

## Cost to Water per Acre\*

In the summer season, May - September, an established citrus tree requires an estimated amount of 3,723 gallons of water for the season, according to a study done by the University of Arizona College of Agriculture and Life Sciences. The City of Chandler's summer charges are \$3.32 per every 1,000 gallons used<sup>1</sup>. There is an estimated average of 81 trees per acre in a US orchard<sup>3</sup>.

### Summer Season (May - Sept)

Gallons per tree to water	3,723 gallons / 1,000 gallons = 3.72
Price per tree to water	3.72 x \$3.32 = \$12.35 per tree
<b>Total price per acre to water</b>	<b>\$12.35 x 81 trees = \$1,000.35 per acre</b>

In the winter season, October - April, a citrus tree requires an estimated amount of 1,743 gallons of water for the season, according to a study done by the University of Arizona College of Agriculture and Life Sciences. The City of Chandler's winter charges are \$2.41 per every 1,000 gallons used<sup>2</sup>. There is an estimated average of 81 trees per acre in a US orchard<sup>3</sup>.

### Winter Season (Oct - April)

Gallons per tree to water	1,743 gallons / 1,000 gallons = 1.74
Price per tree to water	1.74 x \$2.41 = \$4.19 per tree
<b>Total price per acre to water</b>	<b>\$4.19 x 81 trees = \$339.39 per acre</b>

## Stakes per tree

We recommend installing 3 stakes per tree, in a triangular pattern. 3 stakes help balance the tree's root structure and create even growth. A minimum of two stakes, installed on opposing sides of each tree, is required. There is an estimated average of 81 trees per acre in a US orchard<sup>2</sup>. The cost of one Agriculture Stake is \$2.50 and the tax rate in Chandler, Arizona is 7.8%.

Minimum Amount of Stakes Needed	81 trees x 2 stakes = 162 stakes per acre
Price for Stakes	\$2.50 x 162 stakes = \$405 per acre
Plus Arizona Tax	\$405 x 7.8% = \$31.59
<b>Total Price per acre</b>	<b>\$405 + \$31.59 = \$436.59 per acre</b>

## INVESTMENT OVERVIEW (CONTINUED)

### Watering Savings per acre, per Season (Estimated)

A study performed by Cal State Fresno's Center for Irrigation Technology, which tested wetting patterns produced by Deep Drip, found that using the stakes helped save 20% of their water use. A second study was performed independently by the Ministry of Environment in Qatar from 2010 through 2011, in order to find how much water you could save using Deep Drip Watering Stakes. Their result was that the stakes saved them an impressive 50% more water in desert soil. Therefore, based on both studies, we have provided you with a 20% - 50% savings range below.

	20% Savings (least profitable case)	50% Savings (most profitable case)
Summer Season (May - Sept)	$\$1,000.35 \times 20\% = \$200.07$	$\$1,000.35 \times 50\% = \$500.18$
Winter Season (Oct - April)	$\$339.39 \times 20\% = \$67.88$	$\$339.39 \times 50\% = \$169.70$

### Return on Investment (Estimated ROI)

#### ROI \$ Amount = Gain from investment – Cost of investment

The charts below show results of both 20% and 50% savings. The results are based on the usage of water and the cost of the stakes needed for one acre. The yearly savings are divided into two seasons summer and winter, because of the difference in water use and price. These show that in the worst case scenario, you would see the return of your investment in 18 months and as soon as 5 months.

#### 20 % Water Savings

#### ROI= 18 months

1st year: (summer savings + winter savings) – (cost of stakes)	$(\$200.07 + \$67.88) - (\$436.59) = \$267.95 - \$436.59 = -\$168.64$
2nd year: 1st year + 2nd year gain from investment	$-\$168.64 + (\$200.07 + \$67.88) = -\$168.64 + \$267.95 = \$99.31$

#### 50 % Watering Savings

#### ROI= 5 months

1st year: (summer savings + winter savings) – (cost of stakes)	$(\$500.18 + \$169.70) - (\$436.59) = \$669.88 - \$436.59 = \$233.29$
2nd year: 1st year + 2nd year gain from investment	$\$233.29 + (\$500.18 + \$169.70) = \$233.29 + \$669.88 = \$903.17$

#### Legend:

1. [cals.arizona.edu/pubs/crops/az1151.pdf](http://cals.arizona.edu/pubs/crops/az1151.pdf)
2. <http://www.chandleraz.gov/default.aspx?pageid=773>
3. <http://www.treeplantation.com/citrus-trees.html>