February 2019

REVISTA BIA #341

TRENDS

En esta edición:

Several predatory mite species are available as biological control agents (BCAs) for common greenhouse pests. Some of the more common species are described below biocontroladores

Neoseiulus cucumeris

Formerly Amblyseius cucumeris, this generalist predator will eat thrips 1st instar nymphs, whitefly, aphids, and psyllids. They also prey upon other types of mites, but may be more effective for control of eriophyid and broad mites than spider mites. N. cucumeris will go after the most readily available prey, so if pests are abundant on plant leaves they may not go into flowers to hunt for thrips. In situations such as this it is necessary to apply a higher rate of mites. Optimum conditions for N. cucumeris are 68-77° F and 65-70% relative humidity (RH). They fare poorly when the temperature exceeds >90°F. N. cucumeris is susceptible to diapause; however, non-diapausing strains have been discovered and are available from some suppliers. For whitefly and thrips management, best results may be obtained when N. cucumeris is used in combination with Amblyseius swirskii.

this species is widespread in the tropics and has been recorded from over 300 species of plants worldwide. It is a serious pest of bean, eggplant, hibiscus, pumpkin and other cucurbitaceous plants in warm areas. It is also quite common on greenhouse plants in temperate areas.

Amblyseius swirski

Swirski mites prefer whitefly eggs and larvae, thrips larvae, and 1st and 2nd instar thrips nymphs. They will also prey upon other mites, but this is not their preferred diet. They may be less effective when multiple pest species are present. A. swirski will eat nectar as well as pollen in the absence of insect prey, but keep in mind that the performance of BCAs is best when their preferred prey is available. They thrive at higher temperatures than N. cucumeris (optimum 66-97° F); many growers use a combination of the two species to optimize biocontrol efficacy over a range of temperatures. Swirski mites do not go into diapause, so they can be used most of the year if temperatures are >72°F

Source: UMassAmherst (Angela Madeiras)

Neoseiulus californicus (Formerly Amblyseius californicus)

This mite will feed upon all stages of various pest mite species, but appear to prefer Tetranychidae, the family that includes the two spotted spider mite (TSSM). N. californicus is tolerant of a wide range of temperatures (50-100°F) and RH in the range of 40-80%. They are generally less voracious than N. cucumeris and A. swirskii, but have the potential to persist for longer periods of time in the greenhouse.acquisition. The **benzoxazinoids** aid the uptake of iron. However, this generates a penalty because the herbivore, western corn rootworm, senses benzoxazinoid–iron complexes as a cue to locate and consume maize plants. This presents an evolutionary quandary, whereby maize can acquire iron and be eaten or maize can starve itself of iron and avoid herbivory—most plants have metabolites that create a similar conundrum. Benzoxazinoids are critical for how maize interacts

Like N. cucumeris, N. californicus can also significantly reduce P. pallidus-densities on strawberries as well as providing effective control of T. urticae on the same crop in greenhouses

Stratiolaelaps scimitus (formerly Hypoaspis miles)

These predatory mites are unlike others used for biocontrol in that they prefer to live in the top half inch or so of soil, where they prey upon fungus gnat larvae and thrips pupae. They will also consume algae and plant debris. The principal strength of this species is fungus gnat control, for which it is often used in conjunction with Steinernema nematodes. S. scimitus may also be applied along with N. cucumeris for thrips management. Optimum conditions are 60-74°F at the soil surface and high humidity. They are inactive below 57°F but are not subject to diapause.

Phytoseiulus persimilis

P. persimilis is especially good for spider mite control in greenhouses during the warmer months, preying upon all life stages of the pest. Optimum conditions for this mite are 68-90°F and 60-90% RH. Although P. persimilis is voracious and sometimes recommended for inundative biocontrol, the reproductive rate of the two spotted spider mite will exceed that of P. persimilis at temperatures above 86°F. This species is not subject to diapause. In contrast to most other predatory mites used for biocontrol, P. persimilis will not eat pollen or prey other than spider mites, and therefore

World's first expertise centre for Agri-Food Robotics?

The world's first Centre for Doctoral Training (CDT) for agri-food robotics is being established by the University of Lincoln, UK, in collaboration with the University of Cambridge and the University of East Anglia.

The Engineering and Physical Sciences Research Council (EPSRC) has awarded £6.6 million for the new Centre, which will see a massive influx of high-level robotics expertise at a vital time for the agri-food industry. The CDT will provide funding and training for at least 50 doctoral students, who will be supported by major industry partners and specialise in areas such as autonomous mobility in challenging environments, the harvesting of agricultural crops, soft robotics for handling delicate food products, and 'co-bots' for maintaining safe human-robot collaboration and interaction in farms and factories.

"Automation and robotics technologies are set to transform global industries - within the UK alone they will add £183 billion to the economy over the next decade. Agri-food is the largest manufacturing sector in the UK - twice the scale of automotive and aerospace combined - supporting a food chain, from farm to fork, which generates a Global Value Added (GVA) of £108 billion, with 3.9 million employees in a truly international industry."

" The global food chain is under pressure from population growth, climate change, political pressures affecting migration, population drift from rural to urban regions, and the demographics of an ageing population in advanced economies. Addressing these challenges requires a new generation of highly skilled RAS researchers and leaders, and our new CDT will be dedicated to delivering those expertise. It will be a real focal point for robotics innovation in the UK."

Automation and robotics technologies are set to transform global industries - within the UK alone they will add £183 billion to the economy over the next decade.

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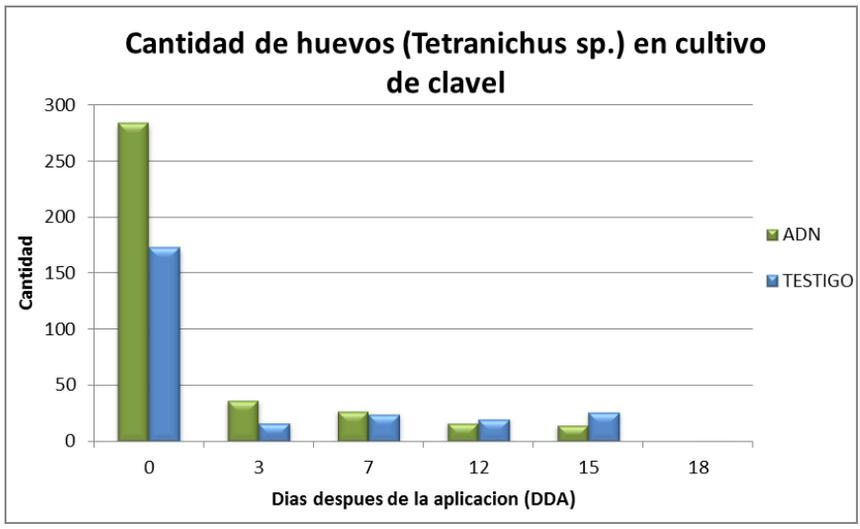
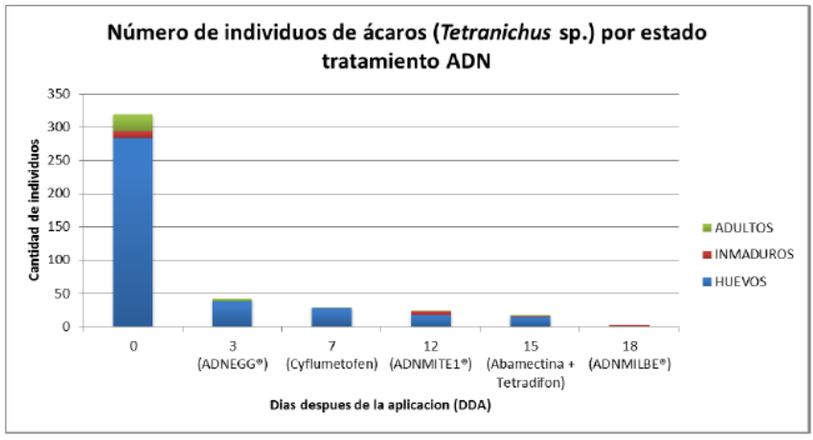


Grafica 1. Promedio de individuos de ácaros por lectura



Según estimaciones de Asocolflores, en la temporada de San Valentín 2019 se exportaron más de 35 mil toneladas de flores, es decir cerca de 600 millones de tallos colombianos, para cubrir la demanda de Estados Unidos.

De acuerdo con los concesionarios de los aeropuertos de Bogotá y Rionegro (Antioquia), más de 500 vuelos para la Temporada San Valentín despegaron desde Colombia. Para asegurar la calidad de las flores de exportación, la Asociación ha implementado programas que impactan positivamente en el medioambiente, con los que se redujo el consumo energético en un 61 % en los últimos cinco años, se implementó un sistema de riego en el que el 44 % del agua proviene de la lluvia y se disminuyó el uso de pesticidas químicos al 43 %.

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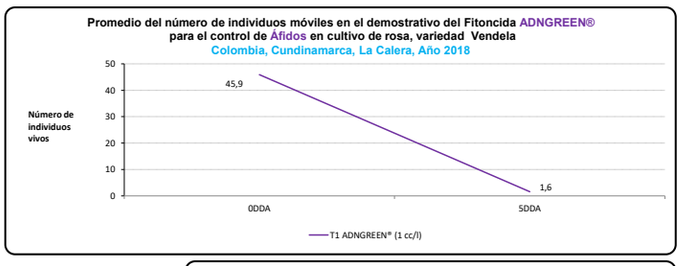

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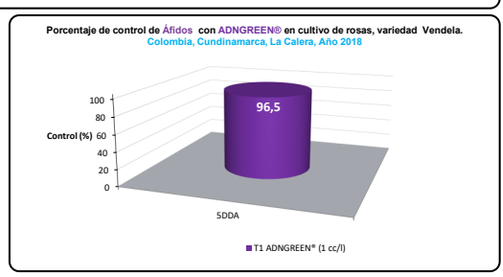

Powdery mildew on roses

Powdery mildew is one of the most prevalent and common diseases of roses caused by the fungus sphaerotheca pannosa var.rosae, This results in the production of white powdery fungal growth over the surface area of leaves and stems and at times the flower heads. Severe infected leaves turn yellow or brown and become wrinkled, eventually dying. The disease can also disfigure flowers and new rose buds.

Powdery mildew is favored by warm dry days followed by cool humid nights. If left unchecked, the microscopic spores spread quickly to the other unaffected plants.

Weather conditions

Powdery mildew is prevalent during dry summers at a temperature between 16- 27C which make conditions favorable for development and spread of the spores

Characteristics of affected plants

The affected leaves may appear discolored, curled or distorted.

The white powdery fungal growth can be sighted on stems, flower stalks, leaves, sepals and petals in severe cases. The affected plant experiences decreased plant growth and vigor due to reduced photosynthetic efficiency.

In severe cases the leaves fall off.

Natural control

Roses should be well spaced while planting to allow easy transpiration.

The greenhouses should be well ventilated for circulation of air.

Watering should be done properly to avoid water logging and soils aerated during the cold season. Plant disease resistant varieties

High pesticide exposure linked to loss of smell

A study of farmers linked high pesticide exposure, such as during spills, to later losing the sense of smell. Quick clean up may lower risk

The sense of smell is important. It allows you to experience pleasurable aromas, such as just-baked bread or a rose, and it can save your life by alerting you to a gas leak or smoke from a fire. But loss of sense of smell is common in people as they age, as well as in those with Parkinson's and Alzheimer's diseases.
Environmental exposures may also contribute to the loss of sense of smell. According to a study published Jan. 16 in Environmental Health Perspectives, farmers in the Agricultural Health Study (AHS) who reported experiencing a high pesticide exposure event (HPEE), such as getting a large amount on their skin, were more likely to have a loss of sense of smell approximately two decades later.
Researchers want to do more studies to identify other causes and to determine if loss of sense of smell due to HPEEs and neurodegenerative conditions arise from the same neurological damage.
Scientists asked 11,232 farmers during AHS enrollment if they had at least one HPEE, and approximately 16 percent reported that they had. Researchers asked the farmers twenty years later whether they had experienced a loss of smell.
Those who had experienced an HPEE were nearly 50 percent more likely to report loss of sense of smell compared with farmers who did not report an HPEE. The study also found that farmers who had an HPEE and waited four or more hours to wash away the pesticide had a two-fold higher risk of a loss of sense of smell compared with farmers who had not experienced an HPEE.
"The study not only suggests that unusually high exposures to pesticides may contribute to poor sense of smell among older farmers, but it also suggests that a quick clean up with soap and water might mitigate the risk," said Honglei Chen, MD., Ph.D., from Michigan State University in East Lansing. Chen, who served as corresponding author and led the study, first became involved in AHS research as a member of the NIEHS Epidemiology Branch

They did find six substances more likely to be associated with the loss of sense of smell — the organochlorine pesticides DDT and lindane, and herbicides alachlor, metolachlor, 2,4-D, and pendimethalin.
"We don't know what causes loss of sense of smell, but evidence from case reports and some animal studies suggests that pesticides could play a role," Sandler said. "This observation provided the justification for us to take the next step.

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Esta revista fue elaborada por el equipo técnico del CIEV basada en las novedades y tendencias de la agricultura mundial.