

Degenerans-System

Thrips certainly is one of the most difficult pests to control. Because of its hidden way of life in the flower, it is not easily accessible for chemical pesticides. Thanks to *Amblyseius degenerans* as a third partner in biological thrips control (besides *Orius* and *Amblyseius cucumeris*), sweet pepper growers can now count on beneficials to control thrips during the whole cropping season.

THRIPS

Adult thrips are small, elongated insects with typical fringed wings. They measure about 1 mm, and have a greyish or yellow to brown colour. The two most common harmful species are the onion thrips (*Thrips tabaci*) and the Western Flower Thrips (*Frankliniella occidentalis*).

The female thrips deposits eggs in the leaf tissue. The eggs hatch within a few days into very mobile larvae which immediately begin to feed. After the second instar they let themselves fall on the ground to pupate. The total development from egg to adult takes from 20 days at 20°C (68°F) to 12 days at 30°C (86°F). At sufficiently high temperatures one female thrips can produce up to 100 descendants.

Thrips damage the crop by withdrawing the plant cell fluids. Empty cells are filled with air, causing a silvery appearance, on which dark spots (the excrements) are visible. Moreover, there exist many more damage symptoms depending on the crop.

For instance, thrips on very young cucumber fruits give deformed fruits. In sweet pepper, they cause cosmetic damage on the fruits close to the calyx. In several ornamentals flower damage through discoloration or deformation occurs. Only a few individual thrips are enough. Moreover, thrips are important vectors of several viruses (e.g. Tomato Spotted Wilt Virus, TSWV).

AMBLYSEIUS DEGENERANS

Amblyseius degenerans is a dark brown predator mite that is slightly bigger than the related *Amblyseius cucumeris*. Thanks to the dark colour this mite is more conspicuous when walking on a leaf or in the flower. Moreover, *Amblyseius degenerans* is more mobile.

The life cycle of this predatory mite is nearly identical to the related *Amblyseius cucumeris*. The eggs of both mites are visibly not discernible and are both deposited on the underside of the leaf close to the main vein. In the short larval stage the mite hardly moves and does not eat. During the two subsequent nymphal stages and during the adult stage the predatory mite is continuously moving to look for prey.

However, *Amblyseius degenerans* has another life style than *Amblyseius cucumeris*. It stays more on the flower, where it can easily build up a population on pollen only.

The predatory mite prefers thrips larvae. Thanks to its regular presence in the flower, it controls thrips more efficiently in the flower than *Amblyseius cucumeris*.

The eggs of *Amblyseius degenerans* endure low humidities better. Therefore a population can easily develop in greenhouses at cold winter weather or hot summer weather.

Moreover, this mite is not diapausing, and can therefore be introduced in winter time without any problems.

APPLICATIONS

A drawback of *Amblyseius degenerans* is the fact that it cannot be bred on bran mites and that it is therefore not available in big quantities at an acceptable price as is *Amblyseius cucumeris*. Therefore it is important to introduce this mite early in the cropping season to allow a population build-up.

In sweet pepper *Amblyseius degenerans* is introduced preventatively as soon as there is enough flowering. In winter the population develops perfectly in heated greenhouses. In sweet pepper the predatory mite will spread all over the crop. After a few months numerous *Amblyseius degenerans* can be found in every flower and many more will be walking on the leaves.

If both *Amblyseius* species occur, *Amblyseius degenerans* will displace the population of *Amblyseius cucumeris* within a few months. The competitive advantage of this predatory mite can probably be explained by its higher mobility and the better thrips control in the flower. Moreover, thanks to a better drought resistance, *Amblyseius degenerans* keeps on controlling thrips very well in summer.

Although *Amblyseius degenerans* is more sensitive to pirimicarb (Pirimor ...), the use of this pesticide remains possible at a smaller scale. The mite population will drop, but will soon recover.

Besides sweet pepper, the predatory mite *Amblyseius degenerans* also has interesting applications in eggplants.

DEGENERANS-SYSTEM

Biobest offers *Amblyseius degenerans* in 30 ml tubes of 500 individuals on a vermiculite carrier. In sweet pepper Biobest advises an introduction of 2 000 *Amblyseius degenerans* per ha, with at least 20 pieces per introduction point.

Amblyseius degenerans should be introduced as soon as it arrives. If short storage is necessary, a temperature of 10 - 15°C (50 - 59°F) is recommended.

ADVANTAGES

- **Good development in winter;**
- **Fast population build-up;**
- **Less sensitive to low humidity;**
- **Higher pollen consumption;**
- **Higher mobility;**
- **Better thrips control in the flower;**
- **Not diapausing.**