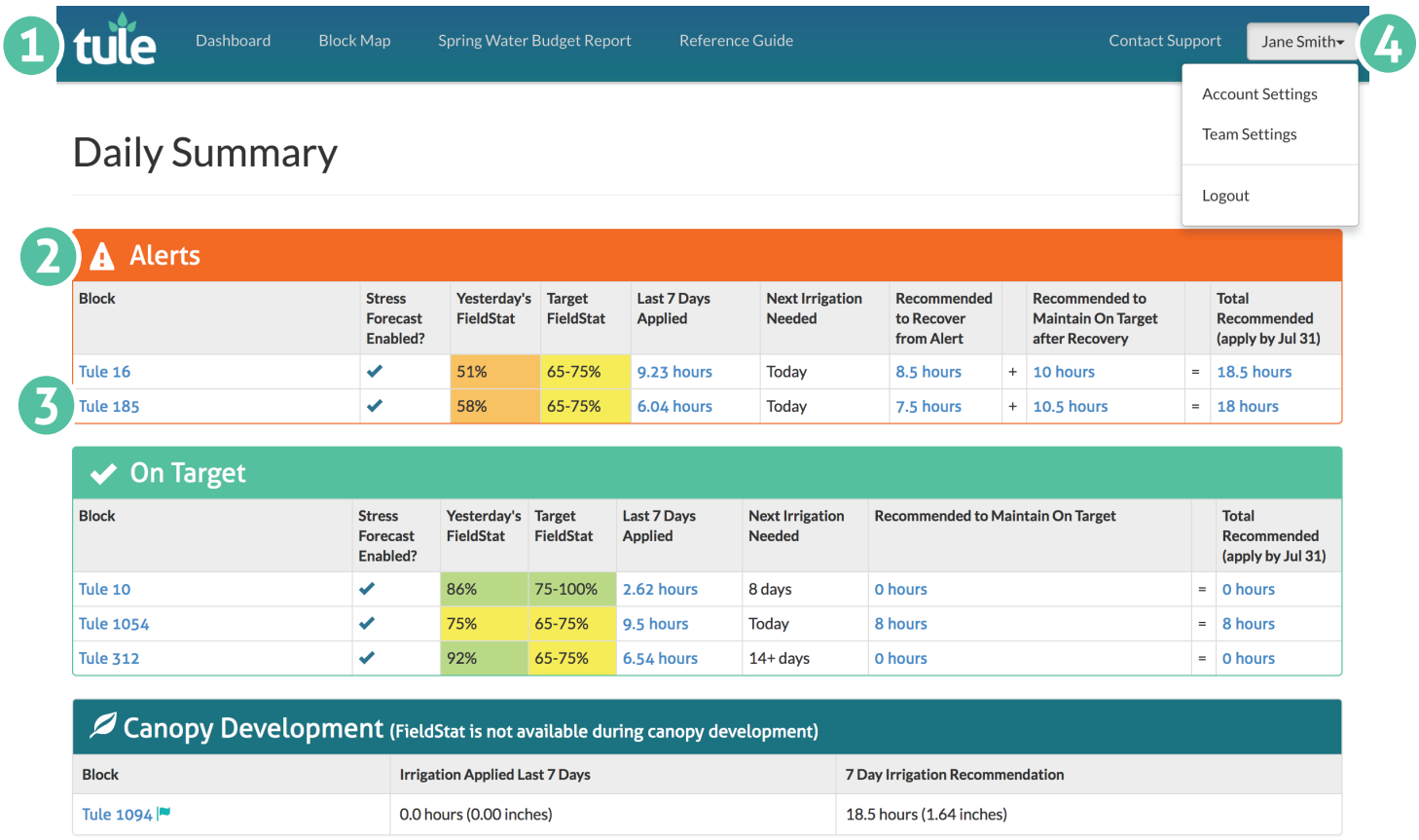
# Tule Dashboard Guide

## Daily Summary Homepage




### 1.) Navigation Header

- Dashboard: Brings you back to this Summary Page.
- Block Map: This view gives you the same information in the Daily Summary, presented on a map of all the blocks where Tule sensors are located.
- Spring Water Budget Report: Helps you determine early season irrigation needs.
- Reference Guide: Your go-to resource for details on Tule data, including tutorials, definitions, and more!

### 2.) Your Site Locations

The Tule sensors that are associated with your account will be listed here.

Each sensor site will be organized into Alert or On Target, depending on the current crop water stress compared to the target you've set.

At a quick glance, you can determine which sites need your attention.

### 3.) Site Data Preview

This Summary page shows a few key metrics. Click the block name to view the specific detailed dashboard for a site. Sites with water forecasts enabled are noted by a check mark. An X means that water forecasts are disabled or not available for the site.

For sites in Alert, Tule recommends an irrigation amount to be applied as soon as possible to get you back into your target zone. We also recommend the additional amount you'll need to apply to stay within your target zone during the next 7 days.

For On Target sites, Tule provides a forecast for the number of days before your next irrigation is needed. If irrigation is needed within the next 7 days, an irrigation recommendation for staying within the target zone is provided.

### 4.) Account Settings & Support

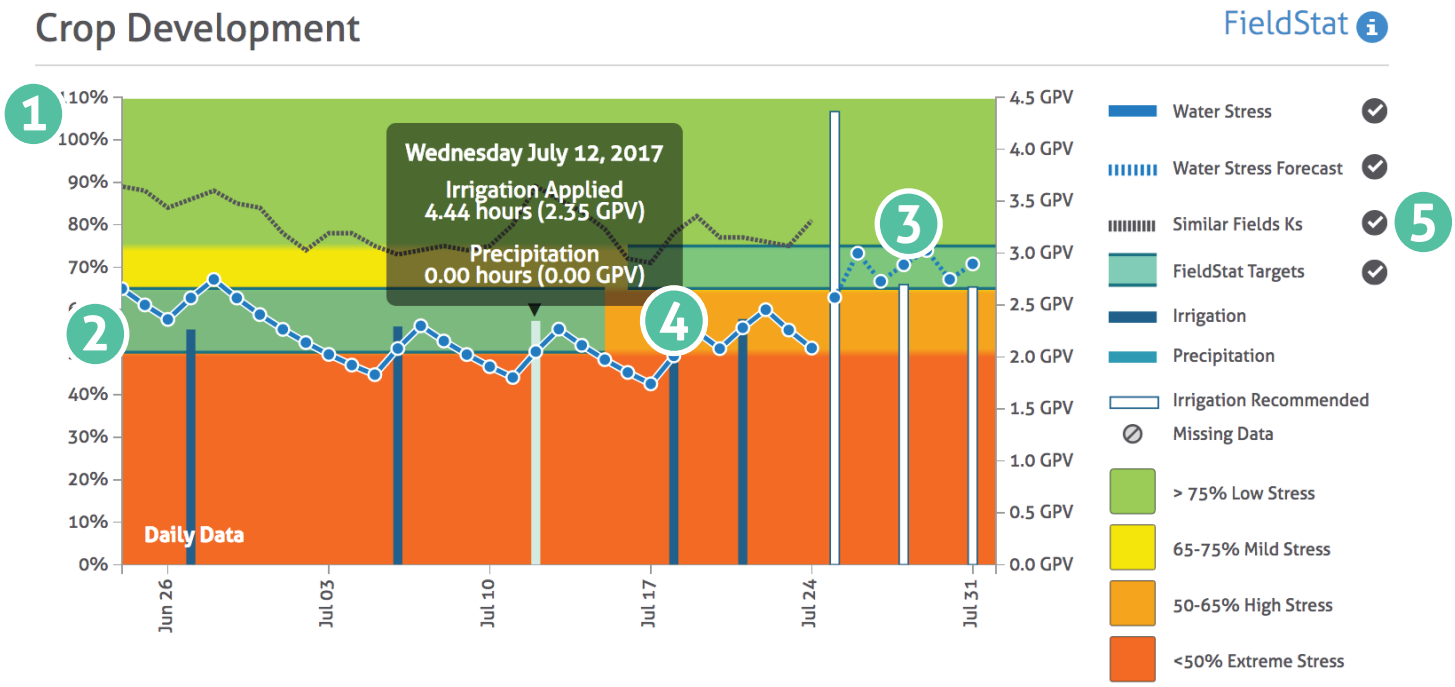
General settings can be found in the very top right of any Tule screen within the drop-down menu under your name.

Account Settings allow you to change your email address and email preferences.

Team Settings allows you to add members to your team, grant sensor data access, and provide admin privileges to users.

# Tule FieldStat Water Stress

**FieldStat** is the crop water stress measured directly in your field by a Tule sensor. It tells you the water stress of your field daily, remotely, in simple terms, and without the hassle of the pressure bomb. FieldStat correlates with leaf water potential (i.e., pressure bomb readings). But unlike the bomb, which only tells you about one plant, FieldStat measures the plant water status for a 1 to 10 acre area.




**1.) FieldStat**
This is represented on a numerical scale from 0% to 100% and on a color scale from red to green. A lower percentage (0-50%) will fall within the red section and indicates extreme stress. A higher percentage (75-100%) will fall within the green section and indicates low stress.

FieldStat Water Stress is the water stress of your field with the addition of forecasts. The forecasts are powered by a model that infers the plant water status response to water additions (irrigation and rainfall) and water losses (evapotranspiration).

With Water Stress Forecasts disabled, the Water Stress line is replaced by the Ks line. Ks is calculated as the actual ET (measured by the Tule sensor) divided by your potential ET (Reference ET multiplied by the crop coefficient).

Tule Growers use FieldStat to monitor crop stress every day without the need for leaf or stem water potential measurements. Click on Reference Guide for more information on how FieldStat correlates with Pressure Bomb readings.

**2.) Target FieldStat**
This is your desired amount of stress during each phenological stage. Set the start date, end date and the desired stress level using the web dashboard by clicking on Site Settings in the upper right.

After setting targets, you can easily see when the crop water stress is falling outside of the target zone. The irrigation recommendations tell you how much to irrigate to reach your stress targets.

**3.) Forecast FieldStat**
Tule predicts crop water stress for the next 7 days and beyond. The forecast portion of FieldStat is shown by a dashed line. If irrigation is recommended, the forecast shows the water stress response to the applied water.

When a block is within its Target FieldStat range the white Irrigation Recommendation bars show when additional irrigations will be needed to stay on target. When a block is more stressed than the Target FieldStat, the first Irrigation Recommendation show what is required to get back on target. The following white bars show the required irrigation to stay on target.

**4.) Irrigation Events**
Each dot on the graph represents the daily FieldStat Water Stress value. Blue bars indicate past irrigation events. Teal bars represent precipitation events. White bars represent Tule Irrigation Recommendations.

By hovering over an irrigation bar, you can see how much water was applied. For precipitation events, the hours listed are the amount of hours your irrigation system would need to run to apply the same amount of water as the rainfall. The scale on the right side of the graph also represents the quantity of water applied.

**5.) Similar Fields**
Similar Fields Ks shows aggregated and anonymous data from your fellow growers. More details on your similar fields grouping are available in Site Setttings.

Toggle Similar Fields to virtually see how your neighbor's crop stress compares to your own each day of the growing season.

# Tule Irrigation Recommendations

The **Irrigation Recommendation** is the quantity of water to apply over the next 7 days to achieve your Target FieldStat. It is based on Tule's site-specific understanding of the water stress response of your block to irrigation. The quantity is provided in both inches (or gallons per vine) and hours.

### 1.) Options and Settings

Here you will find three things: 1) the ability to download Tule data via CSV export, 2) the summary of Tule data from previous years, and 3) Settings and Target options.

One of the first key steps before any growing season is to make sure the site settings are accurate, including your targets for Canopy Growth and FieldStat waterstress.

### 2.) View all 2015 Irrigations

Quick access to the current season's irrigation events.

### 3.) Irrigation Recommendation Details

Tule's Forecast Water Stress provides Irrigation Recommendation that include both a volume to apply and when the irrigations should take place. For sites in Alert, the recommendation will include an immediate irrigation to get back to Target FieldStat, and then subsequent applications to stay within the target boundaries. When a block is On Target the recommendation will show when the next application is needed, and how much water is needed to maintain within the target boundaries.

This recommendation also shows a comparison to Similar Fields.

### 4.) Set Calculator

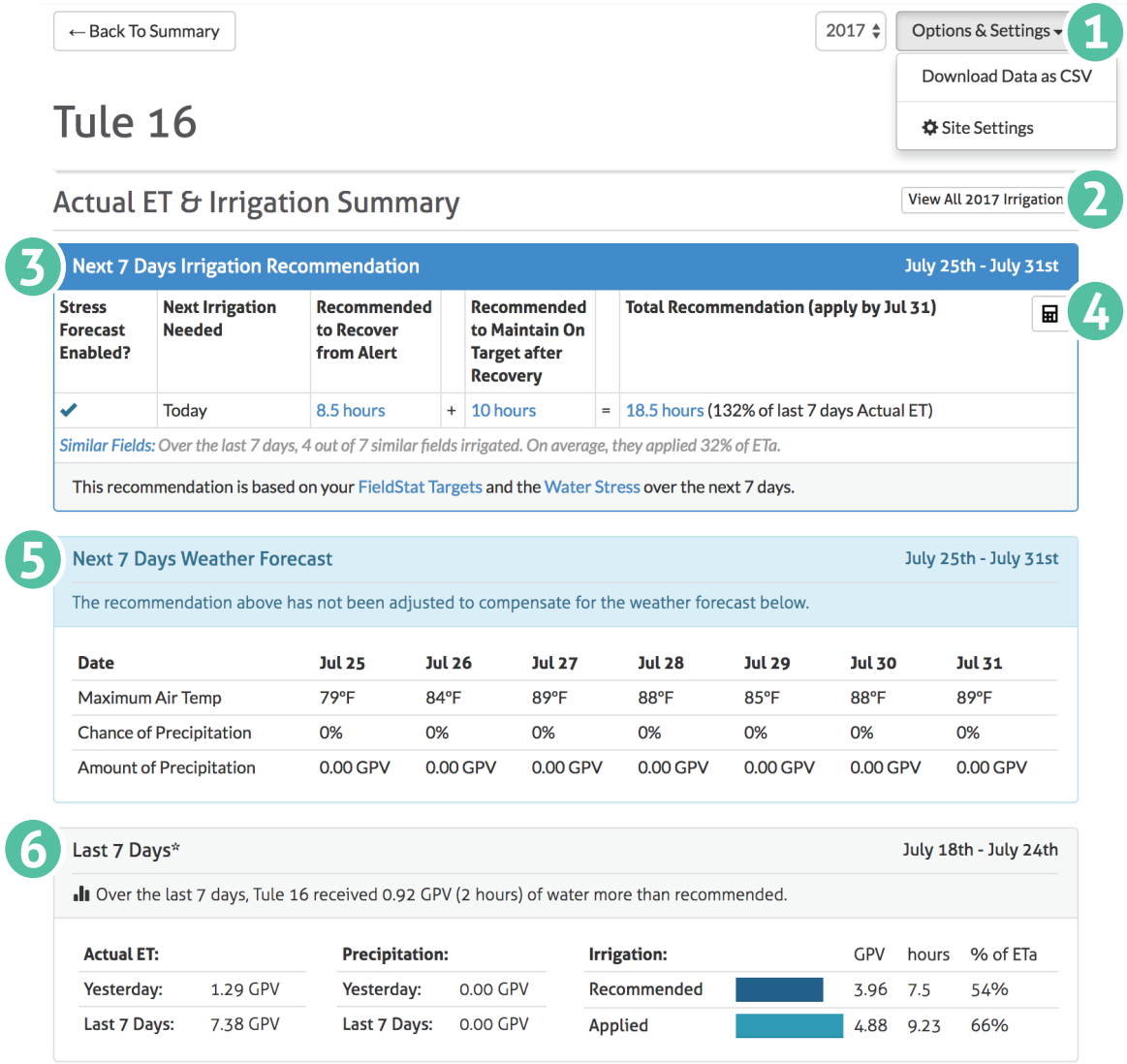
This tool is available on the web dashboard and allows you to customize the irrigation recommendation.

You can adjust Tule's irrigation recommendation. You can choose the number of sets that best suits your operational constraints and experience with the block.

### 5.) Next 7 Day Weather Forecast

The Weather Forecast is NOAA's prediction of both maximum air temperatures and precipitation.

It is not automatically included in the recommended irrigation amount. A climate forecast is already incorporated into the irrigation recommendations.




### 6.) Last 7 Days Overview

Here is an overview of the previous week, including the actual ET and precipitation, the Irrigation Recommendation, and the applied irrigation. Applied irrigation is measured using a pressure switch at the Tule site.

Use this overview to validate that the scheduled irrigation amount or duration was successfully applied in the field. The ET is a starting point for calculating the irrigation recommendation and is included here for reference.