## Tyfu Cymru Fact Sheet: Soft Fruit Biocontrol



# Below are some of the common forms of biocontrol available in soft fruit crops, to use effectively you should consult a BASIS trained advisor on how to proceed.

Once received bio control products are best applied immediately, do not delay application. Store in a cool place according to the label. Most packets need to be kept horizontally keep them well mixed.

#### Orius

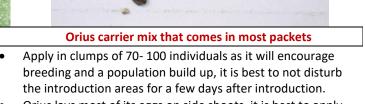
Orius is a generalist predator that feeds on a wide range of pests, it is one of the few bio-controls that will feed on adult thrips. It can establish well on pollen rich crops and can take 4-8 weeks to establish a population.



Size: 2-3mm Feeds on: Pollen, thrips (main pest preference), Two spotted spider mite, whitefly, moth eggs and lygus nymphs. Optimum temperature: 18-25°C (minimum 15°C) Optimum humidity: 70% Lifespan: 3-4 weeks

Preventative rates: 0.5 per m<sup>2</sup>

Curative rates (Light/ Heavy): **3.5 per m<sup>2</sup>/ 5-10 per m<sup>2</sup>** 



- Orius lays most of its eggs on side shoots, it is best to apply after side shoots have been removed from the crop.
- Preventative applications shouldn't be done before first flowers are open as without prey they need pollen to survive.
- Apply in a cool morning or early evening avoiding bright sunlight.

### Predatory mites – Amblyseius (Neoseiulus) cucumeris

Adult Orius feeding on thrips

Amblyseius cucumeris (scientifically known as Neoseiulus cucumeris) is a generalist predator that can survive on pollen, it is very good at attacking eggs, mites as well as larval thrips.



Amblyseius cucumeris on a leaf (Photo ©Bioline)

Size: **0.3mm** 

Feeds on: Thrips larvae, Two spotted spider mite, Broad mite, cyclamen mite. Optimum temperature: 18- 31°C Optimum humidity: 65-75% Preventative rates: 50 per m<sup>2</sup> Curative rates (Light/ Heavy): 250 – 500 per m<sup>2</sup>/ 250-500 per m<sup>2</sup>



#### Example sachet dispersal method

Predatory mites target a wide range of thrips species but it should be noted that they only target eggs and larvae, not adults. Disperses through the crop by leaves/ stems that are touching. The mites can feed on pollen as well as pests to allow for a preventative approach in the absence of pests.

Sachets of predatory mites act as breeding units which have a food source and release a steady stream of mites over a few weeks.



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### Parasitoid wasps.

Parasitic wasps (known as parasitoids) lay an egg inside aphids, when it hatches it feeds on the aphid leaving a mummy on the leave. It pupates and then emerges ready to parasitise more aphids.





Aphidius species of parasitoid near an aphid	Mummy (golden colour) on a leaf.
Size: 2-4mm Feeds on: Nectar Optimum temperature: Less than 28°C Preventative rates: 0.25 per m <sup>2</sup> Curative rates (Light/ Heavy): 1 per m <sup>2</sup> / 2 per m <sup>2</sup>	<ul> <li>Parasitoid species only target certain species of aphids so it is important to know what aphid species you are facing.</li> <li>A lot of products are a mix of parasitoid species to help cover different aphid species but take care reading the coverage.</li> <li>As they can fly the wasps are able to move through the crop easily focusing on pheromones released by the plant under attack by aphids.</li> <li>For the best preventative approach smaller weekly applications should be made at peak aphid abundance.</li> </ul>

#### Nematodes spp.- Steinernema feltiae or Steinernema kraussei

These nematodes are parasitic that actively move through the soil zone and infect prey, they are harmless to crops only attacking their chosen pests.





**Example of nematodes in suspension** 

#### Size: <0.1mm Feeds on:

*Steinernema feltiae-* Sciarid flies, thrips larvae.

Steinernema kraussei-Black vine weevil Optimum temperature: 14-28°C

Optimum temperature. 14-28 C

Optimum humidity: High humidity.

- Example of dehydrated nematodes from a packet
- It is important to make sure that nematodes are well mixed in the tank to ensure that they are distributed through the crop evenly.
- The nematodes travel through the soil via the soil moisture, if the soil is too dry then efficacy will drop as the nematodes struggle to operate.
- The nematodes locate prey by their waste products and infect through body openings.

For more information please see the Bioline, Biobest or Koppert websites: https://www.biobestgroup.com/ https://www.biolineagrosciences.com/, https://www.koppert.co.uk/

