

REVISTA BIA #339

TRENDS

En esta edición:

- Evaluación de tres bioplaguicidas comerciales para la reducción de poblaciones de *Diaphorina citri* (Hemiptera:Liviidae)
- First report of *Tetranychus mexicanus* in the Netherlands
- California recommends restrictions for popular pesticide.
- Life cycle and appearance of Downy mildew.
- Organic Pest Control for Cannabis Home Growers.
- New Trends
- Employment in agriculture since 1800

En esta edición, presentamos el resumen del estudio realizado por el Dr. Augusto Ramírez y otros investigadores en donde ADNGREEN® fue uno de los bioplaguicidas evaluados para el control de *Diaphorina citri* obteniendo muy buenos controles en inmaduros. Para ampliar esta información pueden visitar: <http://hortsci.ashpublications.org/content/53/10/1453.abstract>

Evaluación de tres bioplaguicidas comerciales para la reducción de poblaciones de *Diaphorina citri* (Hemiptera:Liviidae)

El psílido asiático de los cítricos (ACP), *Diaphorina citri* Kuwayama, es la amenaza más grave para la industria mundial de los cítricos, y su manejo ha dependido principalmente de la aplicación de insecticidas químicos. El uso de bioplaguicidas puede jugar un papel importante en la regulación de esta plaga.

Regarding the use of the commercial extracts based on alkaloids, studies by Khan et al. (2013) and (2014) showed that the use of plant alkaloids such as tropane caused nymph mortality higher than 50% in laboratory and field conditions. Also, Zanardi et al. (2015) reported the positive effects on ACP control with the use of another plant alkaloid, matrine. These conclusions are in accordance with our findings in which Sophora (matrine) sprays caused a reduction of over 50% in ACP nymphs.

A plausible explanation for ACP nymph reduction in our study could be that plant extract alkaloids affect the production of acetylcholine by the insect and cause an antifeeding effect since they are applied on the plant surface .

En una primera prueba, se realizaron dos experimentos por separado en dos municipios diferentes (Apulo y Jerusalén, Cundinamarca, Colombia) para evaluar el efecto de las fumigaciones foliares de *Beauveria bassiana* e imidacloprid en las poblaciones de ACP en 2015 y 2016, respectivamente. En una segunda prueba, se llevaron a cabo dos pruebas separadas en cultivos comerciales de Limón Tahití para evaluar la eficacia de tres bioplaguicidas comerciales diferentes (*Beauveria bassiana* y extractos de *Sophora* sp. Y ajo y chile). En la prueba 1, los árboles tratados con imidacloprid mostraron una reducción (60% y 80%) en adultos ACP acumulados en 2016. Las ninfas acumuladas de ACP también disminuyeron con la aplicación de imidacloprid foliar y *B. bassiana*, entre el 40% y el 65% en 2015 y 2016 , respectivamente. Los huevos acumulados de ACP mostraron menores individuos en los focos tratados con imidacloprid a las 3 y 4 semanas después del tratamiento 9 (WAT) en 2016. En la prueba 2, los resultados obtenidos mostraron que los adultos y los huevos de ACP no se vieron afectados por los tratamientos con biopesticidas; Las ninfas se redujeron del 50% al 75% en los árboles tratados con los tres bioplaguicidas en comparación con los árboles de control. Los tres bioplaguicidas probados pueden considerarse herramientas útiles en los programas de manejo integrado de plagas (MIP) para ACP, ya que estos productos reducen el número de individuos ACP inmaduros entre 50% y 75% en condiciones de campo.



FITONCIDA INSECTICIDA

Bio-insecticida para control de Trips, Mosca Blanca Minadores y Diaphorina

Registro ICA # 7909, Patente No. 13222094

Actúa por contacto directo, afectando al insecto por 3 vías:

Afecta la movilidad del insecto dañino, la síntesis de enzimas vitales (efecto anti alimentario) y la permeabilidad de las membranas protectoras

Minador Adultos (*Liriomyza huidobrensis*)

Tratamiento

Producto: ADNGREEN®

Dosis: 1 cc/lt

Número de aplicaciones: Una

Aplicación del tratamiento: Aspersión directa sobre adultos liberados en plantas sanas confinadas en celdas entomológicas

Tipo de evaluación: Mortalidad de adultos

Número de repeticiones: 5

Unidades por repetición: 30

Testigo: sin tratamiento

Método para cálculo de eficacia: Fórmula de Abbott

Eficacia vs Testigo 97%.

Minador Larva (*Liriomyza huidobrensis*)

Tratamiento

Producto: ADNGREEN®

Dosis: 1 cc/lt

Número de aplicaciones: Una

Aplicación del tratamiento: Exposición de plantas sin aplicación previa de insecticidas a adultos, al observar presencia de daños por posturas se asperja el follaje con cubrimiento del 100%

Tipo de evaluación: Porcentaje de control de emergencia vs. testigo sin aplicación

Número de repeticiones: 7

Unidades por repetición: 5

Testigo: sin tratamiento

Método para cálculo de eficacia: Fórmula de Abbott

Eficacia vs Testigo 100%

TRATAMIENTO	5 DDA	10 DDA
<p>TESTIGO En este las larvas eclosionaron y se ven las galerias en la hoja.</p>		
<p>ADNGreen® FITONCIDA INSECTICIDA 1cc/lit No hay eclosion de las larvas no se observan galerias.</p>		

REVISTA BIA #339

First report of *Tetranychus mexicanus* in the Netherlands

The National Plant Protection Organization of the Netherlands has reported the first official finding of *Tetranychus mexicanus* in the Netherlands on 11 October 2018. The origin of the finding is probably Central America. The organism is not listed as a harmful organism in EU directive 2000/29/EC and is not listed on the EPPO lists. The pest was found as part of the official post-import surveillance programme. Approximately 25 plants of *Beaucarnea recurvata* were severely affected. Bleaching of the green leaves of the *Beaucarnea recurvata* pot plants was caused by emptying cells by the spider mite



Fuente : <https://www.floraldaily.com/article/9039797/first-report-of->

California recommends restrictions for popular pesticide

LOS ANGELES (AP) — California regulators recommended new restrictions Thursday on a widely used pesticide blamed for harming the brains of babies.

The Department of Pesticide Regulation issued temporary guidelines for chlorpyrifos that include banning it from crop dusting, discontinuing its use on most crops and increasing perimeters around where it's applied.

The DowDuPont pesticide currently used on about 60 different crops — including grapes, almonds and oranges — has increasingly come under fire from regulators, lawmakers and courts.

A federal appeals court in August ordered the U.S. Environmental Protection Agency to remove the pesticide from sale in the United States after it ruled the Trump administration endangered public health by reversing an Obama-era effort to ban the chemical. The EPA is appealing that 2-1 ruling to a full panel of the 9th U.S. Circuit Court of Appeals.

“currently used on about 60 different crops — including grapes, almonds and oranges — has increasingly come under fire from regulators, lawmakers and courts”

BRIAN MELLEY
November 15, 2018 at 11:38 AM CST

"The pathogens continue to grow inside the leaves and after a while new spore-bearing structures are protruding from the stomata. Because there are more stomata on the underside of the leaf, this is where most fluffy symptoms are found"



Life cycle and appearance of Downy mildew

Pathogens causing downy mildew are not fungi but Oomycetes and related to Pythium and Phytophthora. They survive as oospores. From these oospores or surviving mycelium sporangia are formed, structures in which zoospores are produced. However, in downy mildews, sporangia often germinate directly and the germ tubes infect the plants either through the stomata or directly by penetrating the cuticula. For germination free water is required. For most downy mildews, the optimum temperature is around 15 °C. The closer the temperature is to these 15 °C, the shorter the leaf wetness period that is required for germination.

Inside the plant, the pathogens produce haustoria, small organs with which the pathogen can take up nutrients from the living plant cells. The pathogens continue to grow inside the leaves and after a while new spore-bearing structures are protruding from the stomata. Because there are more stomata on the underside of the leaf, this is where most fluffy symptoms are found. The pathogens are dispersed by air, water and tools. Some species, for example *Hyaloperonospora parasitica* and *Peronospora farinosa* are assumed to be seed-transmitted (on the outside of the seed). Optimum temperature for germination, infection and sporulation is relatively low, in general between 10 and 20 °C. Late in the season new overwintering oospores are produced and buried in the soil with crop residues. Some species,

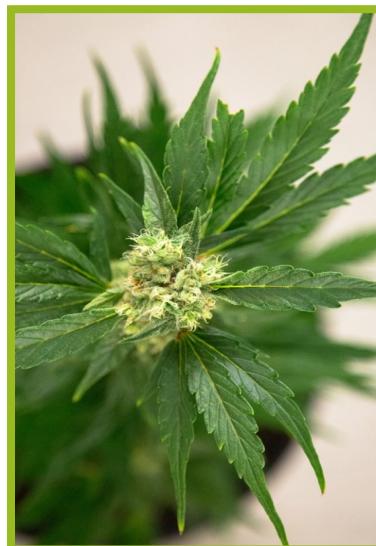
Fuente :<https://www.koppertus.com/challenges/disease-control/downey-mildew-of-cucurbits/>



NUTRACÉUTICO PREVENTIVO

**FORMULA NUTRACÉUTICA
EFFECTIVO ACTIVADOR-PROTECTOR DE LAS ALTAS CONCENTRACIONES DE SILICIO (370G/l) y
potasio (253 g/l)**
Registro ICA # 9626.





Organic Pest Control for Cannabis Home Growers

Integrated pest management (IPM) is a broad horticultural term used since the 1930s that essentially includes any system designed to control pest populations in order to minimize their overall damage output. IPM is a multidisciplinary reference that encompasses pest control solutions ranging from mechanical to biological and virtually everything in between.

Pest Control Tips for Home Growers from a Plant Pathologist

Never take any pests or disease lightly



Whether you have four plants or 4,000, a clean start is key

- Monitor your plants and inspect them daily
- Have biological pest controls on hand and know how to use them
- Experiment with different techniques and learn what works best for you
- If you spot insects on your grow, carefully remove them and use beneficial organisms
- If it's a disease you have to act quickly. If it's a serious disease, like powdery mildew, it may be necessary to cull the grow and start again with clean material

Fuente : <https://www.leafly.com/news/author/patrick-bennett>

New Trends

Cannabis bouquets are made from arrangements as well as solo stems of CBD-dominant, very low THC and terpene-rich cannabis flowers — otherwise known as craft hemp. For looks, a few other non-cannabis flowers are added into the arrangement.

And price points are competitive to your average floral arrangement, Howard adds.

What makes cannabis flower arrangements such a cool gift?

is that after using the bouquet to beautify a home or workspace, the cannabis sativa can continue to be used for other purposes. "You gift them," Howard says. "You take it home, or have it at work. We're adding a third step of enjoyment."

We could start seeing CBD-dominant infused weddings and special holidays



Mezcla de extractos vegetales de plantas del desierto de los géneros **Stemona japonica** y **Tea spp.**, estabilizada con trazas de Zinc (Zn) y Boro (B), con diferentes contenidos de metabolitos secundarios de defensa que actúan traslaminarmente en la cutícula de los insectos, provocándoles la muerte entre 4 y 6 días después del tratamiento. Efectivo sobre insectos chupadores como **Trips, mosca blanca, áfidos y minador**, entre otros.

APLICACIÓN:

Dosis: 1,0 a 1,5 cc/l de agua.
Cultivos: Rosa, Pompón, Frutales. Realizar aplicaciones foliares con intervalos de 15 días y en rotación con insecticidas químicos para disminuir la pérdida de susceptibilidad de las poblaciones de insectos a controlar.



Actúa por contacto directo, afectando al insecto por 3 vías:

Afecta la movilidad del insecto dañino, la síntesis de enzimas vitales (efecto anti alimentario) y la permeabilidad de las membranas pro-

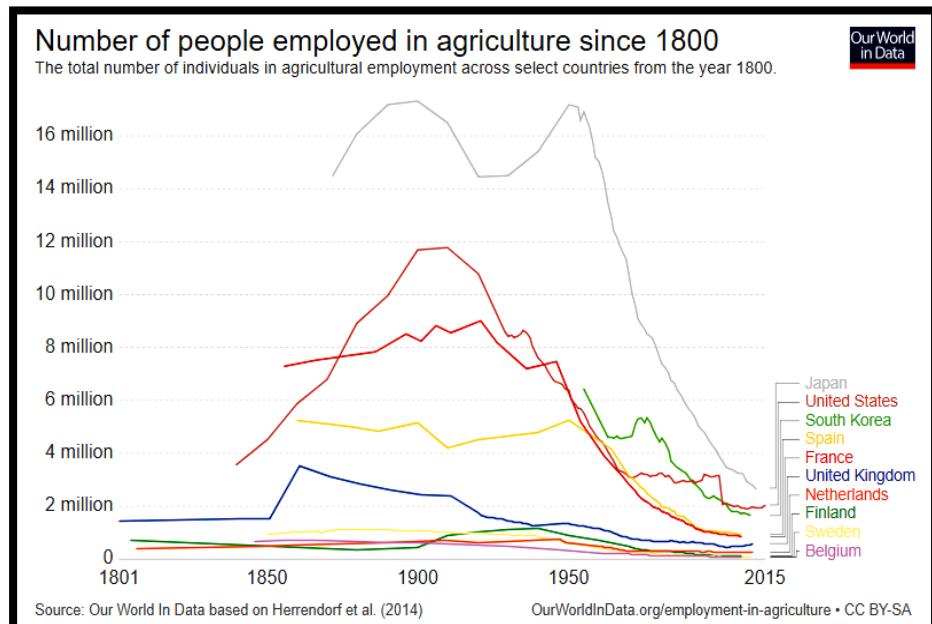


Employment in agriculture since 1800

As countries develop, the share of the population working in agriculture is declining. While more than 2/3 of the population in poor countries work in agriculture, less than 5% of the population does in rich countries. It is predominantly the huge productivity increase that makes this reduction in labor possible.

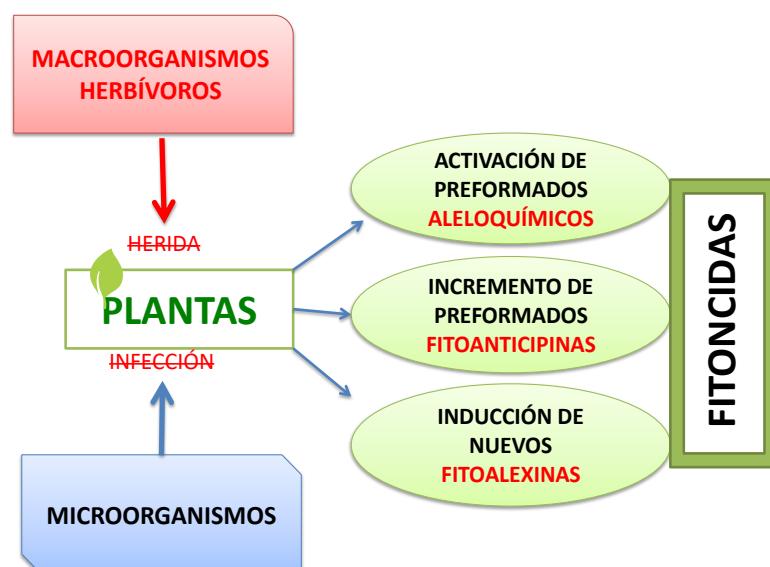
Similarly the productivity increase makes it possible to reduce the agricultural land needed to feed a given number of people.

The visualisation below shows the total number of people employed in agriculture across select European, North American and Asian countries since the year 1800. Over this period - and in particular since 1950 - we see an overall decline in agricultural employment to comparably low levels of employment today.(Our world in data, 2018)



Fuente : <https://ourworldindata.org/employment-in-agriculture>

¿Cómo actúan los fitoncidas?



ADNGReeN®
FITONCIDA INSECTICIDA

ADNGARD®
NUTRACEUTICO PROTECTANTE

ADNmilbe®
FITONCIDA MEZCLADOR ACARICIDA

ADNsil®
NUTRACÉUTICO PREVENTIVO

ADNMITE 1®
PRIMER FITONCIDA ACARICIDA

ADNegg®
NUTRACÉUTICO OVICIDA ACARICIDA

**Fitoncidas y Nutraceuticos
CREADOS, DESARROLLADOS Y PATENTADOS EN COLOMBIA
INNOVACIÓN CON EXPERIENCIA**



Investigamos la fuerza de la naturaleza

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

