



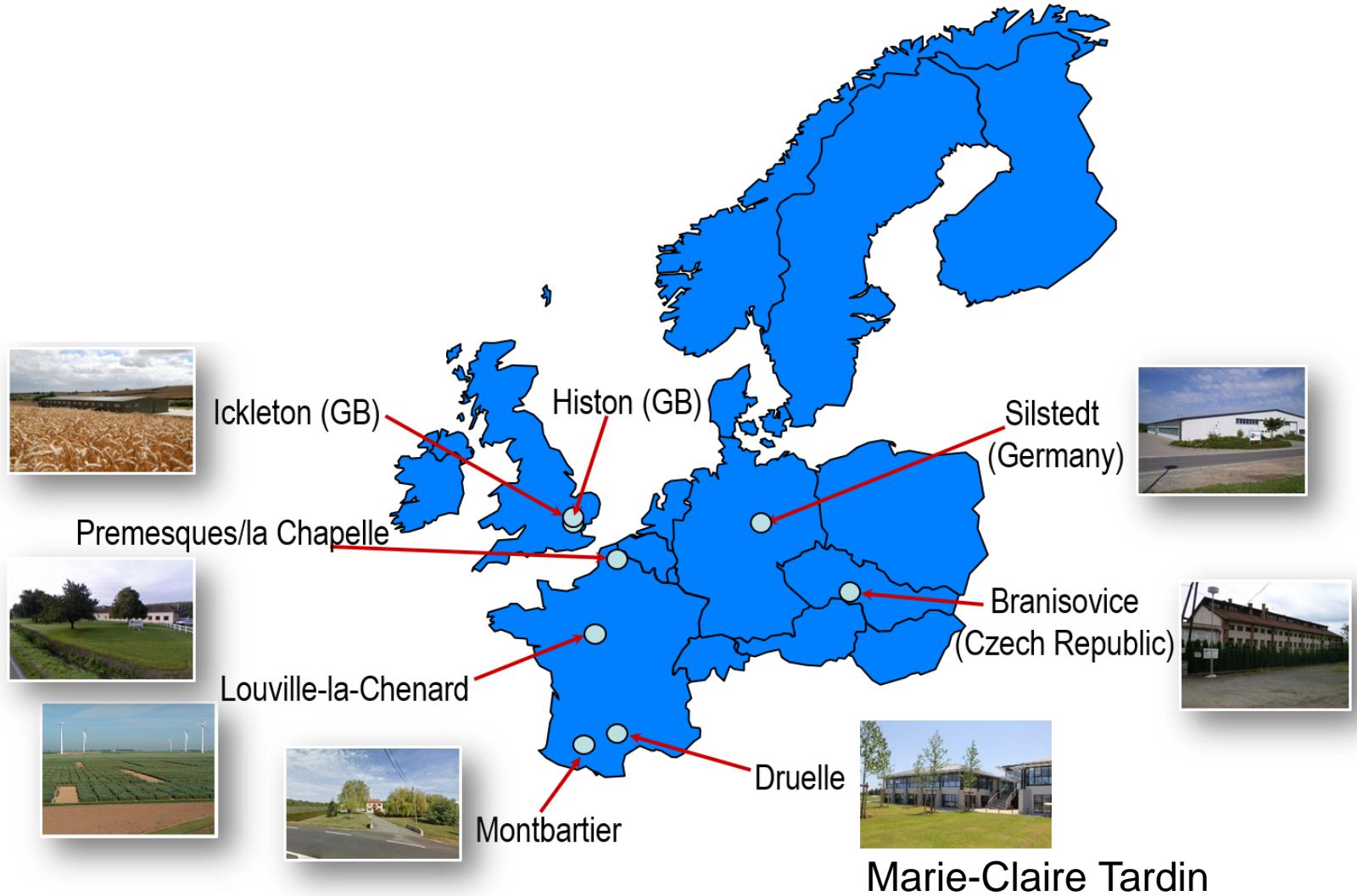
PathoLED workshop

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Rouergue, Auvergne, Gévaudan, Tarnais



RAGT cereals



Disease testing in glasshouse/CERs



- Differential testing for rusts and isolate bulking



- Routine eyespot (*Oculimacula yallundae* & *Oculimacula acuformis*) seedling tests



- Septoria leaf blotch (*Zymoseptoria tritici*) seedling assays for research



- Fusarium isolate testing

LEDs

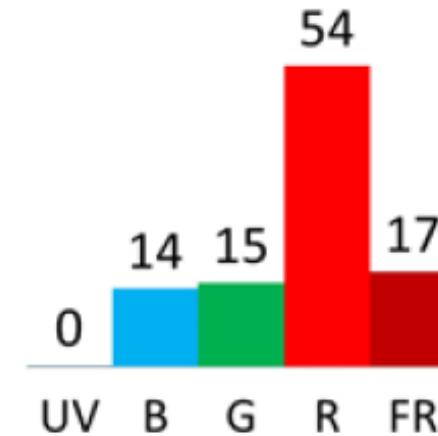
Valoya



Standard spectrum data

AP67	
Ultraviolet (<400 nm)	0 %
Blue (400-500 nm)	14 %
Green (500-600 nm)	15 %
Red (600-700 nm)	54 %
Far-red (700-800 nm)	17 %
PAR (400–700 nm)	83 %
CCT (Kelvin)	2548
CRI	73

Colour distribution



AP67

LEDs in GH – yellow rust



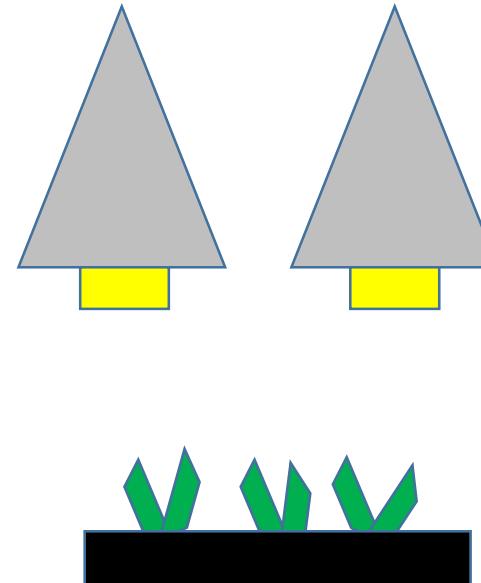
LEDs in GH – septoria



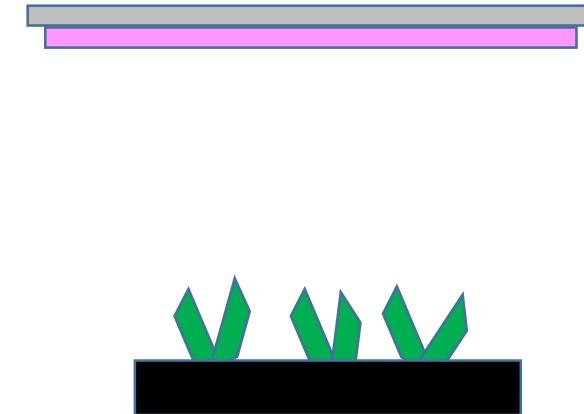
Specific experiment



Sodium lamps



LEDs



- Grew plants for approximately 2 weeks
- Infected with rusts and septoria at 2 leaf stage

Inoculation

Sodium lamps



Slight difference in developmental stage – plants under sodium lamps were ahead slightly

LEDs

A surprise!



Letter | Published: 01 January 2018

Speed breeding is a powerful tool to accelerate crop research and breeding

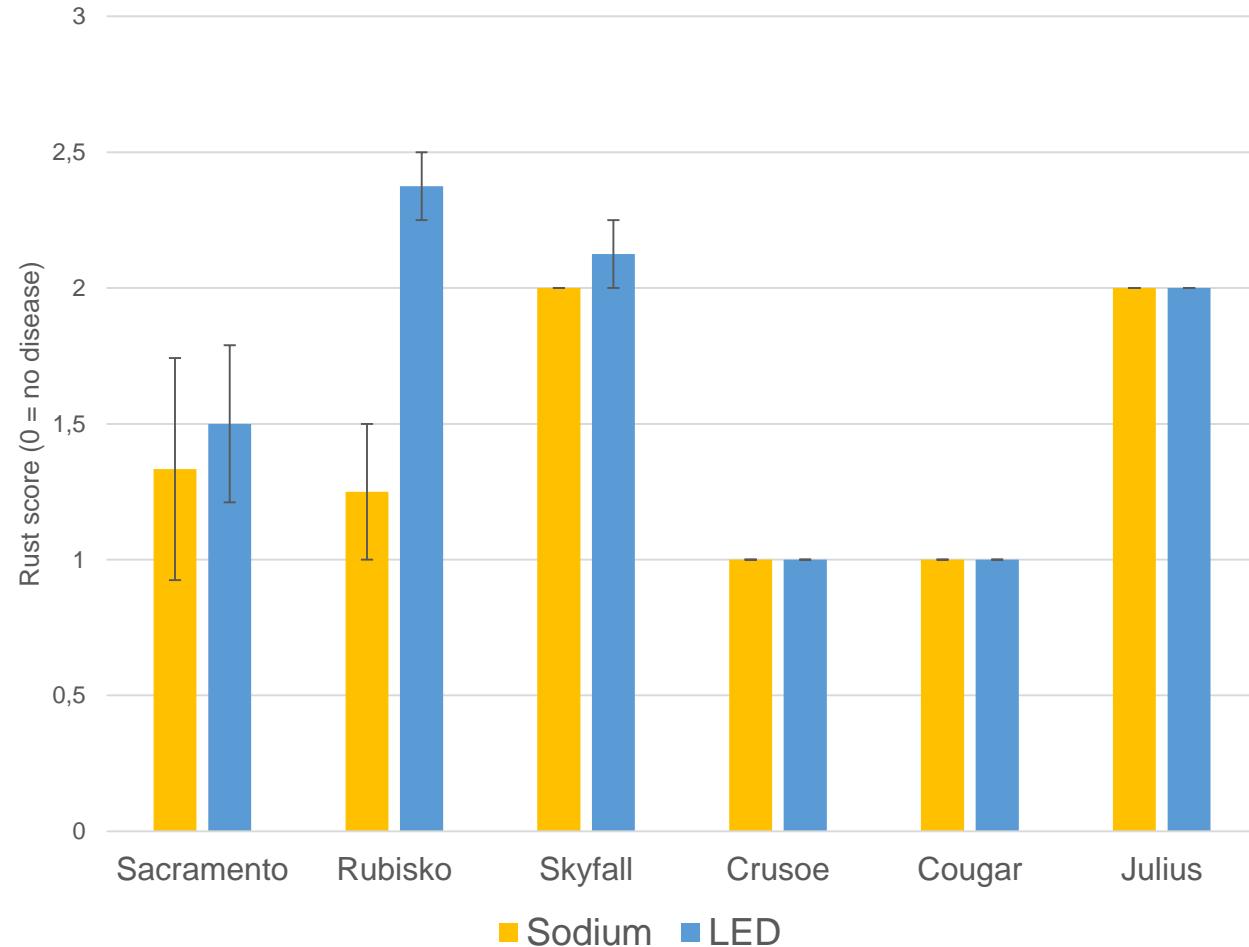
[Amy Watson, Sreya Ghosh, \[...\] Lee T. Hickey](#)

[Nature Plants 4, 23–29 \(2018\)](#) | [Download Citation](#)

- Extended day more important?
- Heat from sodiums?

Yellow rust

0	Green tissue
1	chlorosis/necrosis (no pustules)
2	pustules in chlorosis/necrosis
3	pustules in green tissue



Yellow rust in Rubisko

Sodium

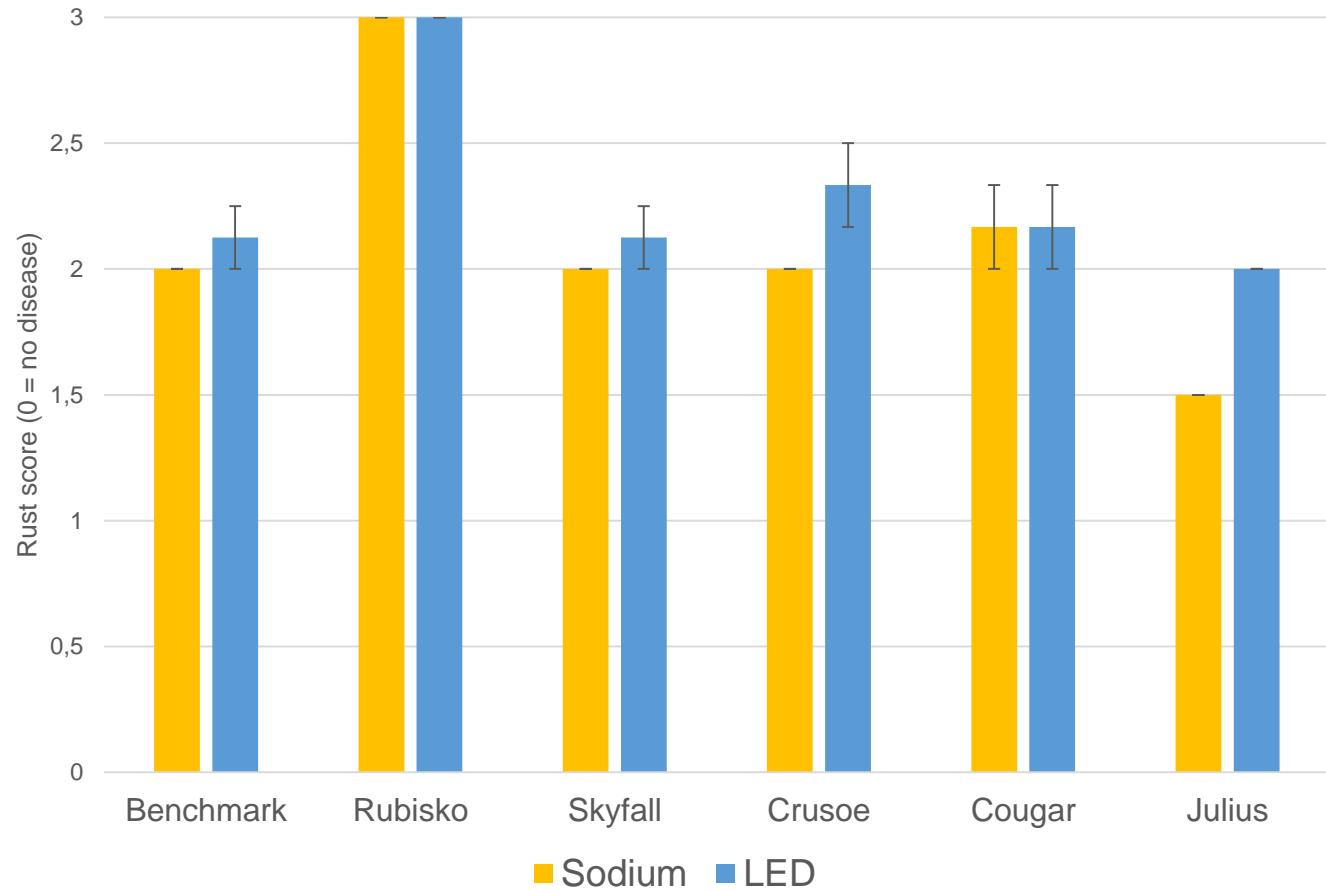


LED



Brown rust

0	Green tissue
1	chlorosis/necrosis (no pustules)
2	pustules in chlorosis/necrosis
3	pustules in green tissue



Brown rust in Julius

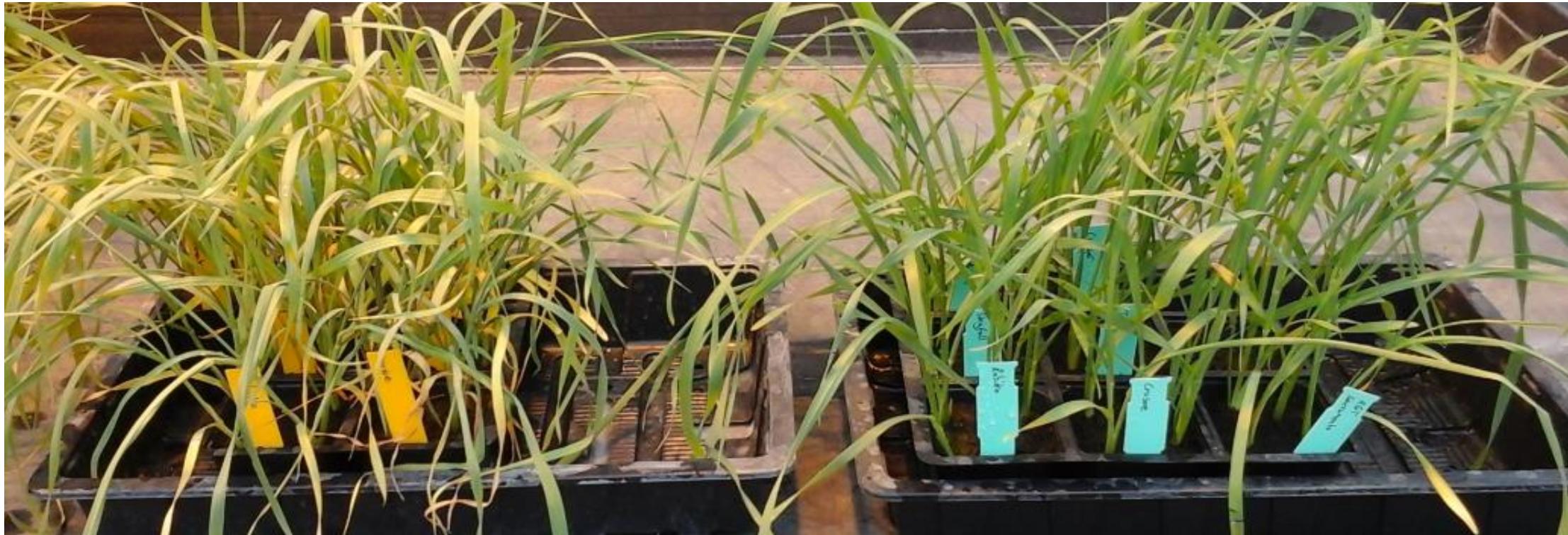
Sodium



LED

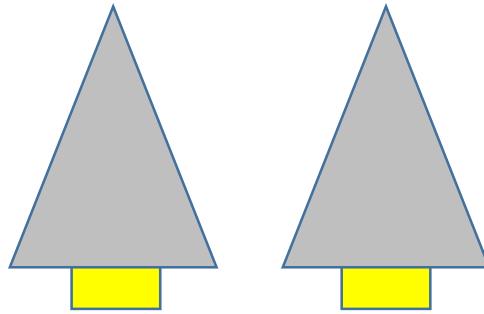


Septoria

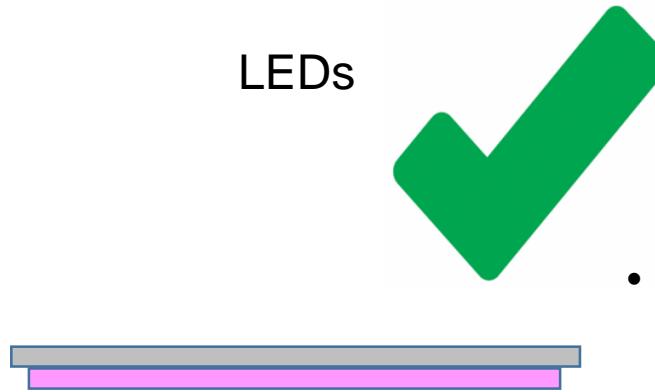


Conclusion

Sodium lamps



LEDs



- Better disease symptoms
- Prevents leaf senescence for better disease scoring
- Possibly some changes in resistance reaction in some varieties

!