



Corn yields are very sensitive to water stress<sup>1</sup>. The low stress tolerance applies for the entire season and is heightened in the reproductive stage. Research studies quantify each day of water stress in the weeks before and after pollination at 4% to 8% yield loss<sup>2</sup>. Phytech's three seasons commercial trials confirm these results

## FROM EMERGENCE TO HARVEST



From emergence to tassel, plant development is essential to establish yield potential.



Stress prevention is the key to achieve that potential.

Phytech's algorithm meets your plants' needs from emergence to harvest, by first directing sufficient growth, then by preventing yield reducing stress.

## 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.



Sensors on selected plants continuously measure changes in stem diameter, which are translated into plant stress indications.

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



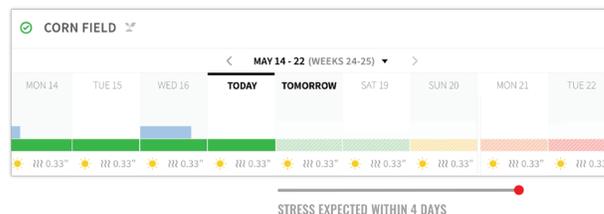
Direct plant sensing for determination of water stress is the most accurate way to make irrigation decisions. Phytech's propriety technology, a combination of plant sensors and plant stress algorithms, is the best plant-based system available to growers today.

1. <http://www.fao.org/land-water/en/>

2. [http://www.dpi.nsw.gov.au/\\_data/assets/pdf\\_file/0007/516184/Procrop-maize-growth-and-development.pdf](http://www.dpi.nsw.gov.au/_data/assets/pdf_file/0007/516184/Procrop-maize-growth-and-development.pdf)

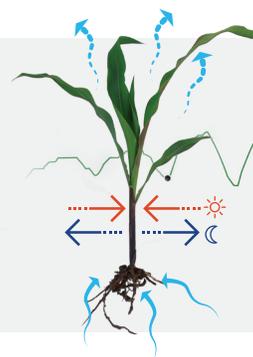
## PREDICTION -> PLANNING

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, allow 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 corn 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.



## TRIAL RESULTS

During 2016 and 2017, Phytech operated commercial plots and trial plots in Texas, Nebraska, and Kansas. All trials and commercial sites show similar results; Phytech's corn algorithm identifies days of water stress in real time. When a higher amount of stress is registered, a corresponding loss of yield is observed. In Phytech's irrigation trial site in Texas, half a corn pivot was irrigated at 3 different rates (3 gpm, 4 gpm, and 5 gpm = full irrigation). The low irrigated plot suffered 50% yield loss, and also registered the highest number of stress days, 17.



## ROI (RETURN ON INVESTMENT)

A combination of published studies and Phytech's own data analysis put an estimation of 5% yield loss per day of plant stress in the period around pollination. With an average pivot area of 120 acres, a yield of 225 bushels per acre, and 3.50 \$US per bushel, a scenario of preventing 3 days of stress by using Phytech results in the possible revenue gain:



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