THORVALD

EFFECTIVE POWDERY MILDEW CONTROL WITHOUT FUNGICIDES USING THORVALD LIGHT TREATMENT

THORVALD LIGHT TREATMENT SIGNIFICANTLY REDUCES THE USE OF FUNGICIDES

Saga Robotics' light treatment is a novel way to control powdery mildew without chemical inputs which has been tested and verified through scientific research. Exposing strawberry plants to shortwave light on a weekly basis is highly effective in controlling powdery mildew. The treatment must be applied at night in order for it to perform optimally, but as treatment is delivered autonomously by a driverless robot unit, it saves labour over conventional fungicide application. The light treatment also generates significant added value through direct cost savings and the environmental benefits of reduced fungicide use.

Saga Robotics arranges the installation and setup of the Thorvald robots, which treat the crop without the need for human intervention. The robots are monitored remotely by Saga Robotics at all times whilst in operation, meaning the treatment can be delivered safely and consistently using the minimum of on-farm labour.


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RESULTS VERIFIED THROUGH RESEARCH

Exposure of strawberry plants to controlled levels of UV-C has been proven to effectively control the incidence of powdery mildew. This process has been used by Saga and their partners to significantly reduce fungicide applications in strawberry cultivation in the UK, Norway and the USA.

Both the Thorvald platform and the light treatment have been widely tested and verified – with positive feedback from test partners. In some cases, no fungicide application was required to control powdery mildew during a full growing season, and UV-C treatment provided almost complete control of mildew when best farming practices were performed.

More than ten different organizations, including large scale farming operations, research institutes and other external parties in Norway, UK, Continental Europe and the US have been involved in the testing.

Reduce the need for manual labor

- Simple setup and autonomous operation
- Saves time and labour applying fungicides

Control powdery mildew throughout the season without chemical fungicides

- Proven to effectively control powdery mildew without chemical fungicides in commercial strawberry production in low and medium mildew pressure situations and substantially reduce the need for fungicides in high mildew pressure situations.

Additional environmental benefits

- Sustainable and environmentally friendly solution
- No direct CO2 emissions during operation

HOW DOES IT WORK?

Thorvald light treatment is completely safe for the treatment of powdery mildew in commercial strawberry cultivation when used in a controlled manner, causing no reduction in fruit quality or yield. Application of UV-C must be done at high intensity and at night to maximise its effect. The Thorvald agricultural robotic platform has been designed to deliver the UV-C treatment effectively and reliably at night completely autonomously. This means no in-field labour, and minimal or no chemical interventions are required for effective mildew control.

- The Thorvald UV-C robotic platform is designed to control powdery mildew in tabletop production systems under polytunnels. Robots for other production systems are also available.

- Each Thorvald unit can treat up to 1.5 Ha of strawberries per night or 6 Ha per week if treatment is performed on the recommended twice-weekly schedule.

- Control is provided as a service to growers and application is achieved completely autonomously by a self-driving robot, with no need for human intervention.

- Currently, the robots in operation are monitored from the Thorvald Operation Center with online access to the robot, as well as by on-site personnel.

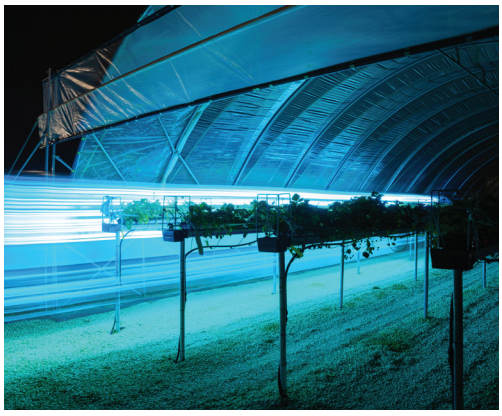
-The grower and Saga Robotics determine the operational pattern of treatment on the farm and the robot treats the designated area autonomously.

- UV-C treatment is a preventative measure, and so must be applied consistently on a weekly basis throughout the season even before mildew symptoms appear.

- For effective operation throughout the season Thorvald needs a designated area for its docking container, and access to a power source and 4G internet

- Treatment using the Thorvald platform leads to a significant reduction in fungicide application, in many cases replacing fungicides altogether, as well as a reduction in waste at the farm gate of up to 50% over fields protected with conventional fungicide treatment.

FARMING-AS-A-SERVICE



The light treatment will be offered through a farming-as-a-service (FaaS) model which means no capital investment or maintenance costs for the farmer, and thus reduced risk and increased flexibility. In the first season of deployment on-farm, a small area is treated (usually 3 – 6 Hectares). Once efficacy and reliability are demonstrated, the area is increased in subsequent seasons with each Thorvald robot capable of treating up to 6 Hectares of cultivated strawberries per week effectively.

Light treatment is offered as a complete service with field mapping, treatment deployment and maintenance performed by Saga Robotics.

The light treatment service will be offered to UK based strawberry growers for the 2022 season. Please contact us to register your interest and find out more about how Thorvald can help you control powdery mildew.

THE THORVALD PLATFORM

- Agricultural robotic platform which can utilize multiple products and tools
- Modular to fit most agricultural environments
- Robust autonomy and guidance system
- Lightweight – reducing soil compaction
- Electrical – no CO2 emissions in operation

ABOUT SAGA ROBOTICS

Saga Robotics is the company responsible for the design, development, and production of the world-leading agricultural robot, Thorvald. The company's aim is to develop robotic solutions that address the growing labour shortages in agriculture, as well as making agriculture more sustainable and energy efficient. Saga Robotics have developed an autonomous and completely self-propelled robot that uses advanced algorithms to navigate the challenging conditions found on commercial farms. Saga Robotics is also involved in several projects where they develop tools for strawberry picking, weeding, crop prediction and much more.

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