

Best Management Practices for Irrigating Peach Trees

*Jerome L. Frecon
Gloucester County Agricultural Agent*

Peach growers must irrigate regularly to maintain fruit size, tree growth, and productivity during critical periods. During droughts and/or periods of water stress, some growers may be able to maintain good fruit size, although their trees may show varying levels of stress, and will show increasing symptoms as the stress continues. Every orchard is different, but all orchards will experience some level of water shortage and stress during drought.

The following information on conserving irrigation water use, and effective tree fruit irrigation, has been released from Rutgers Cooperative Extension to the farm community.

1. The total minimum water requirement for mature peach trees is about 36 inches per year. Under normal conditions a mature peach tree requires about 35 - 40 gallons of water per day during July and August.

2. The edible portion of a ripe peach contains about 87% water. Water, carbon dioxide, and sunlight interact in plants to form simple sugars in a process known as photosynthesis. Water deficiency may reduce photosynthesis by 40% before leaves actually show wilting.

3. Water status changes in a peach tree day by day and even hour by hour. Water requirements increase with increased air temperature, increased air movement, and decreased relative humidity. For New Jersey, the average peak period consumptive use (evapotranspiration rate) is .2"/day.

4. With 60% efficient overhead irrigation, and no rainfall (drought conditions) application should equal about 2.3 inches every week from pit hardening through final swell, for mature trees, if sufficient water is available.

5. With trickle/microspray irrigation at 90% application efficiency and no rainfall (drought conditions), application should equal about 1.5"/ week for mature trees.

6. As compared to a traveling gun system, trickle irrigation on mature trees can save between 30 - 50% of the water needed to irrigate.

7. A peach attains about 66% of its final fruit volume during its last 30 days on the tree. Water is critical during this period, partly because the evapotranspiration rate is high.

8. With overhead irrigation, if a grower only has 4 to 5 acre-inches of available water, this probably should be saved for the final swell.

9. Once fruit growth and development are slowed from lack of soil moisture, the growth loss is permanent. The final swell does not produce peaches as large as when water supply is adequate all season.

10. Approximately 80 - 90% of fine feeder roots are in the upper foot of an undisturbed soil. About 70% moisture extraction is taken from the upper half of the root zone. Effective root zone depth for tree fruit is 24".

11. Experiments in arid regions show water application to 25% of the root system is sufficient to meet water and

nutrient needs in mature peach trees. A reasonable design objective for drip irrigation is to wet 25 - 60% of the root zone in mature trees.

12. Irrigating one side of a peach tree will not confine the root system to that side of the tree.

13. Withholding water does not send peach roots deeper into the soil, nor do light, frequent irrigations encourage shallow rooting.

14. Over a 10 year period (wet and dry years), irrigation may reasonably be expected to increase yields by about 25%, mainly due to increased fruit size.

(From Plant & Pest Advisory Fruit Edition Vol. 4 No. 19 August 10, 1999, edited by J. Rabin & M. Sorrentino, April 2002)

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