

IMO | Four irrigation strategies for the same field

94 acres, Almonds, Gustine, CA (Western San Joaquin valley, USA)

Irrigation strategy: timing and efficiency

Irrigation timing and the amount of water applied are the biggest drivers of crop yield and crop quality. Irrigation timing strategies indicate when and how much to apply to target specific crop management outcomes. Strategies include timing crop stress to directly influence quality; limiting irrigation to control production quality or to use the water at a different time; and when to increase irrigation to build crop yields. There are many possible strategies.

Typically, irrigation strategies are derived from research, a grower's experience and the conditions of the field. The best are a combination of all three.

IMO defines irrigation timing strategies in advance of the season, generates an irrigation schedule based on the strategy, and then tracks and target the schedule in real-time.

Four strategies

In this case, each strategy applies a different amount of water to the same field of almonds to achieve different results.

The first three strategies are based on ideal water availability, full irrigation and 100% ET replacement. Each takes a different approach to

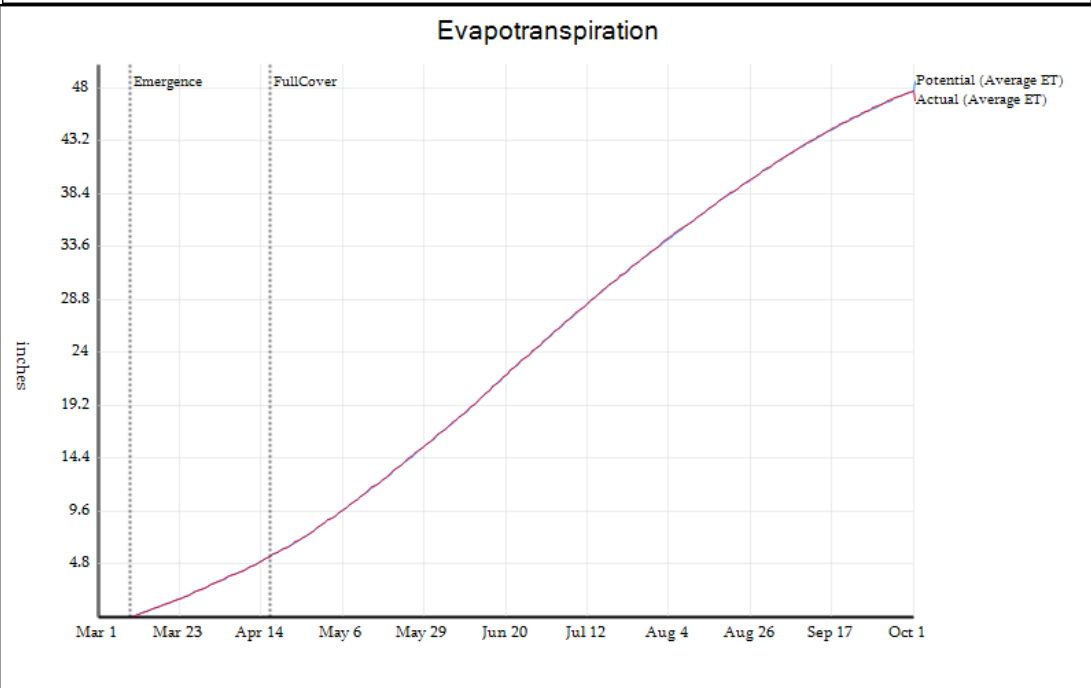
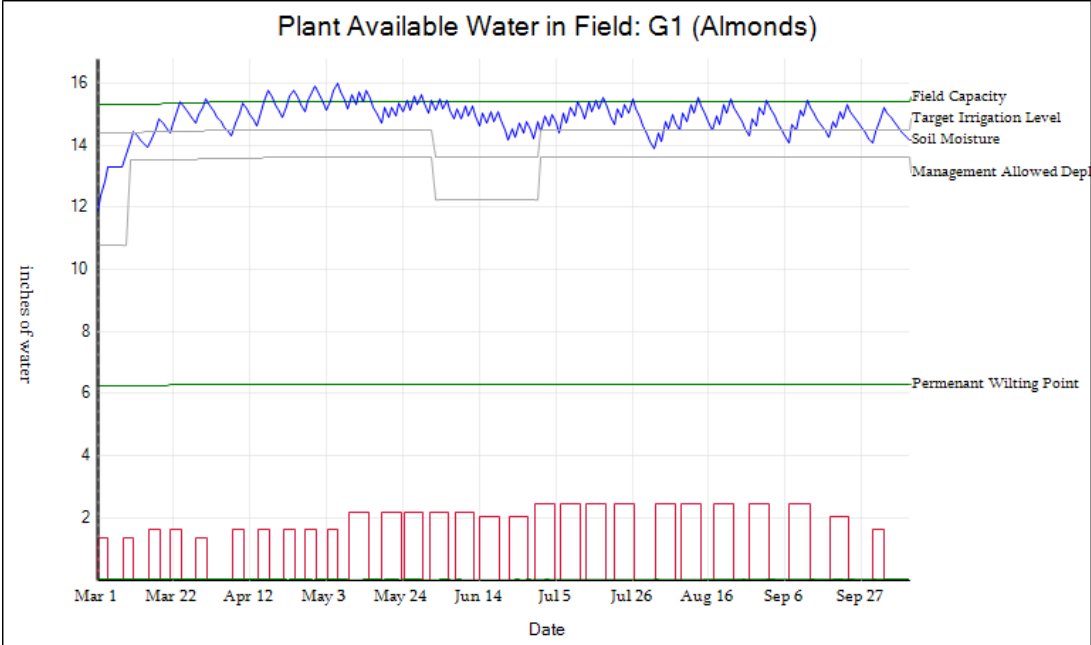
The fourth shows a DI strategy to manage severely restricted water. This is the strategy that was implemented in 2015.

Technical

The strategies in this example are derived from a combination of UCCE recommendations, UC Davis almond research and the grower's experience. Estimate of full irrigation for almonds in this region is based on a Kc provided by UCCE.

Full irrigation | 57.6 inches

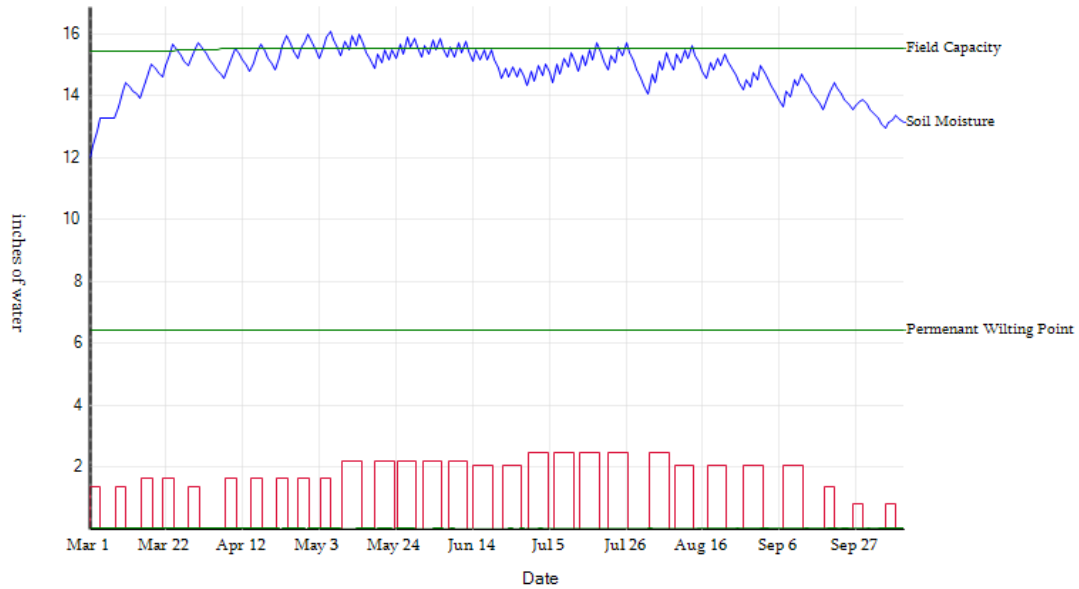
Strategy	Full irrigation through post-harvest leaf drop
Goal	Avoid crop stress; maximize yield
Applied water	57.6 inches
Cumulative ET	47.2 inches (100%)
Water use efficiency (WUE)	82.5%



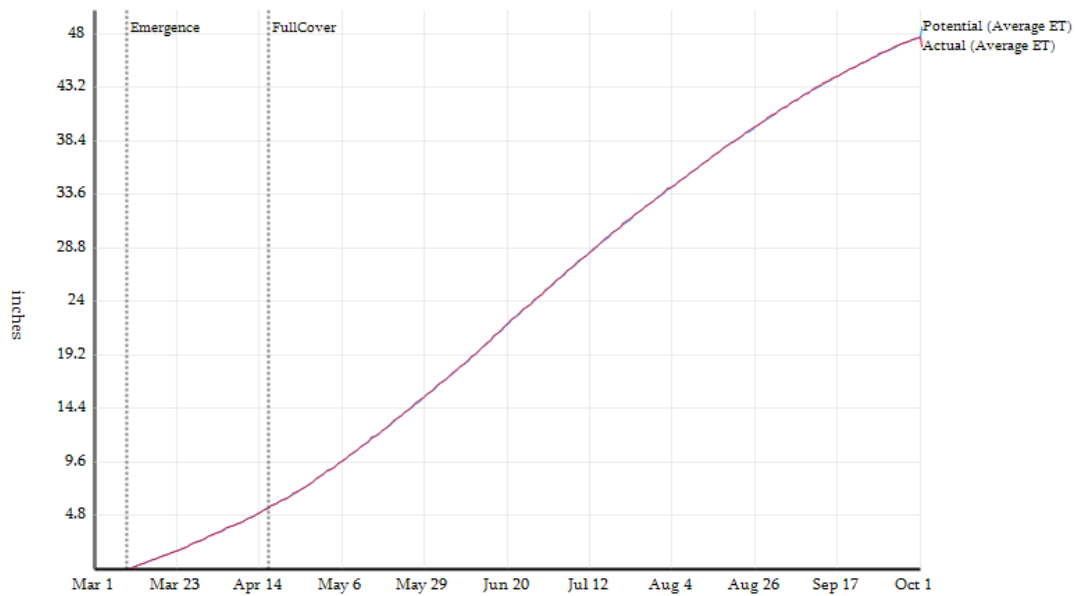
Full irrigation | 53.9 inches

Strategy	Full irrigation, tapering off after harvest
Goal	Avoid crop stress; maximize yield; conserve water post-harvest
Applied water	53.9 inches
Cumulative ET	47.5 inches (100%)
Water use efficiency (WUE)	88.1%

Plant Available Water in Field: G1 (Almonds)

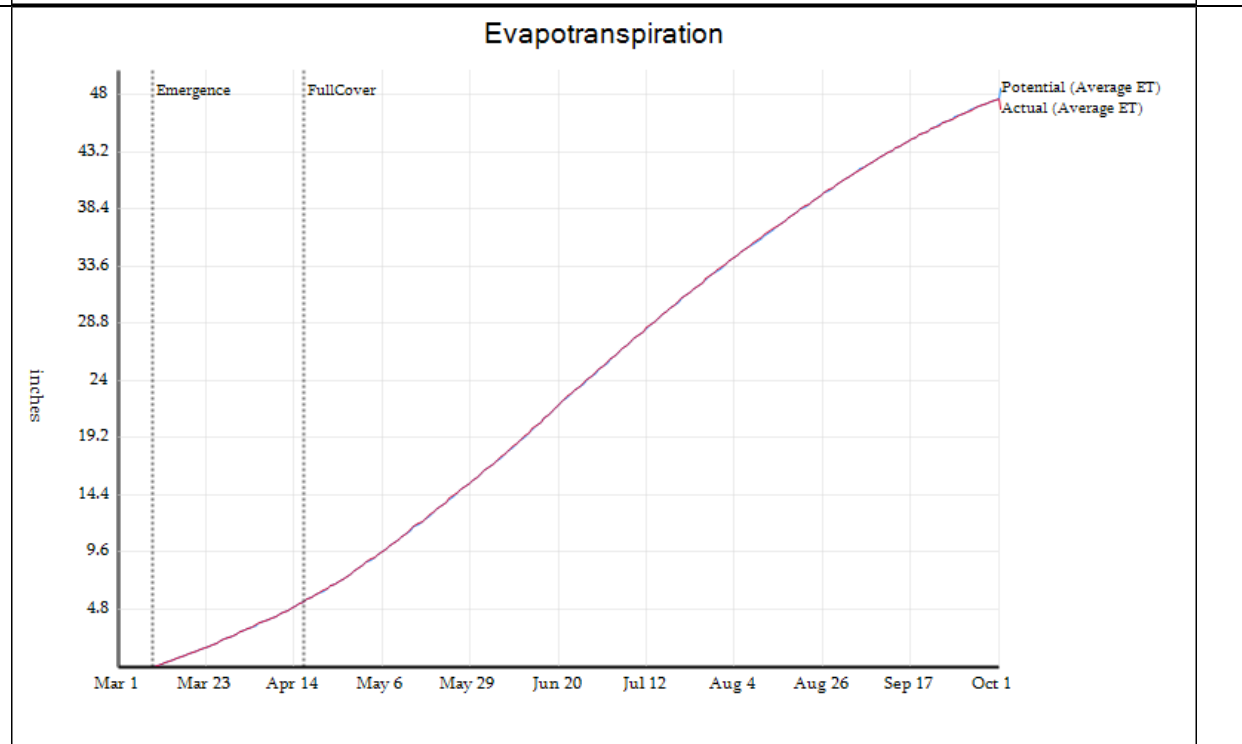
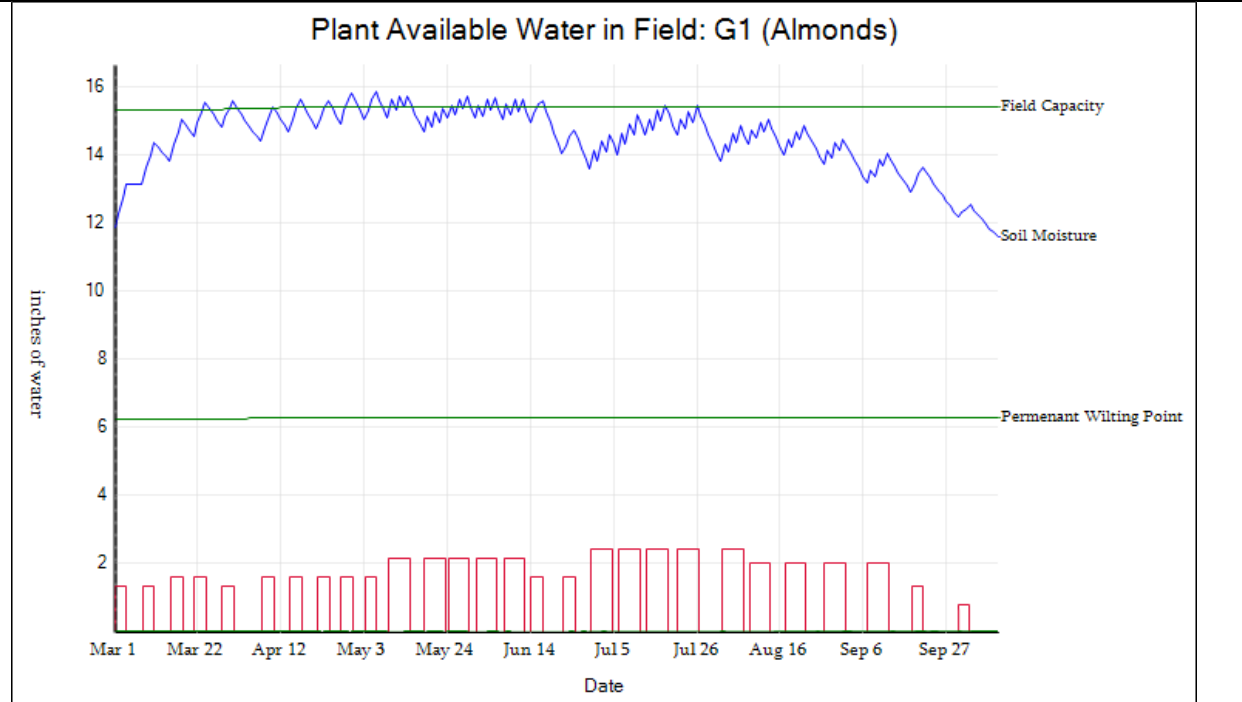


Evapotranspiration



Full Irrigation | 47.5

Strategy	Strategic deficit after hull split and taper off after harvest
Goal	Control hull rot; reduce stick tights; conserve water post-harvest
Applied water	53.1 inches
Cumulative ET	47.5 inches (100%)
WUE	89.5%



Partial Irrigation 28.75	
Strategy	Target limited water to critical growth stages
Goal	Manage crop stress with limited water
Applied water	28.75 inches
Cumulative ET	29.7 inches
WUE	103.9%

