




Argentine Fresh Citrus Handling Practices

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Trip Details

- Date:
 - April 22-30, 2007
- Organized by:
 - Dr. Jim Graham
 - UF/CREC, Lake Alfred
- Sponsor:
 - Syngenta Crop Protection
- Participants:
 - 9 Grower/Packer/Shippers
 - 2 Sponsors
 - 4 UF/IFAS



Trip Details

- Concordia
 - Mandarins
 - Oranges
- Salta
 - Grapefruit
 - Lemons
- Tucumán
 - Lemons



Hosts

- Concordia Area:
 - Hector Zubrzycki
 - Cecil Taylor
- Salta & Tucumán:
 - Beatriz Stein
 - Jacqueline Ramallo




Practices for Shipping Canker-Free Fresh Fruit

- Argentine growers use an integrated systems approach involving both pre- and postharvest practices.




Windbreaks

- Most extensive in Concordia.
- Encircles about every 2 to 10 acre block.
- Species included:
 - *Eucalyptus*
 - *Casuarina cunninghamiana*
 - Some sugarcane
 - Even Ficus
- For information for FL, visit:
 - <http://www.lal.ufl.edu/extension/windbreaks/index.htm>



Cultural Practices

- Self grove inspections.
- Copper
 - Spray 5 to 10 times per year.
 - Based on flushing patterns.
 - They don't spray as much during the summer because of the high temperatures.
 - When temperatures rise above ~87°F, they switch to night spraying.



Cultural Practices

- Leafminer
 - Closely monitored to reduce the spread of canker.
 - Often use Agri-Mek applied by plane.
- Pruning
 - Regular pruning is conducted during the dry season.
 - Pruning of canker infected branches and fruit is continuous.



Inspection & Harvest

- Europe is their most profitable fresh fruit market.
- SENASA conducts a pre-inspection (~Dec.).
 - If found canker free, then grower can apply for a harvesting permit.
- Final SENASA inspection ~15 days before harvest.
 - For the EU, harvest must be complete within 60 days of the inspection.
- Some grading is done in the field.
 - Leave as much canker fruit in the field as possible.

Packinghouse Pre-grade

- Packing operations utilize a pre-grade line, in addition to the main packingline.
 - Up to ~2% of the fruit from “canker-free” groves can show canker symptoms when dumped on the pre-grade line.
 - Fruit are washed, treated, electronically & manually graded, and then placed back into bins for degreening, or placed back into bins for transport to the main packingline.



Packinghouse Pre-grade

- SENASA inspects ~2% to 5% of the incoming fruit.
- Fruit canker treatments:
 - SOPP, 2%
 - Chlorine, 200 ppm, 2 min.
- Fungicide treatments:
 - Sodium Bicarbonate (3%, most not heated)
 - TBZ
 - Imazalil



Pre-grade Dump



Pre-grade Wash



Pre-grade Sodium Bicarbonate



Pre-grade Electronic Grading



Pre-grade Human Grading



Pre-grade Bin Filling



Main Packingline

- Theoretically, all fruit with canker must be removed before dumping on the main packingline.
 - In practice, there is apparently flexibility if infected fruit is found on the main line dump.
- **No canker can be found in the final packed carton.**
- If canker is found in the carton,
 - The block, buffer blocks, and any fruit that have not received their certificate are removed from EU eligibility.
 - The fruit can be directed to alternate markets without re-conditioning.



Possible Trip in 2008???

- Let me know if you have interest in attending a similar trip in 2008.
 - If there is enough interest, we may be able to arrange a second trip.

Resources for Identifying Citrus Canker on Fruit

Packhouse Canker ID Training Materials from Holly Chamberlain (IFAS)

postharvest.ifas.ufl.edu

360 degree views of citrus fruit with canker and other peel blemishes (QuickTime Player Required). Each is ~1MB, so allow some time for each to load. Once loaded, use can "grab", "rotate" and "zoom".

Citrus Canker 1	Citrus Canker 2	Citrus Canker 3	Citrus Canker 4
Citrus Canker 5	Citrus Canker 6	Citrus Canker 7	Citrus Canker 8
Citrus Canker 9	Citrus Canker 10	Citrus Canker 11	Citrus Canker 12
Citrus Canker 13	Citrus Canker 14	Citrus Canker 15	
Citrus Canker & Mechanical Damage			
Mechanical Damage 1	Mechanical Damage 2	Mechanical Damage 3	Mechanical Damage 4
Mechanical Damage 5	Mechanical Damage 6	Mechanical Damage 7	Mechanical Damage 8
Canker & Melanose 1	Canker & Melanose 2		
Melanose 1	Melanose 2	Melanose 3	
Alternaria & Melanose 1	Alternaria & Melanose 2		

