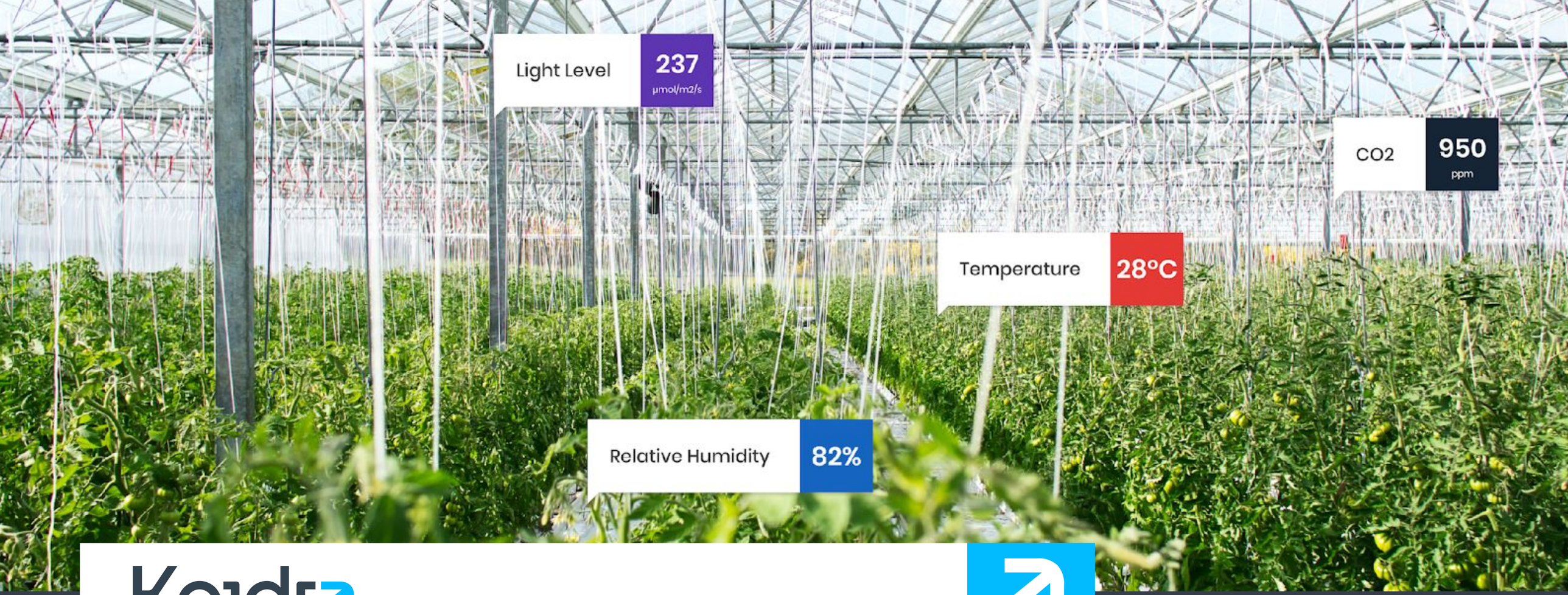


Koidra

GROW WITH PRECISION USING INTELLIGENT AUTOMATION

ABOUT KOIDRA

Koidra provides award-winning autonomous control technology for greenhouses

Higher yield

More savings

Autonomous labor



*Powered by our world-leading **AI + IoT***

RATED #1 FOR SMART GREENHOUSE SOLUTION

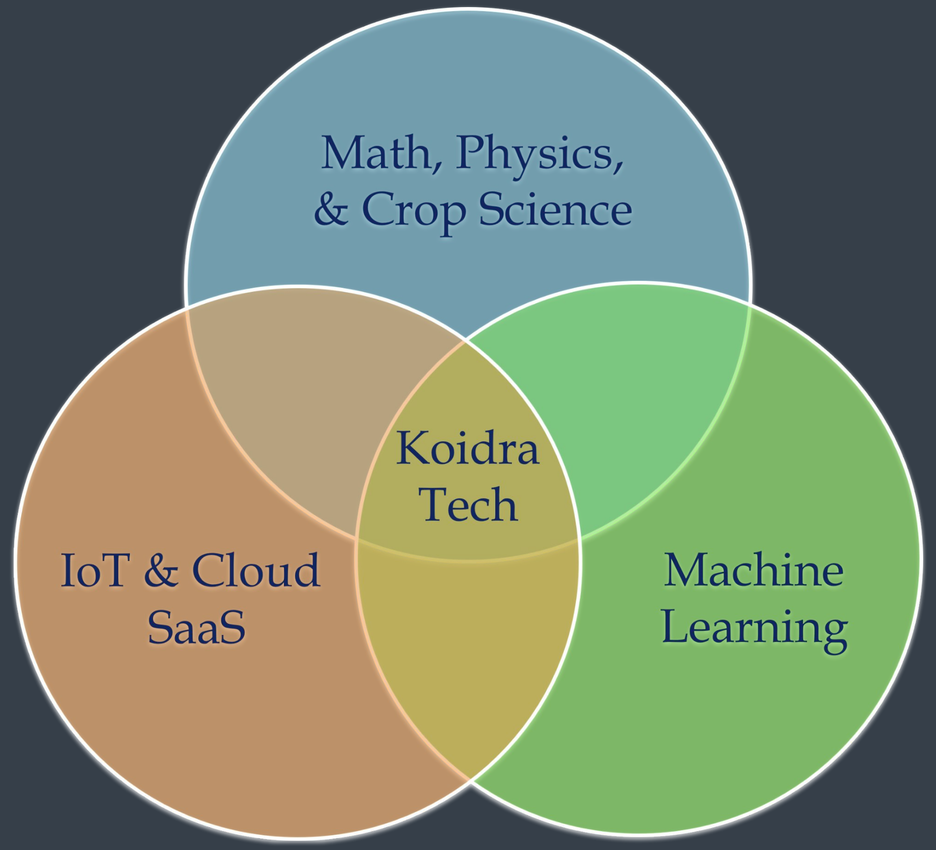
Remarkable achievements in commercial trials, boosting hydroponic cucumber yield by **19.8%** and organic eggplant yield by **27.6%**

Consecutive victories in the prestigious **Autonomous Greenhouses Challenge**, surpassing expert growers and boosting net profit to **27.8%**

Recipient of grants from **USDA and Agriculture and Agri-Food Canada** for groundbreaking research in enhancing crop productivity and sustainability



POWERED BY A ROBUST SCIENTIFIC FRAMEWORK



Koidra's **intelligent automation** technology uses extensive crop science, math and physics data to generate optimal growth strategies

IMPROVING GREENHOUSE PROFIT

Koidra

Koidra software controls your greenhouse, reducing labor and energy demands



The majority of growers view labor and energy costs as the most critical issues affecting their business. (Greenhouse Grower, 2018).

Grow consistently with precision using intelligent automation software to automate your operations



Greenhouses today rely on manual and inconsistent operational control processes.

Unify and centralize your greenhouse data and outputs reports in one place



Growers invest in different technologies, but lack of interoperability between them leaves you still guessing

Grow more with less ↗ ***Gain precision control*** ↗ ***Unleash your data*** ↗

SOLUTIONS

AUTOPILOT 360
Full facility automation

AUTOPILOT GROW
Autonomous climate control

DATAPILOT
Advanced and centralized
platform for data management



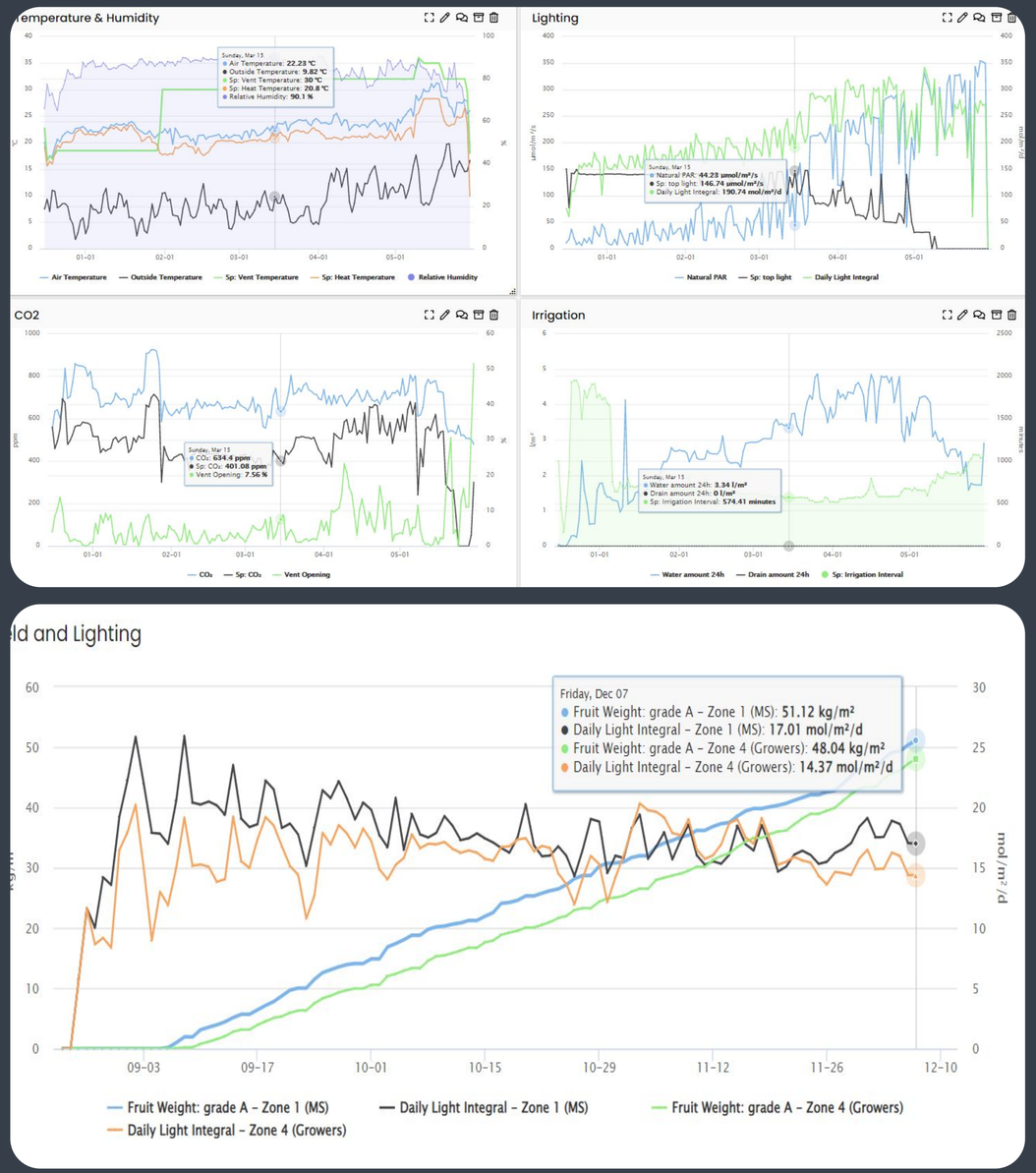
① Datapilot

Real-time data monitoring

Integrate all climate computer, sensor, and specialty data in one place

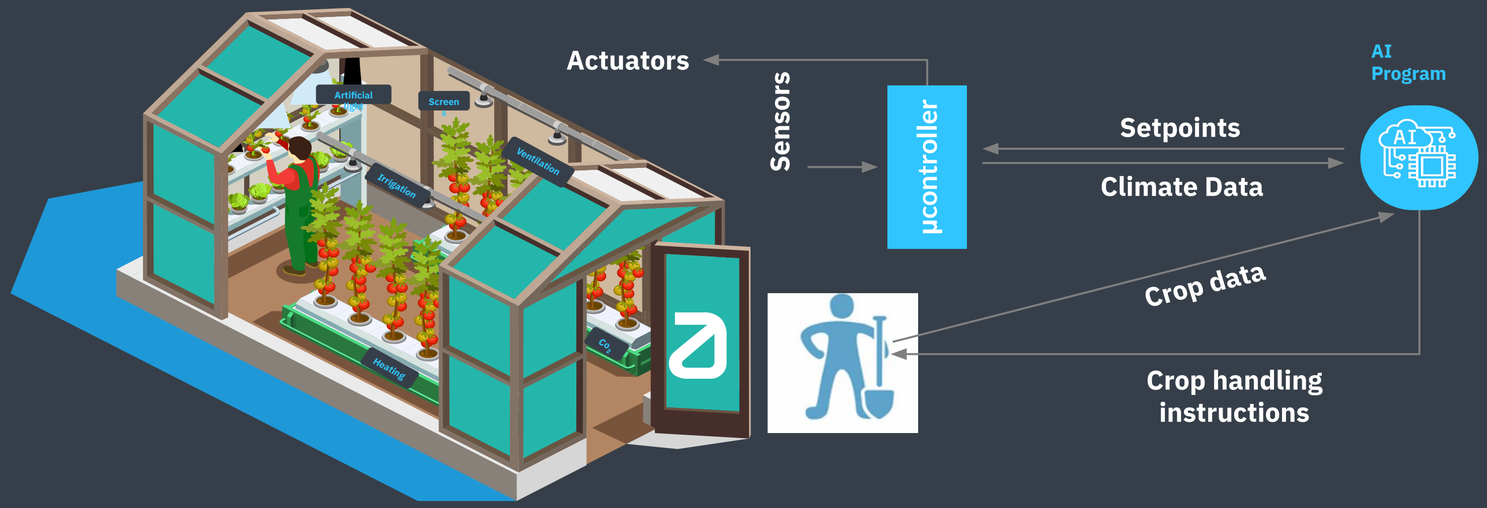
Gain deeper insights of the greenhouse operations via advanced analytics and trends

Multiple sites can be monitored simultaneously and efficiently



② Autopilot Grow

Complete Automation with Our Premiere AI Software



24/7 independent climate steering

Increased yield with autonomous adjustment of the climate

Scalable and efficient digital workforce

Greater resource efficiency and via optimal resource usage strategies

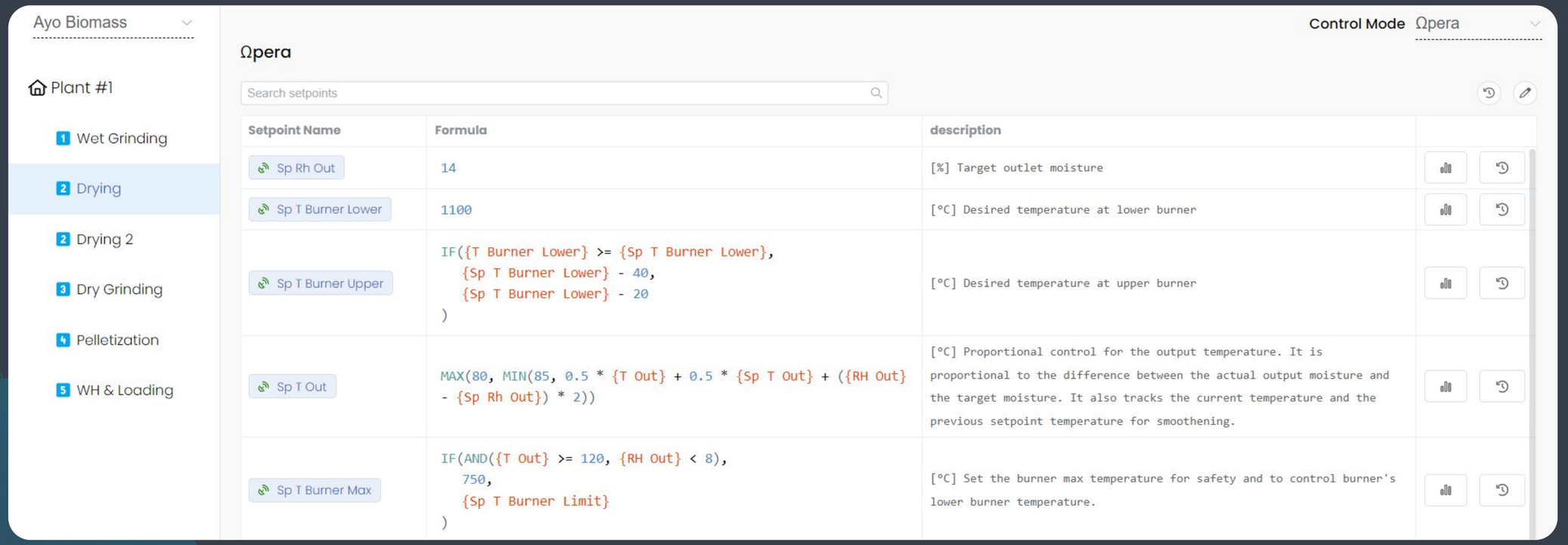
③ Autopilot 360

Whole facility automation

👉 Automate more than just the climate in the grow room

👉 Operators-led automation. Production operators and managers are in control

👉 Knowledge Capture. Autopilot 360 enables the preservation and transfer of production and maintenance know-how, ensuring it remains an asset of the company.



SUCCESS STORIES:

💲 Successful results in commercial greenhouses

🏆 Autonomous Greenhouse Challenge wins (repeatedly)



greenhousecanada.com/driving-autonomous-greenhouse-growth/

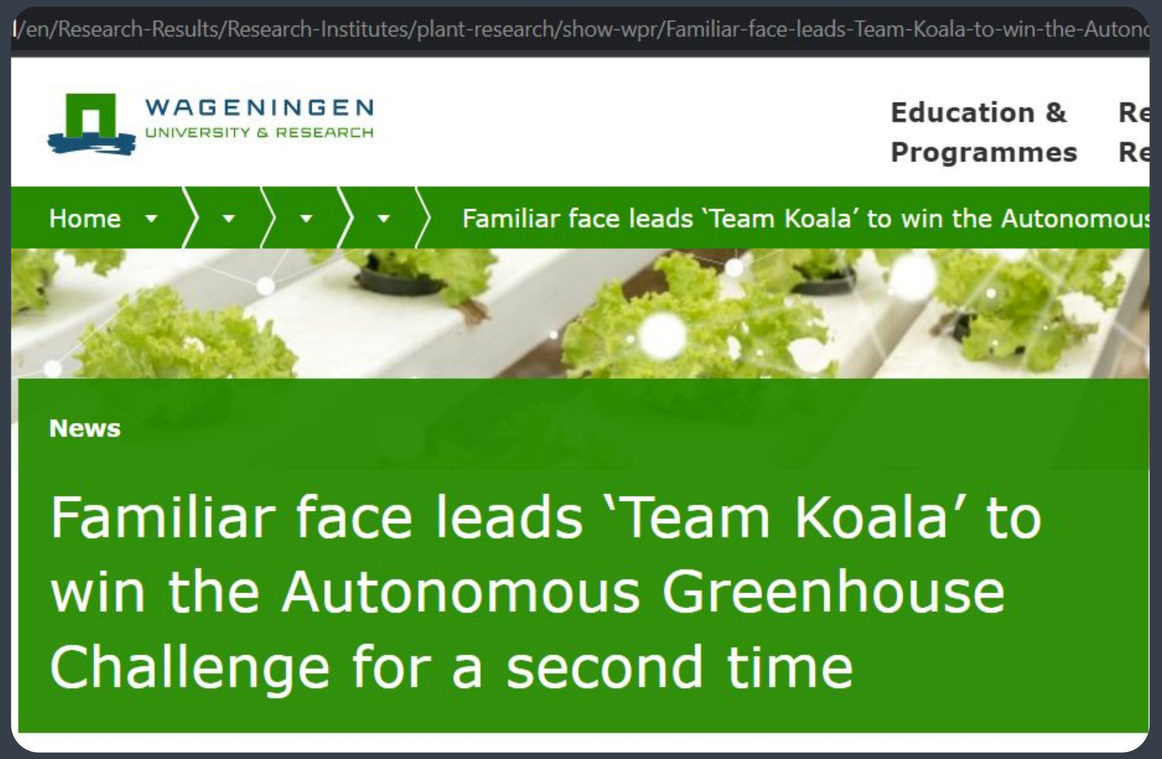
GREENHOUSE CANADA

MENU NEWS FEATURES WEBINARS AWARDS GROWER DAY BUYERS GUIDE MAGAZINE

"Our autopilot controlled heating, CO_2, and venting. The setpoints were changed every five minutes and data was monitored via Koidra's dashboard and mobile app. During the trial, the autopilot system managed to increase the yield of eggplants by 28.5% compared to the controlled zone, which means that the autopilot system was able to produce a significantly higher amount of eggplants compared to the traditional growers' practices," Tran stated.

A second trial was conducted growing cucumbers from July 18 to Oct 18, 2022, using the same practices implemented during the growing of the eggplants. Again, the results were very positive.

"The trial with cucumber was conducted in the same manner as the eggplant trial, with two zones of cucumber growers: one controlled by traditional growers' practices and the other managed by an AI-powered autopilot system. The results of the trial showed that the autopilot system was able to increase the yield of cucumbers by 19% compared to the controlled zone. This improvement in yield is significant and confirms the ability of the autopilot system to increase the productivity of crop growth in commercial greenhouses," Tran stated.



/en/Research-Results/Research-Institutes/plant-research/show-wpr/Familiar-face-leads-Team-Koala-to-win-the-Autonc

WAGENINGEN UNIVERSITY & RESEARCH

Education & Programmes Re

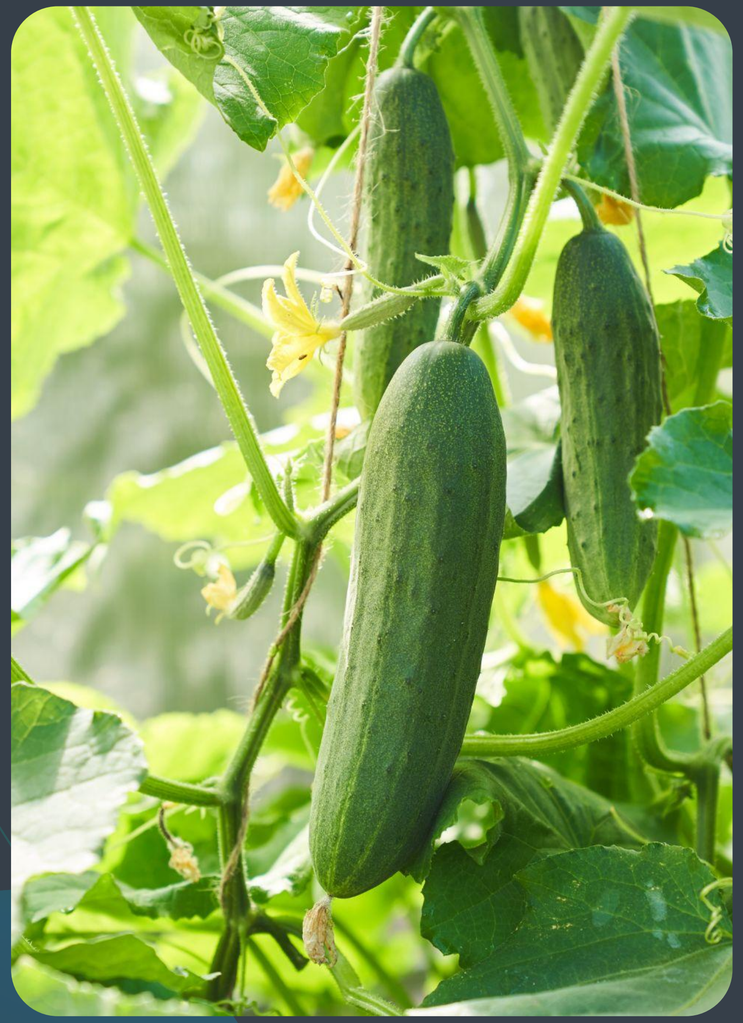
Home Familiar face leads 'Team Koala' to win the Autonomous

News

Familiar face leads 'Team Koala' to win the Autonomous Greenhouse Challenge for a second time

SUCCESS STORIES:

CUCUMBER TRIAL *in a commercial greenhouse*



- Cucumbers in the autopilot zone vs cucumbers in the controlled zone by the growers
- Controlled variables by the autopilot: heating, Co2, & venting
- Period: July 18-Oct 18, 2022
- Outcome: Yield (kg/m2)
- Results

⭐ **Our autopilot increased yield to 19.6%**

SUCCESS STORIES:

EGGPLANT TRIAL *in a commercial greenhouse*



- Eggplants in the autopilot zone vs eggplants in the controlled zone by the growers
- Controlled variables by the autopilot: heating , Co2, and venting
- Setpoints were changed every 5 minutes
- Period: April 19 -Oct 25, 2022
- Outcome: Yield (kg/m2)
- Results

⭐ **Our autopilot increased yield to 28.5% , indicating a higher energy efficiency**

What do our partners think about us?

“Soli Organic is also adopting advanced technologies based on artificial intelligence (AI) and machine learning (ML), which will allow its indoor farms to run autonomously. These technologies do not replace human growers but rather elevate the complementary strengths of humans and machines. Soli Organic is partnering with AI and Internet of Things (IoT) company Koidra to enable growers to make data-driven decisions using state-of-the-art machine learning.”

- Tessa Pocock, Chief Science Officer-Soli Organic

“We have worked closely with Koidra on this project and the results so far are very promising. The autonomous growing technology can transform the way we grow crops in greenhouses. By centralizing data from multiple sources and adjusting growing conditions in real-time, we are able to optimize plant growth, fruit production and improve energy efficiency. It’s exciting to witness how this technology is transforming the greenhouse industry. It holds a great potential for future greenhouse crop production”

- Dr.Xiuming Hao- Agriculture and Agri-Food Canada

“Koidra has demonstrated an improvement in the yield of crops and has given Great Lakes Greenhouses greater insight on what’s going on in their crops.”

“The solution that Koidra is offering is very customized to the specific grower. We’ve seen that even internally as we move from range to range. In every space that we go to, they’ve done a great job of being able to roll out their system and find a solution that works well for the setup that we have.”

- *Mark Reimer, Research & Business Development Manager- Great Lakes Greenhouses Inc*

SUCCESS STORIES

Koidra

Back-to-back wins at the international Autonomous Greenhouse Challenges

U.S.-led team wins first phase of the international Autonomous Greenhouse Challenge

Winner First Phase International Autonomous Greenhouse Challenge 2021	
Part A Computer Vision	Part B Machine Learning
Ranked 6th 0.09456 total error NMSE	Ranked 1st 8.68 net profit €/m2/cropping period

Koidra + CORNELL UNIVERSITY RUTGERS

GREENHOUSE CANADA

MENU NEWS FEATURES WEBINARS AWARDS GROWER DAY BUYERS GUIDE MAGAZINE

The third International Autonomous Greenhouse Challenge has announced its first winning team.

U.S.-led Team 'Koala,' has won the online challenge, the first part of the international competition organized by Wageningen University & Research (WUR) and Tencent.

The winning team was led by Kenneth Tran, CTO of artificial intelligence provider Koidra. Members of the team consisted of Neil Mattson, associate professor and greenhouse extension specialist at Cornell University, as well as Minh Duong and Hanh Bui of Koidra, and Tim Shelford and Michael Eaton of Cornell University. Members were based in the U.S., Vietnam and Canada.

ADVERTISEMENT

During the online challenge, 46 teams from 24 countries were tasked with growing virtual lettuce using artificial intelligence in this two-part challenge. According to the release, teams developed "computer vision algorithms based on training images of lettuce plants. They then used the algorithms to detect growth parameters such as diameter, height, weight and leaf area." The teams also "developed machine learning algorithms to control the climate in a virtual greenhouse. Algorithms had to automatically determine set points for ventilation, heating, lighting, etc. in order to grow a virtual lettuce crop and maximize the net profit."

As the winning team, Team 'Koala' will be in the physical growing phase of the Autonomous Greenhouse Challenge that starts in early 2022. Participating teams will each have a WUR greenhouse compartment to grow real lettuce completely autonomously.

Team 'Koala' achieved a total of 85 points out of a possible 90 points, coming in first in the machine learning challenge and sixth in the computer vision challenge. The team built an algorithm that realized a virtual net profit of €8.68 per m^2. "In addition, their computer vision algorithm was able to recognize lettuce images with a high accuracy (total error=0.094) and estimated the correct growth parameters of lettuce plants," says the release.

SUCCESS STORIES

Koidra

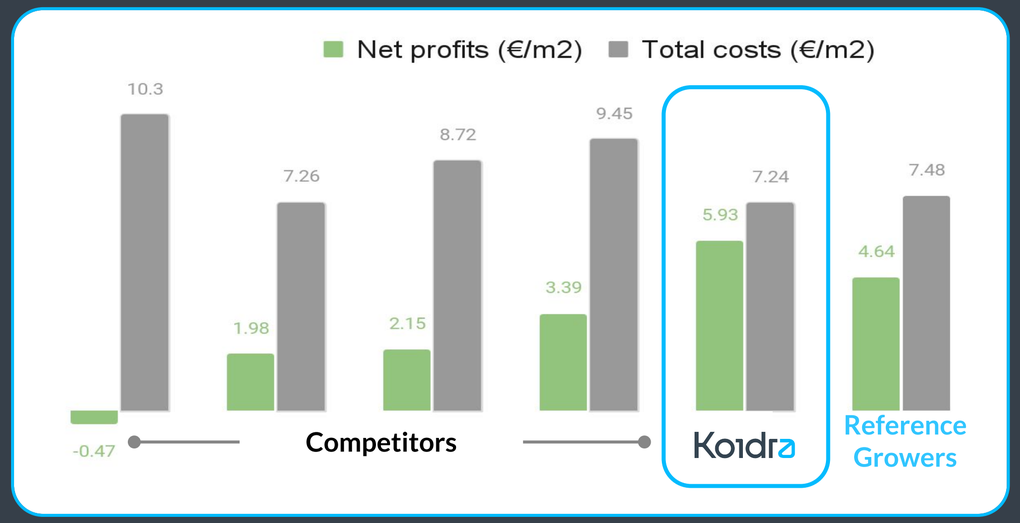
Back-to-back wins at the international Autonomous Greenhouse Challenges

[wur.nl] Familiar face leads ‘Team Koala’ to win the Autonomous Greenhouse Challenge for a second time

💰The only AI team that outperformed expert growers by 27.8% in net profit.

🥇Exceeded the next best AI competitor by 75% in net profit.

↑ revenue, ↓ costs

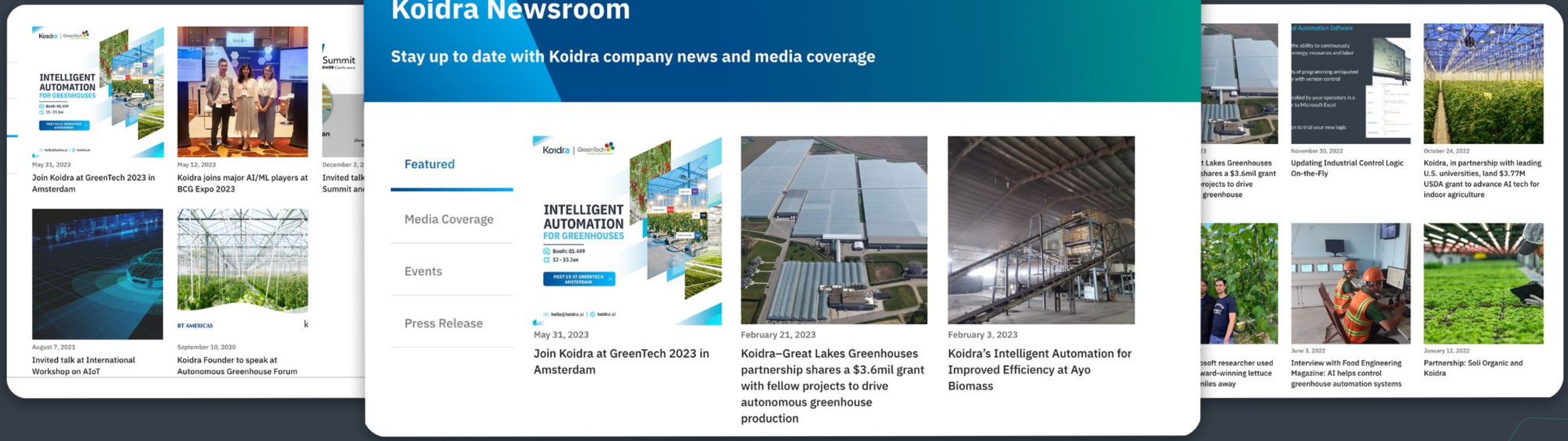


The result was obtained during a trial at a Wageningen University.
Quantitative improvements may be different for various commercial greenhouses.

Koidra + CORNELL UNIVERSITY RUTGERS

RECENT MEDIA COVERAGE

👉https://www.koidra.ai/news





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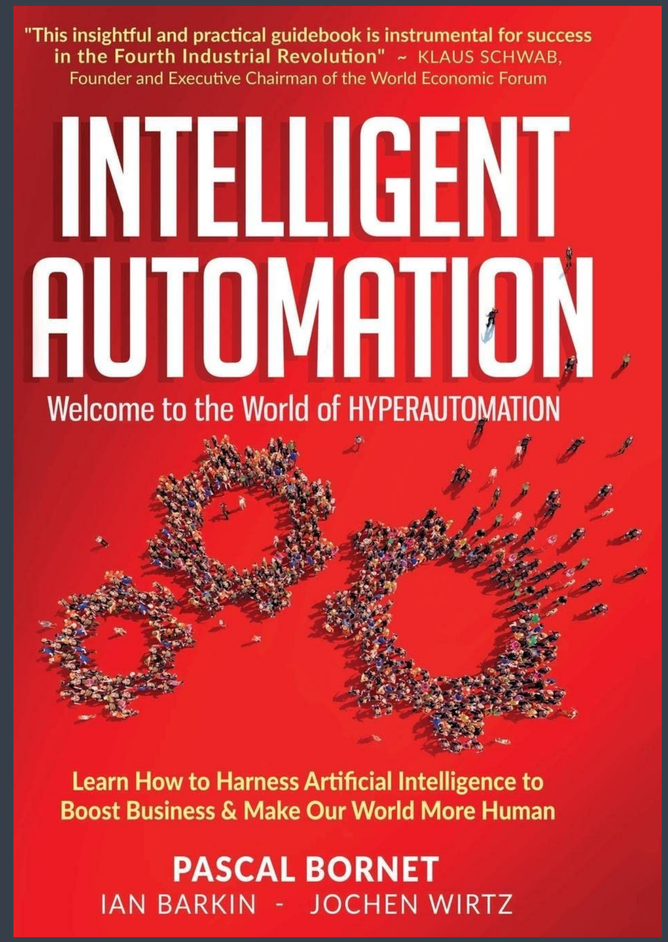
Koidra

Appendix: Intelligent Process Automation

👉 Combines process automation with artificial intelligence … mimicking and enhancing the capabilities that knowledge workers use in performing their work activities

👉 Scalable, reliable, and continuous digital workforce that improves rapidly with data

👉 IA enables synergies by working hand-in-hand with the human workforce



"Algorithms are to white-collar workers what tractors were to farmers: a tool to dramatically increase the productivity of each worker, and thus shrink the total number of workers required to produce the same output."