



## **Huanglongbing: Understanding the new threat endangering the citrus groves**

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### *Abstract*

The citrus sector is seriously threatened by the infectious pathogen huanglongbing (HLB), sometimes referred to as citrus greening. Citrus plantations have been completely destroyed by the disease in a number of nations, including China, Brazil, and the United States. The goal of this article is to give a general review of HLB, covering its symptoms, transmission, and treatment options.

### **Introduction**

The bacteria *Candidatus Liberibacter spp.*, which causes Huanglongbing, is spread via the Asian citrus psyllid (ACP). Early in the 20th century, China was where the illness was originally discovered, but it has since migrated to certain other citrus-growing areas throughout the world. HLB is a devastating disease that can kill citrus trees within a few years, causing significant economic losses for citrus growers.

Yellowing of the leaves, irregular fruit ripening, and stunted development are all signs of HLB. Fruit that has been infected may also taste bitter, rendering it unfit for distribution or consumption. HLB can affect all citrus varieties, including oranges, grapefruits, lemons, and limes.

Transmission of HLB occurs through the ACP, which feeds on citrus leaves and stems. The bacterium is transmitted from infected trees to healthy ones when the ACP feeds on them. Once infected, the tree remains a host for the bacterium for the rest of its life.

Management of HLB is challenging, as there is currently no cure for the disease. However, several management strategies can help control its spread. These include the use of insecticides to control the ACP population, removal of infected trees, and planting of disease-free citrus varieties.

HLB is a complex disease, and its management requires a multifaceted approach. One such approach is the use of early detection and rapid response (EDRR) programs. EDRR programs involve regular monitoring of citrus trees for HLB symptoms, followed by swift action to remove infected trees and control the ACP population. These programs can help limit the spread of HLB and prevent further economic losses for citrus growers.



Another promising strategy for managing HLB is the use of genetic engineering to develop citrus varieties resistant to the disease. Researchers have identified several genes that may confer resistance to HLB, and efforts are underway to develop genetically modified citrus trees that can withstand the disease. While genetic engineering is a controversial topic, it may provide a viable solution to the HLB problem in the future.

The impact of HLB on the citrus industry cannot be overstated. The disease has caused significant economic losses for growers, reduced citrus production, and threatened the livelihoods of thousands of people worldwide. In addition to its economic impact, HLB also poses a threat to food security, as citrus fruits are an important source of vitamin C and other nutrients for many people.

In conclusion, HLB is a serious threat to the citrus industry worldwide. The disease is difficult to manage, and there is currently no cure. However, by implementing effective management strategies such as EDRR programs, using genetic engineering to develop resistant citrus varieties, and investing in research to better understand the disease, We can lessen the effects of HLB on the citrus sector and save the livelihoods of citrus farmers around the world.