

SAFETY PRECAUTIONS

Operator protection

WEAR SUITABLE PROTECTIVE GLOVES when handling the concentrate and when applying by hand held equipment.
WASH CONCENTRATE from skin or eyes immediately.
WASH HANDS AND EXPOSED SKIN before meals and after work.

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 5m to surface water bodies.

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

Storage and disposal

KEEP AWAY FROM FOOD, DRINK AND ANIMAL FEEDING STUFFS.
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.



SPANNER®

Insecticide

GROUP 5 INSECTICIDE



INSECTICIDE

500mL



A suspension concentrate formulation containing 480 g/L (44.03% w/w) of Spinosad
UFI: H5SK-DPSE-U30T-VHJJ
SPANNER is a selective insecticide for use in field vegetables and fruit crops and protected strawberry for control of caterpillar pests and thrips including Western flower thrips.
Contents: 500 mL e
Batch number and production date: printed on packaging

**SHAKE WELL BEFORE USE
PROTECT FROM FROST
PROFESSIONAL USE ONLY**

Authorisation holder:
Galenika-Fitofarmacija a.d.,
Batajnicki drum bb, 11080 Belgrade, Serbia.
Tel: +381 11 3072 301
Email: office@fitofarmacija.rs
Website: fitofarmacija.rs

Emergency medical information: contact National Poisons Information Centre, Beaumont Hospital, Dublin 9, Ireland.
Telephone numbers:
01 809 2166 (8am to 10pm seven days) for members of the public.
01 809 2566 or 01 809 9964 (24 hours) for healthcare professionals.

Spanner® is a registered trademark of Galenika-Fitofarmacija Ltd. © Galenika-Fitofarmacija Ltd.



GALENIKA-FITOFARMACIJA

**Safety information
Spanner**



Warning
Very toxic to aquatic life with long lasting effects
Collect spillage.

Dispose of contents/container to a licensed hazardous-waste disposal contactor 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.

PCS No. 06922

**IMPORTANT INFORMATION
FOR USE ONLY AS A HORTICULTURAL INSECTICIDE**

Crops: Apple, crab apple, pear, quince, broccoli/calabrese, Brussels sprout, cabbage, cauliflower & chinese cabbage, bulb onion, garlic, leek, salad onion & shallot (all field) and strawberry (protected crops).

Full details on crops, maximum individual dose, maximum number of applications, maximum total dose, PHI and other specific restrictions are listed in the Important Information area on the attached leaflet.
Read the label before use.

PCS No. 06922

This leaflet/booklet is part of the authorised Product label.

DIRECTIONS FOR USE

IMPORTANT: This information is authorised as part of the Product Label. All instructions within this leaflet must be read carefully in order to obtain safe and successful use of this product.

IMPORTANT INFORMATION FOR PROFESSIONAL USE ONLY AS AN HORTICULTURAL INSECTICIDE				
Crop	Maximum individual dose	Maximum number of applications (per crop unless stated)	Maximum total dose	PHI
Apple, crab apple, pear, quince	150mL product/ha (pre-blossom) AND/OR 250mL product/ha (post blossom)	1 3	150 mL product/ha (pre-blossom) AND/OR 750 mL product/ha (post-blossom)	7 days
Broccoli/calabrese, Brussels sprout, cabbage, cauliflower & chinese cabbage (all field)	200 mL product/ha 12mL product/1000 module plants	4 1	800 mL product/ha 12mL product/100 module plants	3 days Pre-planting, 6 leaf stage
Bulb onion, garlic leek, salad onion & Shallot (all field)	200 mL product/ha	3	600 mL product/ha	7 days
Strawberry (protected crops)	150 mL product/ha (15mL product/100 litres of water)	3**	450 mL product/ha	1 day

Other specific restrictions:

- *When application is made before planting to Brussels sprouts, broccoli, cabbage, calabrese, cauliflower or chinese cabbage only two further applications of spinosad may be made to the crop.
- Module drench treatments to brassica crops must not be made by hand held equipment
- **For protected strawberry apply a maximum of 2 consecutive sprays followed by a minimum 28 day interval before a further application.
- 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 crop being treated (including ornamentals).

Specific pests controlled

Apple, crab apple, pear, quince pests	Pre-blossom: Over wintered tortrix moths Post-blossom: Summer fruit tortrix moth, codling moth and useful control of Fruit tree tortrix 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
Method of application:	Orchard blast sprayer/knapsack/tractor mounted/trailed horizontal sprayer

RESTRICTIONS

Taint tests have not been carried out.
For crops which are to be processed consult processors before using SPANNER.
To allow SPANNER to become rainfast, do not use irrigation for 12 hours following application.

RESISTANCE-General

SPANNER contains spinosad which is classified as IRAC Group 5, the Spinosyns. It has two modes of action; the first involves disrupting/inhibiting the binding of acetylcholine at the nicotinic acetylcholine receptors located at the post-synaptic cell junctures. This

prolongs stimulation or activation of the nicotinic acetylcholine receptors and results in excitation of the insect central nervous system, paralysis and eventually death.

The second mode of action is affiliated with negatively affecting GABA-gated ion channels where spinosad binds partially to the receptor and changes its shape, resulting in death of the insect within a few hours.

Spinosad enters the insect by contact, directly from the spray or from surfaces previously treated, or by ingestion of treated material. Spinosad has a unique mode of action and is most effective when used in planned programmes with other insecticides with different modes of action. To reduce the risk of insect resistance to spinosad do not totally rely on one pesticide.

Avoid the use of the same active ingredient or mode of action on consecutive generations of insects. However, multiple applications to produce a single generation are acceptable. If there is uncertainty as to the generation cycle, no more than two consecutive applications (two for protected crops) should be made nor should there be continuous use for more than 30 days.

Do not use SPANNER on consecutive generations of insects that show high risk of developing resistance such as thrip species.

Do not use more than 6 applications per glasshouse/protected structure in a 12 month period of any spinosad containing product regardless of the crop treated (including ornamentals).

Apply at full label rates when applying alone or in tank mixes.

RESISTANCE-Outdoor crops

Onion thrips have shown resistance to the active ingredient, spinosad, and to other chemical groups. Where resistance occurs SPANNER is unlikely to give satisfactory control. In protected crops/plants resistance management steps should be taken as onion thrips are considered to be a high resistance risk pest and should be carefully monitored.

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

If thrips are already established consider using an alternative product with knockdown activity before applying SPANNER.

Do not apply more than the maximum number of permitted sprays of products containing spinosad.

On brassicas only 1 pre-planting modular drench application should be applied per crop with subsequent foliar applications limited to 2 foliar applications per crop.

Careful monitoring of pests should be carried out.

For control of caterpillars apply SPANNER at egg hatch in top fruit and when pests are first seen in other field crops. Repeat applications 10 day intervals only as required.

Target applications to the early insect development stages wherever possible.

Include multiple tactics (such as cultural or biological control) where possible, when using Integrated Pest Management.

To reduce the risk of resistance use SPANNER in programmes with other effective insecticides which have a different mode of action.

RESISTANCE-Protected Strawberry

Western Flower Thrip (WFT) has shown resistance to the active ingredient, spinosad, and other chemical groups. Where resistance occurs SPANNER is unlikely to give satisfactory control. In protected crops/plants resistance management steps should be taken as WFT are considered to be a high resistance risk pest and should be carefully monitored.

Before spraying ensure the plants have not previously been treated with a product containing spinosad.

Apply SPANNER when WFT are first seen and repeat applications at 7 day intervals if required; a maximum of 2 consecutive treatments with SPANNER can be made to protected strawberry. An interval of 28 days is required before any further applications containing spinosad may be made to protected strawberry in the structure even if only some plants are treated. No more than 3 applications of SPANNER may be made per strawberry crop.

Do not exceed 6 applications of any product containing spinosad per glasshouse/protected structure within a 12 month period regardless of crop being treated (including ornamentals).

SPANNER

Do not apply more than the maximum number of permitted sprays of products containing spinosad. If the final insecticidal treatment to a crop is spinosad use a different insecticidal active ingredient to begin a spray programme on the next crop.

Use at full label rate and where possible in an Integrated Pest Management programme.

Where possible use resistant cultivars.

To reduce the risk of resistance use SPANNER in programmes with other effective insecticides which have a different mode of action

INTEGRATED PEST MANAGEMENT (IPM)

Wherever possible SPANNER should be used in an IPM programme.

BEES

Do not apply SPANNER when bees maybe foraging, particularly in the heat of the day, as direct contact with the spray maybe harmful. Where applicable, remove hives during spraying as exposure to direct spray maybe harmful to bees. Allow 24 hours following application for all spray residues to dry before returning hives. Pools of water with residues of SPANNER will continue to pose a risk and therefore should be avoided.

OUTDOOR CROPS

SPANNER has been found to have no long term adverse effects on predatory bugs *Anthrenorhynchus* spp or the predatory mite *Typhlodromus pyri* and so can be used in integrated pest management strategies in top fruit.

In field brassicas, leeks, onion and strawberry overall applications to control pests are low risk to predatory insects and mites both in the plant canopy and on the soil below. Any risk to parasitic *Hymenoptera* is of short duration (2 weeks) and recovery of these very mobile species should be rapid.

Modular Drench Application

Where possible, use only in a specific area away from other plants where beneficial insects maybe present. If not possible do not use SPANNER when populations of beneficial insects and parasitic wasps are present in high numbers.

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

PROTECTED CROPS

Inspect all incoming plant material for Western Flower Thrips and treat if necessary.

Routinely monitor stock to check for pest outbreaks.

To prevent pest migration install screens or barriers.

Use beneficial parasites and predators.

Exposure to direct spray is harmful to bumble bees but dry spray deposits are harmless.

Choose partner actives carefully to consider side effects on beneficial arthropods and bees.

Re-introduction of susceptible predators (parasitic Hymenoptera) is possible 7 days after treatment which should be extended to 14 days in winter. Most predators can be re-introduced 24 following treatment-see table below for specific guidelines:

SPANNER

Beneficial class	Species	Toxicity class rating	Introduction Best Practice
Predatory mites	<i>Phytoseiulus persimilis</i>	Harmless (1)	Predatory mites introduced when spray deposits are dry maybe 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 maybe 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 the spray deposits are dry; if already present on plants at application 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 application of SPANNER is harmful to parasitic wasps. An interval of 7 days should elapse after treatment with SPANNER before the introduction of new parasites.
	<i>Encarsia formosa</i>	Moderately harmful (3)	
	<i>Trichogramma brassicae</i>	Harmful (4)	
	<i>Diglyphus isaea</i>	Harmful (4)	

Toxicity class rating:

- (1) Harmless less than 25% reduction
- (2) Slightly harmful 25-50% reduction
- (3) Moderately harmful 50-75% reduction
- (4) Harmful more than 75% reduction

CROP SPECIFIC INFORMATION

Apple, Pear, Crab apple, Quince

Effective control of caterpillars in top fruit usually requires several insecticidal sprays per year. A 2 or 3 spray programme at 10 day intervals may be required when conditions favour rapid pest development. Where possible apply SPANNER in programmes with products with an alternative mode of action. Optimise timing of application to when first egg hatch is predicted on threshold counts being reached and ensure good coverage of foliage and penetration of the canopy to avoid variable control.

Application timing	Pest controlled	Max. no. applications	Rate and water volume	Latest time of application
Apply pre-blossom from early green cluster when first signs of active larvae with first appearance of webs.	Overwintered Tortrix moths.	1	150 mL/ha in 300-1500L of water /ha	
Apply post-blossom: Mid-June to August, when first egg hatch is predicted based on threshold counts in pheromone traps but before onset of major pest development to determine if repeat applications are necessary. Make repeat applications with SPANNER or similar products active against larval moth stage of larval egg hatch. A 2-3x spray program with SPANNER at intervals of 10 days in a broader program with other insecticides of different modes of action is commonly required. Fruit Tortrix moth: Limited data available on useful control achieved when the rate for summer fruit tortrix is used. Codling moth is employed. Summer or late attacks from late July to early August may require additional treatments.	Larval stages of Summer fruit tortrix moth, Codling moth.	3 post blossom	250 mL/ha in 300-1500L of water /ha	7 days before harvest

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

Outdoor broccoli, Brussel's sprout, cabbage, calabrese, cauliflower, chinese cabbage

Modular drench treatment

- SPANNER will improve plant establishment and reduce root damage with residual benefits. Timing: The ideal time of application is at 4th true leaf unfolded (BBCH 14).

- Only crops with good leaf condition that are growing vigorously should be treated with SPANNER.

- To avoid severe leaf scorch SPANNER must be applied alone and not tank mixed with any other products.

- The modular drench treatment is a 3 step process:

- 1) Moisten the leaves to be treated with a light spray of water immediately before treatment using 2L of water per 5000 plants
- 2) Immediately apply the drench (60mL of SPANNER in 5L of water per 5000 plants)
- 3) After treatment immediately wash off the drench from the leaves with 5L of water /5000 plants

- The water volumes recommended above are a guide for modules of 11-13ml capacity-larger volumes can be used with larger modules. In order to prevent leaching of SPANNER, which would contaminate underlying glasshouse soil, it is important that the total volume of water used in the three stages does not exceed the water holding capacity of the modules.

- SPANNER breaks down rapidly in the glasshouse and does not accumulate or leach in soils. However avoid applying SPANNER in such a large volume that it passes through the pathways and covered areas surrounding the trays being treated by use of interceptor trays, plastic sheeting, use of correct water volumes. After use remove plastic sheeting, wash down and dispose of safely.

- When handling recently drenched trays of plants wear protective rubber gloves and coveralls.

- Modules should be transplanted as soon as possible after treatment. However, SPANNER can leach out of the compost if over watered therefore, if possible, do not move the plants for 24 hours after application. Transplanting treated blocks and modules to a depth which brings untreated soil in contact with plant stems above the top of the block or module will lead to reduced control.

- Following modular drench treatment if plants are still vulnerable and there is a risk of further infestation then a follow up application may be necessary in the field. This is particularly important if plants are treated before the beginning of April and the arrival of the first generation.

- Following modular drench treatment: only 2 further foliar applications of SPANNER may be made to the crop.

Foliar treatment

Application timing	Pest	Max. no. applications	Rate and water volume	Latest time of application
Apply SPANNER when damage first seen and preferably when caterpillars are small. If repeat applications are necessary where possible use SPANNER in programmes with other insecticides with a different mode of action.	Caterpillars: Control of Diamond back moth, Small and Large cabbage white butterfly, useful control of Large cabbage moth	4 per crop OR 2 per crop following modular drench	200 mL/ha in 200-600 L of water /ha	3 days before harvest

Outdoor leek, bulb onion, salad onion, garlic, shallot

It is vital that SPANNER is applied before the pest becomes established in the crop. If thrips are already well established consider using an alternative product with knockdown effect before applying SPANNER.

Application timing	Pest	Max. no. applications	Rate and water volume	Latest time of application
Apply SPANNER when the nymphs and adults are first seen or at the very first sign of crop damage at any stage of the crop, ideally from 3rd leaf BBCH 13. Monitor pest levels and apply a maximum of 2 further treatments with a minimum of 10 days between the first and second application and a minimum of 28 days between the second and third application.	Useful control of onion thrips and reduction of damage	3 per crop	200 mL/ha in 200-600L of water /ha	7 days before harvest

Protected strawberry

It is vital that SPANNER is applied before the pest becomes established in the crop.

Application timing	Pest	Max. no. applications	Rate and water volume	Latest time of application
Apply SPANNER when the nymphs and adults are first seen or at the very first sign of crop damage preferably during at any growth stage of the crop. It is important to monitor pest levels and treat before the pest is established on the crop. During spraying ensure the foliage and flowers are thoroughly covered but without causing run off. Best control is achieved by a sequence of 2 treatments with a 7 day interval between treatments (if needed). To reduce the risk of resistance there must be a minimum of 28 days between the second and third treatment (if required). This is also to allow beneficial insects an opportunity to be useful in IPM programs. No more than 6 applications can be made per glasshouse in a 12 month period regardless of crop (including ornamentals) being treated. SPANNER should be applied in a programme with other insecticides and in combination with integrated pest management.	Control of Western Flower Thrip	3 per crop (2 consecutive)	15mL/100L of water to a max of 150 mL/ha in a water volume of 200-1000L/ha	1 day before harvest

MIXING AND SPRAYING

Before use ensure that all application equipment is clean, in good working order and is fully calibrated according to the manufacturer's instructions. Add half the required amount of clean water to the spray tank and start agitation, add the required quantity of SPANNER. Fill the tank to the required volume whilst maintaining agitation. Continuous agitation must be maintained until spraying is complete. Use the spray solution immediately after mixing.

SPANNER can be applied using a horizontal boom sprayer or a broadcast air assisted sprayer.

For protected strawberry crops apply SPANNER by conventional hydraulic sprayer or by hand held applicators.

Cleaning:

The spray tank and all application equipment (including knapsack sprayers) must be thoroughly cleaned with water and liquid detergent immediately after use. Spray out and refill with clean water and leave overnight. Spray out again prior to storage or use with another crop/product.

Use in Organic crops

Spinosad has met the necessary criteria to allow it to be included in Annex II of the EU Organic Regulation 2092/91/EC and is compatible with Organic Farming Standards. Organic growers should consult their organic authorisation body for derogation to use SPANNER for approved crops.

SPANNER