



FOOD GRADE
PureAg™
Pest Control

ORGANIC SUSTAINABLE SOLUTIONS THROUGH GREEN CHEMISTRY



*PureAg Pest Control
embodies the essence of
nano-technology through
colloidal micelles.*

Plants that humans and animals depend on for life, are susceptible to 80,000-100,000 diseases caused by viruses, bacteria, mycoplasma like organisms, rickettsias, fungi, algae and other higher parasitic plants. Approximately 3000 species of nematodes attack plants and more than 1000 cause serious economic loss to crops. Of the 1 million known species of insects, about 10,000 contribute to the devastating loss of crops worldwide.



Pests are organisms that are competitive to mankind or his interests in some manner. Pesticides are agents employed by humans to control pests. The term 'pesticide' applies to insecticides, herbicides, fungicides and other types of pest controlling substances.

Worldwide, about 3 billion kg of pesticides are applied each year at

a cost of nearly \$40 billion dollars. In the U.S., approximately 500 million kg of more than 600 different pesticide types are applied annually at a cost of \$10 billion dollars. Paradoxically, despite the vast increase in the amount of pesticides, the amount of crop loss due to pests has increased from 31% to 37%.

Increasing amounts of pesticides are also leeching into our aquifers and



volatilizing into the air we breath. With the world population expected to undergo its most rapid 25 year increase in history, the need for new methods of pest control has never been greater.

PureAg Pest Control embodies these changes with the essence of the next technology movement; nano-technology through colloidal

micelles. PureAg Pest Control offers an environmentally friendly solution to many of today's agricultural problems. Farmers can now solve even the most troublesome pest problems in both a non-hazardous, and cost-efficient manner.

The fatty acids in PureAg Pest Control have both antimicrobial and anti-fungicidal properties known for their treatment of bacterial and fungal infections. It is also a potent, green chemistry pesticide in the battle against insect invasions. Its success against common plant predators, such as whiteflies, scales, thrips, mites, and mealy bugs, as well as fungal problems caused by downy and powdery mildew.

"PureAg Pest Control immediately impacts the exoskeleton structure of the pest upon contact. It does this by disrupting the molecular structure of the chitin and other protein substances that protect the insect. This mechanism of action triggers the rapid and irreversible deterioration of the insect's spiracles and tracheal system, resulting in suffocation.

The major benefit of this revolutionary method of

insect control is the absence of undesirable side effects on human health and the ecosystem. Unlike standard insecticides in use today, no built-in resistance can be developed by the targeted insects because this technology does not act on the nervous system, but rather on the respiratory apparatus.”

In short, PureAg Pest Control works at the organic molecular level, attacking the hydrocarbon composition of the pest, which is in total contrast to traditional chemical methods.

Here's How it Works

1. Fatty acids penetrate the insect's outer covering (cuticle), dissolving or disrupting cell membranes and cytoplasm. This disruption of cell integrity causes the cells to leak and collapse. This destroys respiratory functions, which results in dehydration.
2. It acts as an insect growth regulator interfering with cellular metabolism and the production of growth hormones during metamorphosis.
3. Due to its carbon length, it dewaxes the pest's joints, leading to paralysis, which allows them to fall victim to other pests.
4. It strips the pest's organic shields (wax, biofilm, etc.) used as a protectant, thereby rendering it defenseless against subsequent treatment.
5. It impacts the exoskeleton structure of the pest upon contact by disrupting the molecular structure of the chitin and other protein substances that protect the insect. This mechanism of action triggers the rapid and irreversible deterioration of the insect's spiracles and tracheal system, resulting in suffocation.



6. It has the ability to fit into the interstices of complex hydrocarbon chains within a plant's leaves and disintegrates them.

7. It emulsifies and separates bacteria.

8. Oil blends control insects by blocking specific neural pathways, octopamine neuron-receptors. Octopamine in insects are neurotransmitters that control insect movement, behavior and metabolism. The blockage of the receptor prevents the transmission of the octopamine signals, which leads to toxicity such as excitation, hyper-extension, and abdomen immobilization.

What Type of Plant Problems Does it Control?

A wide array of growers are now spraying thousands of acres to control insects and various fungal and bacterial diseases. Successful tests have been conducted by farmers and plantation owners on everything from fungal disease in the neck of onions to rust in ornamentals. To date, PureAg Pest Control has been found to be effective in controlling the following pests: Alternaria, Anthracnose, Aphids, Bacterial Spot (Peach), Blight, Botrytis, Canker, Cercospora, Chinch Bugs, Dieback, Downey Mildew, Fire Ants, Fusarium, Gray Mold, Leaf Miner, Leaf Hoppers, Mealy Bugs, Mites, Pear Psylla, Phytophthora, Powdery Mildew, Pseudomonas, Pythium, Rhizoctonia, Rice Blast, Rust (fig,plumeria),

Sawfly, Scab, Scales (Soft Green, San Jose, Torpedo, Euonymus, False), Sooty Mold, Thrips, Tomato Curl Virus (TYLCV), Volutella Fungus, Whitefly, Woolly Adelgid.

Recent Test Results

Successful crop tests have been conducted on tomatoes, bell peppers, eggplant, strawberries, papaya, asparagus, leafy vegetables, bananas, coffee, pineapple, rice, onions, oil palm, cucumbers, grapes, chili peppers, limes, wheat, macadamia nuts and cannabis.

A representative independent test read as follows:

Insect - Aphids: Tests were conducted on ornamental plants, potted plants, green pepper, and cherry trees. After three days, the mortality is 98%.

Insect - Scales: One test was conducted on potted plants with results. The scales on potted plants have 100% mortality after three days of spraying.

Plant Pathogen - Powdery mildew: Three dilution rates were tested. Experimental crops were melon, tomato and ornamental plants. After 15 days, no new infestations had occurred.

Other Agricultural Benefits

Anyone who has been monitored by the EPA in the U.S. or a comparable foreign regulatory body knows there are many other considerations that are of concern to the grower due to the prevalent and widespread

use of chemical pesticides. These may involve health of workers, compliance with tedious government regulations, and economic costs (both direct and indirect).

A typical grower may use 20 or more chemicals in the form of insecticides, fungicides, bactericides, and foliar feeders, depending upon the crops being sprayed and the problems being treated. Each of these comes with its own onerous list of instructions, requirements and cautions.

PureAg Pest Control has been successful in replacing almost all the diverse chemical toxic pollutants now in use. Those who have wished to keep using certain chemicals have mixed them with PureAg Pest Control and Foliar Feeder, thereby lowering cost and increasing effectiveness.

- **No health hazard concerns for workers, customers or owners**
- **No concerns of chemical drift harming neighboring plants or crops**
- **No special storage or disposal worries, unlike chemical pesticides**
- **No protective clothing or respiration equipment needed when washing plants**
- **No threat of property or ground water pollution from product spills**
- **No special training required**
- **Provides a non-hazardous and poison-free working environment by replacing dangerous fungicides, insecticides and pesticides, plus degreasers, toxic detergents and polluting solvents**
- **Self cleans equipment, spray tanks, applicators and nozzles**
- **Greatly reduces equipment maintenance costs**

- **PureAg Pest Control can be applied as a sole treatment, used in rotation with conventional pesticide applications, or mixed equally with most conventional pesticides**
- **No need to purchase and store multiple 'poisons' - i.e. insecticides, pesticides, miticides or fungicides, when using one all-purpose, nontoxic botanical cleaner.**
- **No more hazardous waste disposal requirements to follow**
- **No warning signs need to be posted before spraying**
- **Perhaps the most important benefit of all; increased peace of mind through better crop productivity, combined with non-poisonous and totally safe operations at greatly reduced costs.**

PureAg uses a proprietary process where plant-based ingredients are mechanically sheared, then chemically reacted to produce a two nano-meter sized micelle. All ingredients meet the criteria for the US EPA Design for the Environment Program. No ingredient appears on the CEPA DSL, or California proposition 65. Formulas and products have been third party reviewed by NSF which replaces the USDA and operates under the auspices of the World Health Organization. PureAg Pest Control is FIFRA 25b exempt and qualified as a minimum risk pesticide by the FDA.



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