Making Sense of Fire Blight 2014

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2014 was a year of severe epidemic fire blight in many sites

Trees of all ages, cultivars and rootstocks were affected


06/10/2014


06/10/2014

McIntosh on m7

As many regions entered bloom, both CougarBlight and Maryblyt models predicted that conditions were ideal for fire blight infection if a wetting occurred

Blossoms were at absolute peak susceptibility when infection occurred.

Major FB infection period May 13, 2014

- May 10-13: 4 days of warm temperatures (highs in low 80's, lows in low 60's) and high humidity were followed by brief, localized, cold rains (mid 40s oF) on 5/13
- The very first, freshly opened blossoms were present on most major cultivars
- Rain did not register in rain gauges, but some NEWA sites indicated a wetting had occurred with 0 rainfall accumulation
- Tissues were wet for as little as 2 hours in some sites
- Bacterial EIP was around 200 going into wetting

- The EIPs for subsequent infection periods were only 79 and 84 and were responded to with streptomycin applications, so we believe the slight wetting of 5/13 was responsible for the severe epidemic we observed
- Despite being well-educated on epidemiology of fire blight, most growers still have difficulty believing a cold rain will cause fire blight regardless of pre-wetting conditions
- Importance of wettings needs to be re-emphasized with growers as it definitely was a weak point in fire blight management in 2014

Orchards with open blossoms and wettings on 5/13 that did not spray strep had significant FB infections

Orchards which did apply streptomycin had significantly less fire blight in 2014

By week ofJune 9th infections were beginning to appear

Infections continued to appear from early June through early August, resulting in extensive damage in some sites


06/10/2014


06/10/2014


06/10/2014


08/25/2014


08/04/2014

Use of low-metallic copper during growing season

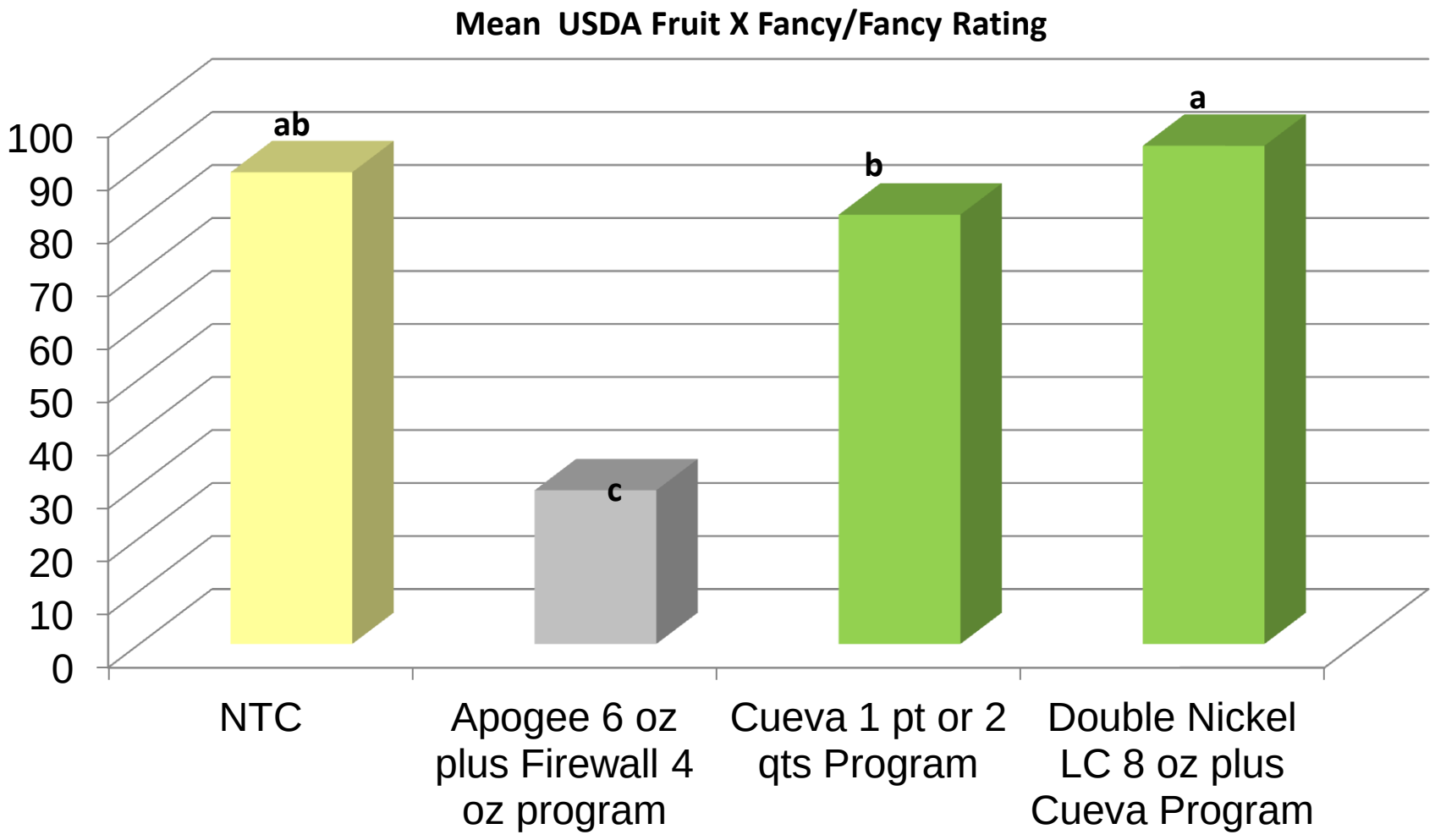
We had to try something

Use of low-metallic coppers during growing season

- Because of concern about bacterial resistance, using copper during the growing season to reduce bacterial numbers is always a great temptation
- Most fruit grown in New England is destined for high-quality fresh-fruit markets so fruit finish is of great importance

- Much information is being circulated about the safety of metallic coppers for use during the growing season
- Recent university extension data showed little rusetting on Gala at 2 qt/acre; **8** applications
- Ag chemical industry strongly marketing their low-metallic coppers in Northeastern US
- *Most of our experience has indicated that any copper use during the growing season results in unacceptable levels of russetting*

Cueva for Shoot Blight Fire Blight and Summer Diseases in



Yoder, K. Virginia Tech, Winchester, VA. 2013.Gala variety, RCB design, 4 reps, 9 applications, from petal fall through 8th cover, machine driven sprayer, 100 GPA. Programs included Captan 7.5 oz 2C-8C for Apogee/Firewall program, or alternated with Cueva or Cueva plus Double Nickel in these programs. All programs received Rally 1.25 oz plus Captan 7.5 oz at 1C. Means with same letters NSD at 0.05. CER-2013-042

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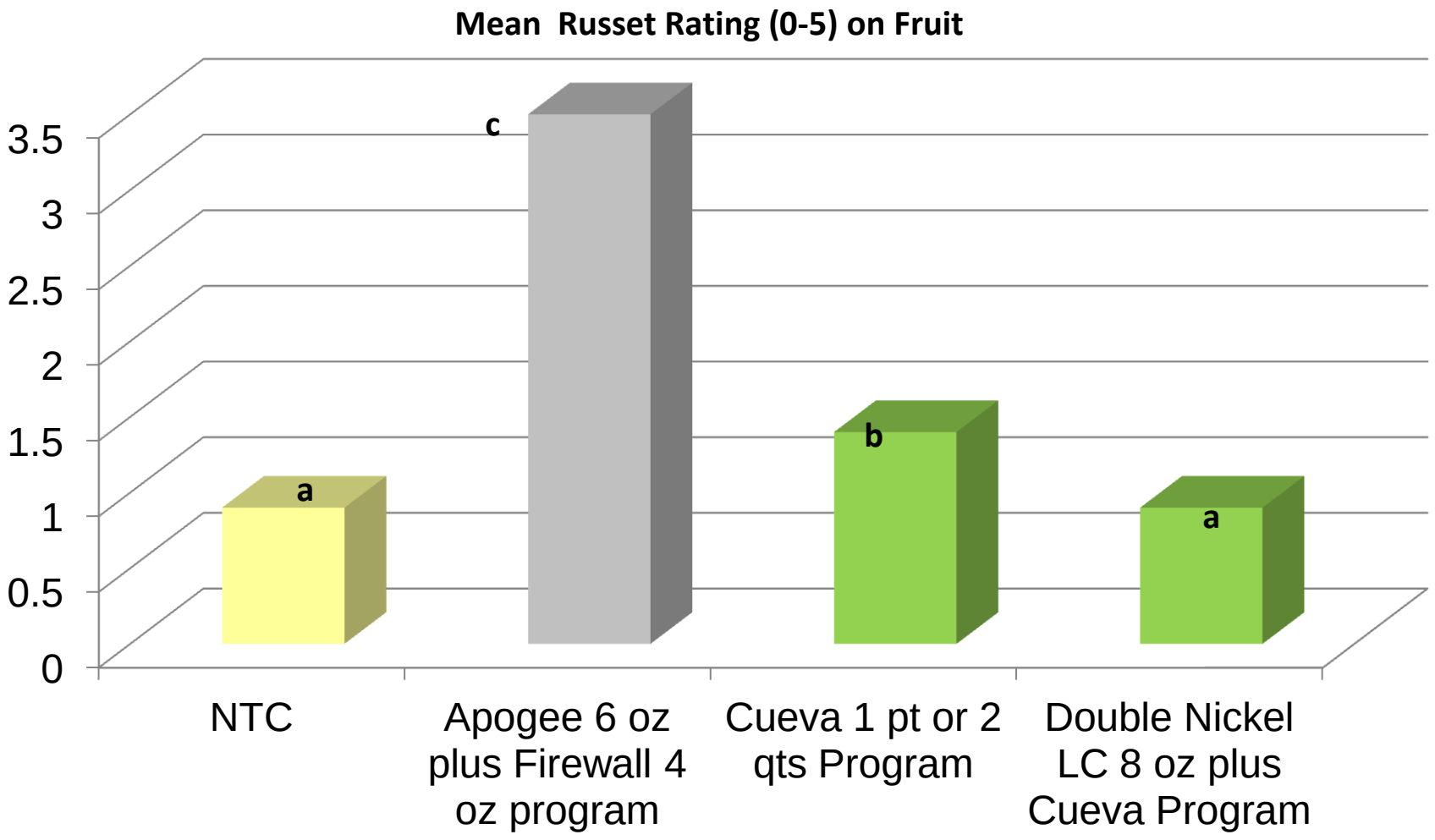

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NEFCON investigation of Cueva

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(not supported by industry)

- Range for Cueva is 2 qts to 2 gal/acre
- We applied the low rate of 2 qts/acre on active fire blight sites (3)
- Numbers of total applications varied from **1 to 3**
- Multiple applications were made at 2 week intervals
- Infections were pruned out and copper sprays applied immediately afterwards

Early signs of russetting: 17 days after treatment-McIntosh

More rusetting: 17 days after treatment--McIntosh

Russetting: 30 days after treatment-McIntosh

Cultivar susceptibility

Cortands and Jonagolds in same blocks did not show any phytotoxicity

Efficacy of Cueva?

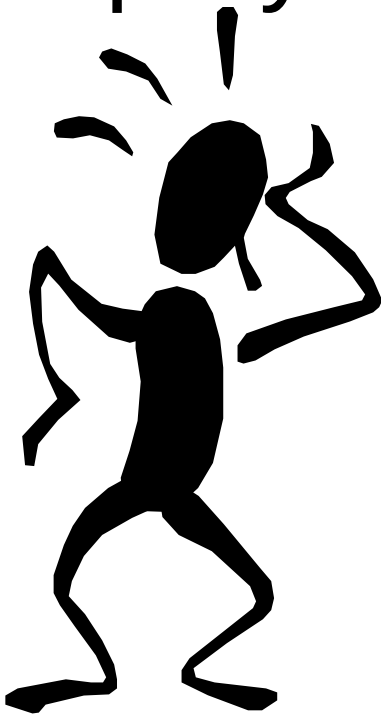
- Since fire blight was already raging in the blocks it was difficult to determine if there was significant efficacy from the copper application; bacterial numbers were not evaluated
- copper applications appeared to slow disease spread but russetting was unacceptable in 2 out of 3 sites

Disease models are excellent tools for predicting when conditions are ripe for infection:

- If disease has been present in orchard or adjacent blocks for any of previous 3 seasons, decision to spray strep for FB infection periods is easy

HOWEVER

If orchard has **no recent** fire blight history, the question is: where to spray?



Many blocks of severely infected trees in 2014 had never been infected with fire blight in 30+ years of monitoring

Would you recommend spraying these blocks?

- No recent (>3 years) history of FB in the block
- Scion and rootstock of low to moderate susceptibility

When to use strep sprays in blocks with no fire blight history remains the missing link in fire blight management.

Not a viable long-term strategy!

Thank you

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