

China, Brazil, and now Florida- facing a common menace



Florida, USA



Guangxi,
PRC



São Paulo, Brazil

Guangdong
Province, PRC
serious decline
due to HLB



Dole/Tropicana Grove Beihai, Guangxi, PRC

sampling for HLB



HLB/greening in São Paulo, Brazil



HLB discovered at Southern Garden's Southern Grove- October 11, 2005



Scouting for HLB at Southern Gardens Citrus

- 26 Scouts (Inspectors) on 16,579 acres (6700 ha)
- Scouts split time between:
 - General Inspection for canker & HLB- Scouts ride on mules, cover 13-15 acres/person/day
 - Detailed Inspection for HLB- Scouts walk, cover ~8 acres/person/day (145 trees/acre)
- HLB suspect trees are flagged, including small flag on symptomatic branch
- Verification of suspect trees is performed by three experience, well-trained scouts

Scouting for HLB at Southern Gardens Citrus

- Verification consists of:
 - Visual diagnosis of flagged trees, including examination of fruit
 - Recording a GPS point for HLB positive trees
 - Painting the trunk of HLB positive trees with orange florescent paint
 - Collection of leaf samples for PCR confirmation, 2 trees for every 10-acre block
 - Removal of flagging tape from trees diagnosed as HLB negative
- Scouting on platform- 40 acres/day, or ~13 acres/person/day, including tractor operator
- Safety of Scouts is high priority

HUANGLONGBING/GREENING

Growers must Maintain Low Incident Rates

- Inspection
- Tree Removal
- Psyllid Control
- Clean Nursery Stock

INSPECTION

- Inspect Grove 4 Times per Year



TREE REMOVAL

- Tree is Removed once Disease is Confirmed

Psyllid Control

- Admire on Young Trees Spring & Late Summer
- Temik on Young Trees & Mature Trees
- Spray on Young Trees & Mature Trees

CLEAN NURSERY STOCK

- Nurseries Away from Groves
- Greenhouse with Maximum Disease & Insect Exclusion
- Clean Budwood Source (Real Time PCR)
- Maintain Good Pest Control

GREENING

- Growers who are not trying to manage the Greening problem are in trouble!!!!!!!!!!!!!!!



CANKER

- Inspection
- Decontamination
- Copper Sprays

CANKER

- Pruning to Remove Inoculum
 - Selective Pruning (Removal of Infected Branches)
 - Severe Pruning (Buck Horning)
 - *(Eventually will become uneconomical)
- Movement of Equipment

SPRAY PROGRAM - PRE-CANKER & GREENING

- **Dormant Spray**-December/January: Urea & Nutriphite
- **Post Bloom Spray**- March/April: Oil, Nutriphite, Potassium Nitrate, Nutritional
- **1st Summer Oil**- May/June: Oil, Copper, Potassium Nitrate, Nutritional
- **2nd Summer Oil**- July/August: Oil, Copper, Nutriphite, Nutritional, and miticide (if needed)
- **3rd Summer Oil**- September/October: Oil, Copper, Nutritional, and miticide (if needed)
- **Young Trees Only**- March/April and August: Admire trunk/soil drench applications

SPRAY PROGRAM - PRE-CANKER & GREENING

(Disease & Pest Control Only)

- Material Cost - \$80.00 per acre
- Application Cost - \$100.00 per acre

SPRAY PROGRAM - CANKER & GREENING

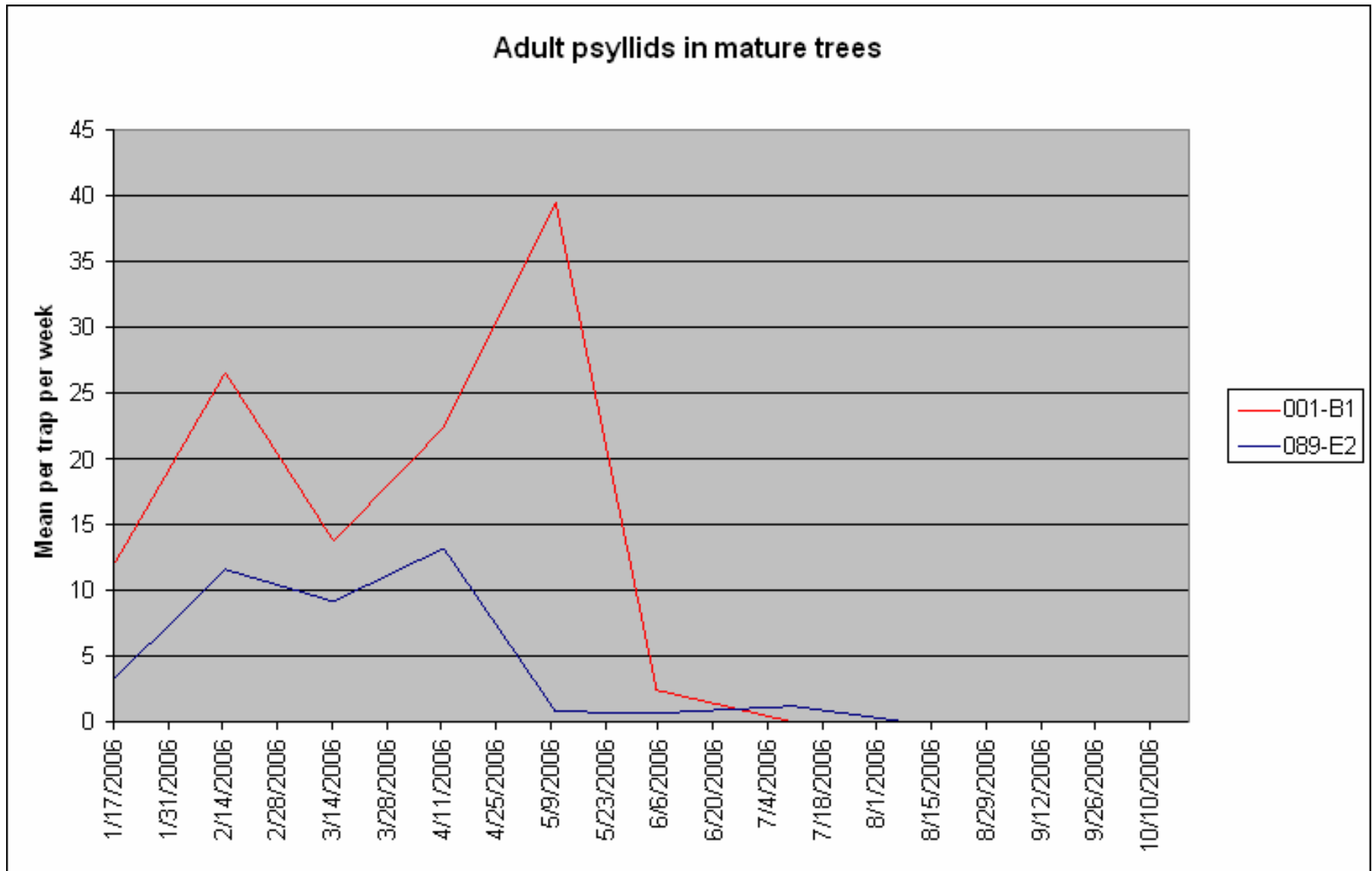
- **Dormant Spray**-December/January: Urea, Nutriphite, **Danitol 2.4 EC**
- **Systemic Control**- December/January: **Temik**
- **Post Bloom Spray**- March/April: Oil, **Copper**, Nutriphite, Potassium Nitrate, Nutritional, **Dimethoate 4EC**
- **1st Summer Oil**- May/June: Oil, Copper, Potassium Nitrate, Nutritional, **Provado 1.6 F**
- **2nd Summer Oil**- July/August: Oil, Copper, Nutriphite, Nutritional, **Lorsban 4EC** and miticide (if needed)
- **3rd Summer Oil**- September/October: Oil, Copper, Nutritional, **Provado 1.6 F** and miticide (if needed)
- **Young Trees Only**- March/April and August: Admire trunk/soil drench applications

SPRAY PROGRAM - CANKER & GREENING

(Disease & Pest Control Only)

- Material Cost - \$254.00 per acre
- Application Cost - \$140.00 per acre

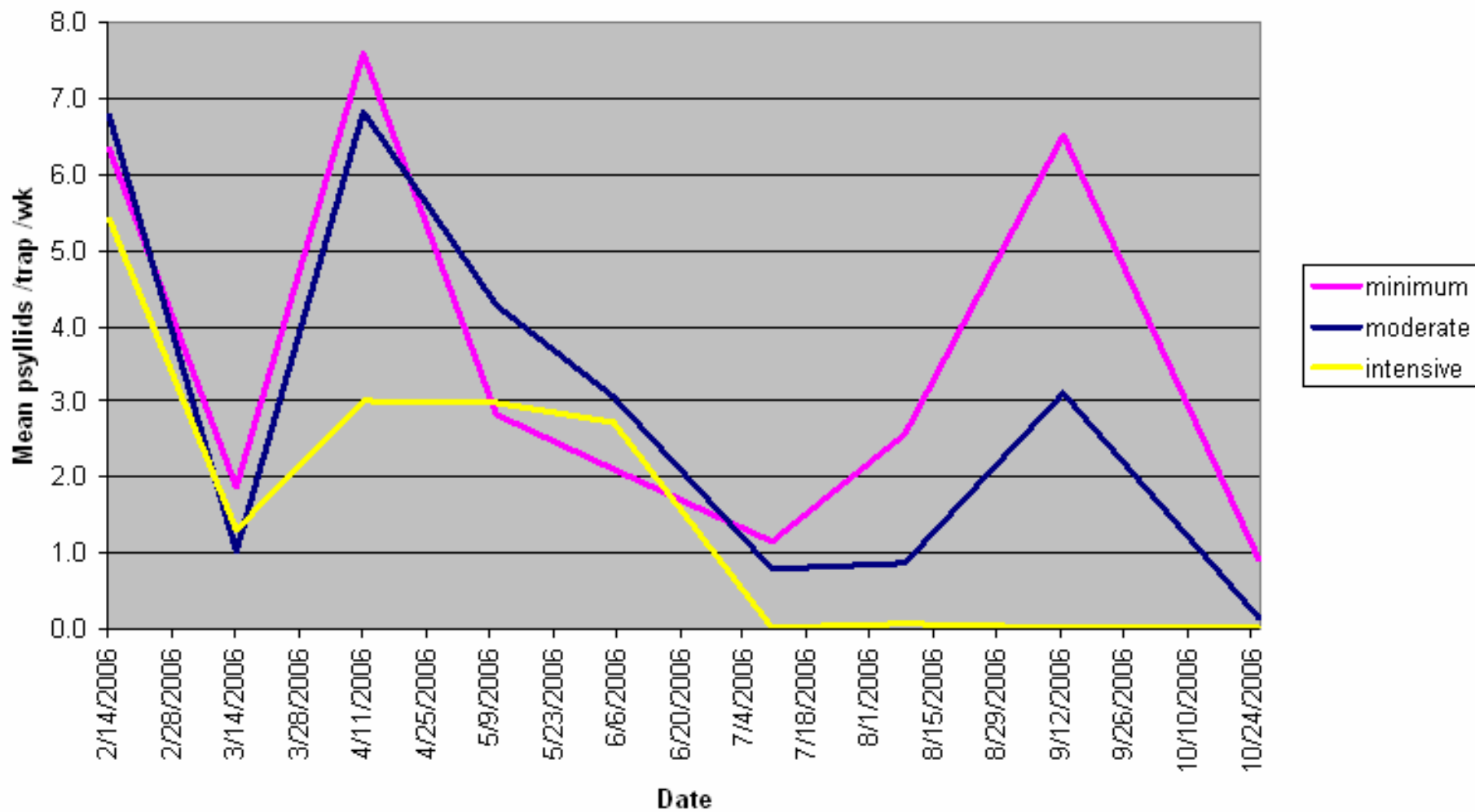
Results of 2006 Commercial Program



Courtesy of Dr. David Hall, USDA ARS HRL, Fort Pierce

Results of 2006 Psylla Control Trial with USDA

Southern Gardens



Courtesy of Dr. David Hall, USDA ARS HRL, Fort Pierce

Southern Gardens Citrus and USDA - Psylla Control Trial Treatments

Intensive Program: 97 C4, 98 F4 & 98 H4

- Systemic Control: January - Temik 15G (33 lb/ac)
- Post Bloom Spray: March - Provado 1.6F (10 fl oz/ac)
- 1st Summer Oil Spray: May - Lorsban 4EC* (4 pt/ac)
- 2nd Summer Oil Spray: August - Dimethoate 4 EC (1 pt/ac)
- 3rd Summer Oil Spray: October- Provado 1.6F (10 fl oz/ac)
- Dormant Nutritional Spray: December - Dannitol 2.4EC (21 oz/acre)

Moderate Program: 97 B4, 98 E4 & 98 J4

- Post Bloom Spray: March - Provado 1.6F (10 fl oz/ac)
- 1st Summer Oil Spray: May – Agri-Mek 0.15 EC (5 fl oz/acre)
- 2nd Summer Oil Spray: August- Provado 1.6F (10 fl oz/ac)

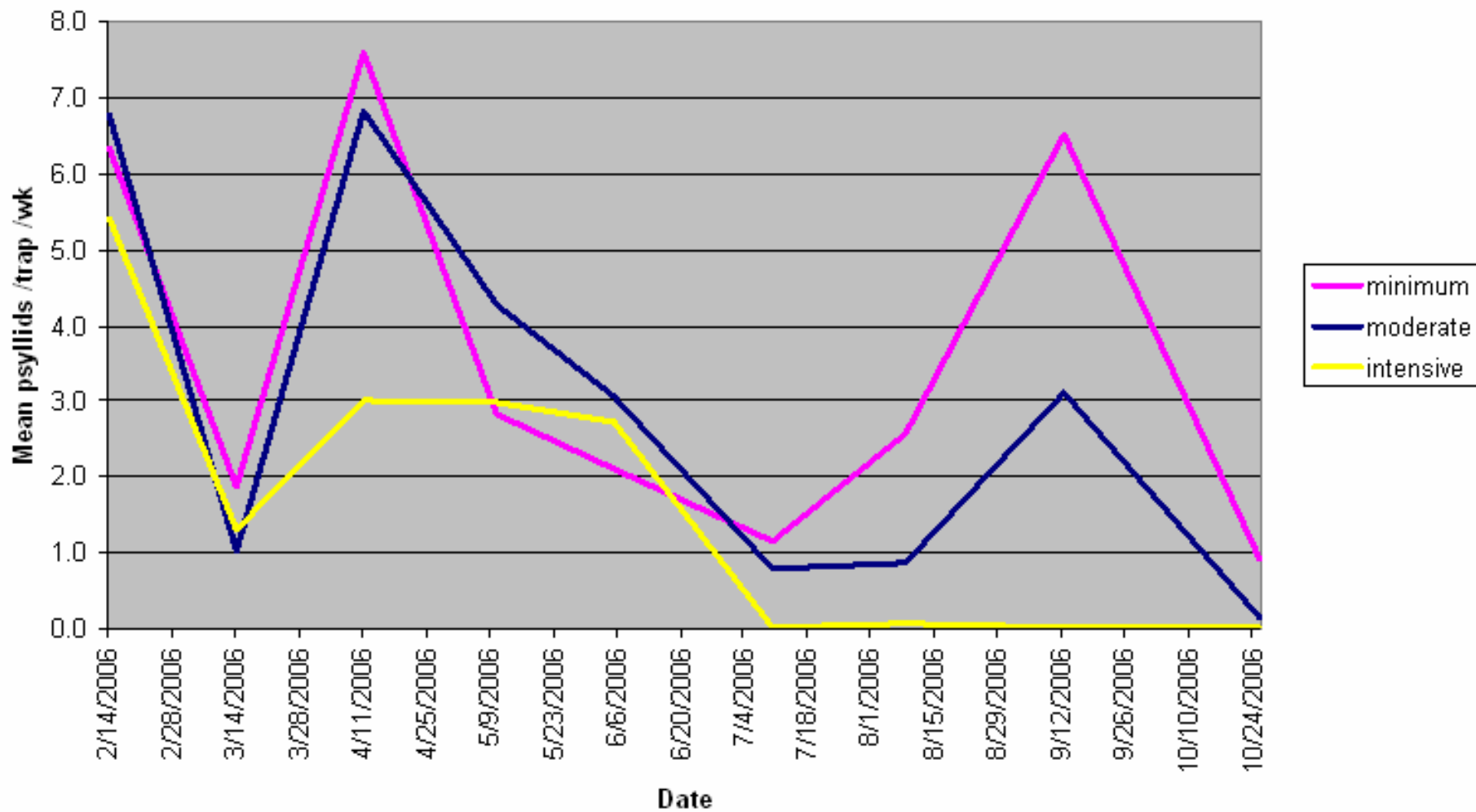
Minimal Program: 97 D4, 98 G4 & 98 I4

- Post Bloom Spray: March- Provado 1.6F (10 fl oz/ac)
- All other sprays- **Oil ONLY!**

Note: Temik 15G was applied (33 lb/ac) to all treatment blocks in January 2006

Results of 2006 Psylla Control Trial with USDA

Southern Gardens



INSPECTION

- Inspection Pre - Canker & Greening
 - 5 Scouts
 - \$7.75 per Acre
- Inspection Post - Canker & Greening
 - 36 Scouts
 - \$74.00 per Acre for All Cost (Labor, R&M, Fuel, etc.)

Questions?