

GROW MORE

FOLIAR • FERTILIZERS
MICRONUTRIENTS • BIOSTIMULANTS
CHEMICAL SPECIALTIES

Manufacturing Chemist Since 1918
735 Products Globally

Thomas Quick, Ph.D.

UC Riverside, BS Ent. 1977
MS & Ph.D. UW Madison 1985
"IPM In Cole Crops"

Rincon-Vitova, Mycogen Inc.
Abbott Labs, Eco Soil Systems

GROW MORE

OFAC
BioPDA



"IPM For Landscape Management, The New OIM Toolbox"



Tamarixia radiata



? What Are Organic Input Materials (OIM)

IPM Tools In AG. & Landscape & Turf ?

Management: A Multidisciplinary approach with:

Acceptable pest levels: “Action Thresholds, EILs”

**Preventive cultural practices: plant resistance, soil
tilth, planting times, best location.**

Monitoring: scouting, trapping (lure based or sticky)

Mechanical Control: sucker machines, barriers etc.

Biological Control (INCREASINGLY IMPORTANT)

Responsible OIM Certified Pesticide Use:

**“NOP/OIM Allowed: Effective, Safe and Selective and
Biological Pesticides Are Now Widely Available”**

You now have many Organic Products to Integrate!

Classes Of OIM **Safe & Selective** Pesticides

Pesticides = insecticides, fungicides, miticides, herbicides, sanitizers



Natural Products (sulfur, cryolite etc)

Bio-based (*Bacillus thuringiensis* spp,
Spinosad, harpin protein, streptomycin,
AVERMECTIN etc.

***Biological** (True BC Pathogens/diseases):

Bacillus subtilis: Serenade, Companion

Streptomyces lydicus: Actinovate

Metarhizium anisopliae: Met52

Beauveria bassiana: BotaniGard, Cease

***Beneficial insects and mites**

Botanical Extracts (rotenone, pyrethrins,
azadiractin (neem) vegetable, hort. oils)

***require host/pest/BC tetrahedron**

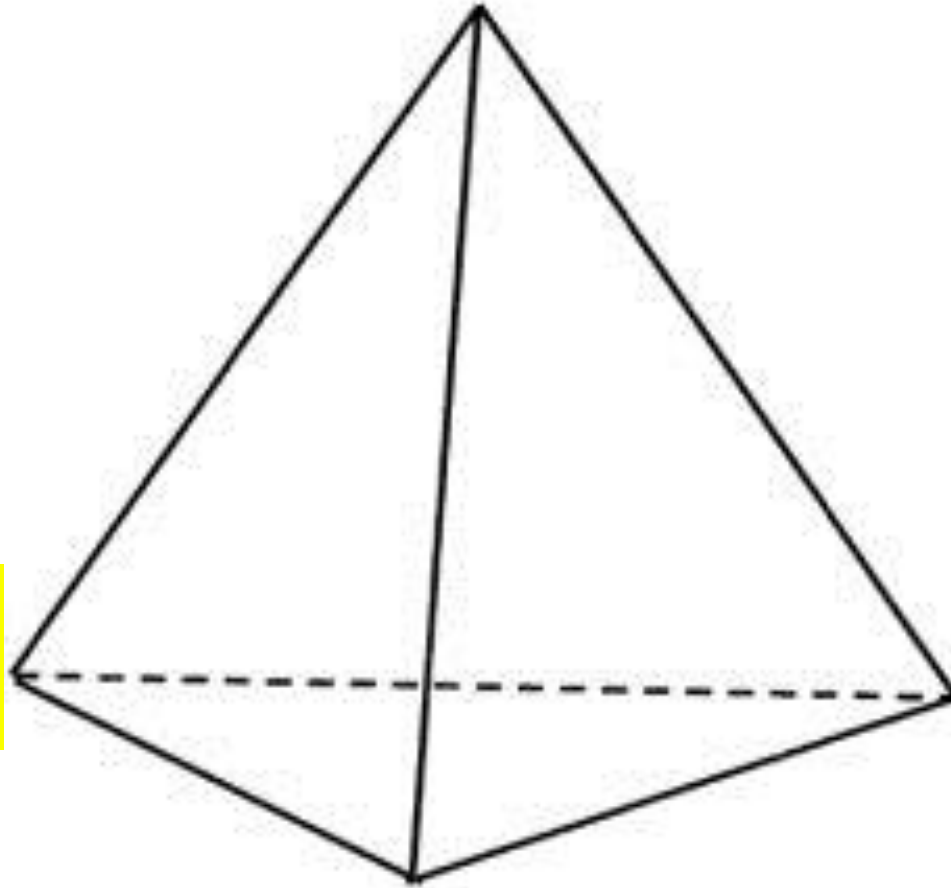


? What happens with Biological Control Products ?

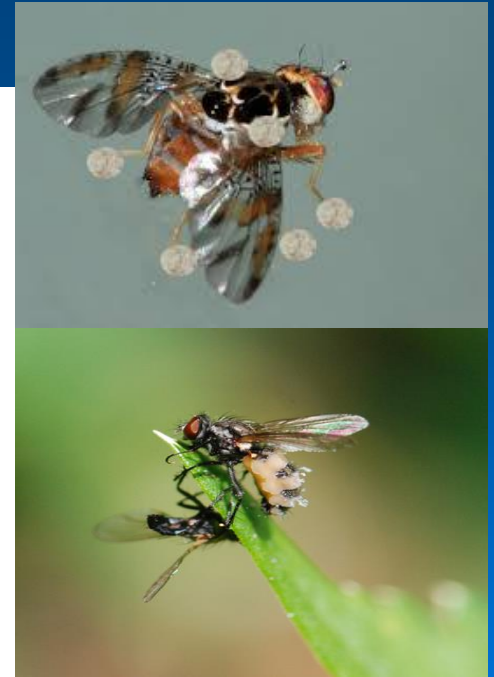


PEST
Bug or Disease

Time + Environment



Host (Crop)



OIM
BC Agent
Product

Commercial OIM IPM Support: Your Ag Products Producers (Insectaries), Distributors and Dealers

CALIFORNIA ORGANIC
FERTILIZERS, INC.™



Phyta-Guard® Product Line Description

Citronella**
Concentrate Liquid**
EC**
Phyta-Oil™**
Phyta-Oil Garlic™**
Phyta-Oil Garlic & Citronella™**



BIOLINK



bioBEST
A liquid garlic oil insect repellent for use on all plants. BioBEST is designed to repel aphids, scales, worms, flies, other plant-feeding, soft-bodied insects, and beetles.

SUSTAINABLE CROP MANAGEMENT

ARBICO
organics



BENEFICIAL
INSECTARY



BiSafe Systems LLC
Dow AgroSciences

Entrust*
Control natural
en cultivos orgánicos



KALIGREEN®
FUNGICIDA DE CONTACTO

REQUIEM



LifeScience

Soluciones Inter



SERENADE®
OPTIMUM

Rincon-Vitova Insectaries



Mycorrhizal Applications, Inc.

What Are The Types Of Biological Controls ?

Innundative & Augmentive Release
Conservation of Existing BC (Selectivity)
True Pathogens (Biopesticides)



? What Are The Types Of Biological Controls ?

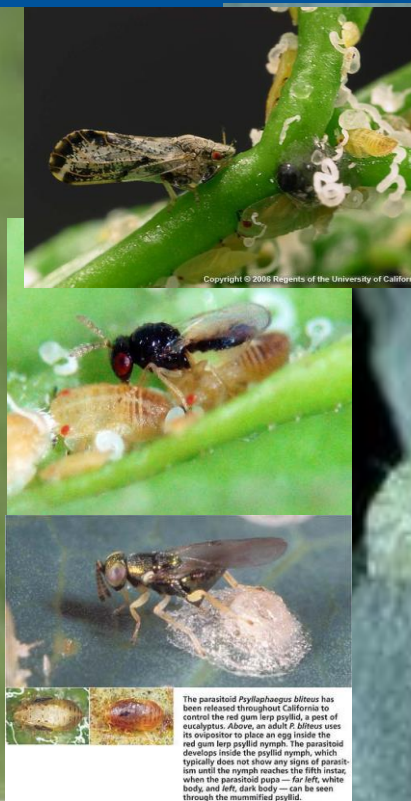
Classical BioControl Programs:

Exotic or Foreign Pest, Imported BC agent:

Cottony Cushion Scale Diamondback Moth



Since its introduction in 1888-1889, the vedalia beetle has successfully controlled cottony cushion scale, an invasive pest that had threatened the California citrus industry.



The parasitoid *Pyilophagus bilineatus* has been released throughout California to control the red gum leek psyllid, a pest of eucalyptus. Above, an adult *P. bilineatus* uses its ovipositor to place an egg inside the red gum leek psyllid nymph. The parasitoid develops inside the psyllid nymph, which typically does not show any signs of parasitism until the nymph reaches the fifth instar, when the parasitoid pupa — far left, white body, and left, dark body — can be seen through the mummified psyllid.



A big deal today! New Pests: ACP, GWSS, PSHB, Beetles

What Do These Have In Common ?



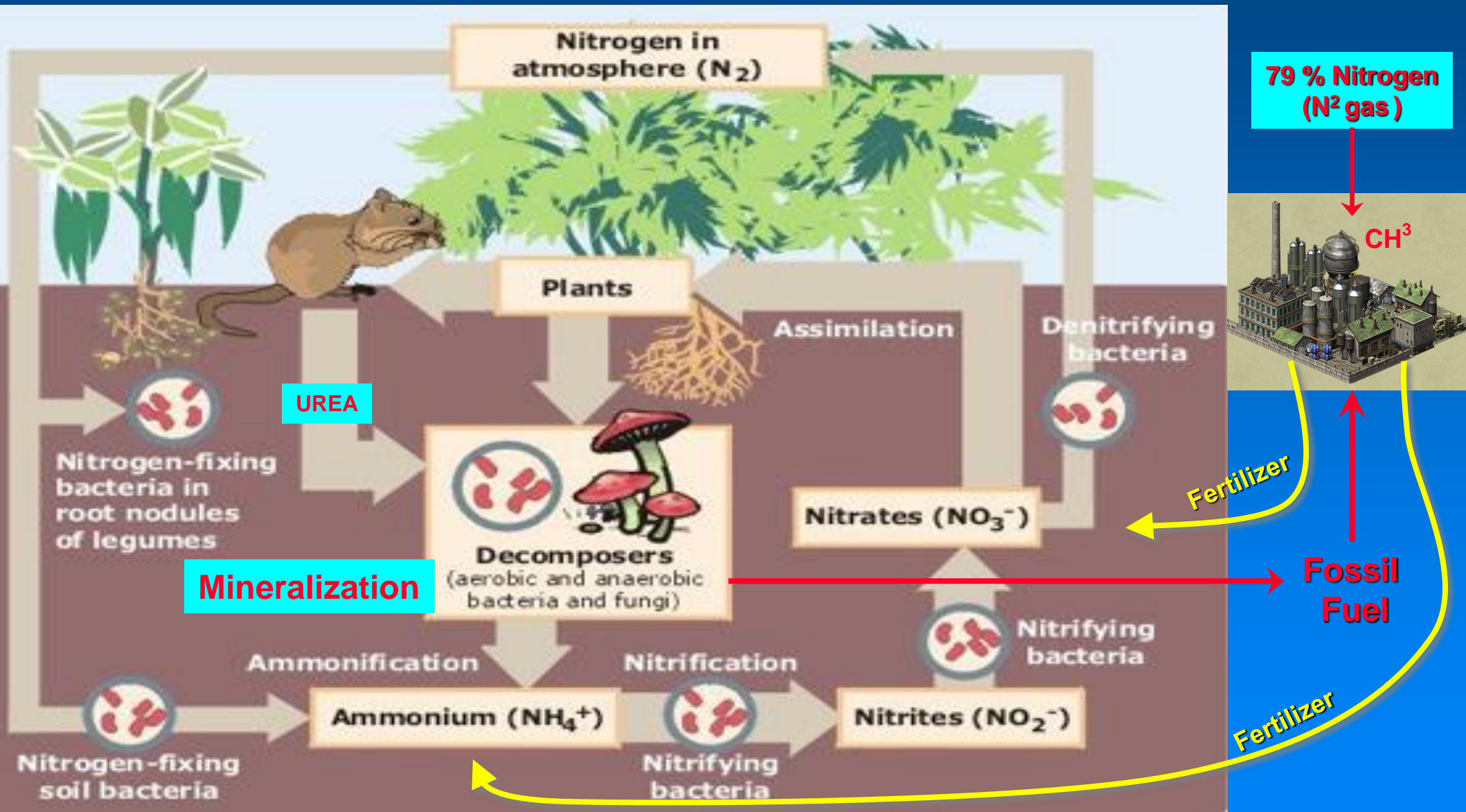
What Are Some Of Your Key Pests?



NITROGEN CYCLE: Why Do We Care About N Type?

Nitrogen [N] is generally the most difficult nutrient to manage organically

Do We Usually Have Balanced: Urea, Ammoniacal and Nitrate [N] ?



How Does Fertilizer Choice Affect IPM?



Triple Pro™ 15-15-15

DESCRIPTION: A HOMOGENEOUS MULTI-USE FERTILIZER WITH A 1 : 1 : 1 RATIO CONTAINING EQUAL AMOUNTS OF NITROGEN, PHOSPHATE AND POTASH PLUS SULFUR.

GUARANTEED ANALYSIS:

TOTAL NITROGEN (N)	15.00%
13.00% Ammoniacal Nitrogen	
2.00% Urea Nitrogen	
AVAILABLE PHOSPHATE (P ₂ O ₅)	15.00%
SOLUBLE POTASH (K ₂ O)	15.00%
SULFUR (S)	9.00%
Derived from Ammonium Sulfate, Monoammonium Phosphate, Urea and Muriate of Potash.	

KEEP OUT OF REACH OF CHILDREN



SUSTANE® 8 · 2 · 4



ALL NATURAL

GRANULATED SLOW RELEASE NITROGEN FERTILIZER

Guaranteed Analysis

Total Nitrogen (N)	8%
0.4% Ammoniacal Nitrogen	
0.4% Other Water Soluble Organic Nitrogen	
7.2% Water Insoluble Organic Nitrogen*	
Available Phosphate (P ₂ O ₅)	2%
Soluble Potash (K ₂ O)	4%
Calcium (Ca)	2%

Derived from aerobically composted turkey litter, feather meal and sulfate of potash.

*7.2% slowly available nitrogen from aerobically composted turkey litter and feather meal

Coverage & Application Rates

-Coverage

50 lb. covers 4000 ft²
@ 1 lb. N per 1000 ft²
provides 44 lb. N per acre

22.67 kg covers 372 m²
@ 0.5 kg N per 100 m²
provides 50 kg N per ha

-Application Rates

12.5 lb. per 1000 ft²
6.2 kg per 100 m²

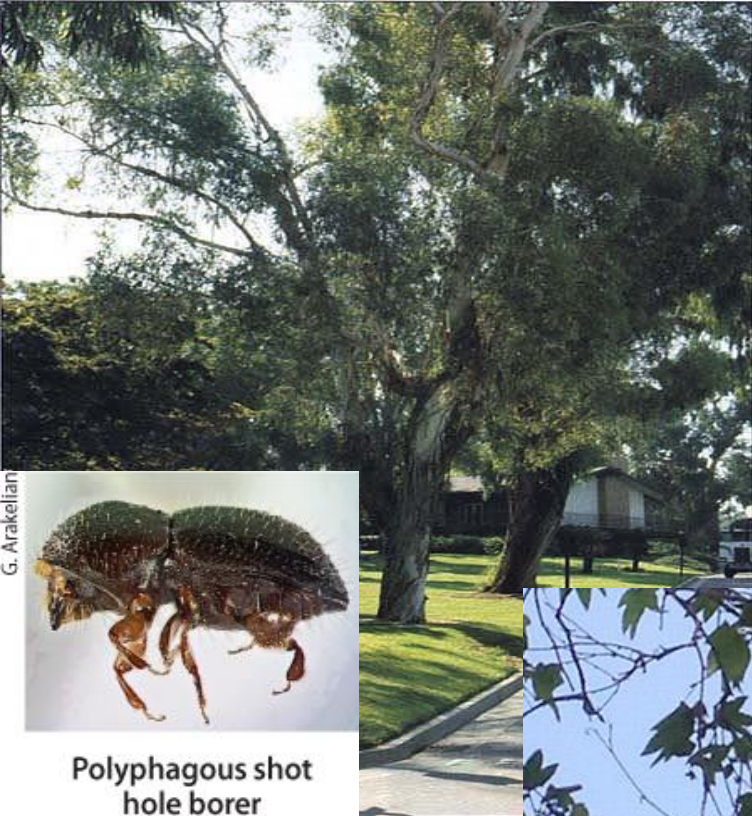
Medium Grade: Mesh Size -7+14
(2.8 mm to 1.4 mm) SGN 200





Some Of Our Key Pests?

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What Can We Do?



What Are Some Of Your Key Pests?



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**Confusing? Who Ya Gonna Call?
Your IPM PCA, CCA, University, Suppliers!**



INTEGRATED PEST MANAGEMENT
I  **IPM**

**PEST CONTROL ADVISERS PRACTICING AND PROMOTING IPM TO
PROTECT OUR WATER, FOOD, FIBER & HORTICULTURE**

**For more than 40 years we have promoted
IPM to protect sustainable Landscape and Ag.**

**Think about “IPM” as
Integrated Production Management!
For Sustainable Ag!**

The Good News Summary:

We have effective and selective OIM Certified pesticides
We have well developed IPM and PCAs and industry support
Integrated Production Management (IPM²) leads to
Sustainable Landscape, Recreation and Food Production !

GOOD LUCK! And Thanks, Dr. Tom

