

PHYTECH FOR COTTON

Irrigation management plays a key role in growing cotton. While water stress can result in yield loss and quality reduction, over-irrigation can lead to similar result as well. Phytech plant-based technology provides cotton growers a tool to optimize their irrigation.

Water stress or over irrigation will have a different effect on cotton at different stages of the season.

FROM EMERGENCE TO HARVEST



EARLY SEASON¹

Water Stress

Insufficient growth, yield loss.



FLOWERING³

The pollination process is sensitive to water stress, with up to 2.7% yield loss per day of stress².



FIBER DEVELOPMENT^{1,4}

Water stress can lead to short fiber and high micronaire.

Over Irrigation

Inhibition of boll maturation.

Over irrigation can lead to low micronaire and quality reduction.

THE PHYTECH SOLUTION



Phytech provides **stress prediction** and **irrigation planning** tools.



Phytech identifies yield reducing stress and immediately alerts growers on mobile and web platforms.



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Supporting parameters included in the system: irrigation monitoring, soil moisture monitoring, climate data and satellite image analysis.



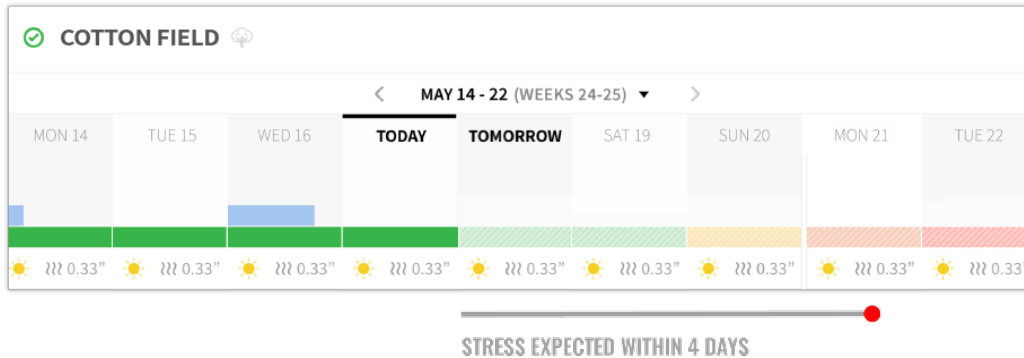
1. The progressive farmer publication, "How A Cotton Plant Grows", <http://cotton.tamu.edu/General%20Production/cotplantgrows.pdf>

3. Texas A&M Agrilife extension website publication, <https://sanangelo.tamu.edu/extension/agronomy/agronomy-publications/cotton-production-in-west-central-texas/>.

4. USDA cotton classification guide, <http://www.cottoninc.com/fiber/quality/Classification-Of-Cotton/Classing-booklet.pdf>

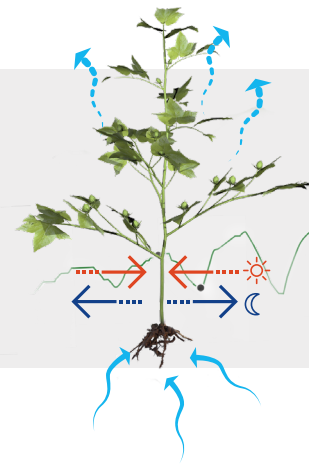
PREDICTION -> PLANNING

Irrigation is often planned days in advance. Therefore, knowing the current plant stress level is not always enough. Phytech developed a patented stress prediction algorithm which, based on hourly plant data, allows stress prediction days in advance. This encourages water saving when no stress is expected for days or allows the necessary time to prepare for a predicted water stress event.



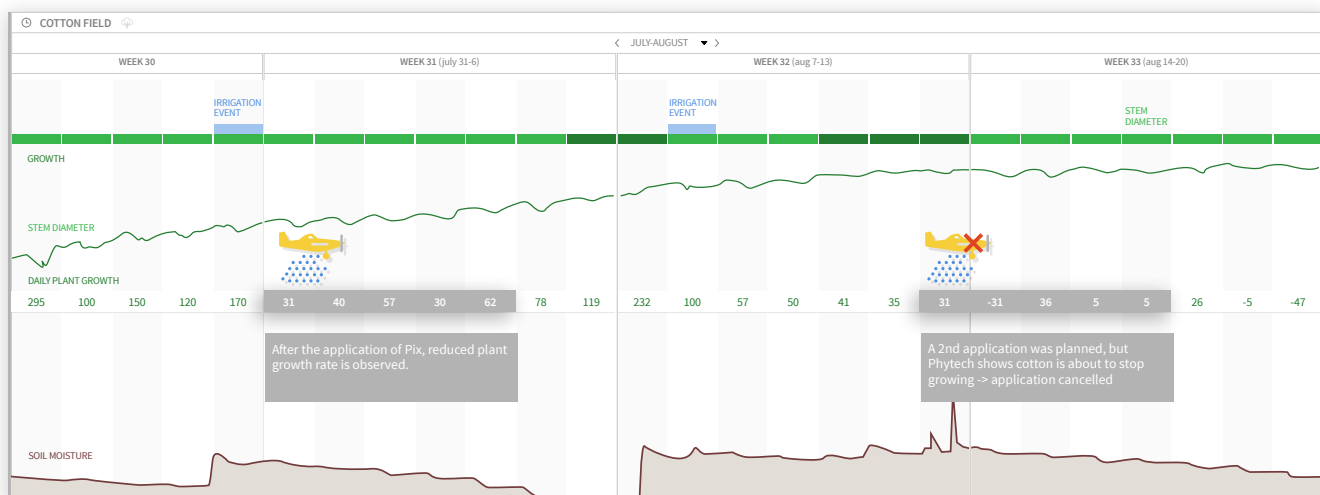
HOW DOES IT WORK?

A cotton stalk shrinks during the day as a response to lowering water levels. The more it is stressed, the more it contracts, before replenishing again at night. Phytech's algorithms utilize this shrink-swell mechanism as a tool to quantify water stress.



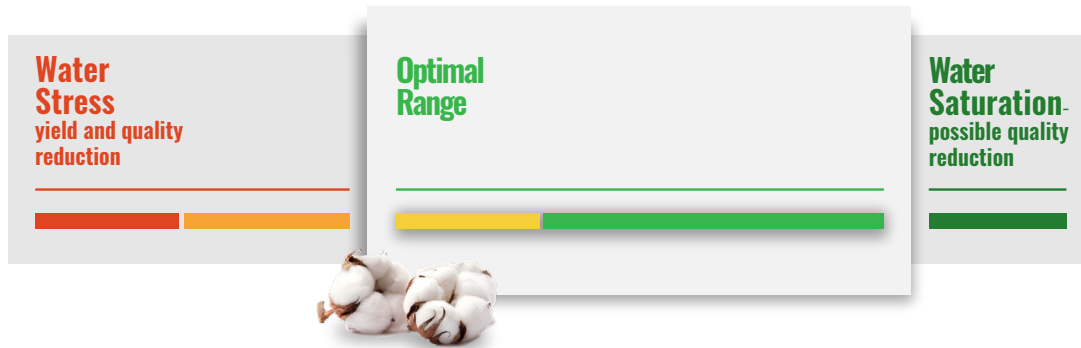
GROWTH REGULATION

Growers often spend thousands of dollars on growth regulators on each pivot. Phytech monitors plant growth on a daily basis, allowing growers to follow the effect of Pix application. Using this tool, growers can know when the cotton is about to stop, which can save valuable money on unnecessary sprays.



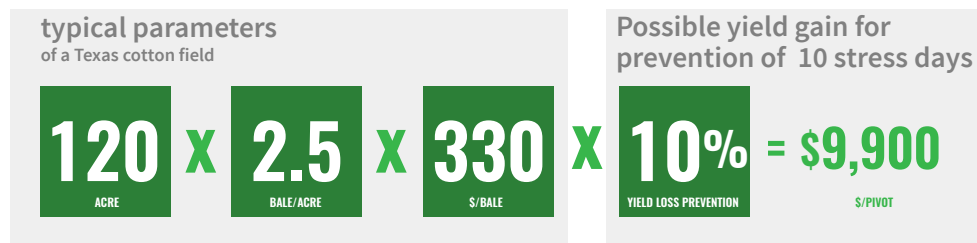
A QUESTION OF QUALITY

Over irrigation in cotton may result in a reduction in fiber quality. On the other hand, water stress affects yield and quality. Phytech helps you find the balance.



ROI (RETURN ON INVESTMENT)

Phytech field results and published research² put a price tag of between 0.7 to 2.7% yield loss per day of water stress, depending on the variety and the stage in the season. For this example, we will look at the possible revenue gain from preventing 10 days of water stress during the season, estimating 1% yield loss per stress day:



Possible revenue gain

\$82.5/AC

Phytech's service model cost is a fraction of the grower's savings

². Cottoninfo – Australia cotton industry guide, <https://www.cottoninfo.com.au/blog/late-season-irrigation-management-0>.