

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 pre-blossom
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 CLAYTON RELIC (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 intervals may be needed when conditions favour rapid pest development. Where possible, apply CLAYTON RELIC 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 BRASSICA CROPS (Broccoli, Brussels sprout, cabbage, calabrese, cauliflower, chinese cabbage)	
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 CLAYTON RELIC 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

Application is a three-stage process:
a) moisten the leaves of the plants to be treated immediately prior to treatment.
b) apply the **CLAYTON RELIC** drench.



c) wash off the **CLAYTON RELIC** 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 **CLAYTON RELIC** will occur which may reduce cabbage root fly control and lead to contamination of underlying glasshouse soil (see 'Notes' 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 litres per 5,000 plants. **CLAYTON RELIC** should then be applied at 60 mL in 5 litres of water per 5,000 plants. Immediately after treatment the insecticide must be thoroughly washed off the leaves of the plant with clean water, using 5 litres of water per 5,000 plants.

NOTES FOR MODULE APPLICATION

CLAYTON RELIC MUST BE APPLIED ALONE. Tank mixing of **CLAYTON RELIC** for this use may produce severe leaf scorch.

CLAYTON RELIC 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 **CLAYTON RELIC** in soils inside glasshouses is rapid and spinosad does not accumulate or leach in soils. However, best practice should avoid applying **CLAYTON RELIC** 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, **CLAYTON RELIC** 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, **CLAYTON RELIC** 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.

OUTDOOR BRASSICA CROPS (Broccoli, Brussels sprout, cabbage, calabrese, cauliflower, chinese cabbage)

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 if a modular drench application of **CLAYTON RELIC** has been made, 2 per crop on brassicas.

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.

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





CLAYTON RELIC are made. It is vital that **CLAYTON RELIC** 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 **CLAYTON RELIC**.

Latest time of application: 7 days before harvest

PROTECTED CROPS OF STRAWBERRY

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)

Latest time of application: 1 day before harvest

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 **CLAYTON RELIC** 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.

CLAYTON RELIC should be applied in programme with other insecticides and in combination with integrated pest management.

MIXING

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 **CLAYTON RELIC**. 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.

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, Brussel 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.

APPLICATION EQUIPMENT

Method of application: Orchard blast sprayer/knapsack/Tractor mounted/trailed horizontal sprayer. **CLAYTON RELIC** can be applied using a horizontal boom sprayer or a broadcast air assisted sprayer. For protected strawberry crops apply **CLAYTON RELIC** by conventional hydraulic sprayer or by handheld applicators. Ensure spray equipment is in good working order and has been calibrated according to the manufacturers' recommendations.

Conditions of Supply: All goods supplied by us are of high quality and we believe them to be correct but, as we cannot exercise control over their storage, handling, mixing or use, or weather conditions before, during and 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, and no responsibility will be accepted by us or resellers 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.





RELIC

A suspension concentrate containing 480 g/litre (44.03% w/w) spinosad

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

Approval holder:

Clayton Plant Protection Ltd

Bracetown Business Park Clonee, Dublin 15, Ireland

Email: info@claytonpp.com

Tel: (00 353) 1 8210127

www.claytonpp.com

FOR USE ONLY AS A PROFESSIONAL INSECTICIDE



UFI: A8MY-D1WF-500G-XK1Q
Contains 1,2-benzisothiazolin-3-one
May produce an allergic reaction

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.

In the event of an emergency, call the National Poisons Information Centre, Beaumont Hospital: 01-809-2566 or 01-887-9964

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

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PROTECT FROM FROST

SHAKE THOROUGHLY BEFORE USE

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 & 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
WASH OUT CONTAINER THOROUGHLY, empty washings into the spray tank and dispose of safely. Triple rinse containers, puncture and invert to dry at time of use.
DO NOT RE-USE CONTAINER for any purpose.

IMPORTANT INFORMATION FOR USE ONLY AS A HORTICULTURAL INSECTICIDE

Crop	Maximum individual dose	Maximum no of treatments	Maximum total dose	Latest time of application
Apple, pear, crab apple, quince pre-blossom post-blossom	Pre-blossom 150 mL product/ha AND/OR post-blossom 250 mL product/ha	1 per crop 3 per crop	150ml/ha 750ml/ha	7 days before harvest
Broccoli (outdoor), Brussels sprout (outdoor), cabbage (outdoor), calabrese (outdoor), cauliflower (outdoor), broccoli (outdoor), Chinese cabbage	12 mL product/ 1000 module plants	1 per crop (See other Specific Restrictions)	12 mL product/ 1000 plants	Pre-planting, 6 leaf stage
Broccoli (outdoor), Brussels sprout (outdoor), cabbage (outdoor), calabrese (outdoor), cauliflower (outdoor), Chinese cabbage (outdoor)	200 mL product/ha	4 per crop	800 mL/ha	3 days before harvest
Leek (outdoor), bulb onion (outdoor), salad onion (outdoor), garlic (outdoor), shallot (outdoor)	200 mL product/ha	3 per crop	600 mL/ha	7 days before harvest
Strawberry (protected)	150 mL product/ha (15 ml per 100 litres of water)	3 per crop (See Other Specific Restrictions)	450 mL/ha	1 day before harvest

Other Specific Restrictions:

For protected strawberry apply a maximum of 2 consecutive sprays followed by a minimum 28 day interval before any further applications. Following brassica pre-planting applications, only 2 further applications of spinosad may be made. Module drench treatments to brassica crops must not be made by hand-held 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 Protections Products.

Specific pests controlled

Apple, crab apple, pear, quince	Pre-blossom: Overwintered tortrix moths Post-blossom: Summer fruit tortrix moth, codling moth
Broccoli/calabrese, brussels sprout, cabbage, cauliflower and 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 and shallot (all field)	Useful control of onion thrips and reduction in damage
Strawberry (protected crops)	Control of Western Flower Thrip

DIRECTIONS FOR USE

IMPORTANT: All instructions within this section must be read carefully in order to obtain safe and successful use of this product

NOTES:

CLAYTON RELIC insecticide has a very specific pest spectrum. Only apply **CLAYTON RELIC** against pests and crops on the label. Taint tests have not been conducted using **CLAYTON RELIC**. Growers should consult processors before use.

Following application allow 12 hours for **CLAYTON RELIC** to become rainfast before applying irrigation. Wash spray tank and equipment (including knapsack sprayers) thoroughly with water and a liquid detergent immediately after use.

Spray out. Fill with clean water and leave overnight. Spray out again before using another product.

MODE OF ACTION

CLAYTON RELIC 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, **CLAYTON RELIC** acts on a unique neuro-receptor site of the insect.

Symptoms appear almost immediately and complete mortality occurs within a few hours. **CLAYTON RELIC** is not systemic but does show translaminar movement.

CROP SAFETY

Outdoor Crops

CLAYTON RELIC enter has been tested on a wide range of outdoor crops. **CLAYTON RELIC** has good plant safety when applied at different growth stages, including flowering.

Modular drench application to brassicas

Users should refer to and follow the specific instructions for applying drench treatments.

Protected Strawberry

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

RESISTANCE

GENERAL: To reduce the possibility of the development of resistance

Total reliance on one pesticide will hasten 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 two consecutive applications (two for protected crops) should be used nor should there be continuous use for more than 30 days.

Do not use **CLAYTON RELIC** 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 of any spinosad-containing product per glasshouse/protected structure in a 12 month period 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, **CLAYTON RELIC** 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.

Apply when onion thrips are first seen and repeat the application if needed after 10 days for leeks, bulb onion, salad onion, garlic and shallot. It is vital that **CLAYTON RELIC** is applied before the pest becomes well established in the crop.

Apply no further sprays of **CLAYTON RELIC** (or any other spinosad-containing product) once the maximum number of foliar sprays have been applied (or a maximum of 2 foliar sprays on brassicas if a pre-planting modular drench application of **CLAYTON RELIC** has already been made).

If thrips are already established consider using a product with knockdown activity such as dimethoate before applying **CLAYTON RELIC**.

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 of **CLAYTON RELIC** restricted to 2 sprays per crop. Carry out careful monitoring.

For caterpillar control apply **CLAYTON RELIC** 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 **CLAYTON RELIC** 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, **CLAYTON RELIC** 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 undertaking a spray programme with **CLAYTON RELIC** establish whether incoming plant material has previously been treated with **CLAYTON RELIC** 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. Leave at least 28 days before any further applications of **CLAYTON RELIC** (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 **CLAYTON RELIC** 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 GLASS HOUSE/ 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 **CLAYTON RELIC** (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. For further information and the latest advice on beneficial insects and mites and their integrated use with **CLAYTON RELIC** consult your supplier or advisor.

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. A period of 24 hours after application and all spray deposits are thoroughly dry before exposure of bees is recommended. Water pools with residues of spinosad will continue to pose a risk and should be avoided.

OUTDOOR CROPS

CLAYTON RELIC 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 **CLAYTON RELIC** 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 **CLAYTON RELIC** is low and recovery of these highly mobile species would be rapid.

CLAYTON RELIC 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 then do not make an application of **CLAYTON RELIC** 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

As part of an Integrated Pest Management programme: 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.

CLAYTON RELIC has been tested on a wide range of predators and parasites used to control pests in protected crops. 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 **CLAYTON RELIC** 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 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 **CLAYTON RELIC** 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)	Data suggest 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)	Data suggest predatory insects introduced when spray deposits are dry may be affected but will recover after 24 hours. <i>O. laevigatus</i> in best introduced after 7 days. <i>M. caliginosus</i> may be introduced on the day of application once spray deposits are dry. If CLAYTON RELIC 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 CLAYTON RELIC are harmful to parasitic wasps. Wait at least 7 days after an application of CLAYTON RELIC before introducing new parasites
	<i>Encarsia formosa</i>	Moderately Harmful (3)	
	<i>Trichogramma brassicae</i>	Harmful (4)	
	<i>Diglyphus isaea</i>	Harmful (4)	

*Toxicity ratings:

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

APPLE, PEAR, CRAB APPLE, QUINCE

NOTES

To avoid variable performance timing of application should be optimised and good coverage of the foliage should be achieved. Optimal timing of application of **CLAYTON RELIC** 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 applications to top fruit to use sufficient water volume to achieve effective coverage 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.