Ms Maureen Weeks
Committee Secretary
Senate Committee on Rural and Regional Affairs and Transport
Parliament House
CANBERRA ACT 2600

24 June 2005

Dear Ms Weeks

RE: CITRUS CANKER INQUIRY

Please find attached the Australian Citrus Growers submission to the Senate Committee's Inquiry into the citrus canker outbreak in Queensland.

This outbreak has had a catastrophic effect on the growers in Emerald, and there are a number of unresolved issues which require investigation. There are also a number of lessons which could be learnt from the Emerald eradication program which need to be incorporated into planning of responses for future emergency plant pest incursions.

Some of these issues are discussed in our submission, and include;

- The need for mechanisms within the management program to consider the social and economic impact on growers and on the community.

- The need for industry to be involved in the reviewing the eradication program and for the contingency plan to be upgraded with grower input.

- The need for a stronger framework for emergency management of plant pests with legislation that is applicable to all jurisdictions of Australia.

- The need for transparency of process and improved communication in the event of emergency plant pest management activities. The confidential Deed of Agreement with Evergreen Farms caused suspicion and wariness among growers and others involved in the process.

- The unfortunate consequence of the current canker outbreak would be that there is little incentive for growers to report suspected outbreaks of disease/pests. The implications of this for Australia's quarantine services and for industries are enormous.

Australian Citrus Growers would be pleased to answer questions or clarify any issues raised in the attached submission, and we look forward to a successful outcome for this awaited investigation.

We can be contacted by telephone on 03 50236333, by mobile telephone on 1427 219151 or by email at australiancitrusgrowers.com

Yours sincerely,

Leonie Burrows
Executive Director

Submission to Senate Committee Inquiry – Citrus Canker

Mark Chown, President, Australian Citrus Growers

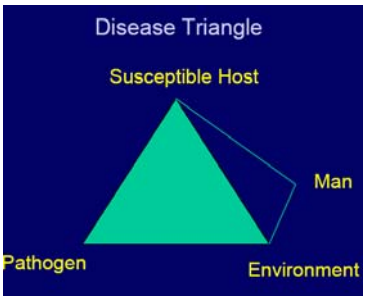
Leonie Burrows, Executive Director, Australian Citrus Growers

Pat Barkley, Technical Adviser.

June 2005

Preamble:

In conducting the canker (or any) surveillance and eradication programme, it must be realized that we are dealing with a biological system, where there are no hard and fast rules for how the disease will behave, because its progress is affected by environmental effects on the host and the pathogen**.**



Citrus canker is highly contagious and can be spread rapidly by:

- windborne rain
- orchard equipment
- animals and birds
- people carrying the infection on their hands, clothing, or equipment
- moving infected or exposed plants or plant parts

(http://www.doacs.state.fl.us/pi/canker/what.htm)

ACG encouraged the early development of the Citrus Biosecurity Plan and worked with the Office of the Chief Plant Protection Officer, AFFA in the development of the draft Canker Contingency Plan (circulated to state departments for comment, March, 2004).

The gross value of production for the Australian citrus industry in 2002/03 was $508 million. Of this $111.8 million (22%) was produced in Queensland. Of the $200 million (25%) of the Australian citrus crop exported, $38.3 million were exported from Queensland ($33.7 million were export mandarins).
The citrus industry is Australia's largest fresh fruit exporting industry, with citrus exports valued at $201 million in 2002/03 and $153 million in 2003/04.

The Pressler (subsequently ACG) Pre-Emptive Destruction Proposal and its Scientific Basis

- Pre-Emptive Destruction Proposal presented to State Government via a meeting with Premier's Office Representatives (and QDPI&F) on 19 October 2004.
- Pre-Emptive Destruction Proposal presented to Federal Minister Truss on 29 October 2004.
- QDPI&F 3 week evaluation of proposal

- 8 November - QCG Supplementary submission in support of proposal.
- 11 November - QCG full Management Committee met with Senior QDPI Executives in Brisbane pushed for acceptance of pre-emptive destruction proposal
- QDPI&F review recommended not to change course, and this was accepted by the Consultative Committee (19 November 2004)
- 22 November 2004 - CCEPP recommendation to National Management Group confirms continuation of cookie-cutter program. NMG also recommends a study into the assistance measures for Emerald growers
- Ministerial Council sets up working group to look into assistance measures for Emerald Grower – advised on 16 December that the Group failed to recommend any assistance which would meet the practical needs of Emerald growers.
- 24 November 2004 - QCG teleconference with QDPI&F on the NMG's rejection of the Pre-Emptive Destruction proposal. QCG argued for a reconsideration of decision – Department tentatively receptive to looking at it again.
- 25 November 2004 - Nick Ulcoq and Chris Simpson meet with QDPI and further discuss reconsideration of decision – Department reaffirms its receptiveness to reconsidering proposal.
- 30 November 2004 – consideration of Pre-Emptive Destruction proposal at Australian Citrus Growers – national industry endorsement of plan, and ACG resolved to continue political push for acceptance
- 2 December 2004 – Chris Simpson (QCG) and Pat Barkley (scientific advisor to ACG) met with the Chief Plant Protection Officer, Lois Ransom in Canberra – Canberra also receptive to reconsidering proposal
- 3 December 2004 – QCG and ACG reps meet with Commonwealth Assistant Treasurer, Hon Mal Brough MP, to enlist his support
- 3 December 2004 – QCG and ACG reps met with QDPI&F to discuss process for reconsideration of Pre-Emptive Destruction proposal
- 4 December- ACG submission of the Plan to NMG.

When canker first infested trees on 2PH Farms (presumably having spread 7.4 km from Evergreen Farms), Emerald growers and representatives of ACG and QCG, recognised that the pathogen could potentially have spread to other farms in the Emerald area.

They believed (and still do) that the only acceptable outcome for Emerald growers, the Australian citrus industry and economy was the **immediate**, **total eradication of citrus canker from Australia**. Instead of the "cookie-cutter" approach of removing trees within a 600m radius of known infected trees, coupled with a routine surveillance program to identify infected trees within the PQA, an offer was made by <u>all</u> Emerald citrus growers to pre-emptively remove all host trees (commercial citrus, native hosts and backyard trees) from the PQA.

The citrus industry believed (based on scientific research on canker) that the total eradication approach offers a considerably higher probability of achieving the required outcome when compared to the current 'cookie cutter' approach for the following reasons:

For a disease to develop, you need the susceptible host, the pathogen and a suitable environment. Remove all hosts and you will break the disease triangle. The remoteness of Emerald from other citrus growing areas, the small number of orchardists who were all in agreement that total eradication was the best approach, provided a unique opportunity to quickly and effectively eradicate canker. As Dr. Tim Schubert USDA wrote to ACG on 8 December 2004:
"You are exactly right about removing all potential host material, even the resistant hosts. Are you having leafminer activity also? Those wounds can really increase the effectiveness of inoculum, by about 100 to 1000 times by Goto's estimation. And resistant hosts lose their advantage to a large extent when wounded. You cannot afford to leave inoculum / ignition sources around. I often use firefighting analogies to explain this to disbelievers. With no fuel for the fire, the fire will burn itself out. Removing all potential hosts in the exposure zone is like setting a backfire. The technique has worked over and over again in discrete locations here in FL. If we could enlarge the scale to statewide, we are assured success".

- Populations of the canker bacterium decline rapidly in soil, in lesions on defoliated leaves and dropped fruit (Graham *et al*., 1989) and in infested host dead roots or non-host tissue (Goto, 1992).

- While citrus trees (commercial, backyard) and native citrus (*Citrus glauca*,) remain within the PQA, there is a risk of failure to detect new, minor or sub-clinical infections until they have become well established and secondary spread has occurred. (This has come to pass, with secondary spread occurring at 2PH Selma Road property before eradication took place). In Florida it has been found that *"canker was visually detected with the highest accuracy by survey teams approx. 107 days after infection", "indicating a proportion of the infections are subclinical" and "numerous small infestations of the disease are not accounted for until subsequent surveys"* (Gottwald *et al., 2002)*

- The 600m destruction or cookie cutter approach is based on research from Florida. The study was conducted in five areas in suburban Miami to measure the distance of dispersal of canker and to provide a biologically sound basis for defining the radius of exposure of trees to citrus canker. Distances between each newly diseased tree and all prior focal trees were calculated and the maximum distances of spread ranged from 12 to 3474 m, indicating a broad continuum of distance for bacterial spread was possible. The results of this study were examined by a group of US scientists, regulators and citrus

producers familiar with the disease. Based on measurements of disease spread, they selected a distance of 1900 ft (579 m) as a radius that would encompass the majority of newly infected trees resulting from a prior infection focus infection that can occur within a 30 day period. The study and the resulting determination of the 579 m distance serves as the scientific basis of the removal of exposed trees around foci of infection practised in Florida at this time. **This approach obviously isn't working in Florida (especially in the presence of hurricanes) and is not working at Emerald.**

- The author of the research (Gottwald *et al.*, 2002 "Geo-referenced Spatiotemporal Analysis of the Urban Citrus Canker Epidemic in Florida". Phytopathology 92: 361-377) wrote; *"579 m is a distance that is neither the longest or the shortest distance calculated but rather a compromise that represents a common distance of disease spread during a 30 day period. It should be considered that spread of the disease over some of the larger distances measured could have been the result of movement of inoculum or infected plant materials by human or mechanical means. Thus the distance estimates to circumscribe 95 or 99% of the newly infected trees, rather than 100%, would be a conservative estimate of maximum possible spread. Even so, it would appear from examination of results of the calculations presented that radii of _>579 m would be necessary to define exposed trees for removal to contain spread in many cases".*

- They also wrote*: "…apparently the less frequent rainstorms associated with strong winds dispersed inoculum over large areas and resulted in a low incidence spatial point pattern of disease through large areas".* "In the post storm assessment period, disease outbreaks were occurring 10-12 miles from previously known sources of inoculum".

- Bureau of Meteorology records over 104 years show that Dec-March are the wettest months in Emerald with summer storms, so that spread and new infections are most likely to occur at this time.

The citrus industry believes that **the longer total eradication of citrus is postponed, the more chance there is of canker infecting the native citrus (C*itrus glauca* or desert lime*)* vegetation;**

- *Citrus glauca* is known to be a host of citrus canker. Early overseas research (Peltier and Frederich, 1924), was confirmed by Dr. D. Hailstones (NSW DPI) who suggested that "the symptoms of natural infection in the field would be distinct from those seen on the more 'traditional' citrus varieties" and perhaps less easy to recognise as citrus canker.
- *C. glauca* is widespread in inland eastern Australia from northern Queensland, through southern NSW to the Flinders Ranges (Sykes, 1997).

Minimising the risk that the disease will be carried out of the PQA:

- Long distance dissemination of the canker bacterium occurs primarily by means of infected plant material; infested personnel, clothing, equipment, tools, packing boxes and other items associated with harvesting and post-harvest handling of fruit are also potential sources of the canker bacterium (Civerolo, 1984).
- Fears are held that (irrespective of quarantine warnings in place) potentially infected citrus fruit will be taken from unharvested blocks at Emerald out of the PQA. Indeed interstate visitors were recently seen stealing citrus fruit at Emerald.

- Any delay in removing all potentially infectious host trees from the PQA increases the probability that the disease will be spread to other citrus growing areas of Australia.

Market Access Considerations:

With the detection of canker on Evergreen in June, 2004 all citrus orchards in Emerald were virtually put out of business. They could not market their crop on any domestic market, and they could export only a small percentage of their fruit to a limited range of Asian markets where canker was not a quarantine restriction on trade. When the disease spread to 2PH, it became extremely unlikely that these growers would be able to return to the domestic market in the foreseeable future and until canker had been declared eradicated (2 years after the eradication of the last infected trees in the PQA).

Minimising Impact on the Emerald Citrus Industry and the Region:

The ACG (Pressler Plan):

- resolved grower uncertainty because citrus could be replanted in 2 years (and nurseries need lead time to propagate planting material)
- provided growers with a base from which to rebuild their businesses
- provided growers with a time-line as to when they would be back in business, and be able to market their crops again.
- provided the possibility of cash flow from alternative crops almost immediately
- concentrated short term adjustment pressure on the Emerald region by completely removing the citrus industry immediately, but would facilitate the re-establishment of jobs for alternate cropping and future citrus production in the shortest possible time-frame

By contrast, QCG and ACG believed that **the "cookie cutter" approach:**

- retained uncertainty over whether to invest in crops for potential harvest in future.

- growers would be unable to market their fruit domestically because states would not restore market access until they had confidence that eradication has been successful (and there was no clear picture of when this would be).
- banks would not provide financial assistance for them to continue their businesses.
- growers would have little motivation to maintain their trees, leading to the abandonment of orchards, resulting in increased difficulty in detection of infections
- abandoned orchards would harbour pests and diseases (not just canker)
- growers would inevitably become bankrupt
- governments may ultimately be obliged to provide other forms of relief and adjustment support – eg ex-gratia payments (which may ultimately cost more than the ACG proposal)

The Surveillance Program:

The draft canker Contingency Plan states:
11.4.1: *Citrus Groves within the Declared Quarantine Area:*

- Surveys are conducted every 30-60 days;
- All citrus canker hosts within the quarantine area are inspected where possible;

However, the on-going surveillance strategies for citrus canker within the Pest Quarantine Area (PQA) at Emerald were **100% tree surveillance in the 600m destruction area**. All backyard trees were surveyed once.

Initial delimiting surveys elsewhere in the PQA in July and August of 2004 were conducted at an intensity of **600 trees inspected per 10 hectare sub-area**. This rate was also proposed for ongoing surveys of commercial citrus blocks within the PQA and outside of the 600m buffer zone of any known infested tree.

The finding of canker by the grower at IP2, after surveys had been conducted, pointed to the insensitivity of the survey methods. Consequently it was proposed in December, 2004 that the sub-area determined for ongoing delimiting surveillance be revised to an intensity of **600 trees to be inspected per 5 hectare sub-area.** This intensity of surveillance translates into inspection of **at least** 1 in every 5 trees and could be considered as more appropriate in a low disease incidence, low disease prevalence commercial production block survey within a PQA.

As of 4 Dec. 2004 only 10% of 2PH Farms had undergone surveillance since the finding of canker on 2PH and the other 4 commercial orchards at Emerald had not been resurveyed for citrus canker.

The proposed sub-area was stated to be consistent with FAO (2002) 'Draft Guidelines for surveillance of specific pests: *Xanthomonas axonopodis* pv. *citri* (Citrus canker).' Food and Agriculture Organisation of the United Nations: Rome, which suggests that the defined area is divided into subareas designated as approximately 2000 trees.

However after further detections of "full blown" canker at 2PH, ACG sought advice on the surveillance protocols from Florida scientists. Dr. T. Gottwald in an e-mail of 22 March, 2005 he wrote:

"The intent of the method (in the International Phytosanitary Standards for canker) was to be used in countries or areas that are presently thought to be free of canker and it is a method to survey very large areas quickly and be able to say with some level of reliability that canker was not found. It was never intended to be used in an area where the disease is known to exist. The level of reliability of detection is not sufficient to detect low incidence, residual, or subclinical infections. Unless an area has been free of disease for some time and all quarantines have been released, I would not be comfortable with its use as a general survey tool. It is definitely NOT a good survey method for finding canker. I fear that by the time this method would stumble across canker, the incidence would be dangerously high. The only survey method that I am comfortable with is known as Intensive Survey, i.e., examining every tree in every row or at least every other row. Anything less and the disease will be far ahead of you when you find it. Most grove infections are 6-18 months old at discovery, and that is using the intensive survey method I just described "

A copy of the current Florida surveillance protocol is attached.

Other Arguments in Support of the Pre-emptive Option:

- Early last century citrus canker was detected in the Northern Territory and initial attempts to eradicate the disease by removing symptomatic trees failed. Citrus canker was only declared eradicated from the Northern Territory after taking the decisive action to remove all citrus trees above the 19th parallel (Mertin, 1952).

- Since 1995 Florida has destroyed more than 3.3 million commercial trees and 744,000 residential trees and 1,400 sq. miles is under quarantine in an attempt to eradicate canker using the 'cookie cutter' approach. **This process in now widely acknowledged as having failed as the disease continues to spread northward, in part due to hurricane activity, but also due to movement of workers.**

- The October 2004 ABARE cost-benefit analysis (ACG was only permitted to see the summary) of eradicating citrus canker in Emerald states that **the destruction of 100% of Emerald's citrus orchards would result in successful eradication and a net benefit of $104.5 million in net present value in the long run.**

Impediments:

Acceptance of the pre-emptive approach has been met with reluctance by QDPI&F, CCEPP and NMG due in part to the following:

1) Concern that citrus canker may already occur outside the PQA (no evidence to date for this).

2) There were initially unresolved issues regarding native host trees and backyard trees within the PQA, but these dealt with in the 'scorched earth' plan.
   - The plan was to remove all native citrus to a distance of 7 km beyond the boundary of the citrus orchards at a cost of $600,000. **Now with the decision to remove all commercial and backyard citrus there is debate as to the extent of removal of *C. glauca.*** 7km is a much greater distance than the 600m in the "cookie cutter" approach and therefore has a much greater chance of success of eliminating any spread that has occurred to surrounding native vegetation.
   - Emerald citrus growers, in full collaboration with Emerald Shire Council, had, at that time, indicated that they would be able to achieve full cooperation from the residents of Emerald in removing all back yard citrus. QDPI&F had also indicated that backyard citrus could be removed at relatively low cost.

3) The cost of the 'scorched earth' plan was considered to be too high when compared to the 'cookie cutter' approach.

   - The "cookie cutter" approach under the current citrus canker cost sharing arrangement was predicted to cost $6,452,000 to 31 March 2005, whereas the "scorched earth" cost had been proposed at $16 million with an additional $600,000 for eradication of adjoining native citrus.
   - Under the current cost sharing arrangement between the Commonwealth and State governments, this would have amounted to:

Note; This cost of $50 per tree was for eradication (approx. $15 per tree) and a "one-off" support to growers.

ACG predicted at the time (5 December, 2004) that the total cost of the 'cookie cutter' approach would be dependent upon ongoing surveillance (at significant cost) and the outcomes of the surveillance. Given the history of the disease to date in Central Queensland, and in other parts of the world (eg Florida and Brazil), it was expected that further outbreaks would continue to be identified leading to an escalation in the final cost of this

COST SHARING	**%**	**TOTAL 2004-05 $**
Commonwealth	50.00%	**$8,300,000**
South Australia	15.75%	**$2,614,500**
New South Wales	13.75%	**$2,282,500**
Queensland	9.85%	**$1,635,100**
Victoria	9.85%	**$1,635,100**
West Australia	0.80%	**$132,800**
TOTAL CCE	**100%**	**$16,600,000**

approach. **With the final eradication of all trees, the final cost of the Emerald citrus canker outbreak is anticipated to be around $19 million and growers will have received no compensation whatsoever.**

Impacts on the Australian Citrus Industry:

- There was a blanket ban put on all Queensland citrus to interstate markets at the height of the Queensland season in 2004, and even when access was restored three to four weeks later, the fall-out ruined the rest of the season for all growers. It was not until February 2005 that the Gayndah – Mundubbera Management Zone achieved Pest Free Area status. Victoria, South Australia, Western Australia and the Northern Territory required certification/declaration that citrus fruit entering their jurisdictions was from an area of the state that had area freedom for citrus canker.

- The Emerald growers were obviously hit even harder. The declaration of quarantine locked them out of domestic and some export markets and this is still the case today. Growers are facing ruin, with no current prospect of compensation. Social and community effects are not currently being assessed.

- The entire citrus industry has had to live with the threat that the disease could escape the quarantine area.

- In July 2004 the New Zealand Government decreed that no citrus shipments from Australia were to be exported to New Zealand unless they had undergone SOPP or chlorine treatments and relevant packer certification had been undertaken. Furthermore these applied until Australia had undertaken official field surveys to establish state/area or property freedom for citrus canker. These surveys were completed for South Australia in November 2004, in Victoria in March 2005 and in NSW in April 2005.

- In July 2004 , the United Arab Emirates refused to permit the entry of Queensland citrus due to the detection of citrus canker.

- In July 2004 Queensland's plant nurseries were prevented from selling or moving citrus plants under regulations imposed to control the citrus canker outbreak. This included all citrus – related plants (including fruit trees and some ornamentals), which had to be treated with an approved copper compound and certified by the QDPI&F. This ban was lifted in August 2004 for nursery stock that was already in the distribution chain.

- As a result of the citrus canker outbreak on-farm biosecurity measures have been developed across most citrus growing regions (including Emerald) in order to prevent the spread of the disease. While this has been positive for the industry in enhancing awareness and preparedness, there have obviously been additional cost burdens across the industry.

- Recent reports to the Australian Stock Exchange (8 June 2005) indicate that there have been significant impacts on transport/freight and packaging companies in

Queensland as a result of the citrus canker outbreak. Lindsay Australia Ltd, indicated that freight revenue out of Emerald for April, May and June will decrease by approximately $750,000 as a result of citrus canker, and packaging revenue for the same period would be in the order of approximately $600,000

- Paramount Export Company, a major exporter, shut down its business and blamed the decision on the widening impact of citrus canker. Paramount was among the biggest fruit buyers in Queensland

- The Australian Citrus Industry currently has no mechanism to raise industry funds to assist the Emerald growers in any potential matched compensation scheme (assuming both the Commonwealth and Queensland Governments were prepared to consider this). An approach to the Commonwealth to collect a voluntary levy on behalf of the industry was unsuccessful, and other avenues are currently being explored. ACG is progressing to signing of the Plant Health Australia Cost Sharing Agreement for Emergency Plant Pest Diseases; this will involve industry consultations for the raising of a Biosecurity Levy to share the costs of future pest incursions. It will also ensure that, as part of this, grower reimbursements for removal, etc will be covered under the terms of the Cost Share Deed.

Other Issues to be Considered/Investigated:

- The Nairn report on Australian Quarantine - a shared responsibility (1996) stated that "a partnership approach" by industry, government and the wider community was the key to achieving the objectives of quarantine. In the current citrus canker incursion, there was a lack of partnership. There is a need for industry to be involved in reviewing the eradication program and
  the Canker Contingency Plan must be upgraded with grower input. The lack of meaningful engagement with the industry was reflected in the poor communication processes.

- SAP, CCEPP and NMG look at technical issues in isolation, without considering the social and economic implications to growers. While this is difficult to adequately address, it is very important.

- Re the alleged illegal introductions to Evergreen:
  - Were the trees confiscated in the raid on IP1 in 2001 and maintained at the Post-Entry Quarantine facility at Eastern Creek identified to variety? Who conducted the tests? Using what methods? Did AQIS Legal and Compliance ascertain that IP1 had legally obtained this variety? Were these trees retested for canker and huanglongbing? When? By whom? Using what methods? What precautions were taking to ensure that no cross-contamination occurred to imported citrus varieties at Eastern

Creek? (PQS Eastern Creek is the only point of entry for importations of new citrus varieties)

- The Deed of Arrangement between Pacific Century Production P/L and the Commonwealth of Australia states that *"PCP will permit monitoring of the property by technical experts (not more than 2 in number) for up to 18 months from 1 September, 2001. The monitoring will be limited to inspection of and collection of samples for testing from the citrus and grape crops on the property. Monitoring visits will take place at approximately three monthly intervals over that period"*. Did 6 visits by 2 technical experts take place? When? Who were the technical experts? Did they collect samples? Who tested them? For what? Was the property examined for further suspected illegal imports?
- A review of the Legislative Powers of each state was conducted in 1999 by a task force of SCARM. An objective for the task force was to provide a stronger framework for emergency management with legislation that is equally applicable in all jurisdictions of Australia. The Commonwealth and States are yet to agree on a mechanism to achieve uniformity. But few states have the powers to destroy healthy trees or to establish buffer zones to prevent the spread of an outbreak and there is no uniform position across states on compensation for losses incurred as a result of eradication action. Only the Qld. Plant Protection Act 1989 provides for compensation of owners of healthy plants that are destroyed as part of a response programme; growers in a similar position in other states are not entitled to compensation. As Murdoch (2002) pointed out "The issue of compensation has the potential to influence decisions made by the Consultative Committee", as it did in the eradication of grapevine rust in Darwin in 2001 and asparagus rust in Qld. in 2000 and as it has done with citrus canker.
- The conduct of the citrus canker eradication has left a sour taste in the mouths of many citrus growers and other horticulturists. Many are saying they will not report anything unusual. This will adversely affect the PHA "Spotted Anything Unusual?" campaign.

Conclusion:

Evidence shows that the "cookie cutter" approach under Queensland legislation failed to eradicate the citrus canker, and growers have had their trees destroyed without compensation. Other Emerald growers have been locked out of markets indefinitely and have no citrus income except from exports to allowable markets in the previous season.

By the time total removal of all trees and host native plants is completed, and the replanting is delayed for the recommended two years, Emerald growers will have lost an

additional twelve months from the advent of the original Pressler Plan before they are in a position to replant.

The current incursion provides a number of lessons on issues such as decision-making processes, communication with affected growers and with the industry and the need to look at broader social and economic impacts of eradication decisions. We trust that theses will be highlighted throughout the Senate Inquiry and that a firm basis will be established for future incursions.

Attachment 1:

Citrus Canker Eradication Program

Survey Procedures

Detection of the citrus canker bacterial disease in both commercial citrus groves and residential properties is the foundational step in the eradication process. Visual inspection of citrus trees by trained technicians has proven to be the only proficient method for detection of the disease. Technicians visually inspect by walking tree rows in a prescribed pattern depending on the survey status of the property.

As part of the detection program, all commercial groves are inspected for citrus canker on an annual basis. If suspect canker lesions are detected, plant samples are collected and sent to the Florida Department of Agriculture and Consumer Services' Division of Plant Industry Laboratories for confirmation. If suspect samples are deemed to be positive for citrus canker, an ensuing delimiting survey of all groves within a five-mile radius is performed. All exposed citrus trees within a 1900-foot radius of the infected trees are eradicated. Once the control action has been completed, the area within a minimal distance of 3800 feet from any positive tree is placed under quarantine, which will remain in effect for two years following the completion date. All citrus within 3800 feet of the positive trees are surveyed every 30 days for nine months. After the nine months, the survey reverts to a 90-day survey period. Citrus groves outside 3800 feet but within the quarantine are inspected every 90 days. In addition, all citrus groves within five miles of the initial infection are surveyed every 180 days until the quarantine is released. Citrus groves associated through ownership, and grove maintenance or harvesting equipment movement are surveyed three times for one year and two times the second year while the quarantine is in effect. A post-quarantine survey is performed two times per year in the former quarantine area.

Survey of residential properties is performed through the USDA Sentinel Survey program. As a means to early detection in a residential setting, a 12 x 12 grid is used to divide each square mile into 144 sub-sections and one susceptible cultivar in each grid is identified as a sentinel tree. A maximum of 144 trees per square mile are surveyed every 60 days. As with commercial citrus when an infected tree is detected, all exposed citrus trees within 1900 feet of the infected trees are destroyed. A delimiting survey of the infected section as well as all sections bordering the positive section is performed. The resulting two-year quarantine is established a minimum of 3800 feet from the detections. All citrus-bearing properties within the quarantine are inspected every 60 days for nine surveys and non-citrus properties every 90 days while the quarantine is in effect. Citrus bearing properties revert to a 90-day survey schedule after the initial nine surveys.