

QUANTIS™ NEW BIOSTIMULANT

Proven to manage heat stress
and protect yield in potatoes

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Quantis™

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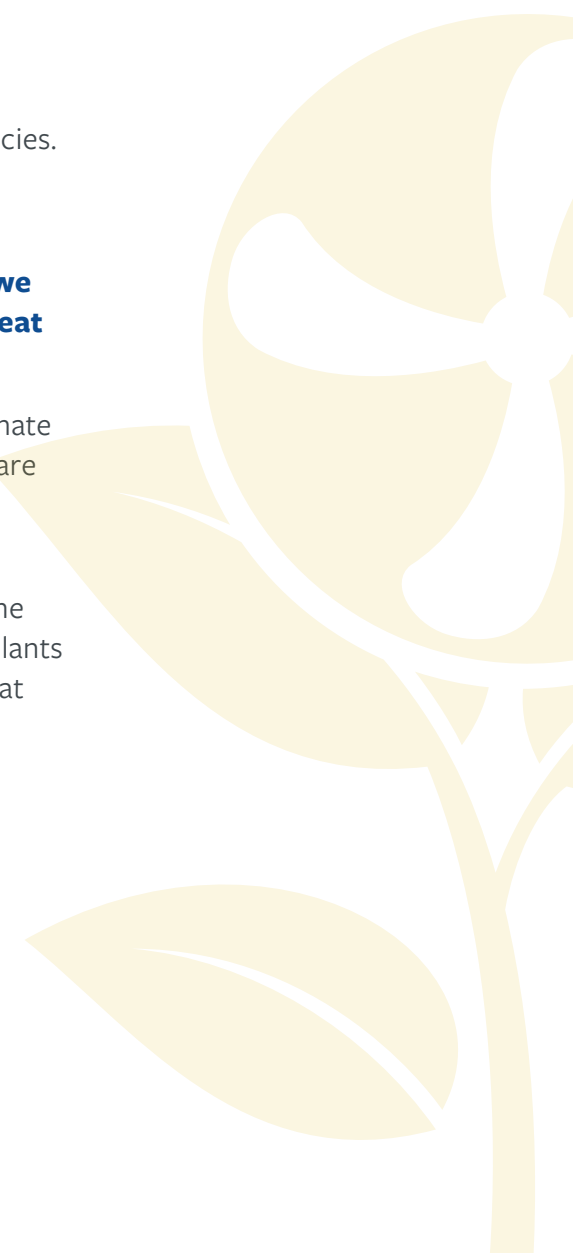
HELP TO COPE WITH HEAT STRESS

The effects of a changing climate are impacting on all crop efficiencies. The potato plant in particular is not well adapted for heat stress conditions.

“Summers are going to get warmer, and it’s predicted that we are going to experience more frequent and more intense heat related events.”

Heatwaves are now 30 times more likely to occur as a result of climate change. Heat is going to be an increasing abiotic stress that crops are going to have to deal with.

The role of biostimulants is becoming ever more pertinent for potato production. New research is revealing the science behind the biostimulant QUANTIS™ – which is proving how it can trigger the plants own natural processes and enable it to better cope with abiotic heat stress.



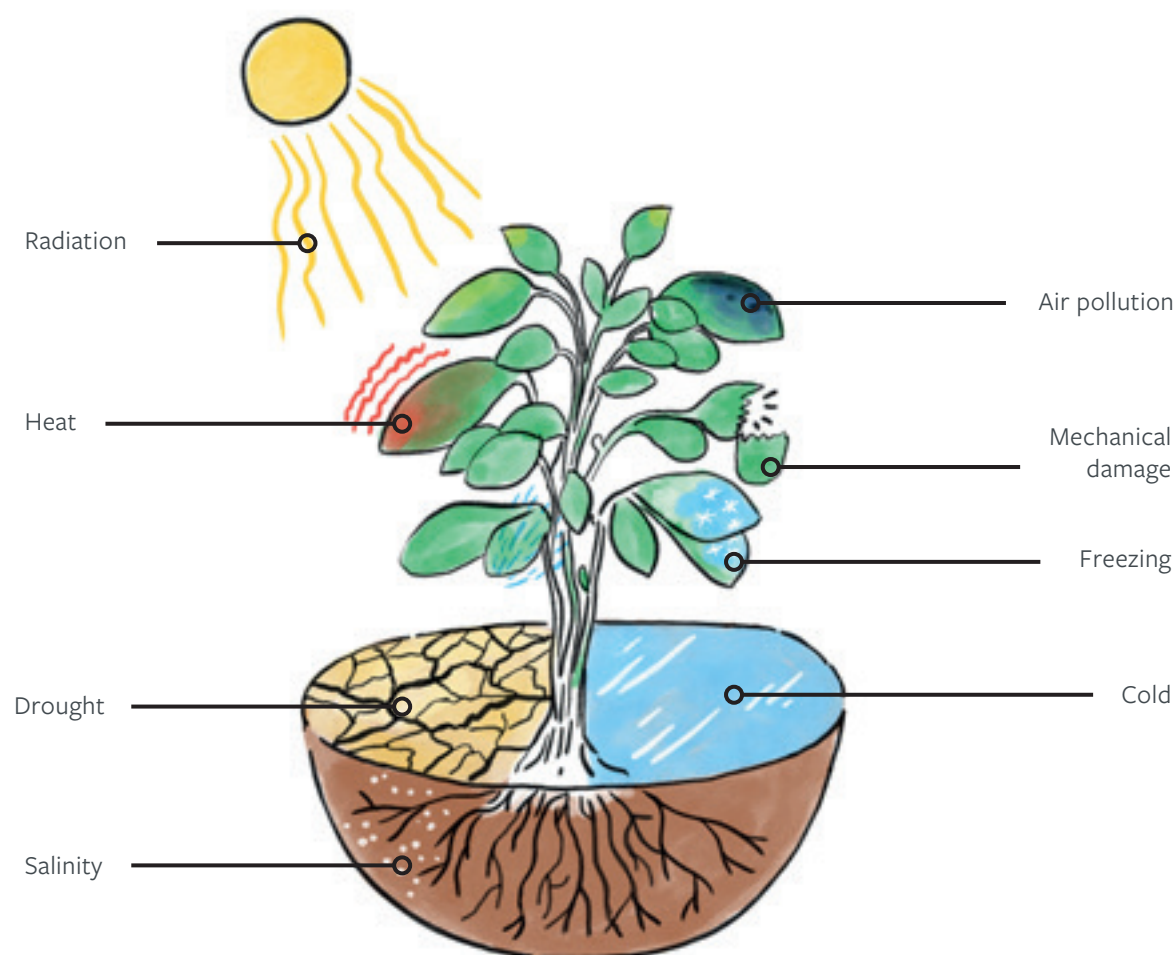
What is a biostimulant?

Any substance that is applied to plants, seeds or the root environment with the intention to stimulate plants' natural processes of tolerance to abiotic stress – which can benefit yield and crop quality.

What is abiotic stress?

Outside factors which can cause harmful effects to plants, such as soil conditions, drought and extreme temperatures.

FACTORS WHICH CAN CAUSE ABIOTIC STRESS IN CROPS



HEAT STRESS IN POTATOES

Plant stress is recognised as a hugely significant factor in potato agronomy, leading to a decrease in yield and quality. Stresses such as drought and heat can have harmful effects on plant functions and limit its ability to perform.

QUANTIS can beneficially stimulate natural processes already existing within plants, to better tolerate abiotic stress.

“Temperature has a pronounced effect on the formation of potato tubers: when the temperature is too high, potato plants form less or no tubers, which can greatly decrease yields.”

The James Hutton Institute

Potato growers now recognise high temperatures as the greatest threat of the key abiotic stresses. New farmer research identified heat as a primary issue – ranked at 74 out of 100, compared to drought at 71, nutrient deficiency at 64 and intensive light at 57.

Results show that 70% of farmers questioned ranked heat stress impact at a score of seven or higher out of 10.

WHAT IS QUANTIS AND HOW DOES IT WORK?

QUANTIS is a naturally derived biostimulant incorporating a combination of organic carbons, potassium, calcium and energy source carbohydrates, in the form of sugars and amino acids, that contribute to mitigating drought and heat stresses on the plant.

The combination of different compounds, at the optimum ratio to each other, support the plant against abiotic stress through key phases of tuber development, to ultimately protecting yield and quality.



Strengthens plant health during drought & heat



Triggers plants built in processes with biological technology



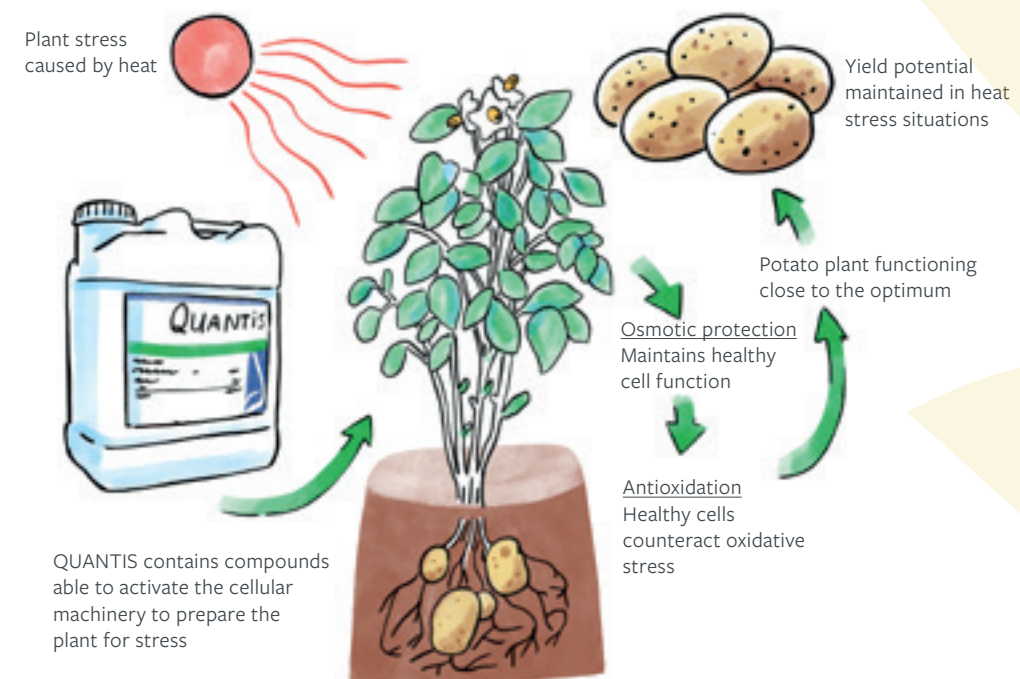
Boosts nutrient efficiency and increases yield



Can be used with other products

HOW IT AFFECTS THE PLANT

The naturally derived compounds in QUANTIS act directly as anti-oxidants and an osmoprotectant, to counter the adverse effects of stress on plant cells. QUANTIS proactively triggers the plants own cellular processes, to help maintain the necessary turgor pressure of fluid in the plant structure and to counteract oxidative stress. This enables the plant to continue active and efficient photosynthesis, to maintain production of proteins specifically for growth and development – the key driver of yield and quality.

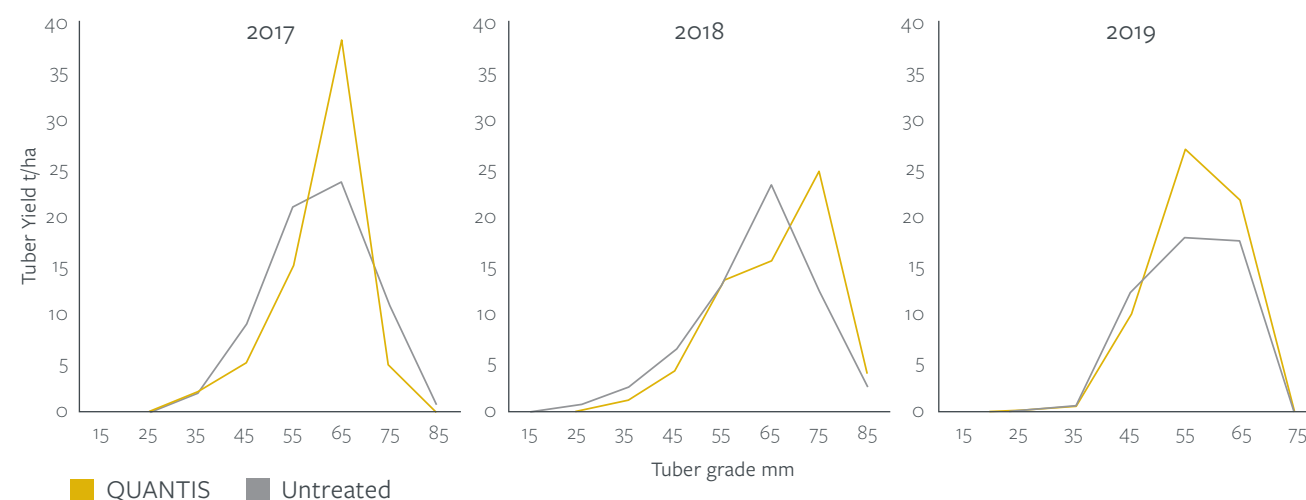


TRIALS DATA

- The UK State of the Climate report* shows the country is experiencing higher maximum temperatures and more frequent prolonged hot spells. All the top ten warmest years for the UK, from 1884, have occurred since 2002.
- Hot summers are expected to become more common.
- The summer of 2018 was the equal-warmest summer for the UK, with the highest temperature on record in 2019.

* Source: State of the UK Climate 2019

OVER THREE SEASONS OF TRIALS AN APPLICATION OF QUANTIS RESULTED IN A GREATER YIELD OF LARGER TUBERS

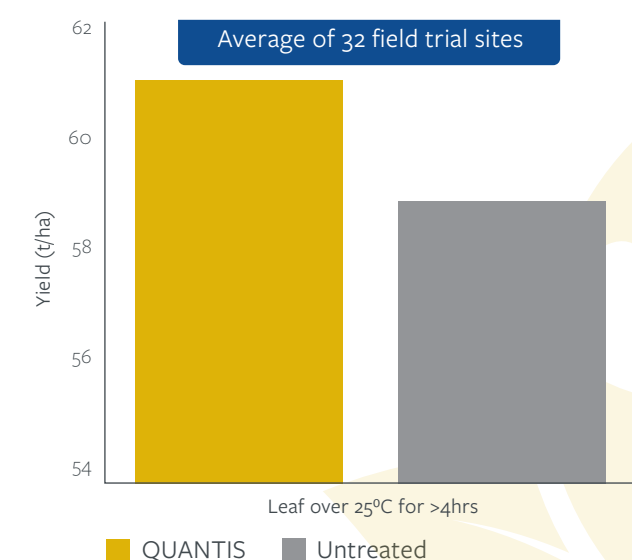


Source: CMI, Lincolnshire

IN THE UK'S BIGGEST EVER BIOSTIMULANT POTATO FIELD TRIALS, QUANTIS SIGNIFICANTLY INCREASED YIELD IN FIELDS UNDER HEAT STRESS BY AN AVERAGE OF 2.2 T/HA

In trials in 2021, crops treated with QUANTIS – at application timings based on precision targeted advice of heat stress events after tuber initiation – yielded over 6.1 tonnes more per hectare, compared to untreated, and over 2.2 t/ha more than routine growth stage application timing advice.

Source: GCI field trials, Lincolnshire



Source: Field trials by ADAS and AICC, 2020 season

HOW AND WHEN SHOULD I USE IT?

Highest yield responses from QUANTIS have been associated with periods of heat stress in potatoes – where there have been days of high temperatures or periods of hot weather.

QUANTIS APPLICATION BEST USE RECOMMENDATIONS

Application rate	2.0 l/ha
First application	Start of tuber initiation
Subsequent applications	1 – 3 days before predicted heat stress event A heat stress event is defined as 25°C for 4 hours a day for 3 days in a row, or an extreme heat event in excess of 30°C.
Final application	Prior to onset of crop senescence
Water volume	200 l/ha
Nozzle choice	Syngenta 3D ninety – angled spray with drift reduction technology

Application research has shown QUANTIS to be physically compatible with REVUS®, AMPHORE® Plus and other blight fungicides in trials and using the same application techniques.



USE THE QUANTIS
HEAT STRESS EVENT
FORECAST FOR
MORE GUIDANCE

POTATO SCIENCE



Dr Rumiana Ray,
Professor of Plant Pathology,
University of Nottingham

“Modern potato varieties are adapted to grow at optimum temperatures of between 14°C and 22°C, with long day conditions. Elevated temperatures can cause profound effects on several physiological development processes,” she warned.

“Heat stress or other extreme environmental stress can alter plant hormonal regulation and metabolism leading to reduced translocation of photosynthetic assimilates into the developing tubers.”

“These results suggest that plants that are treated with QUANTIS were able to use absorbed energy more productively – driving photosynthesis rather than heat dissipation.”

“QUANTIS increased the weight of the tubers by 5% and increased the size of the tubers by two-fold, compared with the control.”



FIND OUT MORE
ON DR RAY'S
RESEARCH HERE



GET A PERSONALISED
QUANTIS HEAT STRESS
EVENT FORECAST REPORT
FOR YOUR POTATO FIELDS



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