

MAINSRING[®]

AND THE ATTACK STOPS



The brand new insecticide for the ornamental industry that is fast acting, broad-spectrum and IPM compatible

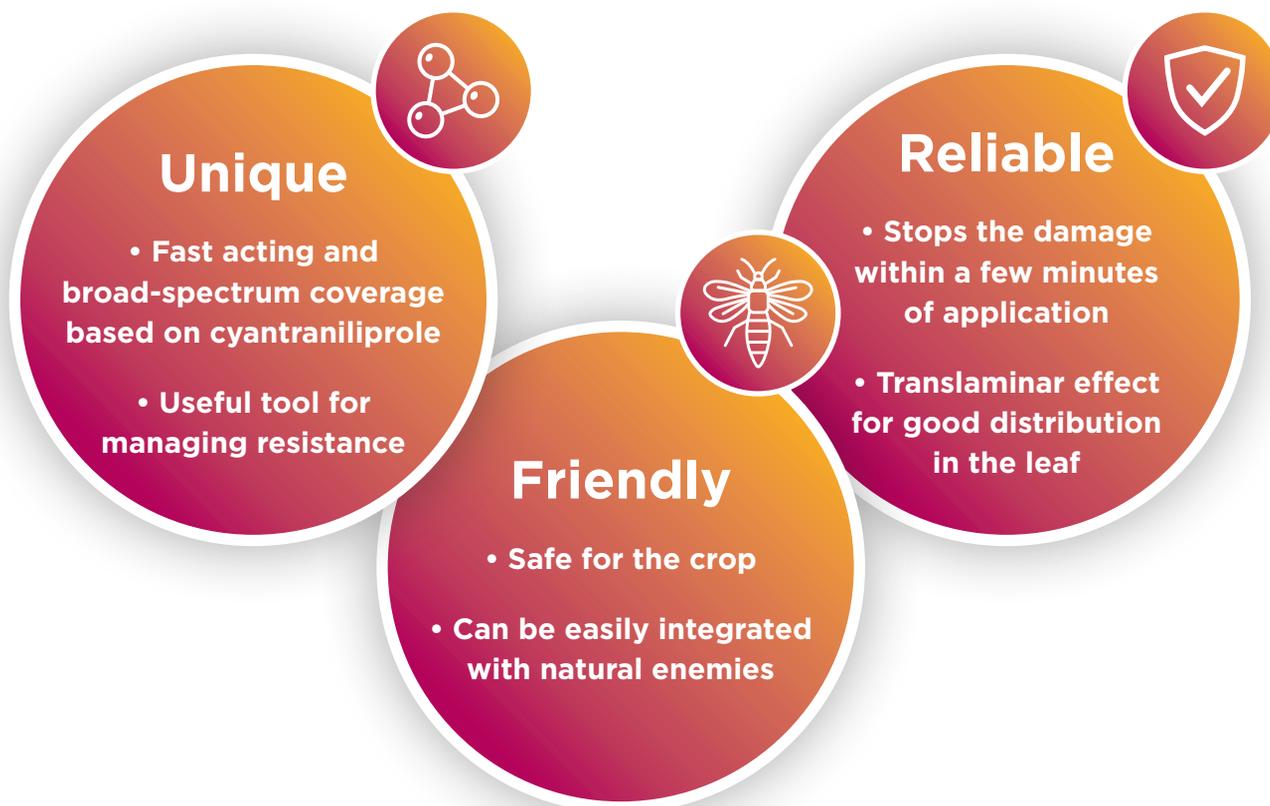


Mainspring[®]
Insecticide

syngenta.

What is Mainspring?

Mainspring is the brand new broad-spectrum insecticide based on the active substance cyantraniliprole, belonging to the chemical group the diamides. It has a unique mode of action and contributes to an important part of managing resistance in your crop. Thanks to the translaminar effect, it is possible to fight pests in hard-to-reach places and fits into your integrated pest management system.



The key attributes of Mainspring

Spectrum of activity

Mainspring is a broad-spectrum insecticide controlling thrips and caterpillars in an effective way. Enabling you to manage resistance, Mainspring integrates well with your programme of other insecticides.

Take up and distribution

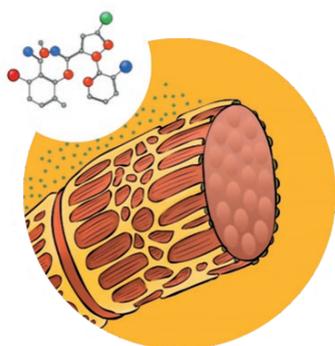
The active substance is readily absorbed into the wax layer of the plant. Due to the translaminar nature of Mainspring, insects on the underside of the leaf are also controlled by your applications.

IPM fit

In trials, we have seen that Mainspring has a limited effect on the population of Encarsia, Eretmocerus, Diglyphus and various species of predatory mites. With short contact activity, natural enemies can be reintroduced shortly after application.

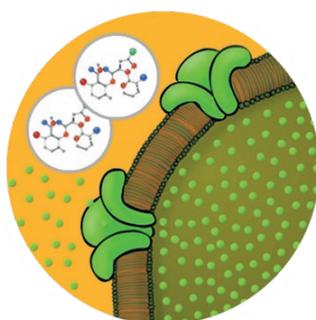
Mode of action

Cyantraniliprole changes the calcium channels to a constant flow within the muscle cells. As a result, the muscles in the insect become paralysed soon after ingesting Mainspring. The pest will almost immediately stop feeding, leading to insect death.



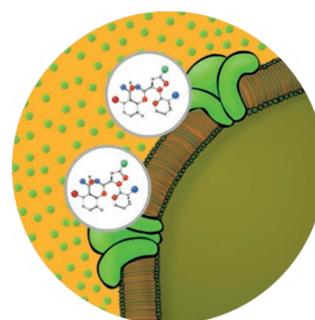
Phase 1: Exposure

Insects ingest the active ingredient in Mainspring.



Phase 2: Activation

The product binds to the ryanodine receptors in the insects muscles and causes them to open.

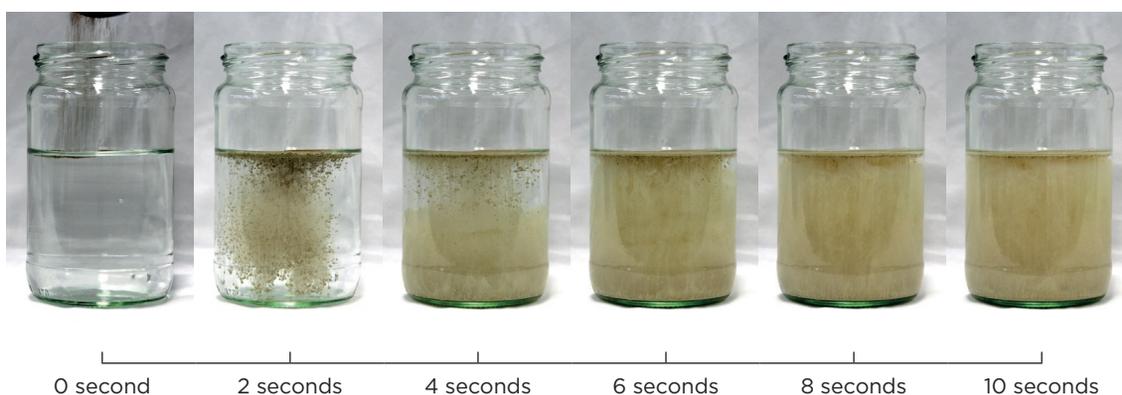


Phase 3: Paralysis and death of insects

Calcium flows out of the open ryanodine receptors, depleting calcium needed for the muscle contraction. The resulting muscle paralysis leads to insect death.

Formulation

The product is formulated as a granule. Thanks to this formulation, Mainspring is crop safe and dissolves very easily in the tank. Below is a demonstration of the formulation in action.



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Application rates for Mainspring

All crops under permanent protection and full closure (non-soil bound, soil fully covered) only

Application area	Dose rate per application	Max dose per application	Min - max Water volume per ha	Max number application	Min interval between application
Cut flowers (multi-crop cycles per year)	0.01% (10 g/ 100 L water)	0.12 kg/ha	500 - 2500 l/ha	2 per growing cycle 4 per 12 months	7 days
Cut flowers (crop cycle more than a year)	0.01% (10 g/ 100 L water)	0.25 kg/ha	500 - 2500 l/ha	2 per block 4 per 12 months	7 days within a block 60 between 2 blocks
Pot plants	0.01% (10 g/ 100 L water)	0.12 kg/ha	200 - 1200 l/ha	2 per growing cycle 4 per 12 months	7 days within a block 60 between 2 blocks
Perennials (pot plants)	0.01% (10 g/ 100 L water)	0.1 kg/ha	200 - 1000 l/ha	2 per growing cycle 4 per 12 months	7 within a block 60 between 2 blocks
Tree nursery crops	0.01% (10 g/ 100 L water)	0.12 kg/ha	200 - 1200 l/ha	2 per growing cycle 4 per 12 months	7 days within a block 60 between 2 blocks



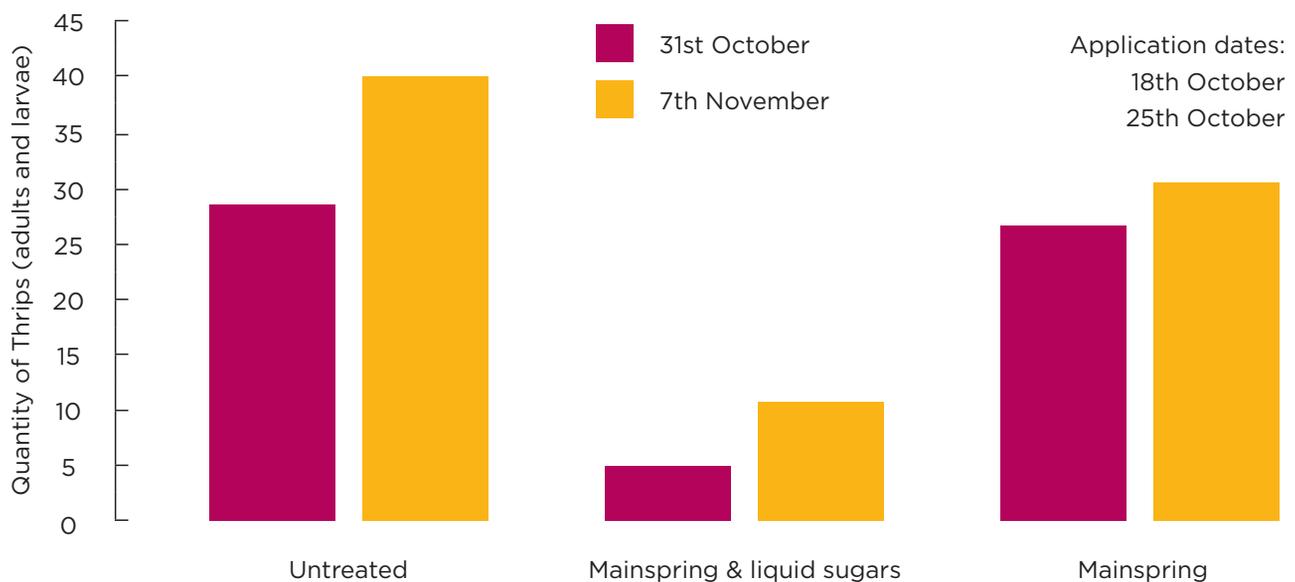
Trial results: thrips

One of the biggest pests in floriculture is Western Flower Thrips (*Frankliniella occidentalis*). In just a few days, they can cause enormous damage to the crop due to them breeding at lightning speed, allowing a plague to develop in a short time. Thrips suck at the upper leaf layer and cause spots on the leaf or flower, their feeding also inhibits plant development.

Mainspring can prevent thrip damage due to its very fast initial effect. Two hours after application they stop feeding and damage to the plant. For faster results, include liquid sugars in your application. Being attracted to the sugars improves the uptake of Mainspring which allows better control.



Thrip Control Potted Roses



Conclusion: adding liquid sugars significantly improves the effectiveness of your applications against thrips.



Trial results on chewing pests

The larva of the moth *Chrysodeixis chalcites* (Golden twin-spot moth), like other caterpillars, can cause a lot of damage in many ornamental plants. Immediately after Mainspring has been applied, the caterpillar is paralysed and within a few minutes, the damage stops.

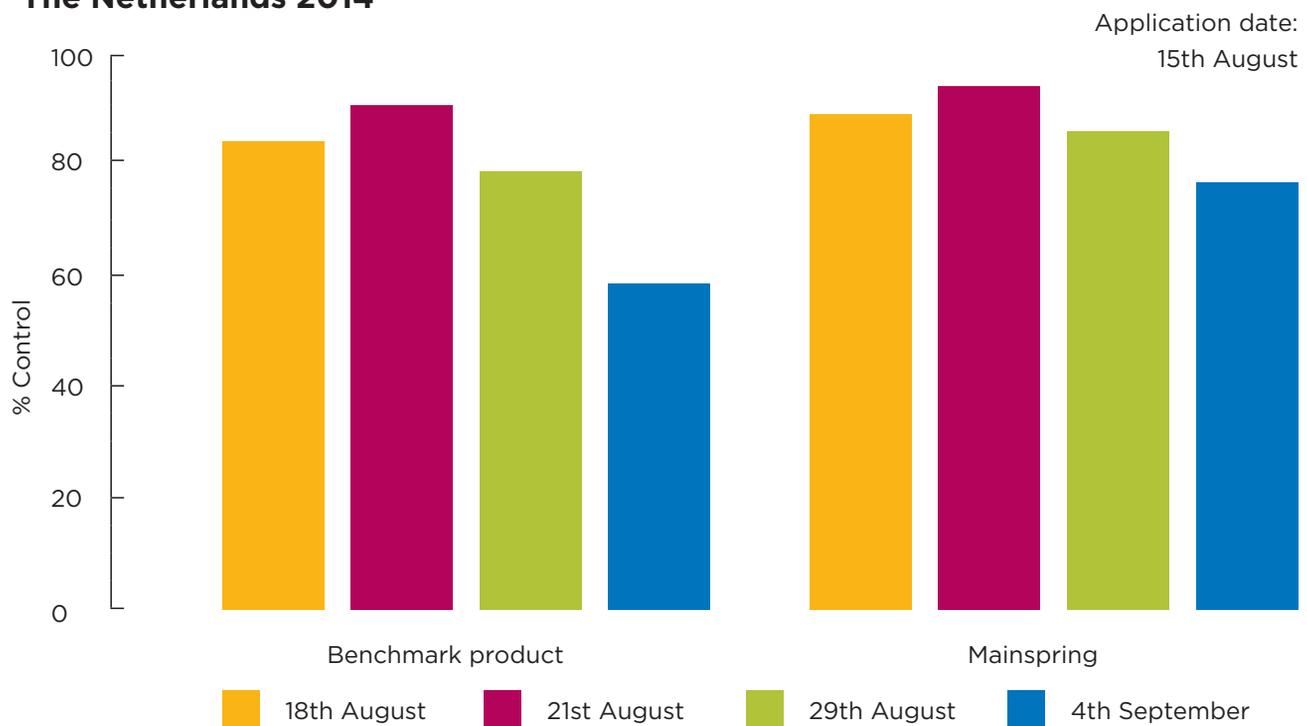


Chrysodeixis chalcites
Golden twin-spot moth



Spodoptera exigua
Small mottled willow moth

Control *Chrysodeixis chalcities* in Gerbera The Netherlands 2014



Conclusion: Mainspring provides very good control of *Chrysodeixis chalcities* (Golden twin-spot moth), but other caterpillar species are also well controlled.



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