

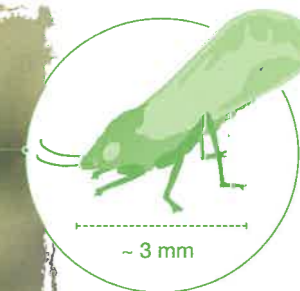
CITRUS GREENING DISEASE

A World without Orange Juice?

Citrus growers in the US have their back against the wall: A disease called Citrus Greening is threatening the existence of the whole industry. Effective solutions require a joint approach.



Citrus grower David Evans (left) inspects the damage to a grove in Florida together with Dennis Warkentin from Bayer CropScience. About 90 percent of Florida's orange trees are infected with this disease.



This tiny insect can cause tremendous damage: Psyllids feed off orange trees and in doing so can spread the bacterium responsible for citrus greening.

“The very future of the orange juice industry is at stake here.”

David Evans, citrus grower, Florida

Huanglongbing, also known as Citrus greening or yellow dragon disease, was first observed in China and has since spread to the two main growing

areas for juice oranges, Brazil and Florida. When a citrus grove is infected, the quality of the fruit declines and the trees die within three to five years.

“The culprit of the disaster is this tiny leaf sucker,” says David Evans, pointing to a minute insect that is hardly visible to the human eye. “If an infected psyllid feeds on the leaf of an orange tree only once, it has already transmitted the citrus greening disease. The leaves turn yellow and the oranges stay green. Three to five years later, the tree is dead.” David Evans is a fourth generation citrus grower. For him and his colleagues everything is at stake: “Oranges are to Florida, what wine is to the Moselle, the Rhine or the Rhône. We are fighting for the future of our orange state and for a tradition that is deeply rooted in all our lives.”

Huanglongbing (Yellow Dragon Disease), or Citrus Greening, has its origin in China. It is caused by bacteria, but is transmitted by the Asian citrus psyllids. Over the years, it has reached all countries where oranges for juice extraction are grown on a large scale: especially the US and Brazil. “The damage is enormous,” says David Evans. “In Florida, almost 90 percent of all orange trees are infected. Only five or six years ago, Florida used to produce 240 million boxes of oranges a year. Today we are down to under 100 million.”

To date, there is no cure for the disease, so for the time being the death of infected trees can only be delayed, not prevented. What we can do, however, is fight the psyllids who transmit the disease. Together with producer associations, universities and the juice industry, Bayer CropScience focuses on this fight against the sap-sucking mini bug. “You cannot control the problem with traditional contact insecticides,” says Kai Wirtz, Global Crop Manager Fruit at Bayer CropScience. “Psyllids are highly re-productive, so that if only one of them survives the insecticide treatment, it can start a new round of the vicious circle. We need systemic insecticides like Movento™* or the new Sivanto™* to make a lasting impact on our fight against the pest.” Bayer has received the registration for Sivanto™ in the United States and launched it in Florida in early 2015. Further registrations for Sivanto™ prime are expected in 2015 in Canada, Mexico and Australia and from 2016 onwards in European countries. Extensive field studies have shown that Sivanto™ meets a high safety standard. When applied at proposed label rates, Sivanto™ presents no effects on honeybee colony development. Bayer also supports the production

and distribution of beneficials against psyllids. “This year, we will take the first step and apply the *Tamarixia radiata* beneficial in abandoned and non-commercial orange groves to eliminate this important source of new infection,” says Kai Wirtz. Bayer researchers in Monheim, Germany, are also working on promising lures to develop traps that can be used to improve psyllid monitoring or to form a protective belt around the groves. Bayer CropScience will also start to operate model farms in Florida, Mexico and Costa Rica, to develop and demonstrate comprehensive solutions for psyllid control.

David Evans appreciates this commitment and is determined not to give up: “By their very nature, farmers are optimistic, persistent and resourceful. We will stay and fight. Our goal is to return Florida yields to their original 240 million boxes per year. Partnerships with research-based companies like Bayer will help us to succeed.” It looks as if we don't have to imagine a world without orange juice after all.

* Use plant protection products safely. Always read the label and product information before use.