Avocado Irrigation Calculator using CIMIS

(California Irrigation Management Information System)

Updated March 13, 2024

Gary S. Bender

Farm Advisor Emeritus – Subtropical Horticulture

UC Cooperative Extension – San Diego County

The irrigation requirement can be calculated each week by using CIMIS (California Irrigation Management Information System). CIMIS is a network of weather stations throughout California that takes daily information on evapotranspiration (ETo) of eight-inch tall grass and sends this ETo to a computer in Sacramento. ETo is basically the amount of water lost each day from this grass; it is calculated in inches of water. You can download this information when you want to irrigate your avocados and put it into an "irrigation calculator". This information will be multiplied by the crop coefficient developed for avocados by UC Cooperative Extension farm advisors and specialists . This will give you the amount of water lost each day by avocados through transpiration and evaporation from the soil surface. Then, **assuming the weather doesn't change**, you can replace that amount of water when you irrigate.

Follow these steps to use the irrigation calculator:

1. Go the website: http://www.avocadosource.com/
2. Click on Tools
3. Click on Irrigation Scheduling Calculator
4. 'Kc Source'. **For our example we will use the California new values.** (Some growers may want to use "California New Values" which is 0.86. Some growers find that this is too high and they prefer the values from Chile which are 0.72 -0.75)
5. Next to 'Data Source': select CIMIS from the dropdown box. This should bring up the ipm website www.ipm.ucdavis.edu/WEATHER/wxretrieve.html. If not, click on Data Source.
6. Select 'Stations in (County). Scroll down and select "stations" in San Diego County. Click "Submit".
7. Scroll down to "San Diego A" for our example.
8. Click on "Daily Data"
9. Select a time period. For this example try March 2 to March 8, 2024

10. Leave everything checked, scroll down to "Retrieve Data" and click.
11. Write down the daily ETo data from that column and add the numbers.
    Example:
    Calculating the toral ETo for the period:
    Daily ETo for 7 days: .06 + .08 + .11 + .11 + .10 + .09 = 0.55

12. Under "Reference Evapotranspiration" (ETo), put in total ETo of the seven-day period.
13. Under "Crop Coefficient (Kc)", Click on March (for this test).
14. Under "Distribution Uniformity" put in 85 (for 85% uniformity). **Caution....a common mistake here is to put in 0.85. Make sure you put in 85 to indicate 85%.**
15. Under "Leaching Requirement" put in 10. **This means that you are irrigating with 10% extra water to leach the salts below the root-zone.**
16. Under "Trees per Acre" put in 105 (there are actually 109 on a 20' x 20' spacing, but there are grove roads with no trees).
17. Under "Number of emitters per tree" put in 1. **This means that you have one mini-sprinkler per tree.**
18. Under "Emitter Output" put in your gallons per hr. For this example use **17**.
19. Under "Grove Size", for this example leave the number at **1** (for one acre).
20. Click "Calculate".
    Your Irrigation Solution for this time period is:

Water per tree for the 7 day **period**: _____gallons.

Watering time for the 7 day **period**: ____**hrs and** _____ **minutes**

Total water requirements for this one acre grove: _____ **gallons**