

Pyrethrum 5EC

Natural Organic Insecticide



Contains 5% natural pyrethrum

An effective and natural solution to insect pests in horticultural production and organic farming



International





- Pyrethrum 5EC is approved for use against a wide range of pests including greenfly, whitefly, aphids, flea beetle and caterpillars
- For use on vegetables, soft fruit and ornamentals
- Can be used in indoor and outdoor growing systems
- Can be used with a wide range of water volumes 275-1500 l/ha
- Leaves no pesticide residues and does not persist in the environment
- For use in organic farming systems
- Zero active ingredient residue profile
- Harvest interval only 24 hours
- Suitable for use with a wide range of spray volumes
- Suitable for use with tractor mounted boom sprayers
- Available in 5 litre, 1 litre, 250 ml and 100 ml containers

About Pyrethrum

Chrysanthemum flowers have been available in Europe for over 150 years and powdered flowers have been used as louse powders for decades, known originally as Persian Insect Powder. Liquid concentrates for insect control in public health situations have been used for 50 years. However, liquid concentrates suitable for horticultural use by professionals have only just become available with the launch of Pyrethrum 5EC in the UK.

Our pyrethrum is purified from flowers of *Chrysanthemum cinerariaefolium* grown in Tanzania and Tasmania. It is subject to rigorous quality control and is formulated as a 5% active ingredient product synergised with piperonyl butoxide from natural oils. Natural pyrethrum is nature's own insecticide and works by paralysing insects so that they will drop off crops and eventually die.

Pyrethrum is very safe to humans and has been used as hair shampoo for lice treatment, as an anthelmintic for young children and added to drinking water in some countries. Pyrethrum has, however, been subjected to the most modern



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toxicological and safety testing over the last 20 years and is now available for use on horticultural crops.

Pyrethrum is non systemic and kills insects by contact action. It is also non persistent in the environment and will not leave residues on crops.

Whilst dried *Chrysanthemum* flowers (*Chrysanthemum cinerariaefolium*) have been available in Europe for 150 years, and were sold in most chemist shops for flea and louse control, liquid concentrates containing extracts from this flower, miscible with water and suitable for spray application to crops, have recently been registered for use by the UK's Pesticides Safety Directorate.

Pyrethrum as an insecticide

Pyrethrum is a natural mixture of pyrethrins I and II and is purified from crude extracts of flowers using supercritical CO₂. The active ingredient causes rapid knockdown, mainly from pyrethrin II, followed shortly by death associated with pyrethrin I. The mode of action is non systemic and contact action caused by binding of pyrethrins to sodium channels inhibiting the insects nervous system. This mode of action leads to

a broad spectrum of insecticidal activity against mites, chewing and sucking insects on fruit, vegetables and ornamentals.

Pyrethrum 5EC is combined with a synergist piperonyl butoxide which improves the activity of the active ingredient. Piperonyl butoxide is prepared from a natural source (oil of sassafras) and inhibits a class of enzymes called mixed function oxidases (MFO's), which are responsible for the metabolism and inactivation of pesticides and foreign molecules in the insect. The blocking of this detoxification process therefore makes the insect more vulnerable to the action of pyrethrum.

Instructions for Use

Pyrethrum 5EC should be used at a concentration of 0.02%. Mix the required rate of Pyrethrum 5EC with enough water to allow good coverage of the target plants. Do not add less than 275 l/ha or more than 1500 l/ha water. Half fill the spray tank with water and add the required volume of Pyrethrum 5EC and mix well. Fill the tank with water and commence spraying.

Pyrethrum 5EC can be sprayed at 7 day intervals and crops harvested 24 hours after last application.

Approved label usage

CROP	PEST	MAXIMUM PRODUCT USE RATE FOR ORGANIC MEDIA GROWN PLANTS (LITRE/HA)	MAXIMUM PRODUCT USE RATE FOR SOIL GROWN PLANTS (LITRE/HA)
Cabbage, Brussels Sprout, Cauliflower, Broccoli, Calabrese	Aphids (including woolly aphid), flea beetle, caterpillars, whitefly	2.4	1.1
Lettuce	Aphids, diamond-back moth	2.4	1.1
Tomatoes	Aphids, caterpillars, flea beetle, whitefly	2.4	1.1
Soft fruit	Aphids, caterpillars	2.4	1.1
Ornamental plant production	Aphids, caterpillars	2.4	1.1



Pyrethrum and insecticide resistance

Natural pyrethrum has not been notified as an insecticide with a high risk of insect resistance. The reason for this is that pyrethrum is a mixture of active ingredients, pyrethrins I and II (harder to develop resistance to) and the presence of PBO in the Pyrethrum 5EC inhibits the insects' natural resistance mechanism.

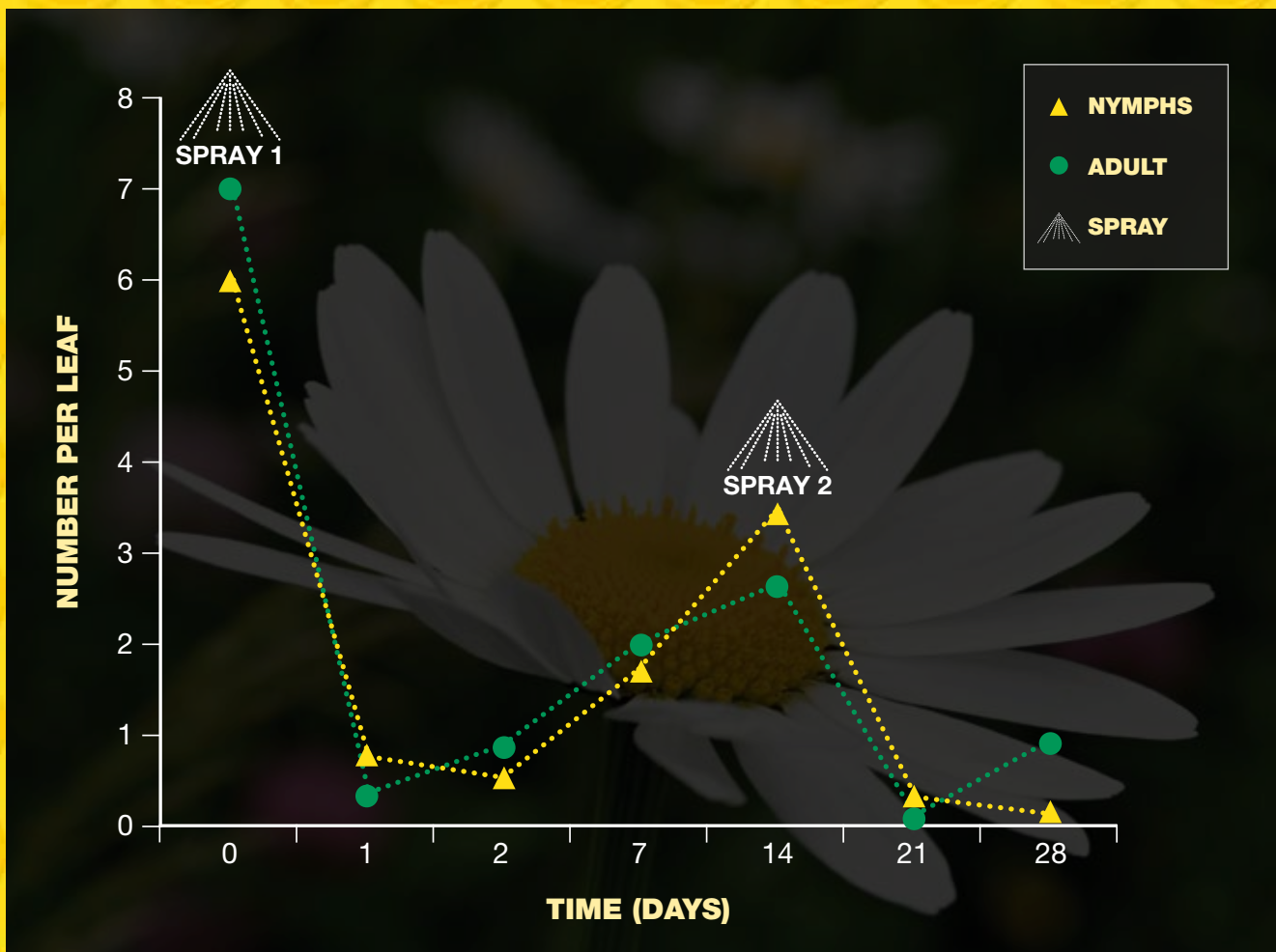
In summary, this means that insects are extremely unlikely to develop resistance to Pyrethrum 5EC even if it is used repeatedly on the same crop.

Pyrethrum 5EC and IPM Management of *Macrolophus*

Pyrethrum 5EC and IPM

Pyrethrum 5EC is a natural insecticide and will therefore kill most insect predators used in integrated pest control programmes (IPM). However, due to its short persistence Pyrethrum 5EC can be used as a starting and end of season clean-up product. It is also possible, in some situations, to direct sprays at the most affected plant part.

In certain situations some natural insect predators can get out of control, e.g. *Macrolophus* in tomato, and can start damaging flowers, reducing fruit set and overall yield. Pyrethrum 5EC can be used to control *Macrolophus* in this situation, ensuring that yields are maintained as shown by the data below.



Tomato plants were sprayed with Pyrethrum 5EC and observations made are numbers of nymphs and adults per leaf.

Data shows rapid control of *Macrolophus*, population recovery levels at 14 days were approximately 15% of the starting level.

This indicates that Pyrethrum 5EC can be used as a precise tool for control on biological control agents. (Derogation applied for)

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