Research & Extension Report for Milton-Freewater - 2009

by

Clive Kaiser
Research Trials - 2009

1) Apple sunburn

2) Cherry fruit cracking

3) Potassium silicate $\rightarrow$ fruit firmness
   - inconsistent results across all trials and cultivars

4) Fireblight trials
   Grateful thanks to
   - Barb Roloff
   - Nora Connors & Patrick Smith

5) Grape Mealybug trials
OSU Extension Highlights

- ODA – IPM SCRI Grant $99,450
- DEQ – 319 Non Point Source $93,850
- Presentations
  - “Don’t Bug Us Campaign”
    - International Conference (X1)
    - National Conference (X1)
  - Cherry Fruit Cracking
    - International Conference (X1)
  - Cherry Silicon
    - International Conference (X1)
Apple Sunburn Protection

• 5-year-old
  – ‘Golden Delicious’
  – ‘Granny Smith’
• Treatments
  – Surround (25 lbs per 50 gal per acre) X4 apps
  – Surround (25 lbs per 100 gal + 1 gal Biofilm)
    • X2 applications
    • X3 applications
  – Preliminary results → 2010
    • Surround (25 lbs per 50 gals per acre) 4 applic
    • Surround (25 lbs per 50 gal per acre + Biofilm B)
      – 2 applications
    • Talcum powder (25 lbs per 50 gal acre)
      – 2 applications
Future Aspects?

• Monitor total energy
  – Visible
  – UV
  – Temperature

• Determine what age fruit are most susceptible?

• Identify colorless heat protectants
Cherry Fruit Cracking

• Biofilm D
  – Pacific Northwest
    • Milton Freewater – ‘Bing/Mazzard’
    • The Dalles – ‘Rainier/Citation’
    • PNW – WTFRC
      – NS
Total Soluble Solids (%) - Milton Freewater 'Bing/Mazzard'

<table>
<thead>
<tr>
<th>Day of Harvest</th>
<th>After 21 Days Storage @2°C</th>
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</thead>
<tbody>
<tr>
<td>13.8</td>
<td>14.4</td>
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<td>14.2</td>
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<td>14.6</td>
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- **Sureseal**
- **VaporGard**
Fruit Juice pH - Milton Freewater 'Bing/Mazzard'
Fruit Size Distribution - Milton Freewater
'Bing/Mazzard'

![Graph showing fruit size distribution with 'SureSeal' and 'Vaporgard' categories. The graph includes bars representing percentage distribution across various row sizes from 8.5 to >12. The x-axis represents row size, while the y-axis represents percentage distribution.]
Total Soluble Solids (%) - The Dalles 'Rainier/Citation'

- **Day of Harvest**
  - Sureseal: 19.5%
  - Check: 18.5%

- **After 21 Days Storage @ 2°C**
  - Sureseal: 20.0%
  - Check: 18.0%
Fruit Firmness (g.mm-1) - The Dalles - 'Rainier/Citation'

- Day of Harvest
- After 21 Days Storage @2°C

- S sureseal
- Check
% 'Sweetheart' Fruit Cracking - New Formulations

% Fruit Cracked

Hours of Submersion in Distilled water

F1a
F1a + Ca Prop
F1b
F1b + Ca Prop
F2a
F2a + Ca Prop
F2b
F2b + Ca Prop
F3a + Ca Prop
F3a
F3b
F4a
F4a + Ca Prop
F4b
F4b + Ca Prop
Biofilm D
Check
Effects of Calcium

% 'Sweetheart' Fruit Cracking - New Formulations (-Ca)

% 'Sweetheart' Fruit Cracking - New Formulations (+Ca)

Hours of Submersion in Distilled water
% 'Sweetheart' Fruit Cracking - New Formulations

\[ y = -0.004x^2 + 1.1478x - 5.2343 \]

\[ R^2 = 0.9669 \]
Using Polynomial

For F1b + Ca Propionate

\[ y = -0.004x^2 + 1.1478x - 5.2343 \]

\[ r^2 = 0.97 \]

- Then get 100% cracking after 282 hours

\~12 DAYS
Current Status

• Making up 600 gallons of product
• Distribution to growers across
  – Oregon
  – Washington
  – California
• Assessed for 2010
• If successful → Commercial release - 2011
Acknowledgements

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- Ken Johnson for Fireblight collaboration
- Vaughn Walton for Mealybug collaboration
Further Details

Clive Kaiser
418 N Main St
Milton Freewater
97862
Tel: 541-938-5597
Fax: 541-938-4097

Email: clive.kaiser@oregonstate.edu

http://extension.oregonstate.edu/umatilla/mf/index.php