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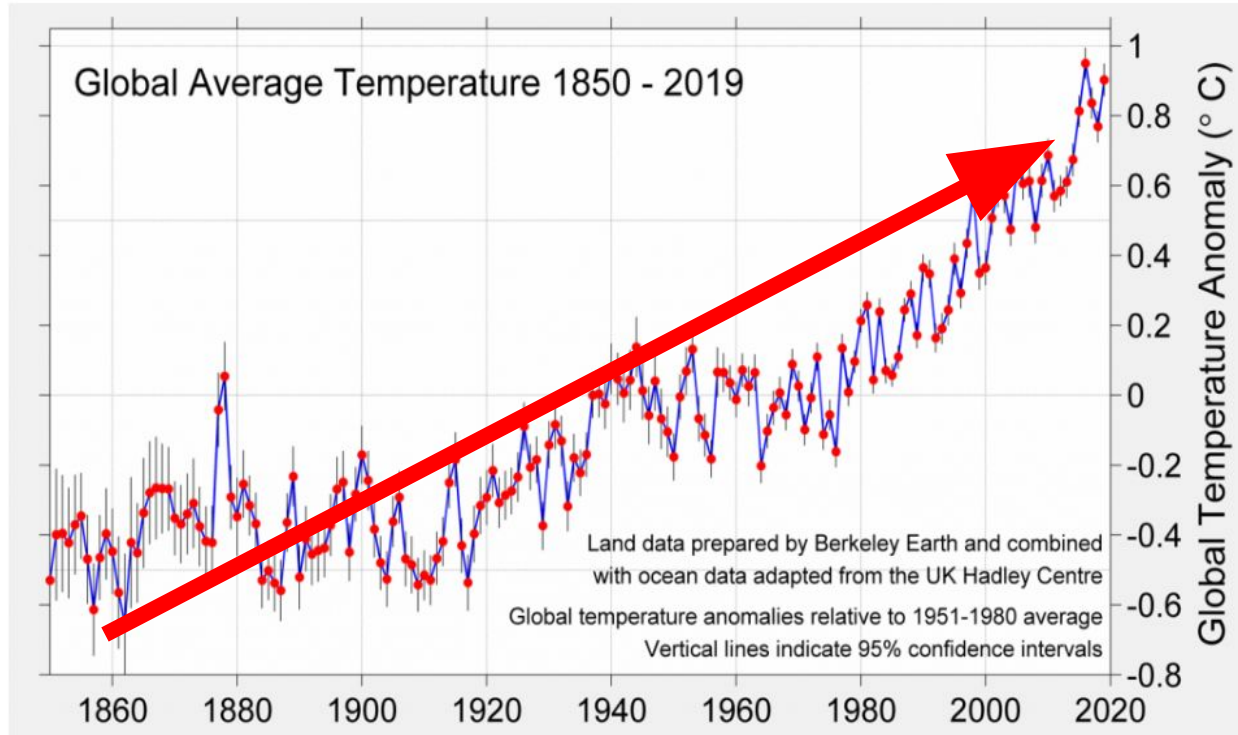
SHIRA
GROUP

New Technologies for Agriculture in Hot Climates

Dr. Ryan Lefers
CEO & Co-founder, RedSea

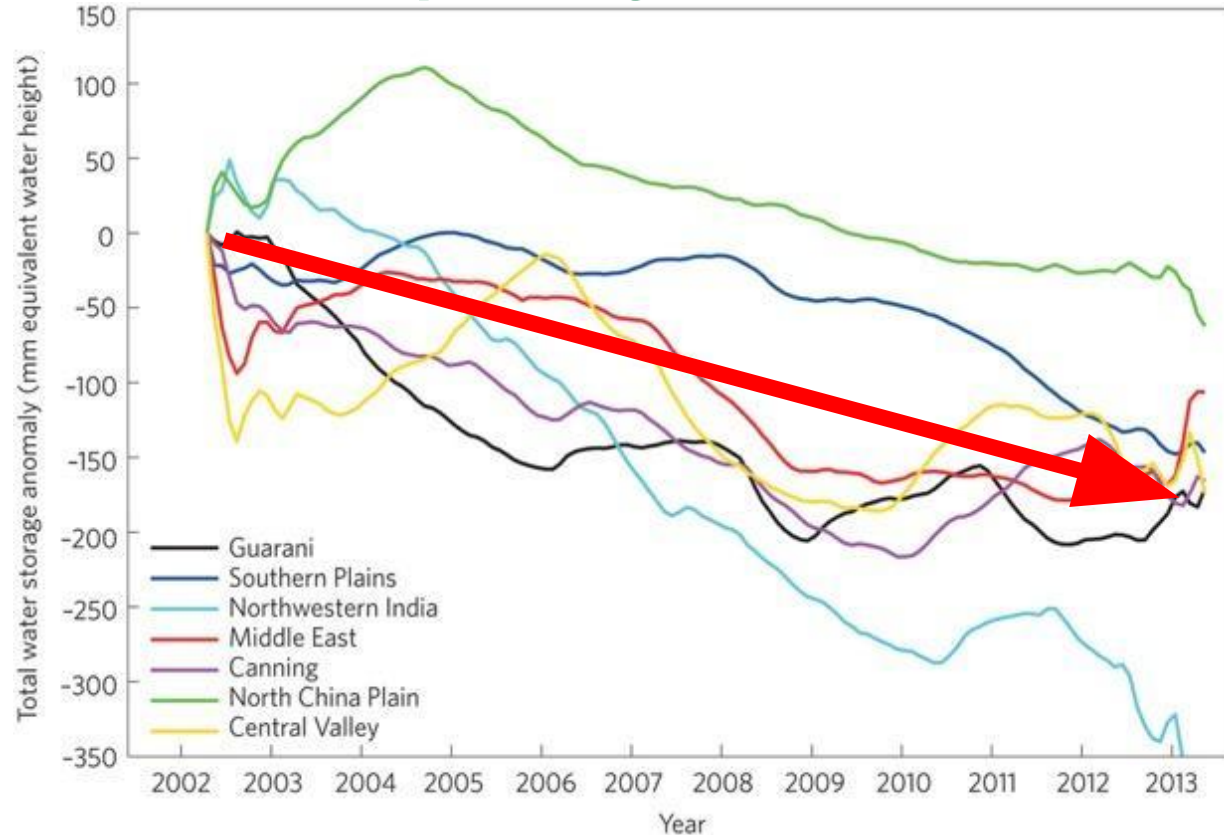
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Globally temperatures are rising.





Groundwater is depleting.



Famiglietti (2014)
Nature Climate
Change 4: 945-8



Our ability to grow food is at risk.



The collage features several news headlines related to climate change and food security:

- The Guardian:** "Global climate crisis: inevitable, unprecedented and irreversible"
- CODE RED FOR HUMANITY** (multiple instances)
- TIME:** "BE WORRIED. BE VERY WORRIED."
- The New York Times Magazine:** "CODE RED FOR HUMANITY"
- WSJ:** "Egypt's Food Supply in Danger as Farmers Struggle to Adapt to Climate Change"

In the center, a battery graphic shows the progression from a fully charged green battery to a completely depleted black battery, symbolizing the depletion of resources and the urgency of the climate crisis.



Technology can make an important contribution in high heat environments.



We need solutions all farmers can adopt.
Not just a few.

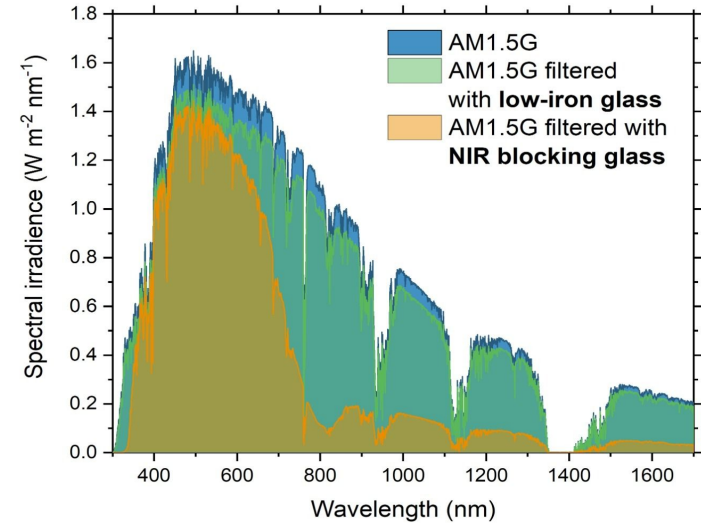
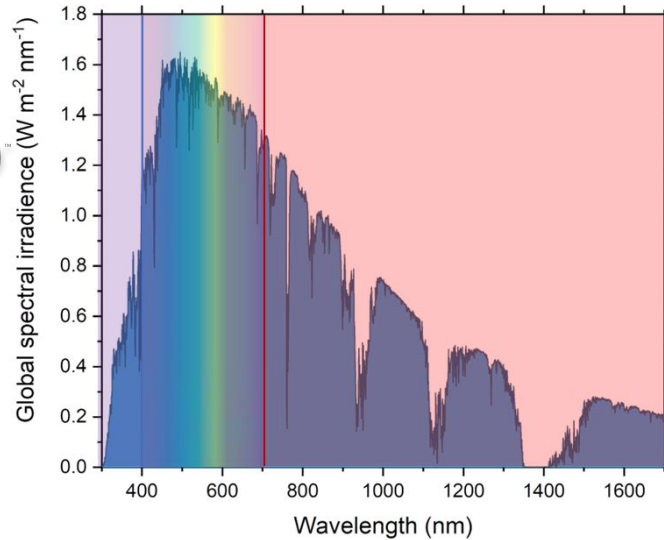


A Systems-Based Approach for High Heat Environments

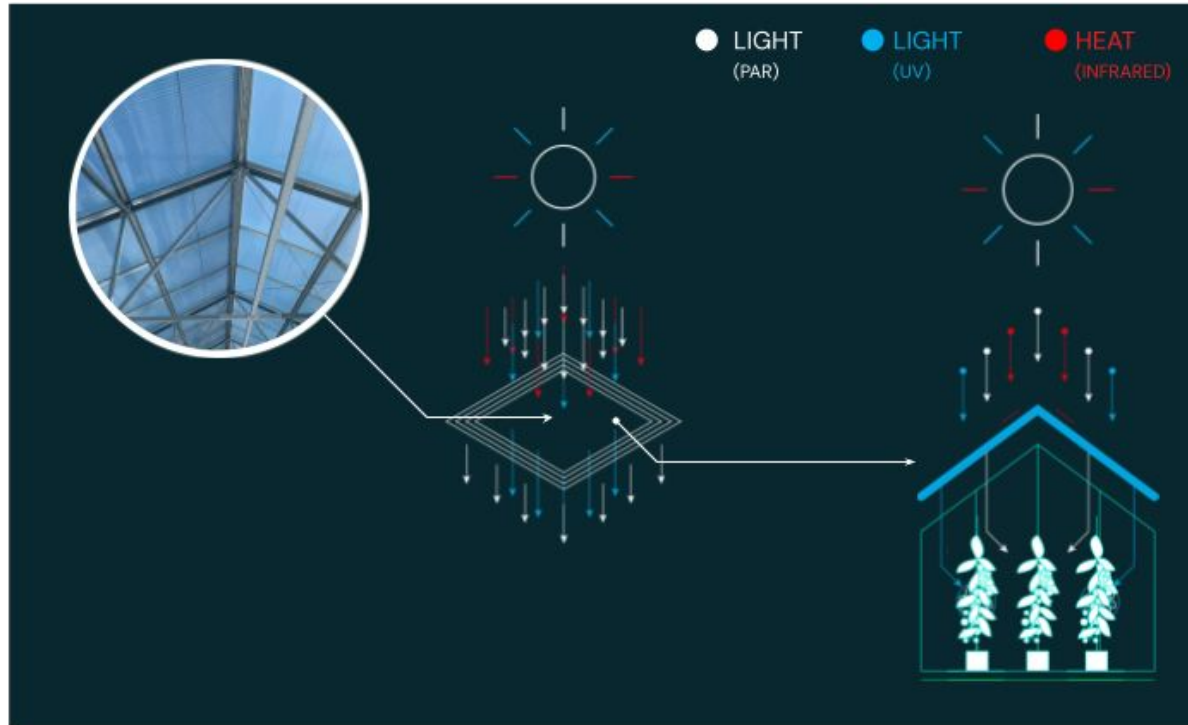
- ❖ Nanotechnologies
- ❖ Digital technologies
- ❖ Cooling technologies
- ❖ Biotechnologies



Impact of Nanotechnology in Greenhouse Roofs



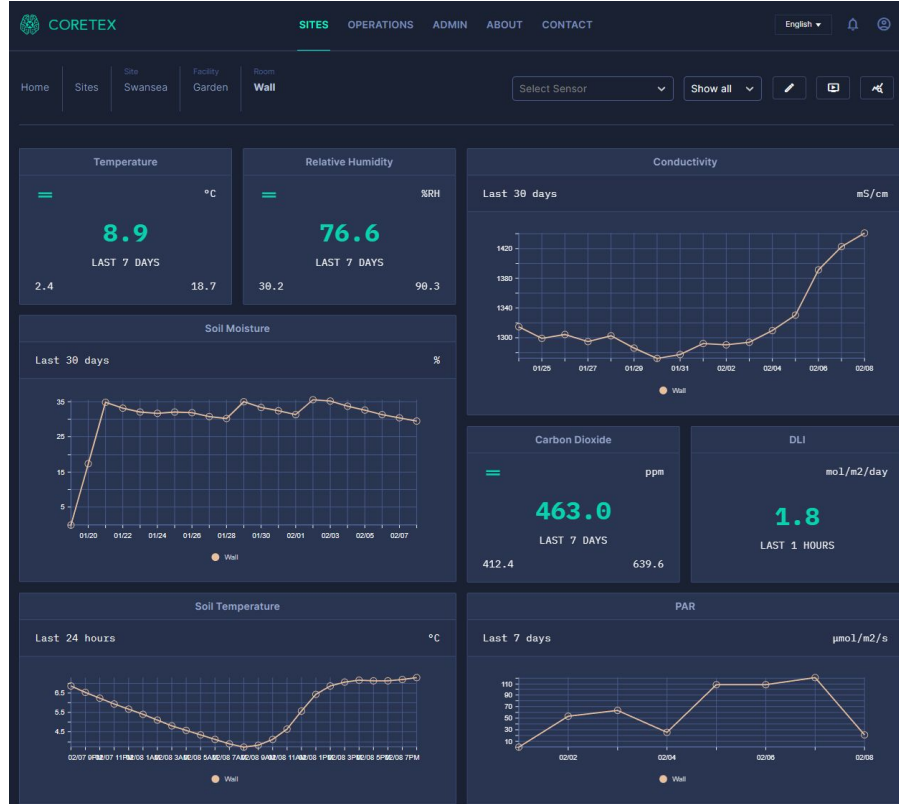
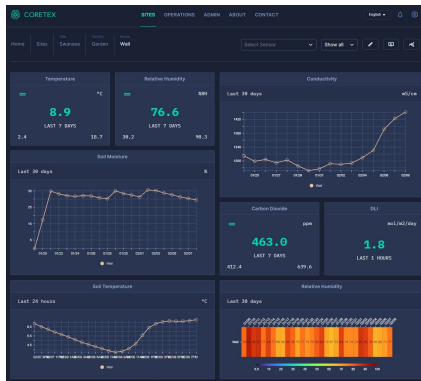
Impact of Nanotechnology in Greenhouse Roofs



Impact of Digital & Cooling Technologies in the Greenhouse Room



Impact of Digital Technologies in the Greenhouse Room



Impact of Biotechnologies at the Roots



VOLCANO PLANT GENETICS
STRONGER, NATURALLY



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Impact of Biotechnologies at the Roots



Rootstock Number	Control	1	2	3	4	5
Number of plants	1,125	1,062	883	984	854	1,084
Final collection (kg)	3,330	2,985	3,885	3,480	3,415	4,401
Green fruits weight (kg)	4.0	3.0	4.0	4.0	6.5	12.0
Total weight (kg)	3,445	3,127	4,040	3,602	3,557	4,569
fruit weight per plant (kg)	3.1	2.9	4.6	3.7	4.2	4.2
% difference to control		-4%	~50%	16%	26%	27%



Impact of Biotechnologies at the Roots

SALT-RESISTANT ANIMAL FODDER



VOLCANO PLANT GENETICS
STRONGER, NATURALLY

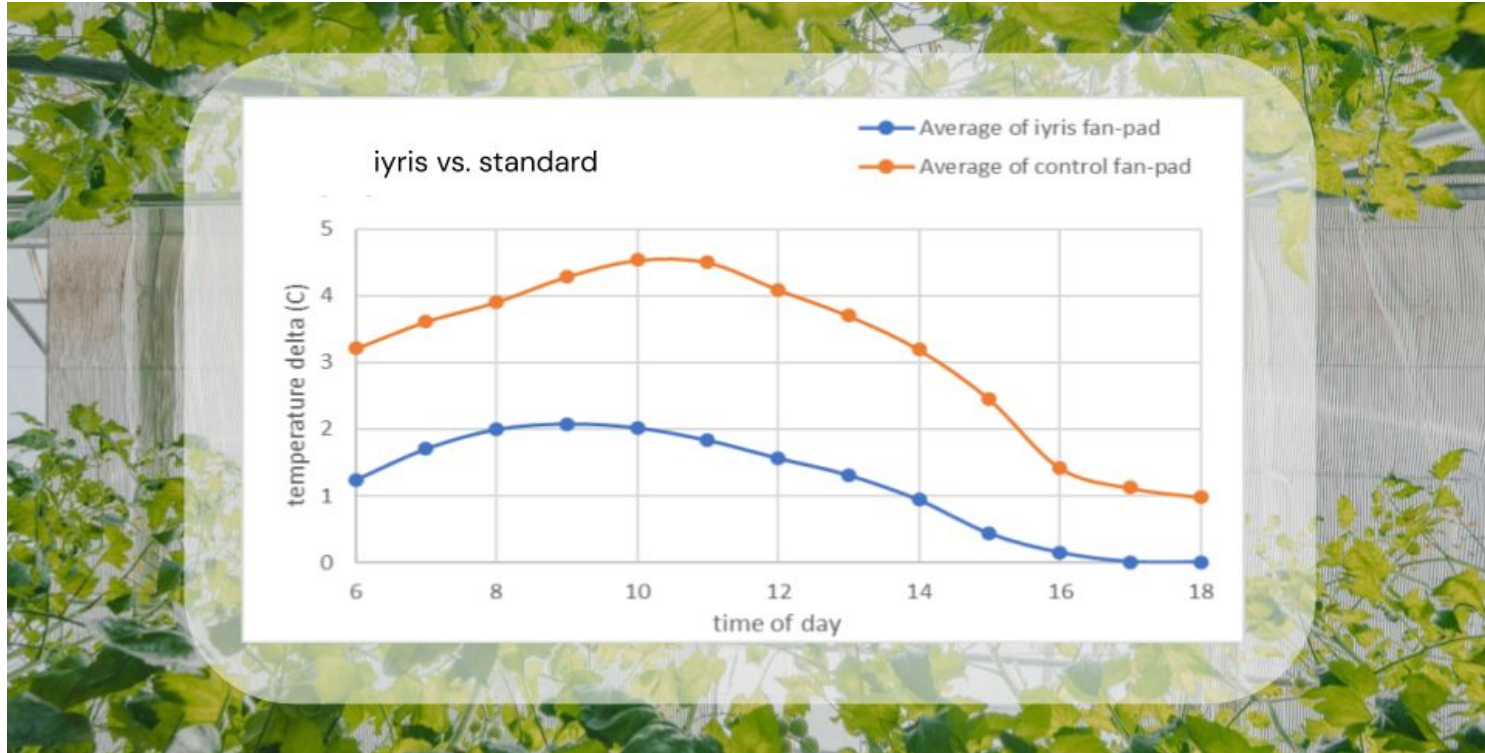
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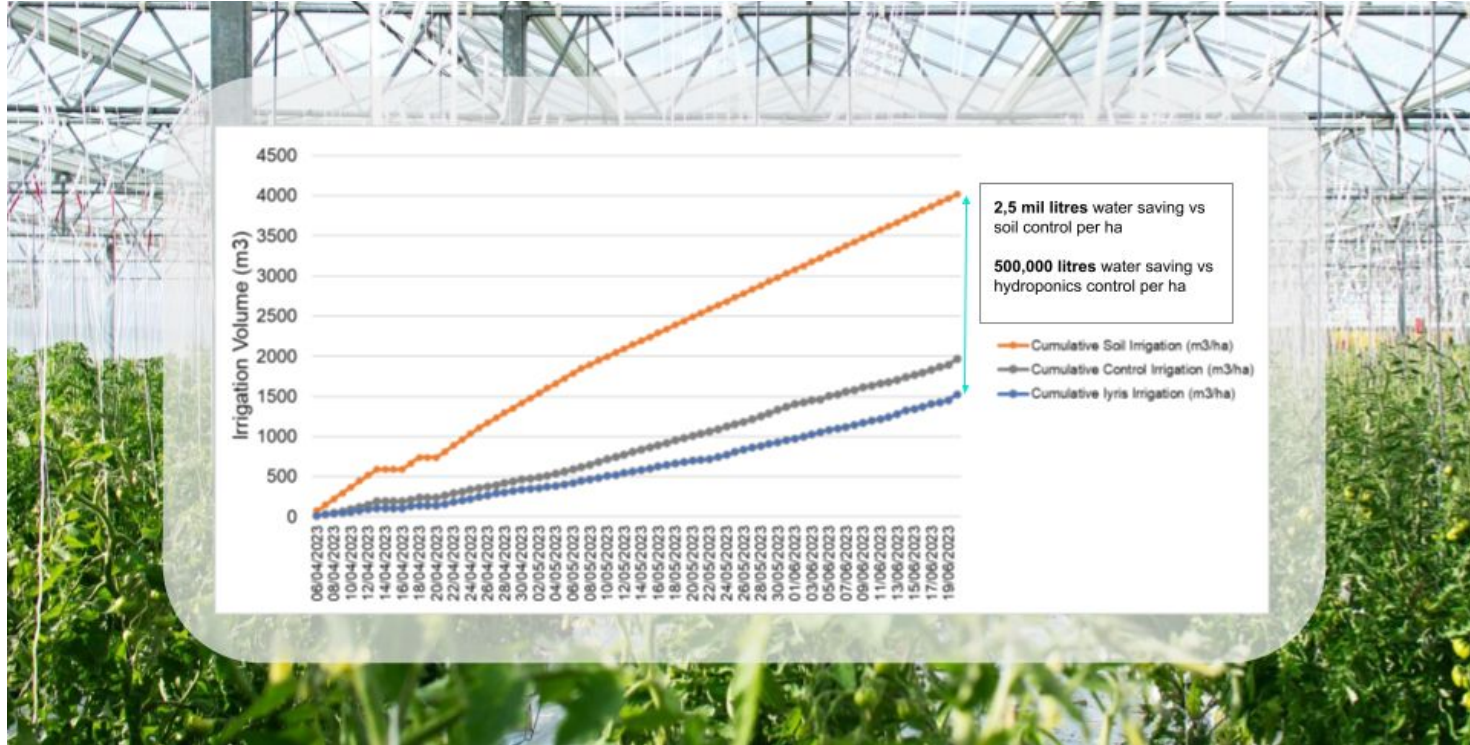
The Impacts: Water & Energy Savings



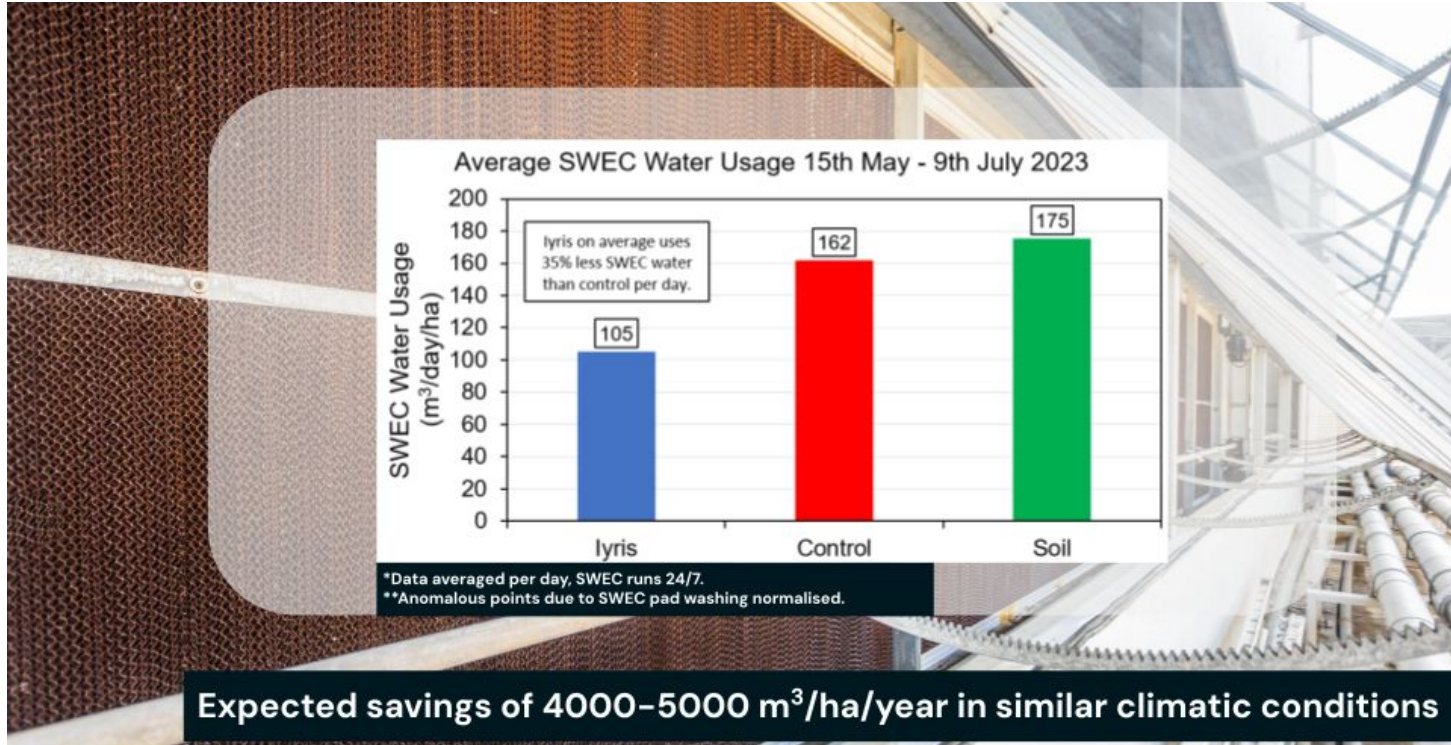
Temperature Consistency Across the Greenhouse



Irrigation Water & Fertilizer Savings



Cooling Water & Energy Savings



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Find out more.
H2.A41 & H2.C30

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