Conclusions about lime sulphur as a thinning agent:
- 12-40% fruit thinning after fruitset, equal to conventional thinning agents.
- 0-52% fruit thinning after June drop. In exp. 1 and 2 the extra thinning after fruitset was caused by Apple sawfly. In exp. 3 the initial thinning results were compensated by less natural thinning.
- In exp. 1 and 2 there was a significant reduction of hand labour. In exp. 3 there was hardly any reduction of hand thinning after June drop, but possibly more flower initiation for the following year.
- No phytotoxicity and no fruit russetting.
- Decrease of 0.4 seeds/fruit.

Questions for further research
What causes the variability in results? Is it best to apply the agent while tree is in full bloom? Is efficacy improved by using more water and applying in the evening?

Thinning with lime sulphur - effect on flowers or on leaves?
Ausdünnen mit Schwerzalk - Effekte auf Blüten oder Blätter?

Poster: F.J. Jansenius, J. Bloksma, Louis Bolk Institute

Zusammenfassung
In einer vorliegenden Arbeit wurde der Einfluss des Schwerzalks auf die Blüten- und Fruchtentwicklung von Obstbaumarten untersucht. Es konnte gezeigt werden, dass der Schwerzalk eine positive Wirkung auf die Blütenentwicklung hat, während die Fruchterträge nicht beeinflusst werden. Die Anwendung des Schwerzalks sollte daher in der Blütezeit erfolgen.

Introduction
The thinning effect of lime sulphur is thought to be caused by the burning of flower organs. If this product is capable of burning flower tissues, it could also have a negative effect on the leaves. We know that injury leaves may increase the June drop. We were curious to know whether the thinning effect is caused only by the burning of flower organs.

Method and materials
At full bloom, individual flower clusters were marked with numbered labels. Treatment was carried out on each individual cluster. There were 50 repetitions. The experiment was conducted on mature, vigorous Elstar under organic management. Spraying was done in the evening of a warm day with 1.6% (w/w) of lime sulphur. The following days were dry and sunny. Flowers per cluster were counted at full bloom and fruitlets were counted after June drop.

Results: Number of fruitlets per 100 flowers after fruitset and after June drop.

<table>
<thead>
<tr>
<th></th>
<th>After fruitset</th>
<th>% thinning</th>
<th>After June drop</th>
<th>% thinning</th>
</tr>
</thead>
<tbody>
<tr>
<td>untreated</td>
<td>90.5</td>
<td>47.1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>50 % leaf area cut away</td>
<td>88.9</td>
<td>31.8</td>
<td></td>
<td>32</td>
</tr>
<tr>
<td>100 % leaf area cut away</td>
<td>84.0</td>
<td>33.0</td>
<td></td>
<td>30</td>
</tr>
<tr>
<td>Lime sulphur on flowers + leaves</td>
<td>54.2</td>
<td>20.6</td>
<td></td>
<td>56</td>
</tr>
<tr>
<td>Lime sulphur on flowers</td>
<td>51.4</td>
<td>20.4</td>
<td></td>
<td>57</td>
</tr>
</tbody>
</table>

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Abstract
At the LUWO Weinsberg were in 1998 and 1999 in field trials at the varieties Boskoop, Topaz and Elstar different spray-papers (Ulmusid Neu, Mocsum), sprays (Cocana RF, Florasafe, combinations from Kalais with Teflon), salicylic acid and time sulfur proofed. If these products can be used for thinning juices in organic grown apple trees.
Ulmusid Neu (Boskoop, Vistana und Florasafe (Boskoop, Elstar) had a low fruit-thinning effect, but were relatively well tolerated by the apple trees.
Myocum had about 40 % thinning effect at Boskoop and some more叙述 apples at the varieties Golden Delicious. There was no difference between high and low among of water per tree, both sprayed with 1 % Myocum at the variety Elstar.
All combinations of Teflon with Kalais and treatments with Cocana RF caused great damages at the leaves and the fruits (high rate of叙述 apples). So these products should not be used for fruit thinning.
Lime-sulfur used three times (3%) seemed to be a little better than only one treatment. But the content of sulfur should be respected. Using 1200 l/ha with 2% lime-sulfur means, that about 6 kg sulfur/ha are sprayed with each treatment.
Further possibilities to avoid alternating bearing should be considered like cutting in the summer, examinations of the percentage of flower-buds in the winter, increasing the fruit setting through spraying foliar fertilizers in apr/may after a high yield.

1. Ausdünnung bei den Sorten Boskoop und Topaz 1998

1.1 Versuchfragen

- Welche Kaliseifen-Rapoli-Kombinationen eignen sich zur Blütenausdünnung bei der Sorte Boskoop? Hat ein Vitamin E-Zusatz einen streuominimierenden Einfluß?
- Haben Ulmusid Neu oder Myocum, die zur Feuerbrand-Bekämpfung eingesetzt werden können, eine ausdünnende Wirkung bei Boskoop?
- Eignen sich Cocana RF (Kokosseife) oder Florasafe zur Blütenausdünnung bei Boskoop?
- Wie wirken sich die genannten Mittel auf die Fruchterosion bei Golden Delicious aus?
- Können Myocum oder Cocana RF zur Nachdünnung von Topaz am einjährigen Holz benutzt werden?
- Hat eine Ausdünnwirkung in 1996 einen höheren Besatz mit Blütenbüscheln pro Baum in 1999 zur Folge?

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