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
  \[\text{Water penetrates down slowly via gravity and wicks laterally away from source via capillary action}\]

* Loamy: even distribution of soil particles
  \[\text{Water penetrates down and out evenly}\]

* Sandy: coarse mineral, lots of pore space
  \[\text{Water penetrates down fast}
  \text{no capillary action (no clay or o.m.)}\]
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

- DripWorks
- Irrigation Direct

Local Ag Stores

- Granjettos
- Escondido Agricultural Supply