

# Managing Irrigation with Actual ET Measurements

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Cofounder  
Tule



**Practical Application**

**Technology Background**

**Vineyard Example**

## Practical Application

**What is the water status of my field?**

**How much do I irrigate?**

# Practical Application

## Three Building Blocks

1. **Water Stress**
2. **Actual Evapotranspiration**
3. **Irrigation Application Amounts**

# Practical Application

**What is the water status of my field?**

## **1. Water Stress Level**

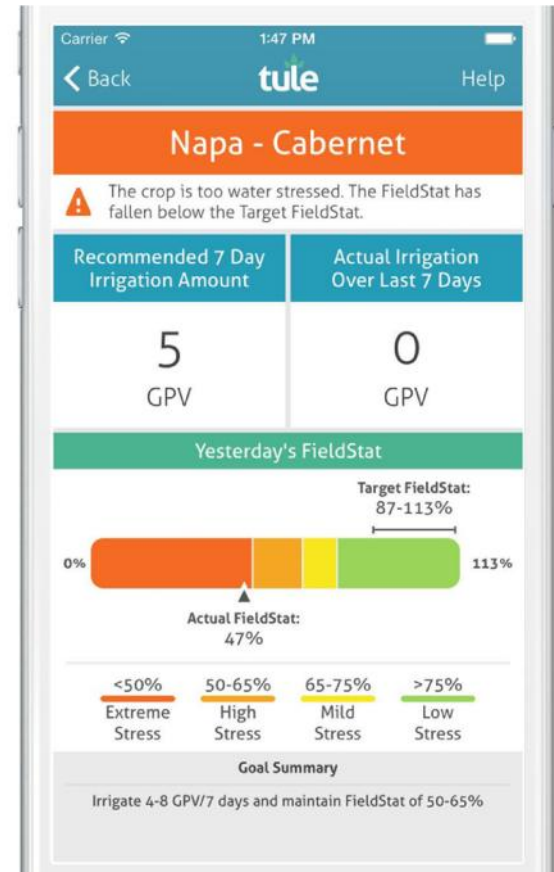
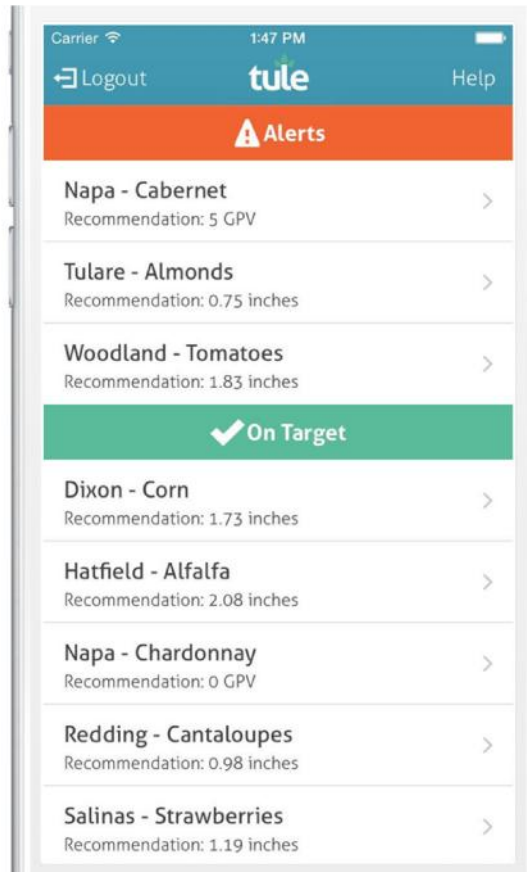
**What much do I irrigate?**

## **2. Actual Evapotranspiration**

## **3. Irrigation Application Amounts**

# Practical Application

1. Mobile
2. Website
3. Weekly Email Reports





**Practical Application**

**Technology Background**

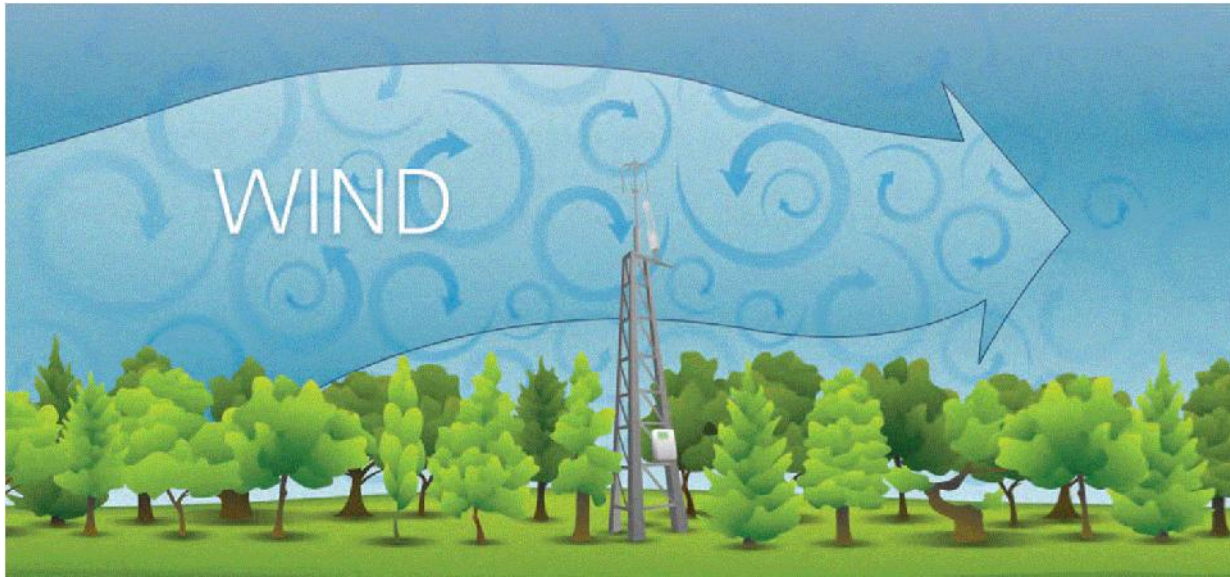
**Vineyard Example**



# Technology Background

- 1. Actual Evapotranspiration**
- 2. Water Stress**
- 3. Irrigation Application Amounts**

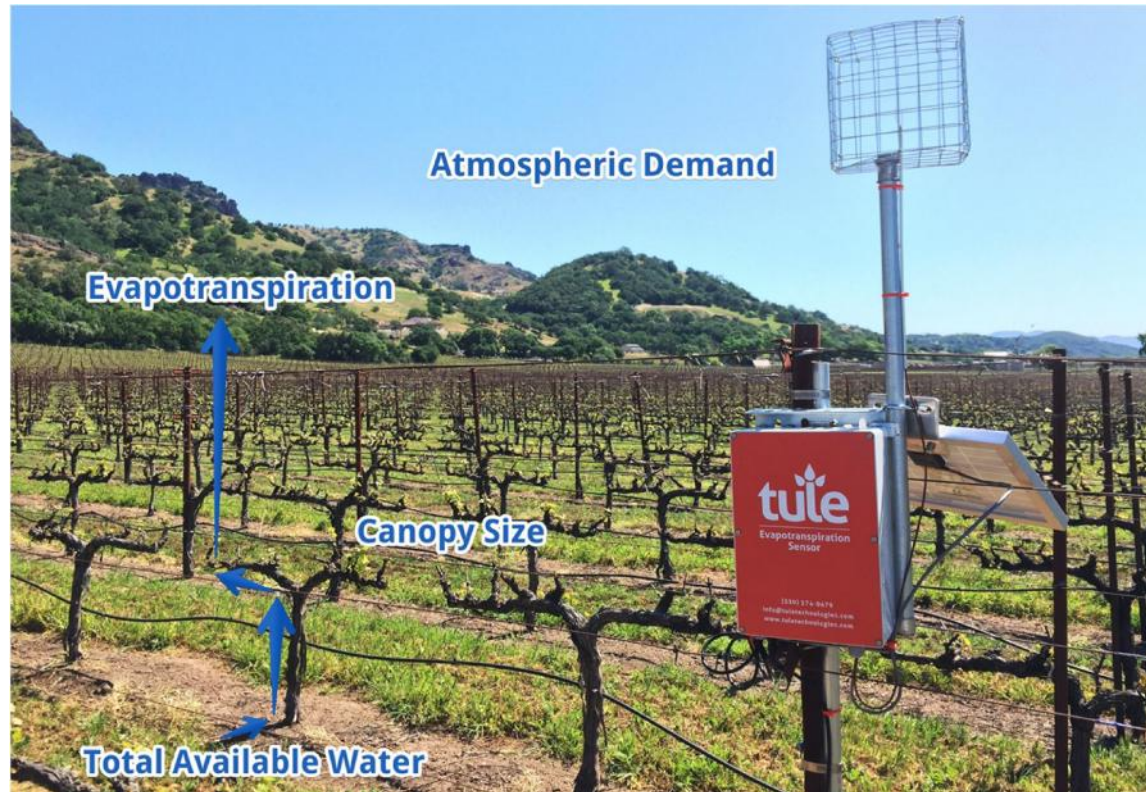
# Technology Background



UC Davis

- Surface Renewal Method (validated against lysimetry and eddy covariance)

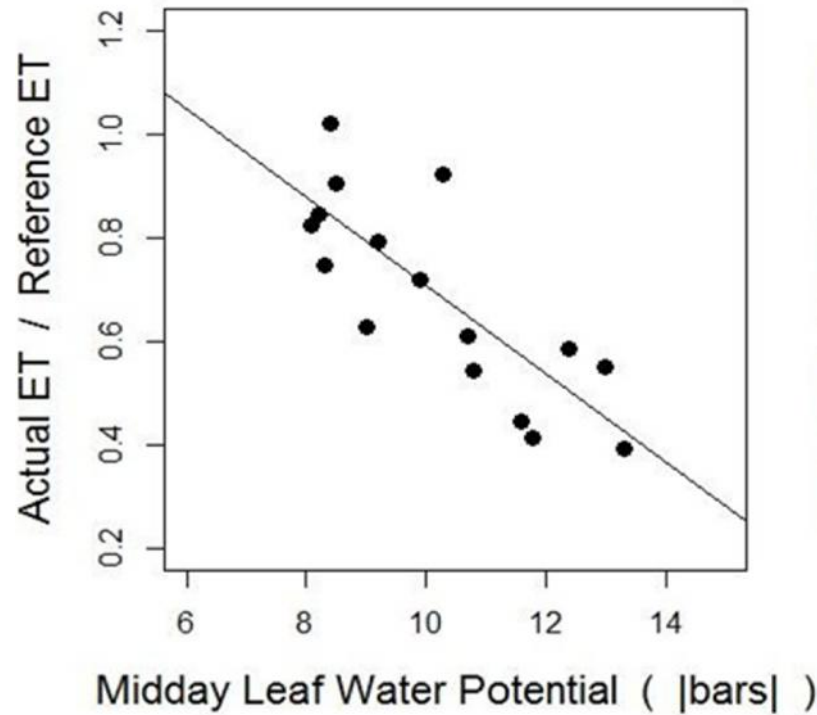
# Technology Background



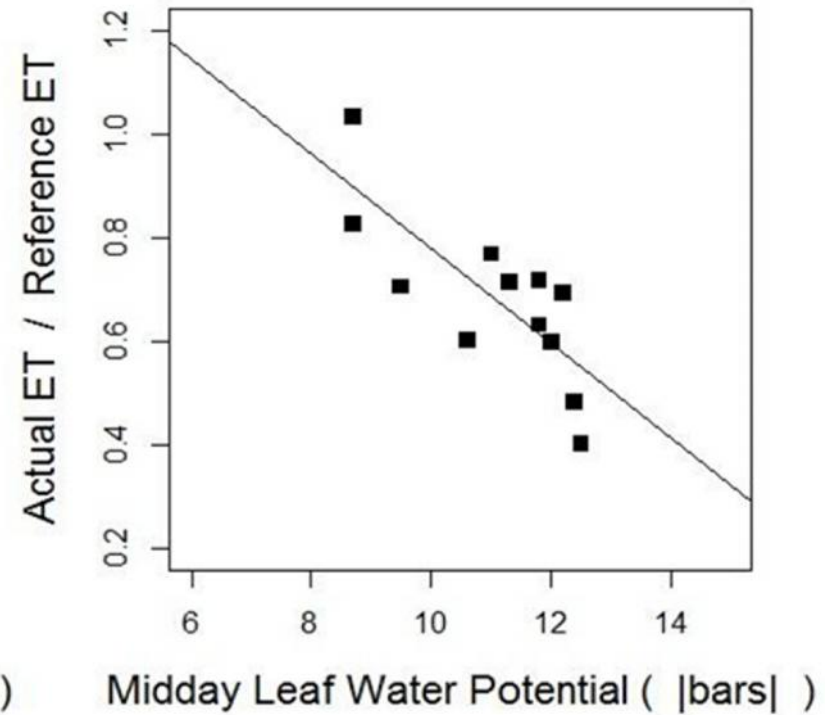
Actual ET = Atmospheric Demand + Canopy Size + Crop Water Stress

# Technology Background

Lysimeter



Surface Renewal



# Technology Background



**Practical Application**

**Technology Background**

**Vineyard Example**

# Spring Water Budget

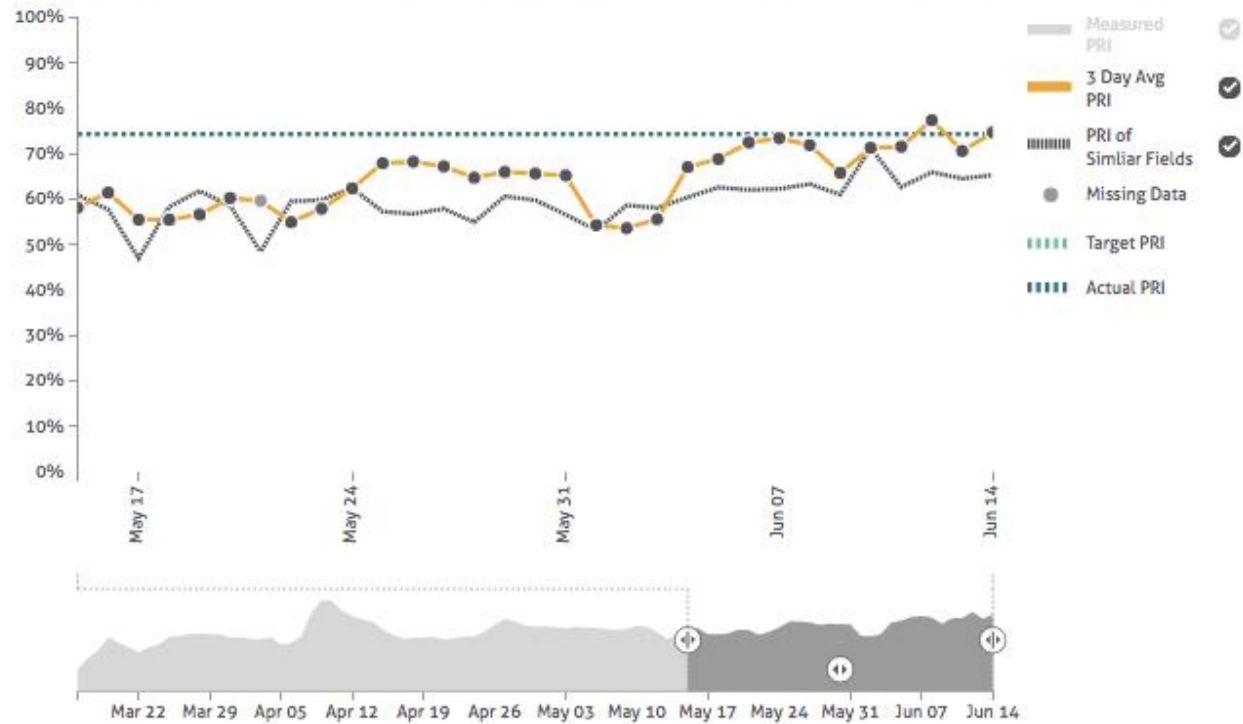
Central Coast											
		2015 Water Year (Oct 1, 2014 to March 15, 2015)				2016 Water Year (Oct 1, 2015 to March 15, 2016)					
Local Area	Crop	Rainfall (inches)	Irrigation (inches)	Actual ET (inches)	Available Water as of 3/15/15 (inches)	Rainfall (inches)	Irrigation (inches)	Actual ET (inches)	Available Water as of 3/15/16 (inches)	Target Available Water (inches)	Amount Needed Before Bloom (inches)
Arroyo Seco	Grape	8.05	1.57	9.11	0.59	7.9	1.89	6.78	3.27	6.94	3.8
King City - Oasis Road	Grape	8.05	NA	NA	NA	7.9	0.93	6.28	2.55	NA	NA
Paso Robles	Grape	8.05	4.44	5.35	4.94	7.9	1.85	7.32	2.34	5.79	3.51
Santa Ynez	Grape	8.82	NA	NA	NA	9.65	NA	NA	NA	NA	NA
Sisquoc	Grape	8.82	NA	NA	NA	9.65	0.29	7.11	2.84	NA	NA
Average for Region	Grape	8.36	3.01	7.23	2.76	8.6	1.24	6.87	2.75	6.36	3.46

# Canopy Development

Canopy Development March 16th, 2015 - June 14th, 2015

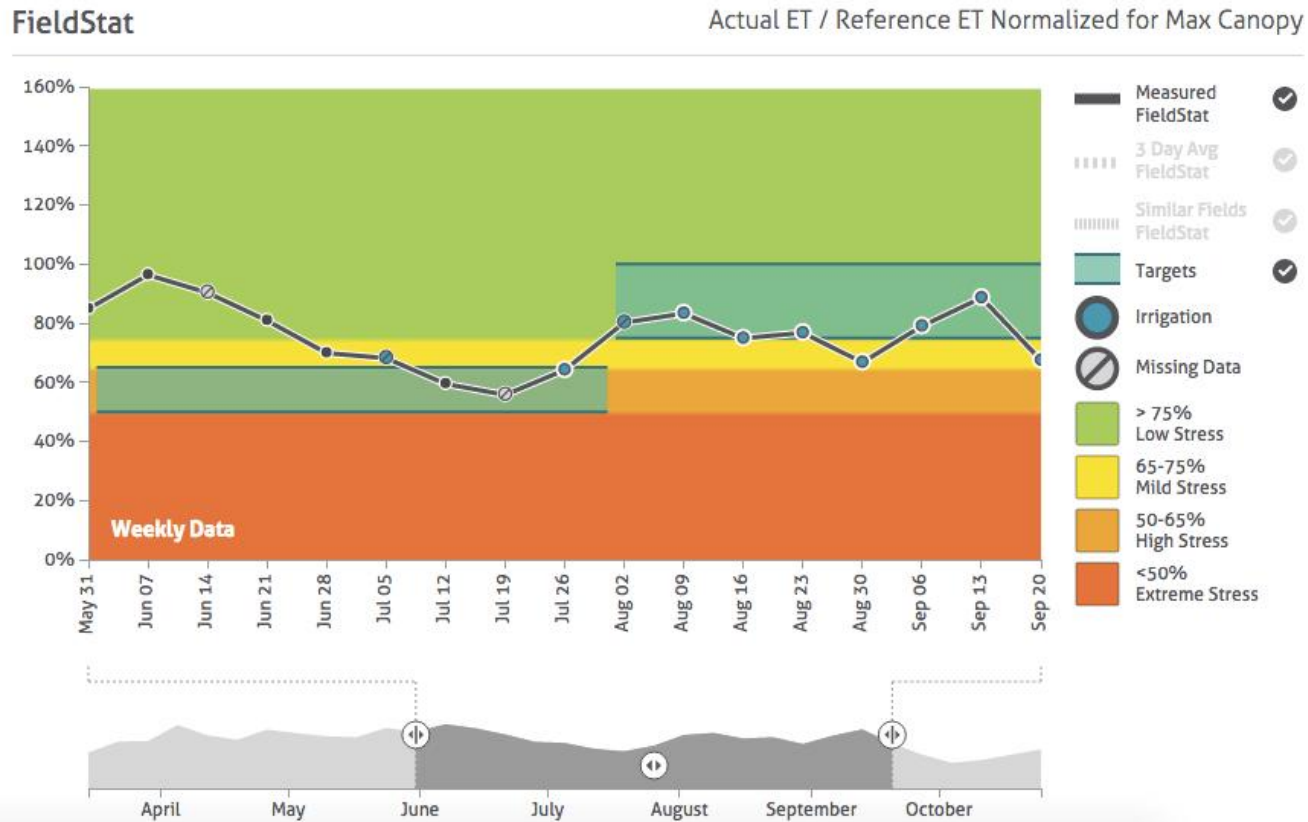
Plant Response Index (PRI) ⓘ

Cover crop ET influences PRI. Actual PRI comparison to Target PRI should be used only after cover crop has senesced or has been disc'd.





# Crop Development (Fruit Set through Harvest)

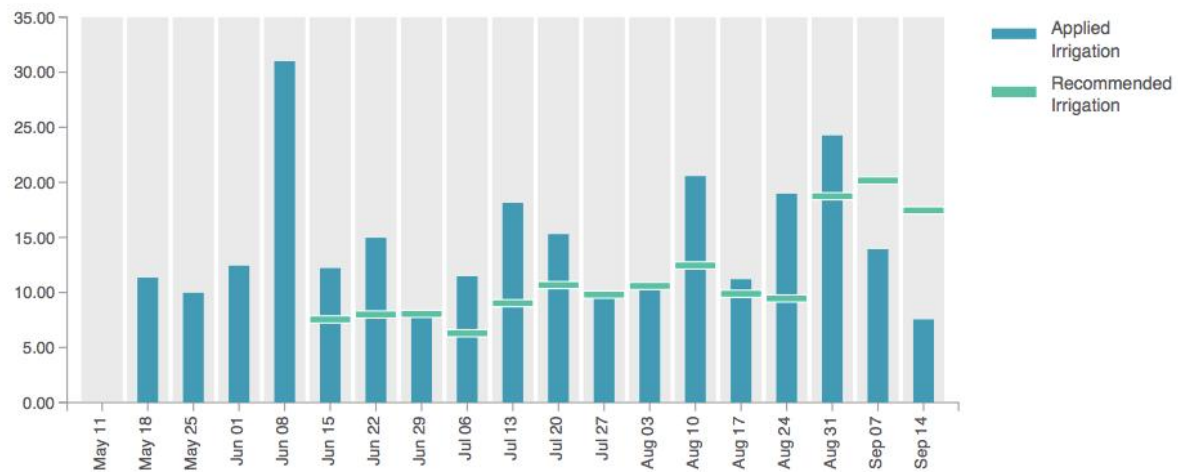


# Irrigation Recommendations

## Weekly Irrigation Review Gallons Per Vine

[View All Irrigation Data on Dashboard](#)

The chart below shows the irrigation application amounts (blue bars) compared to the Tule average weekly irrigation recommendation\* (green dash) for each week. Compare this chart to the FieldStat graph above, so you can easily see how each irrigation application affected the crop water stress in your field.



\*Irrigation recommendations are shown starting June 9, 2015. Note that irrigation recommendations are based on your FieldStat Targets.

### 2015 Actual ET & Irrigation Totals

Total Actual ET	497 GPV
Total Water Applied via Irrigation	262 GPV (53% of Actual ET)
Regional Average for Similar Fields	108 GPV (142% less than you applied)



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