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Project leader: Claudia Daniel and Dr. Eric Wyss

Department: Plant protection Entomology

Costumer: FiBL

Efficacy of different insecticides against the pear leaf blister mite (*Phytoptus pyri*)

Questions:	Efficacy of kaolin and mineral oil to control the pear leaf blister mite (<i>Phytoptus pyri</i>)
Experimental site:	C. Suter, Roveray, 1170 Aubonne
Treatments:	<ul style="list-style-type: none"> • Control • Surround® WP (active matter: kaolin; 30kg/1000l) one application at stage 51 BBCH; 26th February 2003) • Surround® WP (30kg/1000l) two applications at stage 51 & 54-56 BBCH; 26th February & 20th March 2003) • Mineral oil (2%) two applications at stage 51 & 53 BBCH; 26th February & 12th March 2003) • On the border of the orchard: mineral oil (2%) applied by the farmer on 06th February 2003 (30l/ha) & 10th March 2003 (40l/ha)
Variety:	<ul style="list-style-type: none"> • Conference • Packam's
Experimental design:	<ul style="list-style-type: none"> • 5 replicates per treatment with 4 trees per replicate
Application technique:	<ul style="list-style-type: none"> • High-pressure hand gun application to drip coverage (mineral oil) or near-drip coverage (Surround)
Method of control/ Dates of control:	<ul style="list-style-type: none"> • Visual controls on 100 young fruits per treatment and replication at stage 67-69 BBCH 23rd April 2003 • Visual estimation of infestation in categories (0 – 3) 21st May 2003
Statistical analysis:	<ul style="list-style-type: none"> • JMP, Version 4.0.2 • Student's t-Test

Results and Discussion

The infestation with the pear leaf blister mite was very uneven. In the front parts of the rows the trees were more infested than in the rearward parts. These differences were significant but no block effect could be asserted because rows were treated as blocks.

In Figure 1 the results of the first visual control are shown. In the untreated control 59.8% of the young fruits were damaged. Only the treatment mineral oil showed a significant efficacy (23.6% of the young fruits were attacked).

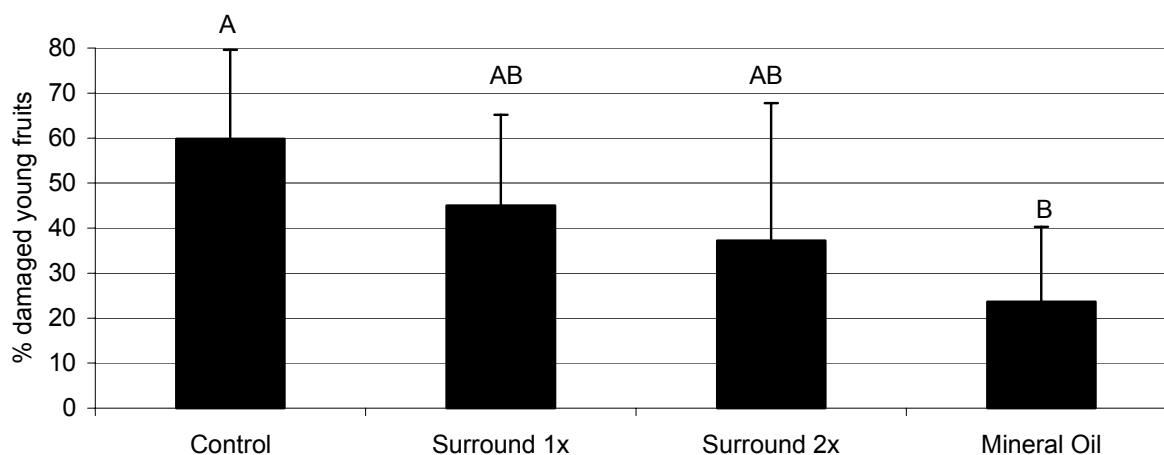


Figure 1: Effects of different kaolin and mineral oil treatments on the pear leaf blister mite shown as percentage of damaged young fruits (date of control 23rd April 2003; Student's t-Test with $\alpha < 0.05$, treatments with different letters are significantly different)

This corresponds to an efficacy (according to Abbott) of 60.5% (Table 1). The treatments with Surround had no significant influence on the pear leaf blister mite but the twice-treated trees were slightly less infested than the once treated trees.

Tab. 1: Efficacy of the different treatments against the pear leaf blister mite according to Abbott. Date of control 23rd April 2003.

Treatment	Efficacy (in % according to Abbott)
Surround 1x	24.7
Surround 2x	37.8
Mineral Oil	60.5

One month later (21st May 2003), the infestation of the pear trees with the pear leaf blister mite was estimated in four categories (category 0: no infestation; category 1: infestation on one single branch; category 2: infestation on the whole tree; category 3: very strong infestation on the whole tree). During this control the infestation in the adjacent rows which were treated with mineral oil by the farmer was also estimated. The results are shown in Figure 2.

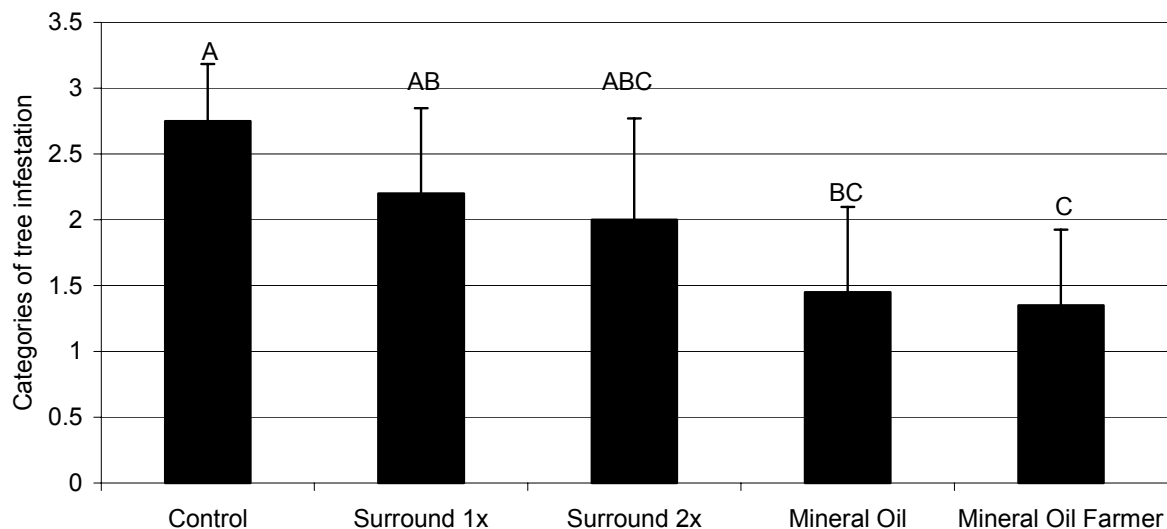


Figure 2: Effects of different kaolin and mineral oil treatments on the infestation of pear trees by the pear leaf blister mite on 21st May 2003 (categories: 0 = no infestation; 1 = infestation on one single branch; 2 = infestation on the whole tree; 3 = very strong infestation on the whole tree; Student's t-Test with $\alpha < 0.05$, treatments with different letters are significantly different)

The ranking of the treatments during the second visual control (21st May) was similar to the first (23rd April). Surround had no significant effect, whereas mineral oil showed a significant reduction of damages by the pear leaf blister mite. The application by the farmer had a slightly better effect than the application with the hand gun.

In summary, mineral oil was the most efficient product against the pear leaf blister mite while Surround (applied in early spring) had only a very low impact. An enhanced efficacy might be possible by multiple applications in shorter intervals in order to get a denser coating. New trials started in 2003 will show if Surround applied in late summer or autumn might have an effect on pear leaf blister mite migrating to hibernation sites. Since spring applications with sulphur against this mite have no effect due to the low temperatures, applications in late summer or autumn are also tested within these new trials.

Acknowledgement

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