

SUMMER STRESS

ENHANCING DROUGHT AND HEAT RESILIENCE OF CROPS WITH SILICON

Silicon is only bioavailable to plants in its **monosilicic** form. Orion's enhanced iNHIB™ technology provides a source of bioactive silicon to crops, helping to mitigate plant stress.

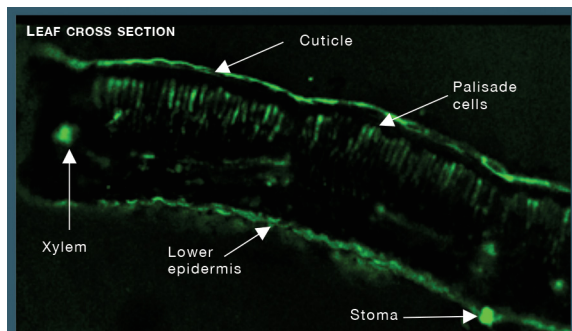
SILICON IS PROVEN TO...



- **Increase cuticle thickness**
 - Enhancing resilience to pest & disease attack
- **Strengthen cell walls and cell adhesion**
 - Reinforcing plant strength
- **Stimulate Systemic Acquired Resistance (SAR)**
 - Protects against abiotic stress

University investigations have shown how iNHIB formulated **silicon is accumulated** within plants to **enhance** their **natural defenses**. Silicon is 'laid down' in cells as well as between cells, like cement, **making them stronger** and reinforcing the entire plant structure.

SILICON ACCUMULATIONS IN LEAF CELLS, HIGHLIGHTED USING FLUORESCENT DYE



PHOTOS COURTESY OF THE UNIVERSITY OF HERTFORDSHIRE FOLLOWING APPLICATIONS OF SIRIUS

Accumulation occurs across leaf cells including...

1. The **xylem** - ensuring the '**pipes**' **stay open** allowing water and nutrient movement up the plant.
2. The **stomata** - helping maintain cell turgidity, which in turn reduces **excess water loss**.
3. **Cell walls** - increasing strength to **reduce damage** to membranes.

Feeding plants with silicon fuels their natural resistance as well as protecting against heat and drought stress.



ORION
RELEASING THE BIOLOGICAL POTENTIAL OF PLANTS



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FOR PROFESSIONALS ONLY: USE FERTILISER PRODUCTS WITH CAUTION. READ THE LABEL AND INFORMATION RELATING TO THE PRODUCT BEFORE USE. Follow the instructions for use in order to avoid risks to human health and the environment - Do not pollute water with the product or its packaging.

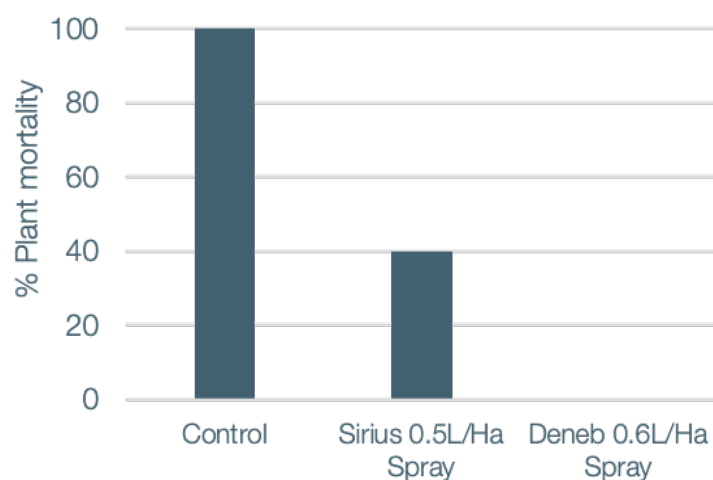


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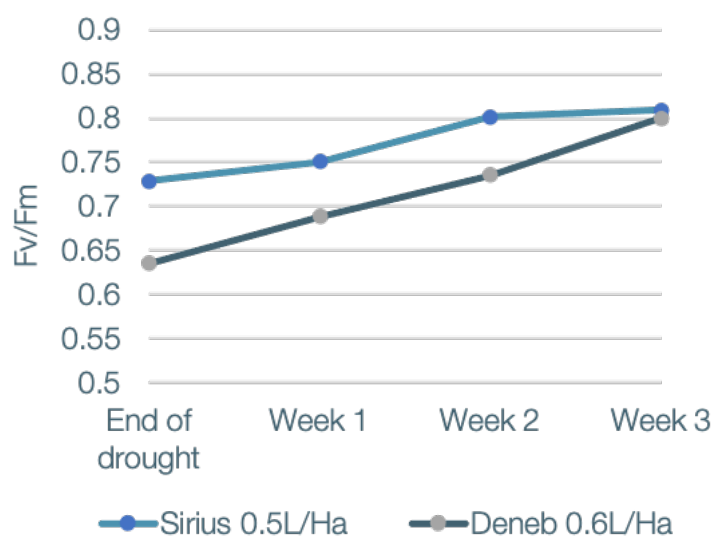
ENHANCING DROUGHT AND HEAT RESILIENCE OF CROPS WITH SILICON

Trials by the University of Reading have proven **Sirius and Deneb** to significantly reduce plant **stress due to heat and drought**.

1. PLANT MORTALITY DUE TO DROUGHT

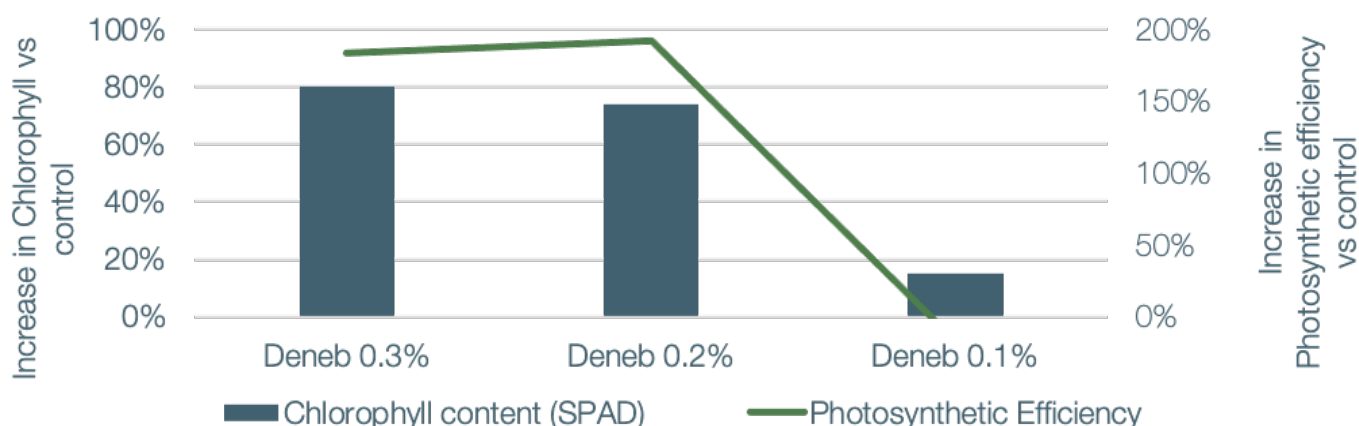


2. PLANT RECOVERY FOLLOWING DROUGHT



Sirius and Deneb treated plots exhibited significantly **reduced plant mortality** (chart 1) when subjected to drought stress. Sirius reduced mortality by 60% and no crop was lost when sprayed with Deneb. Plants **recovered quickly** over three weeks as shown by photosynthetic efficiency, (chart 2).

3. ENHANCING PLANT HEAT TOLERANCE



In trial, treated plants were subjected to extreme heat (42°C) for 24hr. Results show Deneb plots maintained significantly higher levels of chlorophyll and photosynthetic efficiency compared to untreated plots.

Product	Formulation	Crop	Rate (L/Ha)	Water Volume (L/Ha)	Note
Sirius	21% Silicon	All Crops	0.5	200	Feed crop regularly (every 2-3 weeks) to ensure accumulation in new growth
Deneb	3% Silicon + Plant Extracts	All Crops	0.5	200	