



D2.1i. LED in Primocane Raspberry and Remontant Strawberry. P8 Bioforsk (Nestby R & N.

Trandem), Norway.



PC Raspberry. Experimental design

Method

Treatments:

- Light 3 levels (2011, 2012, 2014: two in 2013)
- Cultivar [2(1+2) in 2011, 2012; 2(1+3) in 2013, 20914]
- Three replications; Plot size, 3 plants in soil and 3 canes per plant



Bio





Seasonal fruit yield of 'Polka' in 2011



light eee L300W +++ S400W +++ C

Seasonal fruit yield of 'Polka' in 2012 and inaverage of three years

Fruit yield at each harvest date in 2012



light === L300W +++ S400W === C





Average fruit yield of three years in the period of active light. *Mean of SON lamps are for 2011 and 2013

Light	Yield
LED	1037
SON*	1104
Control	889
S. error	101ns

Efect of supplemental light on Brix^o in ^{Bio}^{forsk} 'Polka' primocane raspberry in 3 years



2012





2011

EUB

C





LED 300W Blue:red=1:8 LED 100W Blue:Red=1:4





Figure 1. Accumulated fruit yield of 'Rondo' (S1), **Bio**orsk '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 remonting 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							









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

					EUBerry		
Cultivar	Light treatr	nent					
	Control	L2	L3	Mean	S. error		
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							

CONCLUSION PC Raspberry





- Supplemental light improved brix value.
- Yield levels were in favour of supplemental light in the light active period (not significant). Lighting method should be improved.
- A large part of the yield was not harvested because of low T in autumn.
- To have a full benefit of supplemental light heath should be added from late September in a tight polytunnel.
- The experiments are strengthen in 2013 and 2014 and will terminate in late October 2014.

Conclusion Remontant strawberry



- Remontant strawberry (2011-2012), LED induced: higher fruit yield 'Rondo' and Everest' higher Brix° of 'Rondo' and Everest', Firmer fruits of 'Everest'.
- Primocane 'Polka' performed well (2011-2014). Tendency to higher yield by using LED. Experimental design was adjusted in 2013 including 'Erika' and lamps was lowered in 2014 as fruit picking moved downwards the cane throughout the harvest season.
- Temperature in October is a minimum factor.