



The Thorvald Platform

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Navigation in open strawberry fields



UV-treatment gives very strong control of powdery mildew in controlled labs



OPERATION

Effects best if applied at night (two hours before blue light)

OPERATION

Treat during the whole growth season

ADDITIONAL EFFECTS

Other effects:

May increase shelf life

Controls other fungi diseases as gray mold but not as effective as in powdery mildew

The images show strawberries with UV-treatment to the right vs. no UV-treatment to the left. The images are taken a few days after picking.



3 Years of UV-treatment testing on farms to prove effects in farm conditions



- Research project with controlled tests of effect of UV-treatment in real life conditions on a larger scale on farms
- Strawberries and cucumbers
- UV-treatment controls powdery mildew. The administration of the treatment is critical for success. A certain variation of J/m² is possible but discontinuity in treatment should not take place.
- Third season University of Florida is testing UV effects on larger scale area. Exact same setup, only now with a robot instead of a tractor. Results are consistent over time, UV-treatment controls powdery mildew.

UV-Baer
2016, 2017

UV-Bio
2017, 2018

Florida
2018, 2019

- Farmers requested to know if the UV would harm beneficial insects before they wanted to start using UV on a larger scale. Results are very good, beneficial insects like predatory mites (*Neoseiulus cucumeris*) and spider mites (*Phytoseiulus persimilis*). survives and some reduction in two-spotted spider-mites.... is observed.



Cucumber farmer Kristian Guren has used UV-treatment since September 2017. His experience is that the powdery mildew does not disappear completely but is kept well below a level that gives economic losses. The UV-treatment has worked well in combination with biological treatment.

CONTINUED COMMERCIAL OPERATIONS IN CUCUMBER & STRAWBERRY IN 2019

CUCUMBER

Guren Gartneri - cucumber production with 1200 meters of cucumber plants in a greenhouse

STRAWBERRY

Ekeberg Myhre - strawberry production on table-top 1.1 hectare



Kristian Guren, well-known and respected cucumber farmer and test user of Thorvald.

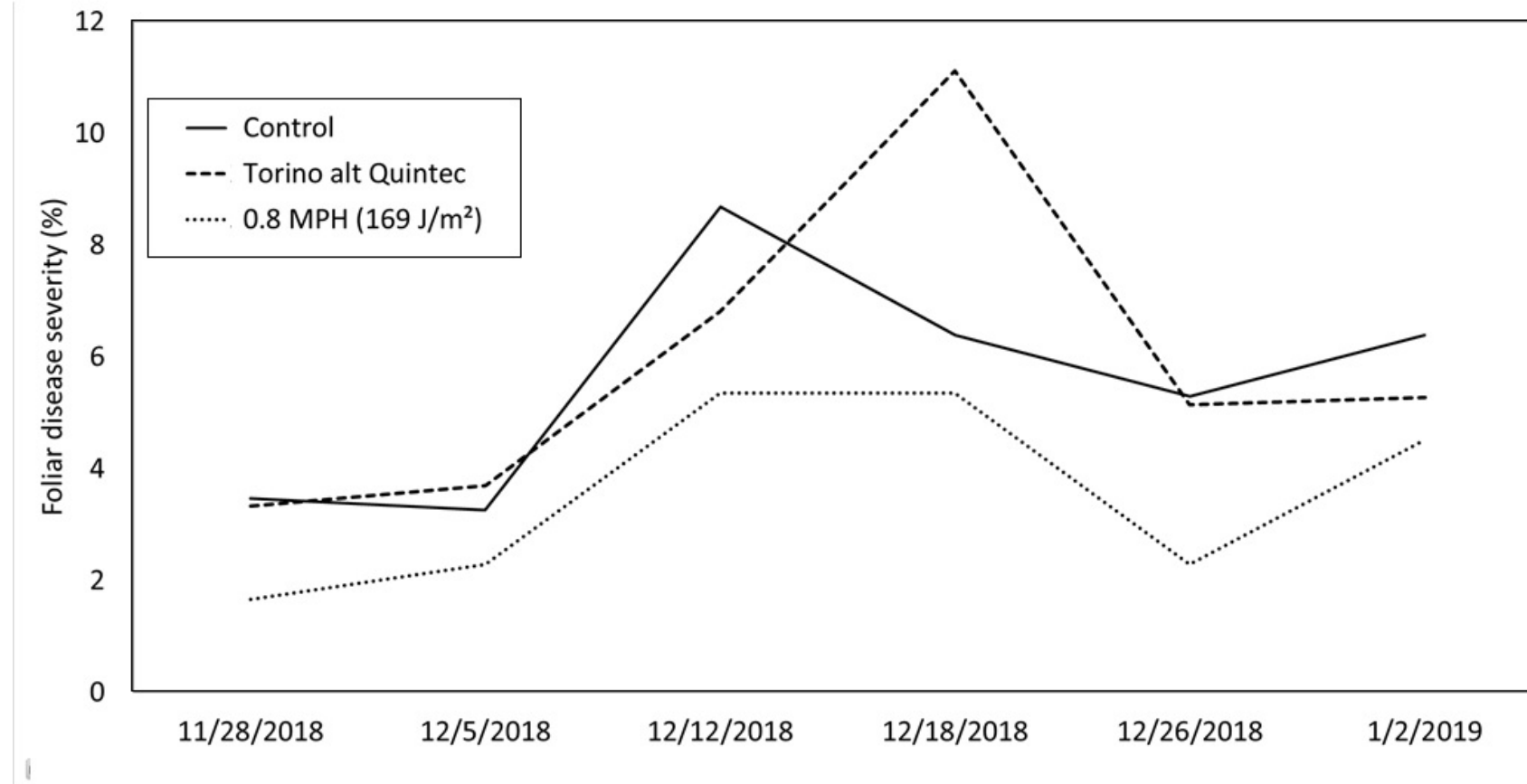
UV-treatment of strawberries in open field at Wish Farm, Plant City, Florida



Treatment once a week
165 J/m² at 254 nm
Robot drives at 0.8 MpH
0.85. miles of strawberry rows on the ground
Startet mid november, runs till end of season

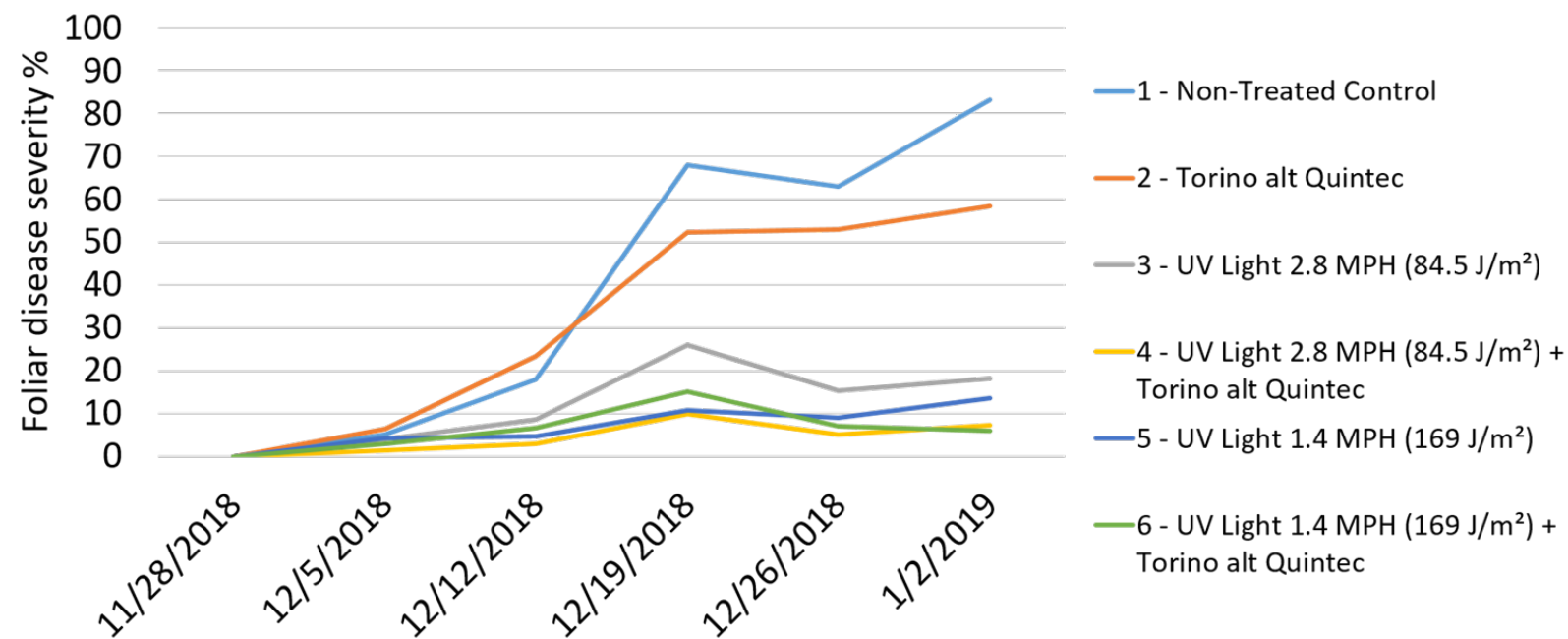
The Thorvald robot was custom assembled to the field,
and the array was a copy of the one University of Florida
has used the previous two seasons

Documentation of efficacy of UV-treatment in Florida



Summary for the trial at Wish Farm

Disease pressure has been low at the Thorvald test farm so far, but effects are still evident.



Summary for the trial at University test area

The graph shows clear effects in 2018/19 as the two previous seasons.