

Supplemental LED growth light at high Latitudes in Norway in 2011

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12 hour day from 15 September

LED 300W
Blue:red=1:8



LED 100W
Blue:Red=1:4



Figure 1. Accumulated fruit yield of ‘Rondo’ (S1), ‘Everest’ (S2). L1=control, L2 100W, L3 300W. Vertical line is turn on date for LEDs. Bar = Standard error

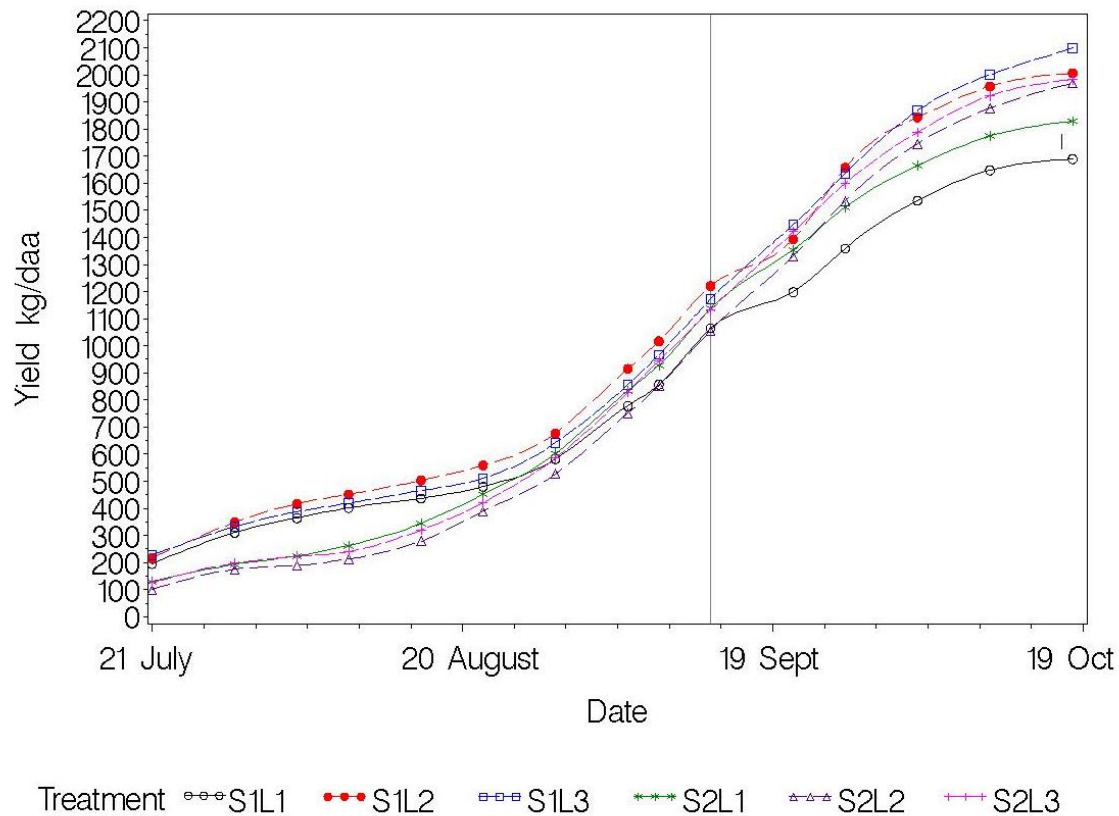


Table 1. Effect of sampling date and LED lamps on average tension on two remounting strawberry cvs in 2011

Date	Light				
	Control	L2	L3	Mean	S. error
3 Oct	193	183	195	190	7.4ns
10 Oct	218	232	253	234	8,4**
Mean	206	208	224	212	7.9*
S. error	10.3*	9.2***	9.1***	9.7***	
ns, *, **, *** is no 5%, 1% and 0.1% significance, respectively					

Figure 2. Effect of LEDs on brix level at two dates in Norway 2011. Bar= standard error

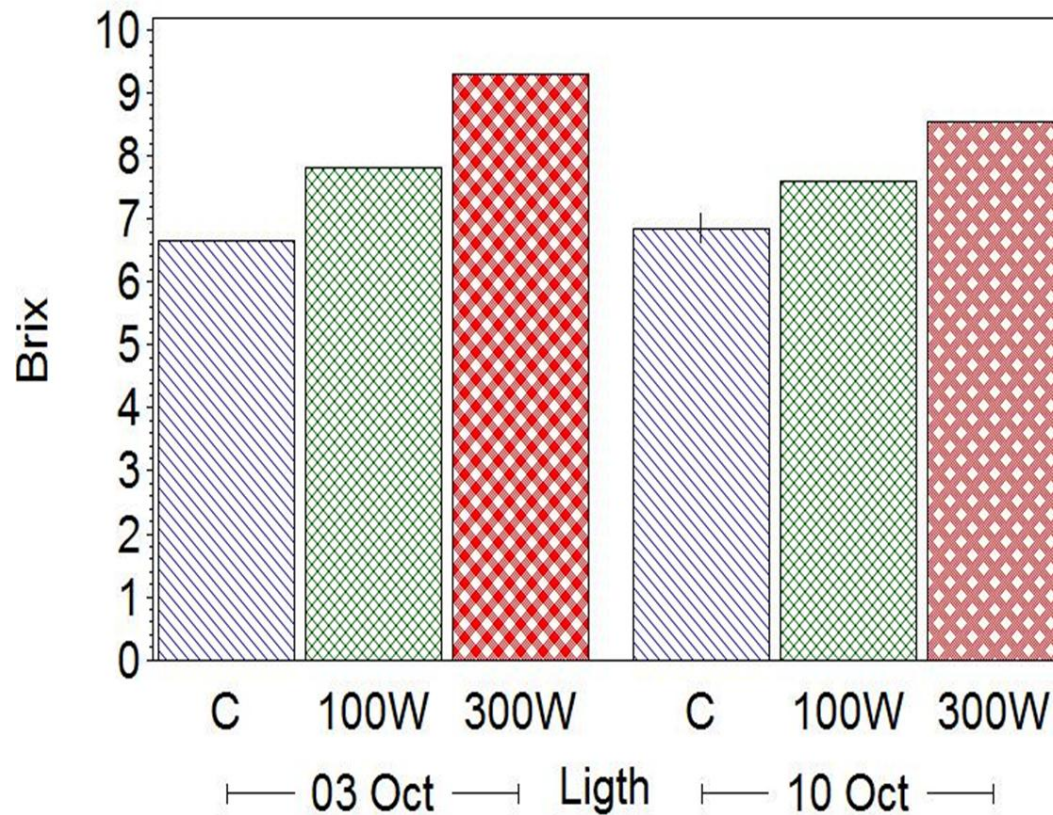


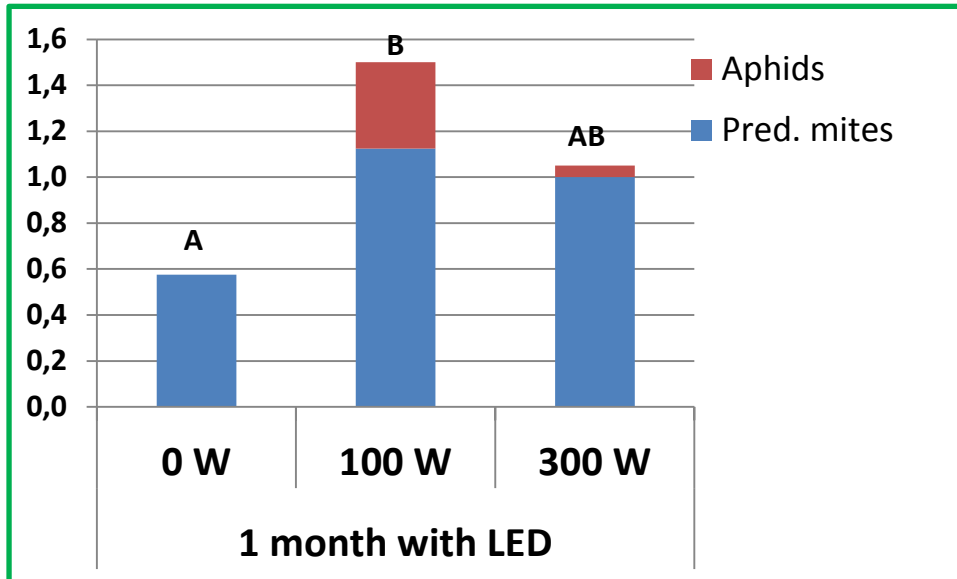
Table 2 Effect of cv and LED lamps on average tension of two remounting strawberry varieties in Norway in 2011.

Cultivar	Light treatment			Mean	S. error
	Control	L2	L3		
Rondo	157	153	160	157	8.7ns
Everest	254	260	286	267	10.3**
Mean	206	208	224	212	7.9*
S. error	10.3*	9.2***	9.1***	9.7***	

ns, *, **, *** is no 5%, 1% and 0.1% significance, respectively

Arthropods in strawberry, 19 Oct.

Numbers per trifoliate 'Rondo' leaf:



RESULTS:

Significant difference between 0 and 100 W LED. 300 W intermediate.

Spider mites: 1 specimen found in each treatment (4x10 leaves sampled).

The predatory mite *N. cucumeris* was introduced in July.

Aphids were not identified to species

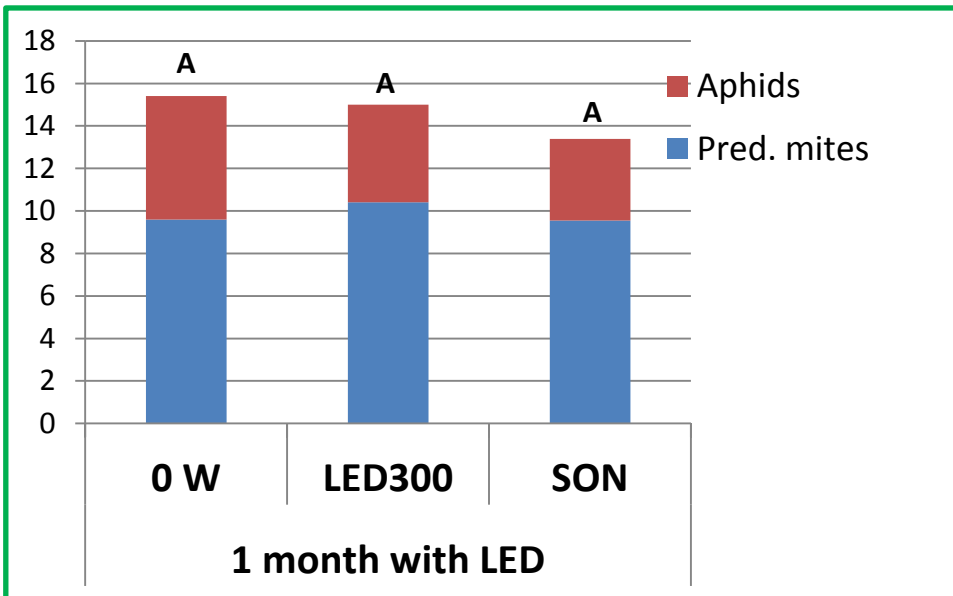
Arthropods were extracted by a washing method



300 W leaves had more red colouring than the other two treatments(?)

Arthropods in raspberry, 19 Oct.

Numbers per full 'Polka' leaf (note: scale is 10x that of strawberry):



RESULTS:

No differences among treatments. Leaves in all treatments looked greener than strawberry.



Very few spider mites or other arthropods.

The predatory mite *N. cucumeris* was introduced in July.

The aphids were mostly *Amphorophora idaei* (large raspberry aphid)



Establishment of *N. cucumeris* better on raspberry than strawberry. Promoted by aphid honeydew, or a host plant effect?

Effect of light and two cvs on fruit yield (Kg/m²), fruit weight and not salable (rest)

Light	Cultivar					
	Polka			Fallred		
	Yield m ²	Fw	%rest	Yield	Fw	%rest
Control	0.58	5.5	2.6	0.15	4.2	7.2
SON 400W	0.63	5.5	2.7	0.16	4.3	1.7
LED 300W	0.71	5.5	3.3	0.23	4.5	3.1

Conclusion

- **Remontant** strawberry, LED induced:
 - higher fruit yield 'Rondo' and Everest'
 - higher Brix° of 'Rondo' and Everest',
 - Firmer fruits of 'Everest'.
- Higher arthropod numbers on 'Rondo' leaves exposed to LED.
- Experiments repeated in 2012.

- **Primocane** 'Polka' performed well.
- Tended to higher yield by using LED.
- No effect on arthropod numbers on 'Rondo' leaves exposed to LED.
- Experimental design must be improved! + including 'Erika'.

- Temperature in October was a minimum factor.