Cranberry Extracts for Citrus Health



Soumya Roy Ocean Spray Cranberries, Inc. September 20, 2018



HLB (Huang Long Bing) or Citrus Greening



Vector

- Asian Citrus Psyllid (ACP)
- Diaphorina citri
- Gets attracted by citric
 acid and other volatiles

ACP colonizes and propagates to next tree



Tree eventually loses leaves and dies (5-7 years)

- CLas in phloem intercepts sugar
- Sugar in fruit is markedly reduced
 Fruit drops prematurely with low Brix:Acid
- Takes about two years to see the impact



CLas (Candidatus Liberibacter asiaticus)

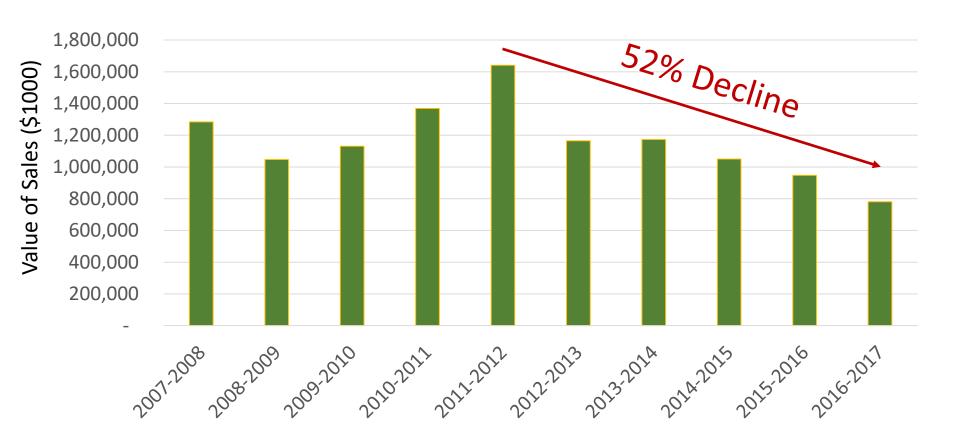
Host

- Leaves of Citrus Plants
- ACP Injects CLas in phloem



Florida Citrus Industry Is Failing

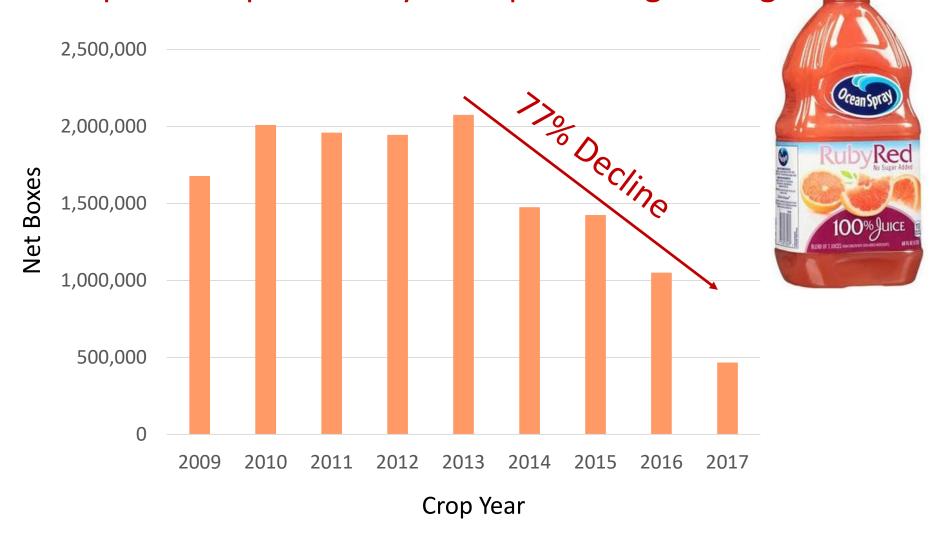
- 2018: Projected worst harvest in 73 years in Florida
- Also keeps spreading in Texas
- World wide problem





Our Grapefruit Co-op Yield

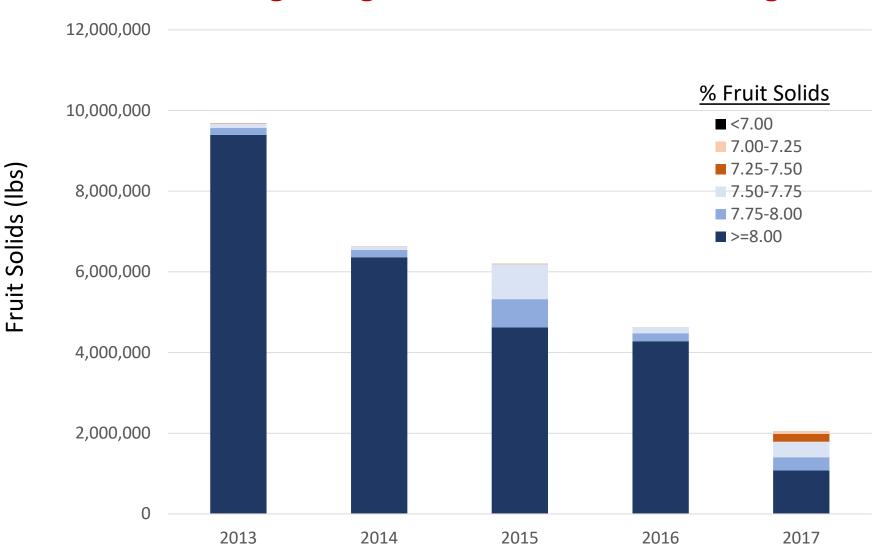
Grapefruit is particularly susceptible to greening





Significant Loss of Co-op Grapefruit Quality

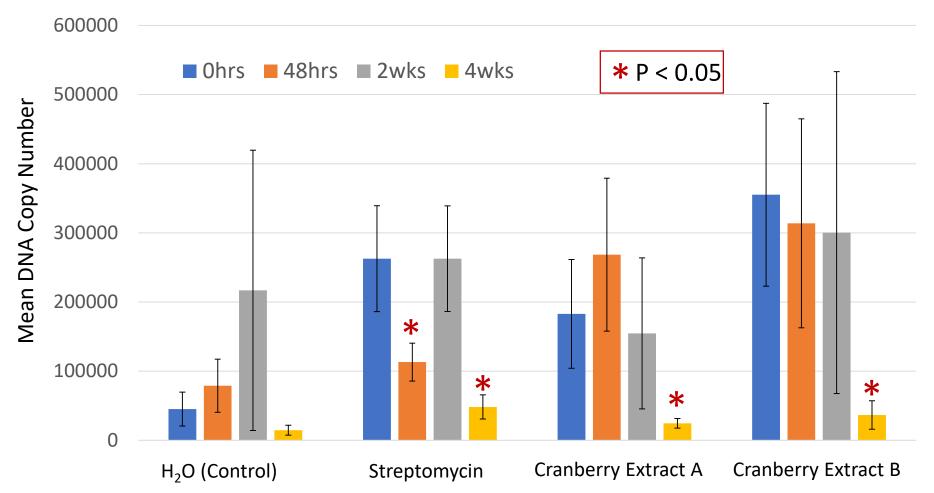
Lower Sugar, higher acids and bitter tasting





Cranberry Extracts: Effective as Streptomycin

- Greenhouse study using soil drench on tree seedlings
- Streptomycin is not approved for soil drench



Study conducted with Dr. Kirsten Stelinski, University of Florida, Lake Alfred



Additional Studies Complete/In-Progress

- Phytoxicity studies (Complete):
 - Soil Drench (Stelinski, University of Florida, Lake Alfred, FL)
 - Leaf submersion study (Shatters, USDA-ARS, Ft. Pierce, FL)
- Phloem Uptake Study (Phase 1 Complete):
 - Dr. Robert Shatters at USDA-ARS, Ft. Pierce, FL
- Soil-Drench Study in greenhouse on tree seedlings- Phase 2 (Three months)
 - Dr. Kirsten Stelinski, University of Florida, Lake Alfred, FL
- Field Study:
 - Dr. Robert Adair, Florida Research Center for Agricultural Sustainability,
 Vero Beach, FL.

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