

Irrigation Planning & Water Storage

- Develop an irrigation schedule based on CIMIS data and/or soil moisture monitoring.
- Learn to estimate your soil moisture by feel, or measure with tensiometers or matrix blocks. (see Irrrometer source below.) Schedule irrigations based on that information.
- Adjust your irrigation schedule based on the weather. Temperature, relative humidity, and wind are key determinants of plant water use.
- Plan for storage of water, whether in tanks or ponds. Ponds will need filtering.
- Consider harvesting and storing rainfall from your barn, farm building, or home roof.
- Plant a winter cover crop to increase soil organic matter. With a 1% increase in soil organic matter, soil water storage increases by 16,000 gallons per acre foot of soil.¹
- Replace inefficient impact sprinkler irrigation with microsprinklers or drip irrigation.

Perennial crops

- Mulch 2-4" deep along vine and tree rows, keeping mulch 4" away from trunks. This keeps roots cooler and reduces crop stress and moisture losses from the root zone.
- Mow orchard/vineyard cover as low as possible. In overhead/impact sprinkler orchards, keep row middles mowed low.

Vegetable Crops

- Reduce planted acreage. Plant the ground with the most organic matter or clay. Do not try to stretch less water over all your crops. Reducing irrigation to most vegetable crops will affect yield and quality.
- Use drip or t-tape. Start with good pre-plant soil moisture. Carefully schedule irrigations by monitoring soil moisture.
- Weed, weed, and weed some more!
- Mulch beds/rows with organic mulch (rice hulls, straw, etc.). It keeps roots cool and maintains soil moisture. Plastic mulch retains soil moisture, but heats the soil, so may not be as effective as organic mulch.

Resources for Drought Management

CIMIS Irrigation Scheduling <http://www.cimis.water.ca.gov/cimis/infoIrrSchedule.jsp>

Foothill Farming Drought page : <http://ucanr.edu/pndrought>

Irrigation scheduling <http://www.wateright.org/>

Soil Moisture Monitoring Tools <http://www.irrometer.com/sensors.html>

UC Drought Management Website <http://ucmanagedrought.ucdavis.edu/index.cfm>

¹ Scott, H.D., L.S. Wood, and W.M. Miley. 1986. Long-term effects of tillage on the retention and transport of soil water. Arkansas Water Resources Research Center. Publication Number 125. 39 p.

Tree fruit	Critical Periods for Water Stress
Apples	Flowering, fruit set, fruit enlargement, next year's flower bud initiation
Apricots	Flower and bud development
Cherries	Period of rapid fruit growth prior to maturation
Citrus	Flowering & fruit setting; "June drop" may be reduced by high soil moisture
Grapes	Flowering and fruit set; from fruit set to Veraison: reduces berry size & bud fruitfulness for the next year; 4 to 6 weeks after veraison, berry size reduction
Olives	Just before flowering and during fruit enlargement
Peaches	Period of rapid fruit growth prior to maturity

Vegetable/Row Crops	Critical Periods for Water Stress
Asparagus	Brush
Bean, snap/green	Flowering, pod set, and enlargement
Broccoli, Cauliflower, Cabbage	Head formation and enlargement
Corn	Silking and tasseling, ear development
Cucumbers	Flowering and fruit development
Leafy greens: spinach, etc.	Continuous
Melons: cantaloupe, watermelon	Blossom to harvest
Dry Onions	Bulb enlargement
Peas	Flowering and seed enlargement
Potato	Tuber set & enlargement
Squash: summer	Bud development and flowering
Strawberry	Fruit development to ripening
Sweet potato	Root enlargement
Tomato, Pepper, Eggplant	Early flowering, fruit set, and enlargement

Sources

Sanders, D. C. 1993. *Vegetable Crop Irrigation*, Bulletin HIL-33E. North Carolina Cooperative Extension Service. Available at <http://www.ces.ncsu.edu/hil/hil-33-e.html>

UC Drought Management Website <http://ucmanagedrought.ucdavis.edu/index.cfm>

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