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REVISTA BIA #337

ADN VERDE

TRENDS

En esta edición:

- Ventajas del comercio internacional de productos agrícolas
- Sistemas de alimentos y su relación con la salud humana.
- Los neurotransmisores desencadenan respuestas de defensa en las plantas
- Nuevos actors en el Mercado global
- Vietnam: Hacia los bioproductos
- Rusia: Menos rosas de Kenia y pequeñas flores en bouquets
- Botrytis y Biaproductos
- ADNEGG una nueva alternativa BIA

Feeding the world through International agricultural trade

17 September 2018, Rome - With climate change poised to alter significantly the ability of many world regions to produce food, it is expected that international trade in agricultural products will have an increasingly important contribution to feeding the planet and responding to climate-related hunger flare-ups, says a new report by the UN's Food and Agriculture Organization (FAO, 2018).

A transformation of agriculture and food systems have become paramount in the face of the world's rapidly deteriorating natural resources. Agroecological agriculture and food system practices, and the policies that support them, create positive and minimize negative environmental externalities leading to more resilient food systems. These systems – ecologically, economically and socially appropriate to their unique contexts – contribute to sustainable development for all.

While fast agricultural trade growth between 2000 and 2008, gave way to contractions during 2009-2012 and then to sluggish growth ever since, the bigger picture is that in value terms agricultural trade grew significantly between 2000 and 2016 -- from $570 billion to $1.6 trillion.

Much of this was driven by economic expansion in China as well as increased global demand for biofuels.

Notably, the profile of emerging economies in global agricultural trade have greatly increased, with rising per capita incomes and reduced poverty levels. This has boosted food consumption and imports and led to gains in agricultural productivity, driving up food exports, not only to markets in the industrialized world but also to other countries in the Global South.information.(FAO, 2018)

"The profile of emerging economies in global agricultural trade have greatly increased, with rising per capita incomes and reduced poverty levels…"

People's health and food system

60 Million People in Europe suffer from diabetes and 55% of the adult population in Europe is overweight or obese. The prevalence of NCDs is rising and two thirds of premature deaths are caused by four major NCDS (cardiovascular disease, diabetes, cancer and chronic respiratory disease) in Europe.

The Global Burden of Disease Study indicates that dietary factors and the supply of healthy food are crucial elements to tackle rising prevalence rates, obesity and overweight. The challenge is significant as governments, communities and individuals are confronted with increased health care expenditures, reduced work force capacities and environmental burdens.

Healthy and sustainable Food Systems are part of the solution to reduce diet-related diseases and environmental burdens. Healthy and sustainable food systems will not only contribute towards better health of European citizens but will also bring benefits for our natural environments, for our economy and will improve social wellbeing of European Citizens. A systems' approach is urgently needed.(Kickbusch et al, 2018)

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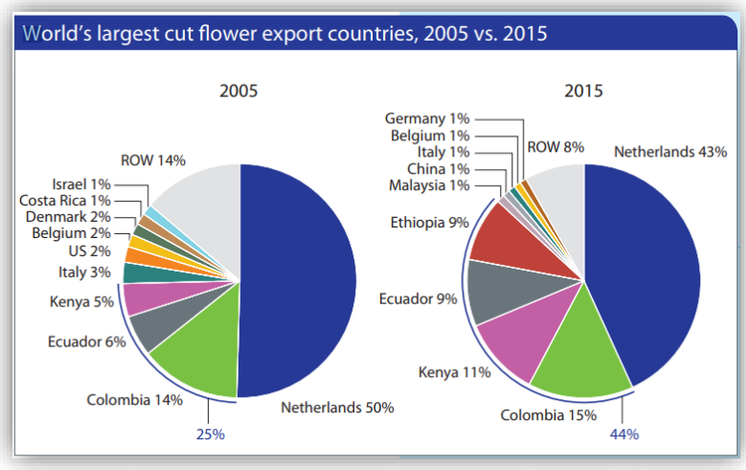
Nuevos actores en el mercado global

Holanda sigue siendo un mercado dominante en el comercio global de flores de corte, sin embargo, su participación en el mercado global ha declinado (43% en 2015 vs 50% en 2005). En 2014 importo €750 millones en flores. Los 5 principales proveedores son Kenia, Etiopia, Ecuador, Colombia e Israel. Si bien las rosas son la principal flor de corte comercializada por estos países, Colombia tiene una gama de productos relativamente diversificada y también es el mayor exportador de crisantemo y el segundo mayor exportador mundial de claveles en el mundo. A pesar de los bajos costos de producción, el clima favorable, el tamaño de las granjas y el aumento de la eficiencia y la calidad, sigue siendo un reto cultivar flores cortadas en estos países (Rabobank, 2016)

El consumidor de flores y plantas se ha vuelto cada vez más exigente solicitando certificaciones que avalen condiciones sociales buenas para los trabajadores y



Grafica 1. recuperado de World Floriculture Map, Rabobank,2016

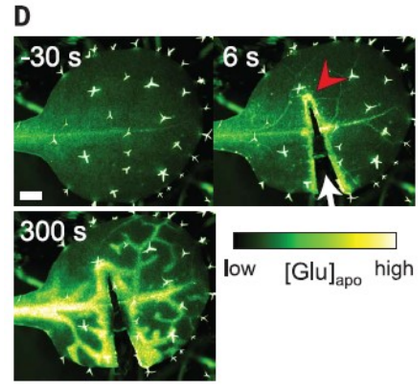
Neurotransmitters trigger defense responses in plants.

Plants are able to respond within minutes to physical stresses such as wounds, no matter how they are produced, by producing chemical signals through their vascular system. These chemical trades are JA, or jasmonic acid, in an effort to defend themselves from herbivore's attacks. JA causes problems when diggested and also works like a repelent to future attacks.

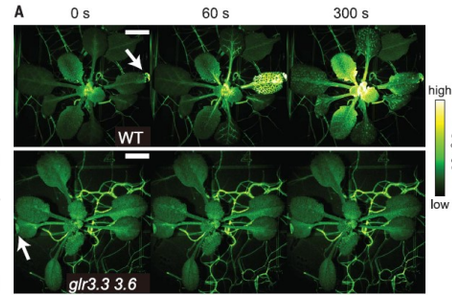
Glutamate in plants is taken like signal when wounds are produced and helps to concentrate calcium ions in distant organs to prevent more damage in its body. This substance is also found from root growth to pathogens defense, which means is widely use in its vital cycle. (Toyota et al.,2018)

Finally, glutamate are binded to amino acids which gates the pass of phloem to make it more effective when signals are activated. All of these points to the feeling part of the plants, and how they've been defending themselves from any kind of damage they could suffer.

As shown with glutamate, some natural compounds can be applied in prevention on plants to prime the whole plant defences in order to better resist to potential pest attacks. This strategy is an efficient way to protect plant and can contribute to reducing synthetic pesticide.



[Glu]apo levels using iGluSnFR. Cutting leaf 1 (arrow, 0 s) caused an immediate increase in [Glu]apo at the wound, which gradually spread throughout the leaf.



Application of 100 mM Glu (white arrow, 0 s) caused transmission of $[Ca^{2+}]_{cyt}$ increases to almost all leaves in wild type but not in the glr3.3 glr3.6 mutants.

Original article: http://science.sciencemag.org/content/361/6407/1112

More detailed video:https://www.youtube.com/watch?v=LeLSyU_iI9o

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Vietnam: Towards bioproducts

As fresh produce exports continue to see rapid growth in Vietnam, specialty products are more important than ever to enhance agricultural productivity and sustainability,

Key factors driving the rapid adoption of biologicals in Vietnam include pesticide residue problems in agro-products for local consumption, new requirements for Maximum Residue Levels on agro-products imported to the EU and U.S., and a growing number of banned pesticides

Recently, the Vietnamese Ministry of Agriculture and Rural Development requested the Plant Protection Department to reduce the number of chemical pesticide brands registered in Vietnam by 30 percent, replacing them with bioproducts. This amplifies the need for these three environmentally responsible MBI product solutions to help growers improve plant health and increase crop yields

Russia: Fewer roses from Kenya and small flowers in bouquets

In Russia, most roses are imported from Ecuador. This country supplies 60 percent of the Russian market. Russia is fifth in terms of import from Colombia, with the main products from this country being roses, carnations, chrysanthemums and alstroemerias

Compared to last year, there seem to be less roses from Kenya, probably because of the low production due to bad weather. Just like last year, the offer on the market was still not the same as before the financial crisis.

Where once 100 cm length was the standard, now you will see 60 cm flowers, and even 40 cm. Most roses are offered with a length between 50 and 90 centimeters. There is a minority of 100 and 120 cm, and 150 is hardest to find.

Having a quick look at the prices at the market, one sees that the rose prices range from 30/35 rubles for a 40 cm rose to 80 rubles for a 90 cm rose. However, there are also 90 cm roses which sell for 65 rubles. The 60 cm roses from Ecuador are sold for 80 rubles, and

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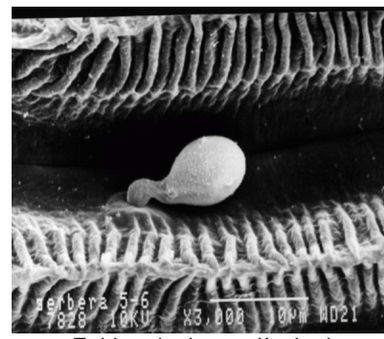
Mezclas de compuestos especiales de defensa extraidos de mezclas de vegetales con elementos minerales estabilizados y homogenizados que sirven para controlar plagas, enfermedades y arvenses en los cultivos

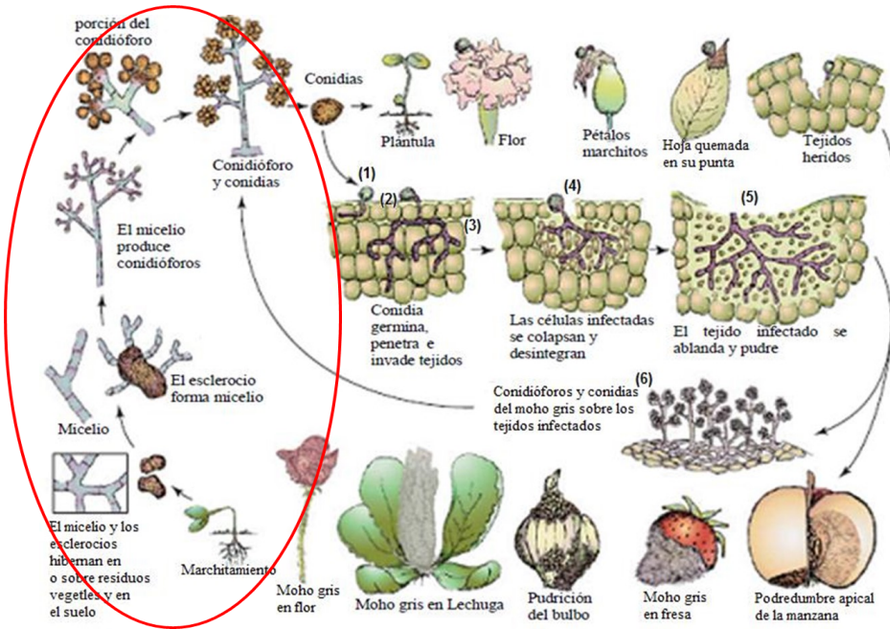
Botrytis cinerea; causas de aumento de la incidencia

- Cambio de la condición climática específica.
- Nuevas variedades.
- Presión química.
- Resistencia a los químicos.
- Descuido o cambio en el control cultural
- Condiciones administrativas o económicas que restringen.



Epidermis de una lígula de *Gerbera jamesonii* cv.

Ciclo patológico *Botrytis cinerea*



Grafica 2. *Ciclo de la enfermedad del moho gris causada por Botrytis sp. recuperado de Agrios, 2004*

Herrramientas BIA para control de *Botrytis cinerea*

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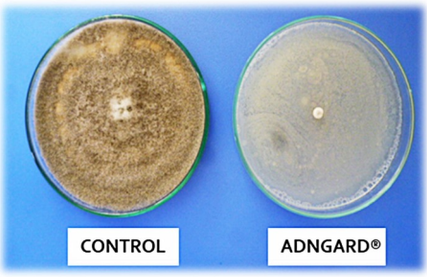
NUTRACÉUTICO - PROTECTANTE
Fórmula Coreana
Registro ICA # 6522.

Es un producto Nutracéutico antimicrobial con contenidos de fermentos y microfibrillas de calcio (Ca). Actúa de manera profiláctica para el control de *Botrytis cinerea*, *Alternaria sp.*, *Erwinia sp.*, *Mycosphaerella spp. e Itersonilia sp*, entre otros hongos patógenos.



Dosis: 0,5 a 1,0 g/l de agua.

Forma de uso:
- Realizar aplicaciones foliares con intervalos de 15 días.
- Se recomienda realizar al menos 3 aplicaciones antes del corte o la cosecha.
- Se ha utilizado en cultivos de flores y frutales.
- Se puede integrar en un programa de rotación con fungicidas químicos.

¿Cómo actúa?
El fermento crea una capa protectora sobre el tejido vegetal y las microfibrillas de calcio ayudan a fortalecer las paredes de las células vegetales dificultando la colonización de los tejidos por los hongos fitopatógenos. Para el caso de ornamentales, favorece la calidad de la flor y el tiempo de vida en florero.

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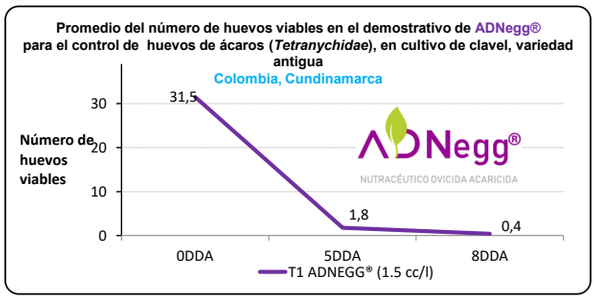
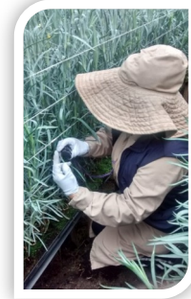
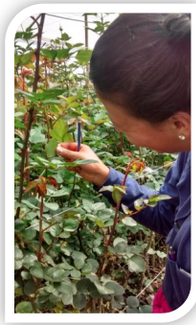
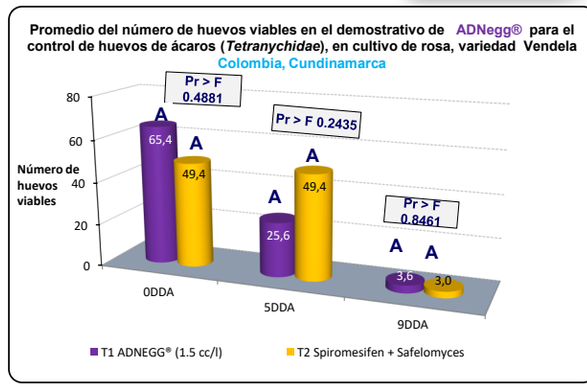
NUEVO OVICIDA ACARICIDA NATURAL

NUEVO FITONCIDA DESARROLLADO EN COLOMBIA
EN EL CENTRO DE INVESTIGACIÓN DE EXTRACTOS VEGETALES CIEV
FINCA VILLAVERDE-VEREDA BARROBLANCO-RIONEGRO ANTIOQUIA

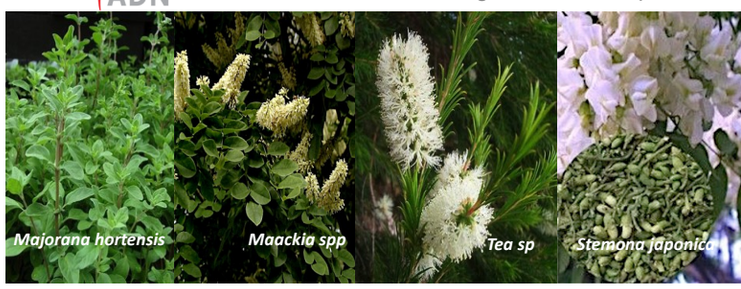








En el centro de investigación de extractos vegetales trabajamos con más de 30 diferentes géneros de plantas que hemos estudiado para llevar al mercado herramientas innovadoras de bajo impacto ambiental (BIA) en el control de plagas y enfermedades. A continuación algunas de estas plantas.



¿Cómo actúan los fitoncidas?

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

POR EL RESPETO

" MÁS QUE BUSCAR ELIMINARLOS DEBEMOS BUSCAR MANEJARLOS"

Esta revista fue elaborada por el equipo técnico del CIEV