2008

Research Update Meeting 2008 - Water and Plant Canopy Management, sanding, pruning, irrigation, drainage

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Water and plant canopy management: sanding, pruning, irrigation, drainage

SARE Project
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UMass Amherst Cranberry Station
The primary goal is to develop, demonstrate, and implement grower-identified practices to:

- Improve water and canopy management
- Reduce costs and improve pest management
Demonstration sites – sanding and pruning

The focus of these demonstration sites is to look at integrating a cycle of pruning into the sanding cycle to extend the interval between sanding
Side - by - Side Comparisons

- Sanding, followed by pruning at some set interval
  - 2 yr, 3 yr, or 4 yr+

- 2005 - 2 sites, various treatments

- 2006 - 3 of 2 yr, 2 of 3 yr; 1 of 4+ yr

- 2007 - followed up from previous 2 years
Sanded whole piece in 03-04
Sanded whole piece in 03-04

2-yr interval

Prune half in 2006
# Treated in 2005 - Evaluated in 2005 and 2007

<table>
<thead>
<tr>
<th>Location</th>
<th>Years since sand</th>
<th>Treatment</th>
<th>Yield</th>
<th>Yield - 2 years later</th>
<th>Cumulative yield</th>
<th>density year of treatment</th>
<th>density 2 years after</th>
</tr>
</thead>
<tbody>
<tr>
<td>Site #1</td>
<td>1</td>
<td>Pruned</td>
<td>83</td>
<td>221</td>
<td>304</td>
<td>123</td>
<td>92</td>
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<tr>
<td></td>
<td>1</td>
<td>Sanded</td>
<td>130</td>
<td>200</td>
<td>330</td>
<td>124</td>
<td>116</td>
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<td></td>
<td>1</td>
<td>Mowed prior year</td>
<td>123</td>
<td>266</td>
<td>389</td>
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<td>107</td>
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<tr>
<td>Site #2</td>
<td>2</td>
<td>Pruned</td>
<td>440</td>
<td>383</td>
<td>823</td>
<td>89</td>
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<td>2</td>
<td>none</td>
<td>377</td>
<td>400</td>
<td>777</td>
<td>93</td>
<td>98</td>
</tr>
</tbody>
</table>
## Treated in 2006 – Evaluated in 2006 and 2007

<table>
<thead>
<tr>
<th>Location</th>
<th>Years since sand</th>
<th>Pruned?</th>
<th>Yield</th>
<th>Yield - following year</th>
<th>Cumulative yield</th>
<th>density year of pruning</th>
<th>density year after</th>
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<tbody>
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<td>230</td>
<td>361</td>
<td>591</td>
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<td>??</td>
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<td>101</td>
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<td>783</td>
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<td>Site #7</td>
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<td>96</td>
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<tr>
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<td>4+</td>
<td>No</td>
<td>224</td>
<td>153</td>
<td>377</td>
<td>115</td>
<td>94</td>
</tr>
</tbody>
</table>
Field plot sanding study

Immediately after application of sand
Summarizing

- Pruning may reduce yield in the year of treatment but results very mixed.
- After 2 or 3 years, cumulative yield was similar with or without pruning.
- Compare to cumulative yield in sanding experiment – reduced with sanding at 3 years.
- Biggest stimulation appeared to follow mowing.
Sanding vs. Pruning Experiment

Graduate Project

Brett Suhayda
C. DeMoranville and J. Vanden Heuvel, Advisors
Levels

Pruning
- Control (0 passes)
- Light (single pass)
- Medium (2 passes)
- Heavy (3 passes)

Sanding
- Control (0 cm)
- Light (1.5 cm)
- Medium (3.0 cm)
- Heavy (4.5 cm)
Pruning

Control

Heavy

Light

Medium
Sanding

Control

Heavy

Light

Medium
Results – Yield
all levels combined
(ft sq est.)

2006

2007

Pruning vs. Sanding

Berry Weight (g)

Pruning Sanding

2006 2007
Yield (by treatment)

2006
Interaction Treatment and Intensity

2007
Interaction Treatment and Intensity

Intensity

Yield (g)

Pruning
Sanding

Pruning
Sanding
% Fruiting Uprights 2006

Interaction Treatment and Intensity

![Graph showing the relationship between % Fruiting Uprights and Intensity for Pruning and Sanding treatments.](image-url)
Light Penetration
all levels combined

2006

2007

Pruning vs. Sanding

Pruning vs. Sanding

Tao (light penetration) vs. Pruning vs. Sanding
Light Penetration (by treatment)

2006

Interaction

Intensity

Tao

2007

Interaction

Intensity

Tao

Pruning

Sanding
TAcy 2006

Interaction Treatment and Intensity

![Graph showing the interaction between Treatment and Intensity. The graph depicts two lines, one for Pruning and one for Sanding, showing the relationship between TAcy and Intensity.]
Conclusions - yield

- In the first year, pruning treatments show higher yield than sanding (in foot square sampling).

- Low intensity treatment plots had best yield but after that yield declined with intensity.

- By year 2, yield remained lower in two high intensity treatments – especially with sanding.
Conclusions – light penetration

- Sanded treatments showed higher light penetration
- Light penetration increased as treatment severity increased
- All treatments equal in year 2
SARE Grower Survey

- Extensive survey in 2006
- Following up today with a mini-survey
Questions

**Sanding**
- Did you sand last winter?
- Will you sand this winter?
- Did you / will you prune as an alternative?

**Pruning?**
- Did you in 2007?
- Will you in 2008?
- Alternative to sanding?
Survey - continued

Nutrient Management (follow-up from this morning)
- Up to top 3 materials used in 2007
- P reduction plan?

Irrigation scheduling
- Do you use floats, sensors or tensiometers?
- Is your irrigation automated?
Survey - continued

Frost management
  - Do you cycle?
  - How?

Wish list
  - Research
  - Meeting program
  - Automation – controllers? record-keeping?
    - Sensors? OPPORTUNITY TO DISCUSS AT END OF GROWER PANEL NEXT
Questions?