

Bio-rational Asian Citrus Psyllid Control & Depopulation For Private, Residential & Commercial Citrus Trees

Defend Your Citrus

1.

Ants to right are maintaining and protecting ACP nymphs from beneficial predators in exchange for their honeydew, a nutrient rich fecal excrement ant foragers farm and store in their social stomachs to carry back to their nests to feed their queens, brood and colony.

2.

Adult Asian Citrus Psyllids "ACP" are very small 2.7 to 3.3mm long. They feed and lay their eggs in "flushes" young citrus shoots. During their life span, two to three months they lay 500 to 1000 eggs, dependent upon seasonal flush availability. (They do not fly at night and are easy targets for predators, including approximately 50+ species of spiders which live and feed in and around citrus trees.

4.

Without ants to protect ACP, lady beetles, their larvae, parasitoid wasps, lacewing, spiders, hoverflies, pirate bugs and numerous other kinds of biological predators aggressively attack and feed on ACP, aphids, scale, mealybugs, whitefly and other plant damaging disease spreading pests.

3.

USDA organic certified food crop compliant, the AntPro® Insect Control System destroys whole ant Colonies, not just foraging ants. AntPro also provides continuous long-term monitoring to prevent re-infestation.

ACP Population Control – A Better Road to Travel

The Disease

The existence of Huanglongbing disease (HLB) which in Chinese means “yellow dragon disease” also commonly known as Citrus Greening was first reported (documented in English) in Southern China in 1919. HLB is caused by a bacterium that progressively blocks the flow of nutrients within citrus trees and other related member plants of the Rutaceae family. Unfortunately, HLB disease is currently incurable. In most cases this progressive disease destroys most kinds of citrus over a period of 3 to 8 years.

The Disease Insect Vector

The Asian citrus psyllid, (*Diaphorina citri* Kuwayama) “ACP” Sub Order *Homopteros; is now a global insect pest in your area. ACP, a plant piercing and sucking insect is infected while feeding on a diseased plant then carries (flies) and transmits HLB’s phloem-limited bacteria (*Candidatus Liberibacter* spp.) During their life span consisting of 2 to 3 months ACP lay 500 to 1000 eggs which are deposited in the flush “a cluster of young citrus shoots”. When the psyllid nymphs emerge they feed on the trees new leaf phloem liquid over a period of 28 days through 5 growth stages to adulthood. It is these young infected adults that represent the greatest threat of rapidly spreading HLB to new citrus hosts.

Note; HLB spreads slowly within individual citrus plants. Some citrus may not show obvious signs of the disease over the first few years, where as others especially young plants may show signs in just a few months.

Ants, the Ultimate Enablers of ACP

The Argentine ant “*Linepithema humile*” is easily the most successful super organism invasive ant species present on six continents worldwide. Considered to be the number one urban insect pest in California where its presence was first reported around 1907. It is also responsible for direct and indirect damage to food crops which translates into considerable economic impact on farmers and consumers. Along with many other species of ants Argentines farm and protect ACP and other homopteran insects in exchange for their honeydew, a sugar-rich fecal liquid excrement that is the main component of their diet. Ants protect ACP from their natural enemies, (lady beetles, parasitoid wasps, lacewings, spiders, hoverflies and more) sometimes killing them in the process, thereby interfering with nature’s natural ability to control this pest and the potentially devastating HLB disease that may follow.

***Homopteros;** estimates of 32,000 species, are commonly known as aphids, scale, psyllids, mealybugs, whitefly and numerous other plant piercing sucking insects. Most of these insects are vectors of bacteria and viruses comprising more than 80% of all insect-transmitted plant diseases. Homopterans are considered to be the most destructive insects of both, food and non-food crops.

FACTS

As ACP and the disease HLB have spread to citrus growing regions around the world attempts with aggressive foliar & systemic insecticides to control growing ACP populations have been unsuccessful. As a result, numerous species of pollinators, arthropods including beneficial insect predators and non-associated life forms are killed by insecticide applications.

The presence of reproductive ACP adults in urban and rural residential citrus insures their continuous cross over into and from agricultural citrus groves. Unattended and abandoned citrus trees become nurseries for unchecked ACP reproduction; especially when ants are present in great numbers providing ACP nymphs protection in exchange for their honeydew. Their natural enemies, ladybugs, *Tamarixia radiata*, (a parasitoid wasp introduced from Pakistan by the University of California) lacewings, spiders and several other natural predators produce positive natural biological control results when ant populations are greatly reduced and unable to protect ACP.

Note; Dr. Mark Hoddle, Director of the Center for Invasive Species Research at UCR quoted in a UC Green Blog article Invasive Melt Down “The ants, therefore, will protect the nymphs from *Tamarixia*. We have seen ants chase female *Tamarixia* off the psyllids, and even catch and eat them!” (See brief UCR video [youtube.com/watch?v=VGXay2RYDul](https://www.youtube.com/watch?v=VGXay2RYDul))

Certified USDA “NOP” food crop compliant, AntPro when deployed near and around citrus trees in residential communities destroys ant populations with the same successful results achieved at commercial organic and conventional citrus groves. AntPro provides nature’s natural predators the ability to attack, feed and populate at the expense of Asian citrus psyllids, scale, aphids, mealybugs, whitefly and other noxious disease carrying, vectoring insects.

The KM AntPro’s Environment Friendly Insect Control System® is successfully deployed destroying super organism invasive tramp ant colonies globally at UNESCO world Heritage conservation sites, zoos, national parks and numerous other ecologically sensitive locations.

(See kmantpro.com/links.htm.) Also see; KM AntPro participation in UCR Department of Entomology’s citrus & urban pest management research Studies.

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*The AntPro system is made in the USA.
U.S. Patents 6,467,216 & 7,278,235
“Other U.S. and foreign patents apply”*