

# Citrus Canker in Dade and Broward Cos. 1999

Report No. CCRAAG-9-Dade and Broward Cos.  
from the  
Citrus Canker Risk Assessment Group Meeting  
May 11, 1999  
Orlando, Florida

Citrus Canker Eradication Program  
A Cooperative Program of the  
Florida Department of Agriculture & Consumer Services, Division of Plant Industry  
and the  
USDA Animal & Plant Health Identification Service, Plant Protection & Quarantine

FDAS000241

Risk Assessment Group Meeting Report: CCRAG-9-Dade & Broward Cos.  
Citrus Canker in Dade and Broward Cos.  
Tuesday, 11 May 1999

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### Introduction

**PURPOSE:** The Citrus Canker Risk Assessment Group met on 11 May 1999 in Orlando, Florida to review and update guidelines for removal of exposed and positive citrus canker-infected trees in Dade and Broward Cos., Citrus Canker Eradication Program, Dade and Broward Counties (CCEP).

Members of the Risk Assessment Group were:

Dr. Wayne N. Dixon, Group Leader	Chief, Bureau of Entomology, Nematology, and Plant Pathology, Division of Plant Industry, FDACS
Dr. Timothy R. Gottwald	Plant Pathologist, Horticultural Laboratories, USDA, Agricultural Research Service
Dr. James H. Graham	Soil Microbiologist, Citrus Research and Education Center, IFAS, University of Florida
Mr. Leon Hebb	Co-director, Citrus Canker Program, Manatee Co., // Chief, Bureau of Pest Eradication and Control, Division of Plant Industry, FDACS
Dr. Xiaoan Sun	Plant Pathologist, Plant Pathology Section, Division of Plant Industry, FDACS
Dr. Timothy S. Schubert	Plant Pathologist, Plant Pathology Section Administrator, Division of Plant Industry, FDACS
Dr. Stephen R. Poe	Plant Pathologist, USDA Animal and Plant Health Inspection Service, Plant Protection and Quarantine

In addition to the members, the following were present and participated in the group's review and discussion:

Mr. Ken Bailey, FDACS/DPI, Citrus Canker Eradication Program, Dade and Broward Cos.  
Ms. Yvonne DeMarino, USDA/APHIS/PPQ, Citrus Canker Eradication Program, Dade and Broward Cos.  
Mr. Richard Gaskalla, FDACS/DPI  
Dr. Jim Griffiths, Citrus Grower Associates  
Dr. Chancellor Hannon  
Mr. Michael Hornyak, USDA/APHIS/PPQ, Citrus Canker Eradication Program, Dade and Broward Cos.  
Mr. Andy Lavigne, Florida Citrus Mutual  
Dr. Laurene Levy, USDA/APHIS/PPQ, National Plant Germplasm Quarantine Center  
Mr. Jim McKee, FDACS/DPI, Citrus Canker Eradication Program, Dade and Broward Cos.  
Mr. Chip Powers, Lakeland Ledger  
Dr. Shabir Rizvi, FDACS/DPI, Citrus Canker Eradication Program, Dade and Broward Cos.  
Dr. Arnold Tschanz, USDA/APHIS/PPQ, National Plant Germplasm Quarantine Center

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The following schedule and agenda was planned for the Risk Assessment Group:

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**Agenda**

10:00 AM **Goal:**           **Review and update guidelines for removal of exposed and positive citrus canker-infected trees in Dade and Broward Cos.**

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	<b>Introduction</b>	Wayne Dixon
	<b>Objective:</b> Research evaluation of the 125' rule	Jim Graham
	<b>Objective:</b> Review Final Analysis of GPS Epidemiology Study	Tim Gottwald Xiaoan Sun
	<b>Objective:</b> Review operational data from Dade/Broward program	Tim Gottwald Xiaoan Sun
	<b>Objective:</b> Review program issues	Ken Bailey Shabir Rizvi Xiaoan Sun
	<b>Objective:</b> Integration of review information	Group
	<b>Objective:</b> Development of guidelines	Group
	<b>Objective:</b> Preparation of risk assessment report: CCRAG-9-Dade and Broward Cos.	Group
12:00 PM	<b>Working Lunch and Break</b>	
1:00 PM	<b>Continue risk assessment meeting</b>	Group
4:00 PM	<b>Adjourn</b>	

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The citrus canker risk assessment group commenced the meeting at 10:00 AM and adjourned at 3:40 PM.

### Recommendations by the Citrus Canker Risk Assessment Group

1. Exposed trees should be removed from any property to a radius of 1900 feet from a positive citrus canker-infected tree.

Motion: Dr. Steve Poe

Second: Dr. Jim Graham

Vote: Approved unanimously.

2. The 1900-foot radius for removal of exposed trees should initially be implemented in all positive sections in Broward Co. and proceeding southwards as well as all positive sections in southern Dade Co. and proceeding northward. Control action for positive and exposed trees in the interior portion of the regulated area will consist of removal of positive and exposed trees from the positive property and include all exposed citrus trees initially to a radius of 125 feet but should expand to 1900 feet from the positive tree as control action resources become available. Other program actions shall be in accordance with procedures as defined in the Citrus Canker Strategic Plan.

Motion: Dr. Wayne Dixon

Second: Mr. Leon Hebb

Vote: Approved unanimously.

### Summary

The establishment and spread of Asian citrus canker in Florida is dependent on many variables, including but not limited to, citrus host plant and cultivar susceptibility, horticultural condition (suitability), and distribution and density (availability); weather conditions that promote windblown rain spread of the bacterium; movement of diseased plant material or pathogen by people and other agents, and amount of citrus canker inoculum, particularly as influenced by the damage caused to young leaves, stems, and fruit by the Asian citrus leafminer. Interacting with these factors are the efficiency and resources for disease survey and control (manpower, equipment, supplies) available to an eradication program, as in this case, the CCEP. Ultimately, successful eradication of Asian citrus canker from Florida will require the CCEP (Dade, Broward, Manatee, and Hendry Cos.) manage as many parameters as possible to effectively reduce the disease-causing bacteria to a non-viable population level.

Since the detection of Asian citrus canker in Westchester (Miami area) on 28 September 1995, the Citrus Canker Eradication Program has faced a significant challenge of eradicating citrus canker. The first risk assessment ("RA-1, Miami, Florida"; Citrus Canker Project Risk Assessment Group Report, 10/25/95) recommended as an option the complete removal of all infected host plants (disease-positive) and



buckhorning of all host plants within 125 feet of infected trees (disease-exposed) from the incipient 14 miles<sup>2</sup> of citrus canker infection; the CCEP adopted this recommendation. Over time, the continued expansion of the regulated area prompted an epidemiological review of the CCEP's progress. The analysis suggested that buckhorning exposed trees was not sufficient to reduce the risk of citrus canker infection to a meaningful level. The program modified its procedures to the complete removal of exposed trees within a 125-foot radius of a positive tree.

From early 1998 to early 1999, the program cut and removed only positive trees, *i.e.*, no exposed tree was buckhorned or removed. During this one-year period, a study was developed by Drs. Tim Gottwald and Jim Graham<sup>1</sup> in cooperation with the CCEP to monitor the spread of citrus canker in four residential areas. Nearly 15,000 trees were checked at least three times for evidence of citrus canker. Age of the lesions (birth date) on any subsequently infected tree was determined. Also, the location and distance of any secondarily infected trees (and non-infected trees) from the alpha or focal positive tree was calculated through differential GPS readings. Recent analyses of these data suggest that the employment of the 125-foot rule for exposed trees would result in control action on approximately 20% of the subsequently-infected trees that resulted from disease spread from focal trees. Conversely, to capture at least 90% of the subsequently-infected trees, it would be necessary to use a 1,200-foot radius; for the 95% level of capture, a 1,600-foot radius was estimated; and for the 99% level, a 1,900-foot radius was determined from one study area's data (see attached table).

Additionally, an ongoing analysis of property and tree data from the CCEP's operational database suggested that buckhorning or complete removal of exposed trees within a 125-foot radius from a positive tree was insufficient to reduce the incidence of subsequently-infected trees. In effect, re-survey efforts kept detecting a substantial number of newly infected trees in older and newer canker-infested areas. In 'core' areas, as many as 14 re-surveys have been conducted and infected trees are still encountered. In Florida, Argentina, and Uruguay, published studies made in commercial citrus groves further substantiate the long-distance spread of citrus canker from focal trees and the inability of 125 feet (or 30 meters) to adequately remove all subsequently-infected trees.

To date, about 138,000 infected and exposed trees have been removed under the CCEP in the regulated area. Control action has occurred on over 65,000 properties out of 1.8 million inspected properties. Even so, over the past three and one-half years the CCEP has grown from directing eradication efforts to an original 14-section area (14 mi<sup>2</sup>) to a 225-section area containing infected citrus within a 500 mi<sup>2</sup> quarantine area..

The CCEP attempts to utilize a 45-60-day inspection cycle to resurvey trees. Generally, control action is implemented within 14 days of a diagnosis of citrus canker for a tree. The Citrus Canker Risk Assessment Group concurs with using a 45-60 survey cycle and control action within 10-14 days of positive diagnosis. A shorter cycle of reinspection is biologically ineffective and wasteful of program resources since field detection of new disease can not occur before 45 days after onset of infection.

<sup>1</sup> Abstract to be published in Annual Phytopathological Society meeting: Gottwald, T., Sun, X., Riley, T. and Graham, J. 1999. Estimating spread of citrus canker in urban Miami via GPS. *Phytopathology* 89 (supplement): S29.

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# May 11, 1999 Meeting of the Canker Risk Assessment Group

Citrus Canker Urban Miami Epidemiology Spread Study Site 1

Temporal Window	No Focal (Alpha) Trees	No 2ndary-Infected Trees	% Captured at 125 ft	90%	95%	99%	Max Distance
1st 1-Mo Window	38	15	13	800	4150	4150	4150
2nd 1-Mo Window	52	39	33	1450	1450	1650	1650
3rd 1-Mo Window	90	73	41	1200	1600	1900	1900
4th 1-Mo Window	162	235	30	700	800	1450	1850
5th 1-Mo Window	396	124	36	350	500	700	750
6th 1-Mo Window	519	32	69	250	950	950	950
1st 2-Mo Window	38	53	24	1450	1450	4150	4150
2nd 2-Mo Window	90	307	22	1050	1400	1650	2100
3rd 2-Mo Window	396	155	39	350	600	950	950
4th 2-Mo Window	550	490	56	300	350	700	850
1st 3-Mo Window	38	125	24	1400	1450	3200	4150
2nd 3-Mo Window	90	430	22	950	1250	1600	2100
3rd 3-Mo Window	396	420	45	350	450	700	950
1st 4-Mo Window	38	359	14	1400	1650	2150	4150
2nd 4-Mo Window	90	461	21	950	1300	1800	2250
3rd 4-Mo Window	396	644	46	350	650	850	950

Recalc 5/26/99 T. R. Gottwald

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