

Scale Control



G S Long Company of Oregon • January 9, 2014

Nate Squires • Valent USA Corporation

Products That Work, From People Who Care®



Scale Control



■ San Jose Scale Biology

- Overwinters in black cap stage
- Mild winters = higher survival rate
- Two overlapping generations / year
- Live young (no egg stage)
 - ~ 500 crawlers produced per female
- 1st generation crawlers ~ early June into August
 - Emergence starts about 2nd cover CM timing
 - ~ Biofix + 400 DD – 900 DD
- 2nd generation crawlers ~ August into November
 - ~ Biofix + 1280 DD (3% crawler emergence)



Scale Control



- Orchard Pest Management Trends
 - Loss of chemistries that provided virtually 100% control
 - Parathion, Penncap M, summer Lorsban
 - Shift to no-OP programs
 - Less chlorpyrifos used at delayed dormant
 - Less delayed-dormant oil use
 - Lower rates
 - Shift to “summer oils”
 - Lighter weight oils being used at delayed-dormant timing
 - Reduced application volumes
 - Lower water volumes reduce control
 - Faster travel speeds reduce coverage

Scale Control



- San Jose Scale Management Strategies
 - Prevention is best approach
 - Cleaning up an infestation is more difficult than prevention
 - Don't let them get established to begin with
 - Monitoring & cull analyses
 - Biological control
 - Parasitoids do not provide enough control



Encarsia perniciosi



Aphytis melinus

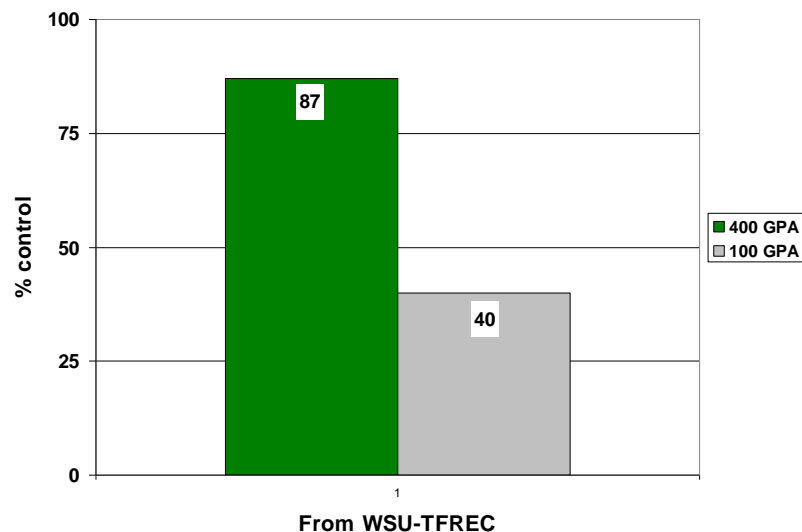
Scale Control



■ San Jose Scale Management Strategies

- Use oil at delayed-dormant
 - Oil alone can control low population levels
 - Use a supreme class oil at this timing
- Use higher water volumes
 - Especially on larger trees or if cleaning up an infestation

San Jose Scale Control on Apple from Oil Alone at DD



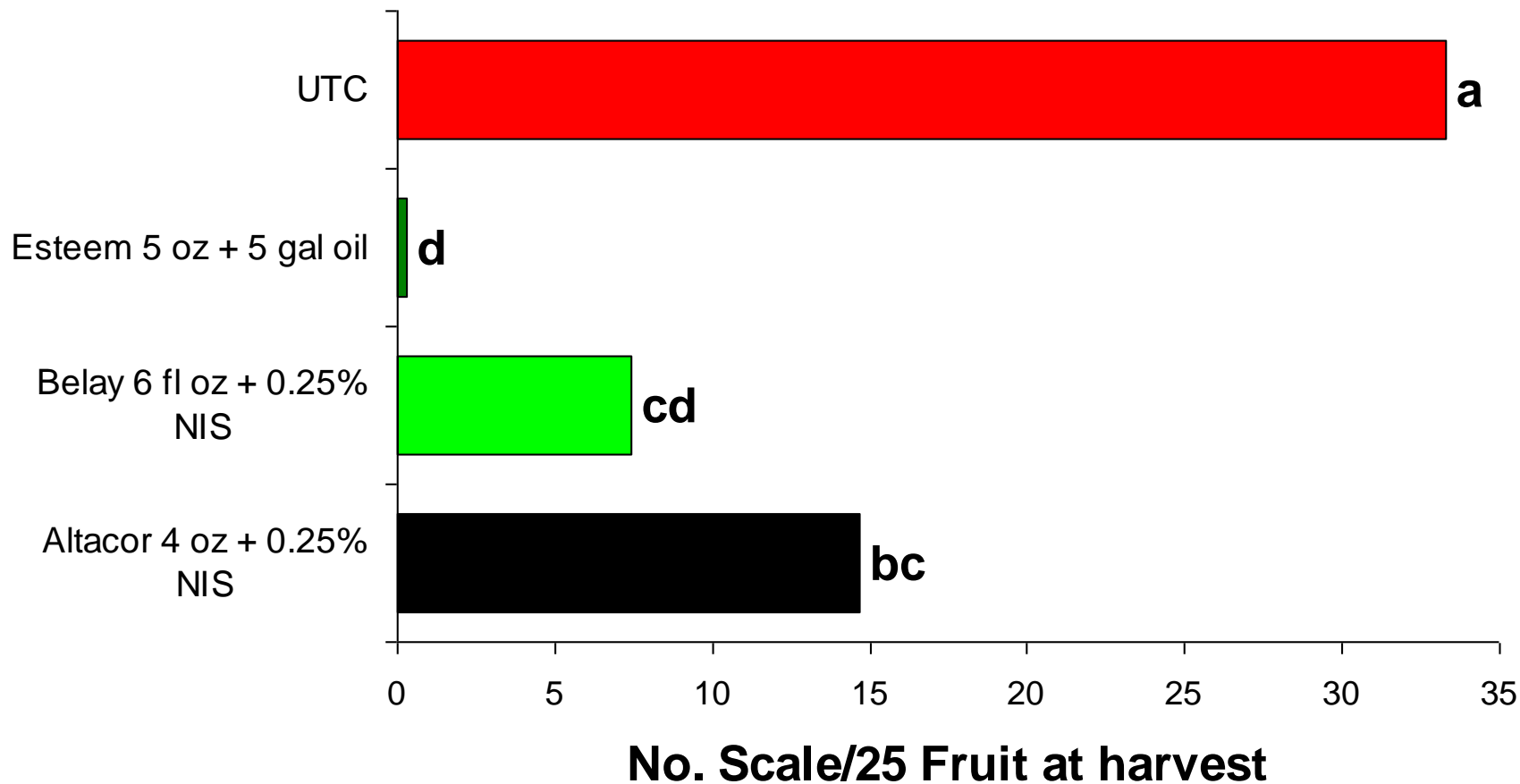
Scale Control



■ San Jose Scale Management Strategies

- Apply Esteem[®] 35 WP at delayed-dormant
 - Preferably tank-mixed with oil
 - Synchronous population in black cap stage
 - Better coverage – no foliage
- Incorporate chemistries with scale efficacy into other pest management programs – particularly CM
 - *Esteem*, Rimon, Ultor, Neonics, Summer oils (in-season)
 - Be aware of secondary effects
 - Neonics on WAA & mites
- Use model to time applications against crawlers
 - WSU – DAS
 - 400 – 450 D°
- Slow down travel speed to improve coverage
 - ≤ 2 mph

Scale Control



Products Esteem 35 WP- 1 spray- Delayed Dormant Belay 2.13 SC- 2 spray- 1 st & 2 nd Crawler Altacor 35 WG- 2 spary- 1 st & 2 nd crawler	Investigator: Ron Britt Location: Granger State: WA	Crop: Apple Cultivar: Granny Smith Applications: 200 GPA, Airblast Sprayer	RIS#: 2012LWELC035
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Scale Control

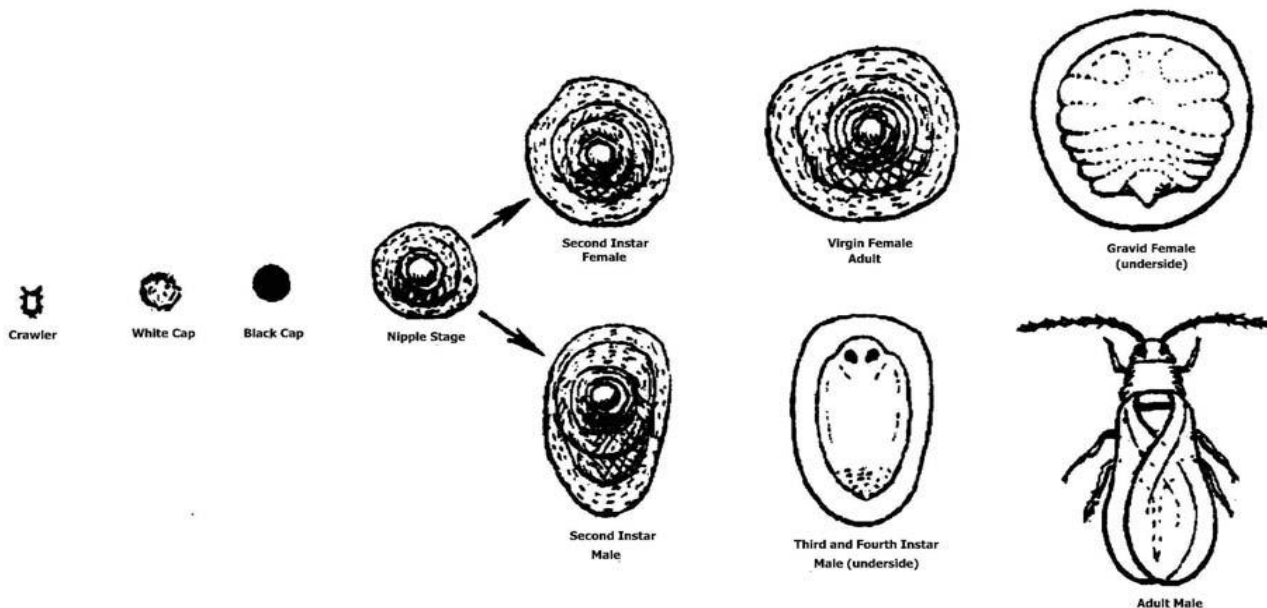
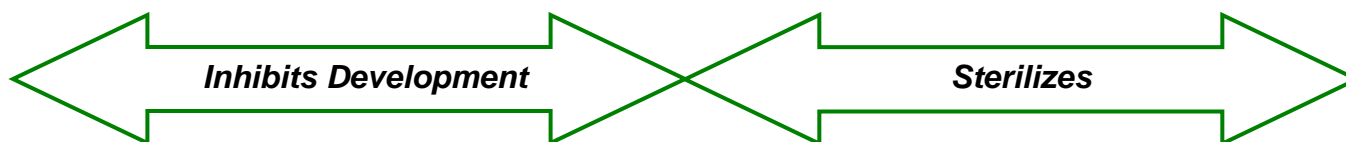


- *Esteem 35 WP*
 - Pyriproxyfen
 - Insect Growth Regulator
 - Ovicidal Activity (Suppresses embryogenesis)
 - Primary mode of action on pear psylla, codling moth, & rosy aphid
 - Does not control adults
 - Reduced hatch of eggs laid by treated adults
 - Juvenile Hormone Mimic (Inhibits metamorphosis)
 - Mode of action on San Jose scale and leafrollers
 - Slower activity than traditional insecticides
 - Don't notice the slow activity on o/w black cap stage
 - Slow activity is obvious when used on crawlers

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- *Esteem 35 WP*
 - Timing for San Jose Scale
 - Effective against ALL life stages of SJS:



Scale Control



■ *Esteem* 35 WP

- On apple, *Esteem* can be used at any two of the following four application timing choices:
 - **Timing 1** – Delayed-Dormant to Pink. Applications at this timing will provide control of:
 - San Jose Scale, Rosy Apple Aphid, Western Tentiform Leafminer
 - **Timing 2** – Petal-Fall. Applications at this timing will provide control of:
 - San Jose Scale, Codling Moth (apply at 225 - 275 CMDD – new method)
 - **Timing 3** – 525 Codling Moth D° (new method)
 - This is the timing for the delayed first cover if an ovicide is used at 225 – 275 DD (*Esteem*) or at 375 DD (1% oil). This strategy calls for a tank-mix of an ovicide (*Esteem*) plus a larvicide for codling moth control. Applications at this timing will also provide control of San Jose Scale.
 - **Timing 4** – Crawler emergence at 400 – 450 SJS D°

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■ *Esteem* 35 WP

- On pear, *Esteem* can be used at any two of the following four application timing choices:
 - **Timing 1** – Delayed dormant to Clusterbud (popcorn). Applications at this timing will provide control of:
 - San Jose Scale, Pear Psylla
 - **Timing 2** – Petal-Fall. Applications at this timing will provide control of:
 - San Jose Scale , Pear Psylla
 - **Timing 3** – 225 - 275 Codling Moth D° . Applications at this timing will provide control of:
 - San Jose Scale, Codling Moth
 - **Timing 4** – Early-to mid-June.
 - In-season scale control timed for crawler emergence (400 – 450 SJS D°).

Scale Control



■ *Esteem* 35 WP

- On stone fruit & cherry, *Esteem* can be used at any three of the following four application timing choices:
 - **Timing 1** – Delayed-dormant. Applications at this timing will provide control of:
 - San Jose Scale, Lecanium Scale, Peach Twig Borer (suppression only)
 - **Timing 2** – Pre-bloom (popcorn). Applications at this timing will provide control of:
 - San Jose Scale, Lecanium Scale, Peach Twig Borer (suppression only)
 - **Timing 3** – Petal-Fall. Applications at this timing will provide control of:
 - San Jose Scale, Lecanium Scale, Peach Twig Borer (suppression only)
 - **Timing 4** – Early to mid-June
 - SJS crawler emergence at 400 – 450 D°

Scale Control



- *Esteem 35 WP*
 - Use Considerations
 - 5 ounces / acre
 - Tank-mix or rotate with other modes of action
 - Tank mix with DD oil spray
 - Later than DD, add IAP Hi-Supreme Spray Oil
 - Ground application only
 - Full coverage required
 - Best at 100 – 400 GPA



Scale Control



- *Esteem 35 WP*
 - Use Considerations
 - 12-hour REI
 - 45-day PHI for Apple & Pear
 - 14 days on Cherry & Stone Fruit
 - Maximum 2 applications / 10 oz per acre on Pome
 - 3 apps / 15 oz per acre on Cherry & Stone Fruit
 - Minimum application interval of 14 days
 - Stable in pH 5.0 – 9.0
 - Water-Soluble Packaging
 - Precautions with Oil, Boron, Free Chlorine

Scale Control



- Take-Home Bullet Points:
 - Prevention is easier than clean-up
 - Use oil + *Esteem* at delayed-dormant
 - Use higher water volumes in scale sprays
 - Slow down tractor speed to ≤ 2 mph



Thank you

