

How Water Moves Through the Soil

The best place to store water is in the soil.



How Does Water Move Thru the Soil?

Depends on your Soil Type

- * Clay: thin platelets, close together
Water penetrates down slowly via gravity and wicks laterally away from source via capillary action
- * Loamy: even distribution of soil particles
Water penetrates down and out evenly
- * Sandy: coarse mineral, lots of pore space
*Water penetrates down fast
no capillary action (no clay or o.m.)*

What's the best way to amend clay soil?

What's the best way to amend sandy soil?

Add Organic Matter!



Sucks water up
(compost will create space
for air, water, and microbes!)

Speeds up water in clay
Slows down water in sand

How Does Water Move Thru the Soil?

Depends on how its Applied

High Pressure; High Flow (Gallons per Minute)

- Street Pressure (50 lbs) lowered by **pressure regulator** to House Pressure (30 lbs)
- Typical in lawns (rain birds, water canons and sprayers)
 - tiny particles that blow away or evaporate
 - heavy water compacts soil

Low Pressure; Low Flow (Gallons per Hour)

- apply close to soil to form sense
- piece together using pressure

Plumbing vs. Irrigation

- * Hard Piped System: Know your numbers!
 - Pressure and Flow
- * Irrigation Systems: Wing it, forgiving systems

Types of Irrigation Systems

bubblers

micro-jets and micro-sprays

drip lines

drip tape

Soaker Hoses

Mini Sprinkler Systems

Overhand



When to Water

automatic versus manual watering

- both okay, as long as water moisture is monitored
- Automatic tends to water too much or too little

monitor moisture content

- use your finger,
- needs water if dry down to 2 knuckles (~2")

watering schedule

- water early in the morning
- early afternoon watering evaporates quickly in afternoon sun
- soil catches thermal energy during the day, late pm watering cools down soil

long enough for deep watering

mulching

If a plant is wilting, do you water?

Check the soil!

Could Be:
too little water
too much water
too hot



Bringing Water to the Farm

- early agriculture and other regions = dry farming
- California needs to bring water to crops with **Hard Piping**
 - on-site ground or surface water
 - municipal supply
 - rain water harvesting
 - water re-use



Irrigation Resources

Online

- Drip Works
- Irrigation Direct

Local Ag Stores

- Granjettos
- Escondido Agricultural Supply