

SN 1.4

Worldwide Distribution of Citrus Canker

Introduction

The very earliest discoveries of citrus canker are documented in the article by Schubert et al, as published in year 2001. (1) Further history of canker discoveries in Brazil are provided in an article by Drs. Graham and Gottwald. (2)

As of year 2016, citrus canker is present in four major citrus growing countries: Brazil, China, India and the US. (3) Citrus canker is present throughout Asia, as environmental conditions are highly conducive to the infection process, namely warm, wet conditions. By the EU decision 98/83 citrus canker is not known to be present in Chile, Guam and South Africa. Due to control or eradication efforts, some countries may be considered “canker-free” only to have canker rediscovered years or decades later. New discoveries are far better reported through the internet, rather than listed in this short note. Fortunately, two excellent websites are being maintained as discussed below.

The website www.cabi.org provides a datasheet (www.cabi.org/ics/datasheet/56921) which has extensive information on the current worldwide distribution of citrus canker. The website is part of the Invasive Species Compendium (ISC), providing datasheets, images, abstracts and full text articles on invasive species of the world.

The worldwide incidences of citrus canker are presented on the European and Mediterranean Plant Protection Organization (EPPO) at www.eppo.int. Their website contains information related to identity, hosts, geographic distribution, biology, detection, means of movement and other topics.

Each of these sites contain extensive bibliography on citrus canker. They also monitor many invasive diseases including citrus greening. I have not done an extensive comparison, but it appears the countries with citrus canker, also have citrus greening disease.

This short note may be updated as needed, but it is more likely to keep this information current, additional links will be placed on the www.citruscankerdocs.com website.

Early History

According to Schubert (1), the earliest documented cases of citrus canker occurred in India (ca. 1827) and Indonesia (ca. 1842) and Japan (1899). It continues to present in India, Indonesia, the Philippines and China.

Canker in the US has a very long history. Scientists believe citrus canker came to the US from citrus rootstock from Japan in 1910. It was discovered in seven states in the US: Florida, South Carolina, Georgia, Mississippi, Alabama, Louisiana and Texas. By 1943, citrus canker was eradicated in all states except Florida.

Citrus canker was discovered in Australia and New Zealand in 1937 and was considered to be eradicated in 1946. However, canker was rediscovered in Australia in year 2004.

Brazil

In 1957, citrus canker was present in Brazil, and continues to be considered a serious problem. Part of the early efforts in controlling citrus canker in Brazil, was restrictions on the movement of nursery stock. In describing the spread of the disease in Brazil, Graham notes that movement of apparently contaminated nursery stock was instrumental in spreading the disease through geographically separate regions of Brazil in the time period 1993 to 1997 [2]:

Up to 1993, most of the infestations were restricted to the traditional area (*to the south and west of Presidente Prudente district, State of Sao Paulo*). At that time, movement of infested nursery trees increased the number of foci until 1997 when there were 104 disease foci spread over 33 districts.

Dr. Graham states further the problems of contaminated nursery stock in Brazil (as of 1997):

Of great concern to the industry now is that 26 of the outbreaks are north of the river in the Noble production area. Because the disease was moved with nursery stock, the outbreaks are scattered over several hundred mile-wide area. [2]

However, Graham goes on to state that the experience in the São Paulo area is not the same as in the Miami outbreak as he states :

Longer distance spread (more than a mile) in Miami has been attributed to severe weather events that do not appear to be a contributing factor in development of new disease foci in Brazil. [2]

It is suggested in Chapter 9 of my book, that the disease in Florida did in fact, “move with nursery stock” and for this reason, outbreaks were scattered throughout Florida, just as occurred in Brazil.

Following Brazil, discoveries of canker occurred in Paraguay (1967), Argentina (1976), and Uruguay (1979).

Australia and Bahamas

Both of these locations are sufficiently remote to eliminate windblown rain as the source of citrus canker. Schubert [1] indicated that citrus canker had been successfully eradicated in 1985, yet 19 years later, in June 2004 citrus canker re-appeared in Queensland, Australia. Contaminated imported plants are suspected as the source of the outbreak.

The latest country to join the roster was the Bahamas in January 2005. The outbreak was confined to one grove, owned by a US citrus grower. It appears the outbreak was due to the illegal importation of citrus stock from the US. The grove was destroyed and no other outbreaks have been reported.

As stated on the CABI website, “The absence of disease from a field for more than 10 years is not sufficient to declare that the disease has been eradicate.”

Concluding Remarks

This short notes and the www.citruscankerdocs.com will provide additional resources on the distribution of citrus canker worldwide.

It is noted that the websites as noted below, provide excellent datasheets on citrus canker, including references to the worldwide presence of citrus canker.

References:

1. Schubert, T.S. , Gottwald, T.R., Rizvi, S.A., Graham, J.H., Sun, X., Dixon, W.N., 2001, Meeting the Challenge of Eradicating Citrus Canker in Florida- Again, Plant Disease, Vol. 85-4.
2. Graham, J.H., 1998, "Citrus Canker, Control Efforts in Brazil, Prognosis for Florida", 1998, Citrus Industry, **79**(8), 54-57.

CABI website: www.cabi.org

EPPPO website: www.eppo.int