction in abundance.

For susceptible predators (*parasitic hymenoptera*) re-introduction is possible after 7 days following application (with perhaps 14 days in winter months). For most other predators introduction is possible 24 hours after application. Re-introduction of *Orius laevigatus* is advised one week later.

Beneficials may be safely introduced to treated plants after an application of CERAMI according to the following table:

Recommendations for Integrated Use with Predators and Parasites

Beneficial Type	Species	*Toxicity Class rating	Introduction Best Practices
Predatory mites	<i>Phytoseiulus persimilis</i>	Harmless (1)	Predatory mites introduced when spray deposits are dry may be affected but will recover after 24 hours.
	<i>Amblyseius californicus</i>	Harmless (1)	
	<i>Amblyseius cucumeris</i>	Harmless (1)	
Predatory insects	<i>Chrysoperla carnea</i>	Harmless (1)	Predatory insects introduced when spray deposits are dry may be affected but will recover after 24 hours. <i>O. laevigatus</i> is best introduced after 7 days. <i>M. caliginosus</i> may be introduced on the day of application once spray deposits are dry. If CERAMI is applied directly to plants containing <i>M. caliginosus</i> there may be a short-term reduction in numbers.
	<i>Orius laevigatus</i>	Slightly harmful (2)	
	<i>Orius insidiosus</i>	Harmless (1)	
	<i>Aphidoletes aphidimyza</i>	Harmless (1)	
	<i>Macrolophus caliginosus</i>	Harmful (4)	
Parasitic wasps	<i>Aphidius colemani</i>	Moderately harmful (3)	Direct applications of CERAMI are harmful to parasitic wasps. Wait at least 7 days after an application of CERAMI before introducing new parasites.
	<i>Encarsia formosa</i>	Moderately harmful (3)	
	<i>Trichogramma brassicae</i>	Harmful (4)	
	<i>Diglyphus isaea</i>	Harmful (4)	

*Toxicity rating:

Class 1 Harmless less than 25% reduction

Class 2 Slightly harmful 25-50% reduction

Class 3 Moderately harmful 50-75% reduction

Class 4 Harmful more than 75% reduction

SPECIFIC PESTS CONTROLLED

Apple, crab apple, pear, quince

Pre-blossom: Over wintered tortrix moths

Post-blossom: Summer fruit tortrix moth, codling moth

Broccoli/calabrese, Brussels sprout, cabbage, cauliflower & chinese cabbage

Caterpillars: Control of Diamond back moth, small cabbage white butterfly, large cabbage white butterfly, and useful control of large cabbage moth

Bulb onion, garlic, leek, salad onion & shallot (all field)

Useful control of onion thrips and reduction in damage

Strawberry (protected crops)

Control of Western Flower Thrip

CROP SPECIFIC INFORMATION

Apple, pear, crab apple, quince

To avoid variable performance, timing of application should be optimised and good coverage of the foliage should be achieved. Optimal timing of application of CERAMI post-blossom for control of caterpillars is when first egg hatch is predicted based on threshold counts in pheromone traps being reached. It is important when making all applications to top fruit to use sufficient water volume to achieve effective cover and penetration of the foliage.

Where tree height and/or canopy density is reduced, the dose (and water volume) should be adjusted in accordance with an appropriate dose adjustment scheme. Consult your specialist advisor for further information.

PRE-BLOSSOM:

Pest	Over wintered tortrix moths
Rate	150 mL/ha
Water Volume	300 to 1500 litres of water per hectare
Maximum number of applications	One
Time of application	Apply pre-blossom from early green cluster when first signs of active larvae which spin themselves into webs are first observed.
Latest time of application	7 days before harvest

POST-BLOSSOM:

Pest	Summer fruit tortrix moth, codling moth
Rate	250 mL/ha
Water Volume	300 to 1500 litres of water per hectare
Maximum number of applications	3 post-blossom
Time of application	Apply post-blossom when first egg hatch is predicted based on threshold counts in pheromone traps being reached. Carefully monitor pest development to determine whether repeat applications are necessary. If required, make a repeat application of CERAMI (or a similar compound with activity against moth larvae) timed to coincide with egg hatch of the larvae. Effective control of caterpillars in top fruit usually requires several insecticide sprays per year. A 2 or 3 spray programme at 10 day interval may be needed when conditions favour rapid pest development. Where possible, apply CERAMI in programmes with products with a different mode of action as a good resistance management strategy. Codling moths, summer fruit tortrix moths: Mid-June to August in most seasons. Fruit tree tortrix moth: Limited data suggest that useful control of fruit tree tortrix moths can be achieved when the label rate for summer fruit tortrix moth and codling moth is applied. Severe or late attacks in late July or early August may require further applications.
Latest time of application	7 days before harvest

Outdoor broccoli, Brussels sprout, cabbage, calabrese, cauliflower, Chinese cabbage

1. MODULAR DRENCH TREATMENT

Pest	Cabbage root fly
Rate	60 mL/5000 plants
Water Volume	5 litres of water per 5000 plants
Maximum number of applications	1 prior to planting out. Following modular drench treatment with CERAMI only 2 foliar applications of Spinosad may be made to the crop.
Time of application	Crops should be treated ideally at the 3 to 4 leaf stage. Only good crops with good leaf condition that are growing vigorously should be treated.
Latest time of application	6 leaf stage

The modular drench treatment is a 3-step process:

- 1) Moisten the leaves of the plants to be treated immediately prior to treatment
- 2) Apply the CERAMI drench
- 3) Wash off the CERAMI drench from leaves of plants with water

It is important that the total volume of water used in these three stages does not exceed the water holding capacity of the modules, otherwise leaching of the CERAMI will occur which may reduce cabbage root fly control and lead to contamination of underlying glasshouse soil (see 'Remarks' below).

The water volumes below are given as a guide for modules of 11 to 13 mL capacity (the minimum size and hence the minimum volume recommended). Larger volumes can be used with larger modules.

Leaves of the plants should be wetted with a light spray of water immediately before treatment using 2 L per 5000 plants.

CERAMI should then be applied at 60 ml in 5 L of water per 5000 plants.

Immediately after treatment the insecticide must be thoroughly washed off the leaves of the plant with clean water, using 5 L of water per 5000 plants.

Remarks

CERAMI must be applied alone. Tank mixing of CERAMI for this use may produce severe leaf scorch.

CERAMI will provide partial or useful control of cabbage root fly between 6 to 8 weeks

after treatment, and will improve plant establishment and reduce root damage with the resultant marketable yield benefits.

If plants are still vulnerable and there is a risk of further infestation after this time then a follow up application in the field may be required with a suitable product. This is particularly important if plants are treated before the start of April and the arrival of the first generation.

Breakdown of CERAMI in soils inside glasshouses is rapid and spinosad does not accumulate or leach in soils. However, best practice should avoid applying CERAMI in such a large volume of water that it passes through the compost. Also prevent the spray contaminating the pathways and covered areas surrounding the trays being treated. This can be done in a number of ways eg interceptor trays, polythene sheeting, use of correct water volumes etc. After use, remove plastic sheeting, wash down and dispose of safely.

When handling recently drenched trays of plants it is best practice to wear protective rubber gloves and coveralls.

Modules should generally be transplanted as soon as possible after treatment. However, CERAMI can be leached out of the compost if the modules are over watered and so best practice is to not move the plants for the first 24 hours after application. If plants are to be despatched freshly watered, CERAMI should be applied a few days beforehand to ensure that it is not leached from the module during the final watering.

Transplanting of treated blocks and modules to a depth which brings untreated soil into contact with plant stems above the top of the block or module will lead to reduced control.

Further treatments to control cabbage root fly larvae may be required in areas of high activity.

2. FOLIAR TREATMENT

Pest	Caterpillars: Control of Diamond back moth, small cabbage white butterfly, large cabbage white butterfly, and useful control of large cabbage moth
Rate	200 mL/ha
Water Volume	200 to 600 litres of water per hectare
Maximum number of applications	4 per crop OR 2 per crop on brassicas following modular drench application
Time of application	Spray when damage is first seen, and preferably when caterpillars are small. If repeat applications are required try to use in programmes with other insecticides with a different mode of action.

Latest time of application	3 days before harvest
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Outdoor leek, bulb onion, salad onion, garlic, shallot

Pest	Useful control of onion thrips and reduction in damage
Rate	200 mL/ha
Water Volume	200 to 600 litres of water per hectare
Maximum number of applications	3 per crop
Time of application	Early application to control the pest is essential. Apply when nymphs and adults are first seen or at very first signs of crop damage. Onion thrips have shown resistance to certain chemical groups and resistance management steps should be taken. It is important to monitor pest levels and apply a maximum of two sprays at 10 day intervals depending on the pest pressure. For resistance management purposes there must be a minimum interval of 28 days after the second application before any further applications of CERAMI are made. It is vital that CERAMI is applied before the pests become well established in the crop. If thrips are already well established in the crop consider using a product with knockdown activity such as dimethoate before applying CERAMI.
Latest time of application	7 days before harvest

Protected crops of strawberry

Pest	Control of Western Flower Thrip
Rate	15 mL per 100 litres of water (to a maximum of 150 mL/ha)
Water Volume	200 to 1000 litres of water
Maximum number of applications	3 per crop (2 consecutive)

Time of application	It is important to monitor pest levels. Apply when nymphs and adults are first observed or at very first signs of crop damage. Applications should be made before thrips are established. During spraying, make sure that the inside and outside parts of the leaves and flowers are covered. The spray technique and the amount of water must cover the plant without causing run-off and control often depends on the quality of the spraying (machinery, quantity of water, etc.). Best control is achieved by a sequence of 2 treatments at 7 day intervals (if needed). For resistance management purposes there must be a minimum interval of 28 days after the second application before any further applications of CERAMI are made. This is an opportunity to allow beneficial insects to be effective in IPM programmes. Restrict the number of sprays to no more than 6 applications per glasshouse/structure in a 12 month period of any spinosad containing product regardless of crop (including ornamentals) being treated. CERAMI should be applied in programme with other insecticides and in combination with integrated pest management.
Latest time of application	1 day before harvest

It is recommended to test CERAMI on a small number of plants to confirm the crop safety before spraying a large area.

MIXING AND SPRAYING

Before use ensure all application equipment is clean, in good working order and fully calibrated according to the manufacturer's instructions.

To ensure thorough mixing of the product invert the container several times before opening. Half fill the spray tank with water, begin agitation and add the required quantity of CERAMI. Fill up the spray tank, agitating continuously to ensure thorough mixing, and maintain agitation until spraying is complete. Use only clean water for mixing. Use the spray solution immediately after preparation.

Apply CERAMI using a horizontal boom sprayer or a broadcast air assisted sprayer. For protected strawberry crops, apply CERAMI by conventional hydraulic sprayer or by hand-held applicators.

SPRAY VOLUME

Water volume should reflect the need for uniform cover and penetration of the leaf canopy.

Crop	Water Volume	Comment
Apple, pear, crab apple, quince	Min : 300 litres/ha Max : 1500 litres/ha	It is particularly important when spraying post-blossom to achieve full penetration of the leaf canopy and uniform coverage of the foliage and blossoms or fruitlets
Broccoli, Brussels sprout, cabbage, calabrese, cauliflower, Chinese cabbage, leek, bulb onion, salad onion, garlic, shallot	Min : 200 litres/ha Max : 600 litres/ha	Ensure good penetration of the foliage.
Strawberry (protected)	Min : 200 litres/ha Max : 1000 litres/ha	Ensure good penetration of the foliage.

TANK CLEANING

Wash spray tank and equipment (including knapsack sprayers) thoroughly with water and liquid detergent immediately after use. Spray out and fill with clean water and leave overnight. Spray out again before using another product.

CONDITIONS OF SUPPLY

All goods supplied by us are of high grade and we believe them to be suitable but, as we cannot exercise control over their storage, handling, mixing or use, or the weather conditions before, during or after application which may affect the performance of the goods, all conditions and warranties, statutory or otherwise, as to the quality or fitness for any purpose of our goods are excluded. No responsibility will be accepted by us or re-sellers for any failure in performance, damage or injury whatsoever arising from their storage, handling, application or use. These conditions cannot be varied by our staff or agents whether or not they supervise or assist in the use of such goods.