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News

'AI can help growers discover more about their crops'

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Growers have access to an increasing amount of data: about their crops, the greenhouse, sales, labour, and more. This data is often scattered across various sources, apps, tools, or websites of other companies. Wageningen University & Research BU Greenhouse Horticulture is exploring how artificial intelligence (AI) can help growers draw connections between this data. Researcher Rick van de Zedde: "By using AI smartly, data can be turned into valuable insights."

A grower has extensive green knowledge and is capable of making cross-connections. For example, higher humidity in the greenhouse

reduces plant transpiration but increases the risk of fungal diseases. In this case, the number of variables is limited. However, due to digitalisation in and around greenhouses, the amount of data has grown enormously. Sensors, models, suppliers, artificial intelligence, image recognition, and more now generate terabytes of data.

Data-driven cultivation

“High-tech greenhouses are becoming increasingly large. This requires a data-driven approach. A grower must be able to schedule the required workforce at a specific time in the growing season, instruct staff to use (natural) resources efficiently, and verify the impact on crop quality and yield forecasts.”

The art of data-driven cultivation lies in identifying possible correlations among all these data streams to make well-informed decisions. AI can enable this. However, it requires data ‘providers’ (such as climate computer developers) to grant access to the data and to handle the results responsibly. Van de Zedde: “The data must be shared in a controlled and reliable manner.”

Which data to connect?

WUR collaborates with various companies to unlock data for AI applications, including Hoogendoorn, LetsGrow.com, Ridder, Hortikey, Eurofins, and Log & Solve. “Together, we look for correlations and explore how combining different sources adds value. To achieve this, we bring together experts with IT backgrounds, crop knowledge, and energy expertise. They know what needs to be measured because AI always starts with human input.”

Many questions remain. For example, could a grower instruct a system

to look for correlations without being overwhelmed with graphs? Van de Zedde suggests: “The ideal scenario would be to do this in natural language, like ‘ChatGPT.’ A grower wouldn’t need programming skills but could simply ask their question. For instance: ‘Over the past few years, is there a correlation in this compartment between disease pressure and climate?’” Another question is: In what form should AI provide the answer? Van de Zedde notes: “Some growers prefer just a ‘yes’ or ‘no,’ while others want a detailed graph.”

https://www.wur.nl/en/research-results/research-institutes/plant-research/business-units/greenhouse-horticulture/show-greenhouse/ai-can-help-growers-discover-more-about-their-crops.htm?_gl=1*hs7jqy*_up*MQ..*_ga*Njk1OTIxMTAyLjE3NDA3MzUyNTc.*_ga_SZ1PQDSPJD*MTc0MDczNTI1Ny4xLjEuMTc0MDczNTI2Ni4wLjAuMA..