

USDA, ARS Announces Promising New Research Effort Which Could Potentially Reduce the Impact of Huanglongbing (=Citrus Greening)

During a recent international conference on Huanglongbing (=citrus greening) held in Ishigaki, Okinawa Prefecture, Japan, Dr. Tim Gottwald, Plant Pathologist/Epidemiologist, USDA, ARS, USHRL Ft. Pierce became aware of a promising approach for combating the spread of the disease. Gottwald learned of work that had been conducted in Viet Nam by Vietnamese and Australian scientists which indicated that interplanting citrus with guava almost entirely negated infestations by citrus psyllids, the vector of the disease, and as a consequence the citrus trees remained free of Huanglongbing. Within the first year, a citrus/guava interplanting remained disease free whereas, a similar plot of citrus alone showed signs of the disease within four months of planting and the disease increased to over 30%. Supporting observations have been made in other Vietnam groves where guava and citrus are intercropped. In addition, Vietnamese farmers working in intercropped groves have found that they only need to spray with vegetable oils when minor outbreaks of insects occur and that toxic insecticides are not needed. In addition to psyllid populations being reduced in the intercropping system, populations of other insect pests are reduced including those of aphids, leafminers, and mealybugs. Reductions of these other insect pests might have additional benefit in reducing the incidence of citrus tristeza vectored by aphids and citrus canker exacerbated by leafminer.

Based on these findings Gottwald has established a SAGE (Southeast Asian Guava Effect) team including Dr. David Hall, Entomologist and Dr. Greg McCollum, Plant Physiologist, to initiate a vigorous research program to determine if interplanting citrus with guava in Florida will reduce the spread of citrus psyllids, Huanglongbing as well as other insect pests and diseases. Experiments are being established in cooperation with commercial citrus growers in Florida to test the method. If the method proves successful, interplanting citrus with guava would be an environmentally friendly approach to combat a disease that is threatening Florida's \$9 billion citrus industry.

Guava, like other plants in the same family, is known to emit copious amounts of volatile compounds; it is possible that these volatiles in some way keep psyllids away from adjacent citrus trees. Therefore, the USDA research team will immediately determine if volatiles emitted from guava do affect behavior of psyllids. If results indicate that guava volatiles do deter psyllids from infesting adjacent citrus trees, these compounds will be isolated and then tested individually and in mixtures to determine those with the greatest effect. Once identified, alternative methods of dispersing the volatiles and testing their potential effect in commercial citrus plantings will be studied.