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
C. DeMoranville, H. Sandler, J. Vanden Heuvel, A. Averill, M. Sylvia, F. Caruso, B. Suhayda
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

Prune half in 2006

2 - yr interval
### 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>
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<td>1</td>
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<td>83</td>
<td>221</td>
<td>304</td>
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<td>823</td>
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<td>777</td>
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<td>Years since sand</td>
<td>Pruned?</td>
<td>Yield</td>
<td>Yield - following year</td>
<td>Cumulative yield</td>
<td>density year of pruning</td>
<td>density year after</td>
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<td>153</td>
<td>377</td>
<td>115</td>
<td>94</td>
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</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
Yield (by treatment)

2006

Interaction Treatment and Intensity

Yield (g)

0 50 100 150 200 250 300 350 400

Intesity

Pruning  Sanding

2007

Interaction Treatment and Intensity

Yield (g)

0 50 100 150 200 250 300 350 400

Intesity

Pruning  Sanding
% Fruiting Uprights 2006

Interaction Treatment and Intensity

% Fruiting Uprights

Intensity

Pruning

Sanding
Light Penetration
all levels combined

2006

Pruning vs. Sanding

2007

Pruning vs. Sanding
Light Penetration (by treatment)

2006

Interaction

2007

Interaction

Pruning
Sanding

Sanding

Pruning
TAcy 2006

Interaction Treatment and Intensity

![Graph showing the relationship between TAcy and intensity for Pruning and Sanding treatments. The graph plots TAcy on the y-axis and Intensity on the x-axis. The solid line represents Pruning, increasing with intensity, while the dotted line represents Sanding, which peaks at intensity 1 and decreases at higher intensities.]
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