

SUSMEDHOUSE PARTNERS



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SUSMEDHOUSE

Sustainability and Competitiveness of Mediterranean Greenhouse and Intensive Horticulture

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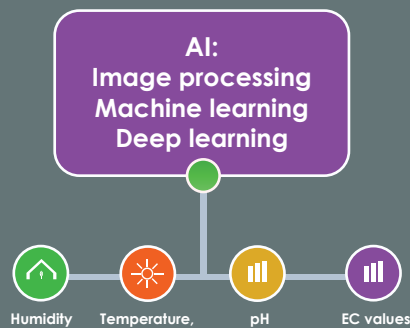
Turkey

Development of AI and PSO Cabins

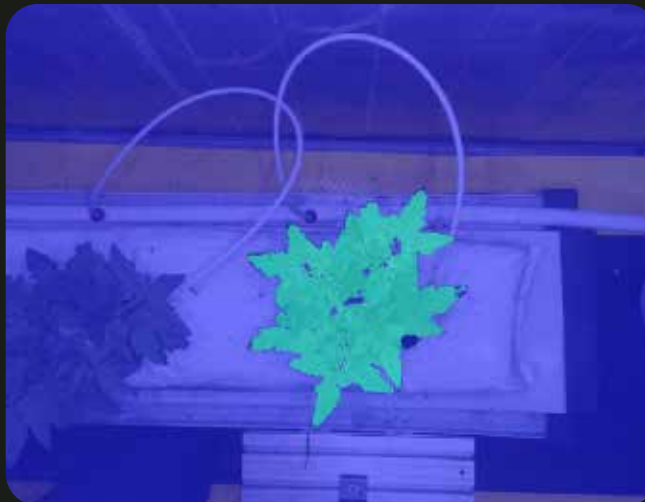
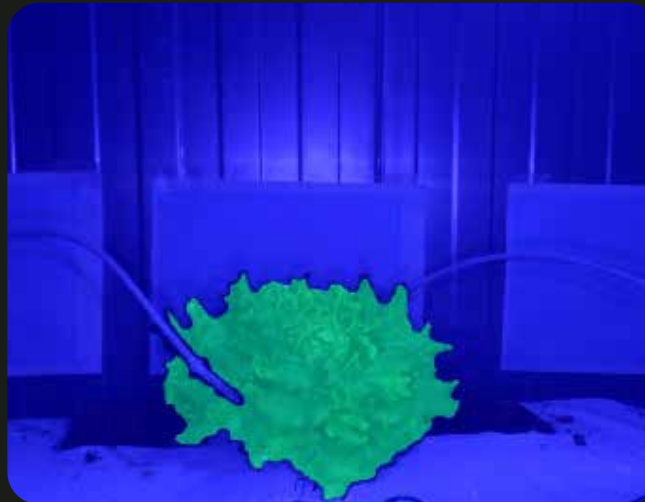


Development of AI for greenhouse

Optimization on lettuce growth conditions has been completed successfully. **Temperature, humidity, pH, and EC values** for maximum growth conditions have been analysed with the aid of **AI** and images processing software developed. Currently, optimization study on tomato is continuing in the cabinets, to optimize the growth conditions with respect to the parameters, temperature, humidity, pH and EC. Few examples of **AI & image processing software segmentation** can be seen below for lettuce and tomato that is being used to calculate and assign a growth score for individual plants during the optimization study



Deep Learning (Lettuce)



Development of PSO Cabins for greenhouse

For the Optimisation **Cabins**, a total of **11 cabins** were determined to be used, including **10 plant** growing cabins and 1 cabin for automation and control, to be used in **PSO trials**. In 10 growing cabins different temperature, different humidity, different fertilization EC and pH values will be provided to the respective plants and the growth of plants will be examined via daily plant segmentation from photographs. **Artificial LED lighting** is used to provide equal lighting for all plants.

With its **novel optimisation algorithm, optimisation cabins** have developed over the same time, the ideal optimum temperature, humidity, and EC-pH requirements of the plant will be determined. Lettuce, tomato, pepper, strawberry, etc. plant breeding investigation will be done.