



GCREC PART OF INTERNATIONAL GROUP WORKING WITH UV LIGHT TO SUPPRESS PLANT DISEASES

By Jim Frankowiak

Some fungi and bacteria cause disease in plants. They are an ongoing challenge to growers, as well as the scientists and advisors who support those growers. These pathogens are smart, too, and are able to develop resistance to the plant medicines used to combat diseases. This has led to the exploration of a number of non-chemical ways to more effectively fight this continuing battle.

Natalia Peres, Ph.D., Professor of Plant Pathology at the University of Florida/Institute of Food and Agricultural Sciences (UF/IFAS) Gulf Coast Research and Education Center (GCREC), is an active member of an international group studying use of UV to suppress plant pathogens. The "Light and Plant Health" group includes the GCREC, Rensselaer Polytechnic Institute's Lighting Research Center, Norway's Institute of Bioeconomy Research, the Norwegian University of Life Sciences and Cornell University's Geneva Experiment Station.



The group's work has been supported by grants from the U.S. Department of Agriculture (USDA) Organic Research and Extension Initiative (IREI), the USDA Specialty Crops Research Initiative (SCRI) and the Research Council of Norway, as well as by assistance from the lighting companies OSRAM, Ushio, Cree and the Asahi Glass Company.

Dr. Peres and her GCREC colleagues have focused their work on the design, operation and efficacy of an apparatus that uses ultra-violet light to suppress powdery mildew of strawberry in

open field production systems. "Powdery mildew is a serious pathogen that grows on strawberry plant surfaces resulting in flower abortion, misshapen fruit and reduction of the photosynthesis in the plant's leaf areas," said Peres.

The research team developed a tractor-drawn apparatus with several inexpensive UV lamps. A breakthrough in the work was the discovery by



This growing season the research team will deploy a small but powerful robot that will carry the UV lamps, but run automatically during the night, reducing the need for nighttime labor. Future projects will seek to incorporate UV light technology into experimental mechanical harvesting equipment currently undergoing field trials.

Additional information on the research work of the international "Light and Plant Health" group is available at: www.lightandplanthealth.org.

members in Norway that the treatments are even more effective when applied after sunset. Night applications bypass the natural defenses of the pathogen by delivering a small but effective blast of UV light at a time that catches the pathogen napping. The tractor-drawn unit looks eerily like alien spacecraft floating above a violet glow at night, but it really keeps the plants free of mildew. "The results are equal to or better than other pathogen control techniques such as periodic spraying of plants with a fungicide," said Peres. "Additionally, the UV light applications are less costly than other methods," she added. This new technology was tested at GCREC strawberry fields and fields at Wish Farms.



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