

# Garden Watering and Irrigation



1/12/2010

- Wise Watering Practices
- Irrigation Systems
- Gray Water
- Rain Water Harvesting

# Wise Watering Practices

## WHEN

- Morning or evening
- Frequency

## HOW

- On the ground
- Irrigation systems

# Questions????



# Irrigating Your Garden

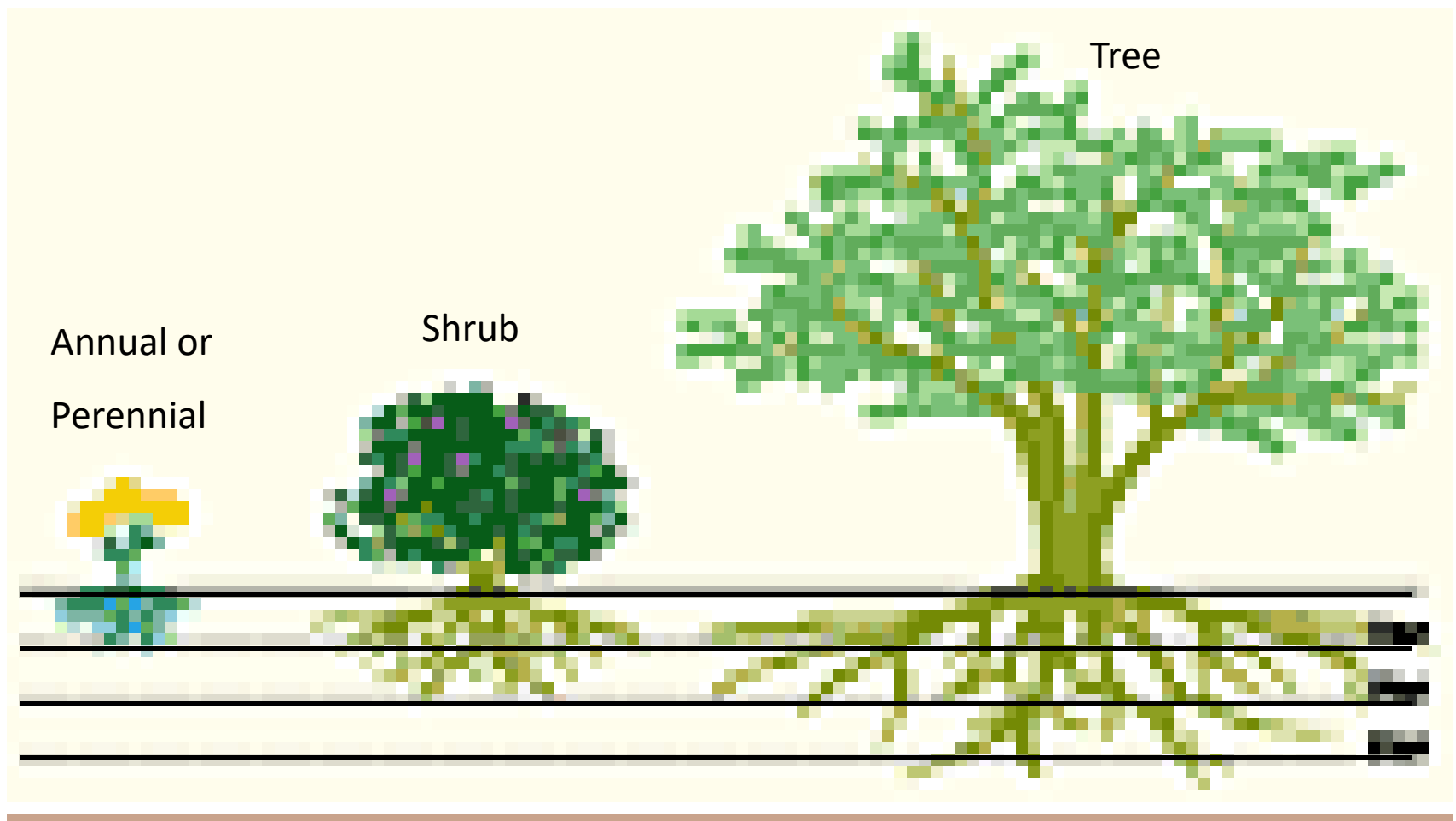
# Irrigation

- Healthy plant = 75%-90% water
- Vegetables crops need about an inch of water per week
- During dry periods – 1 to 2 inches of moisture (65 to 130 gallons per 100 sq ft.) per week

# Benefits of Proper Irrigation

- Aids in seed emergence
- Reduces soil crusting
- Improves germination and plant stand
- Reduces wilting and checking of growth in transplants
- Increases fruit size of tomato, cucumber & melon
- Prevents premature ripening of peas, beans, & sweet corn
- Maintains uniform growth
- Improves quality and yield of most crops

# One, Two, Three Rule - I





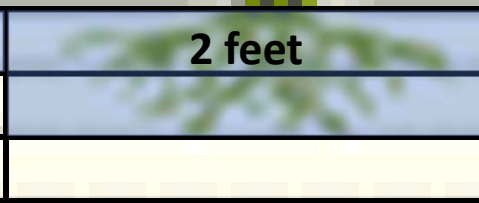
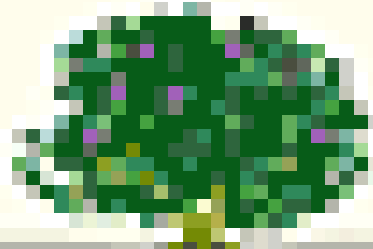
# One, Two, Three Rule - II

Irrigate plants to the proper depth and check with a probe

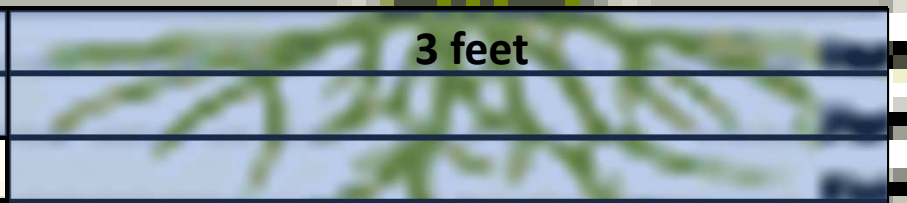
Annual or  
Perennial



Shrub



Tree



# One, Two, Three Rule - III

Allow plants to utilize the water until the soil surface dries to a depth of (early morning):

Annual or  
Perennial



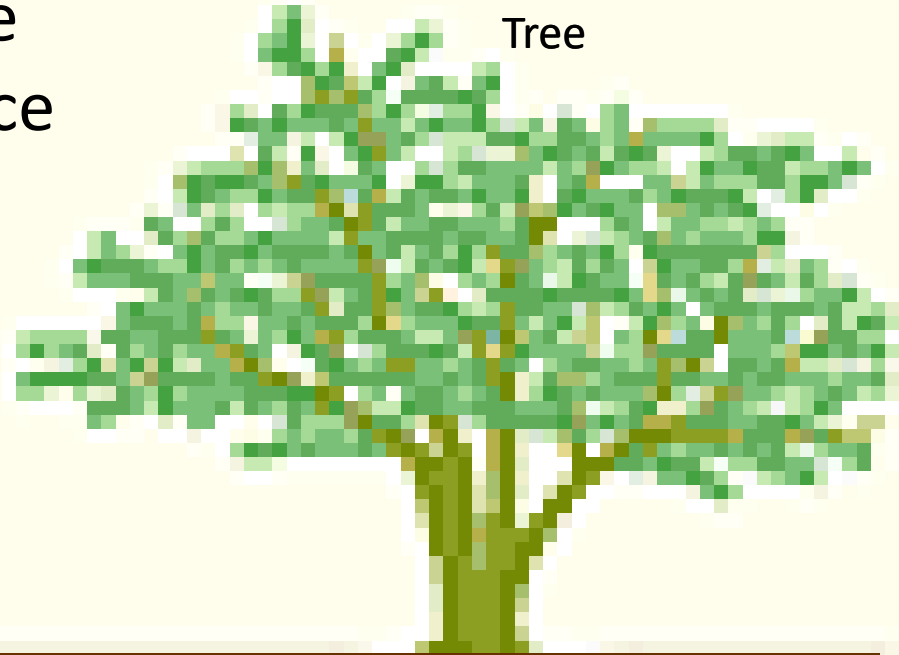
1 inch

Shrub

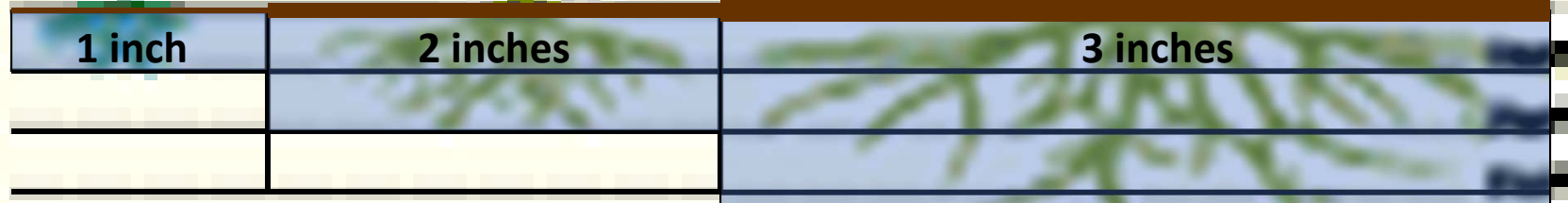


2 inches

Tree



3 inches



# Irrigation Types

1.Flood (Furrow)

2.Sprinkler

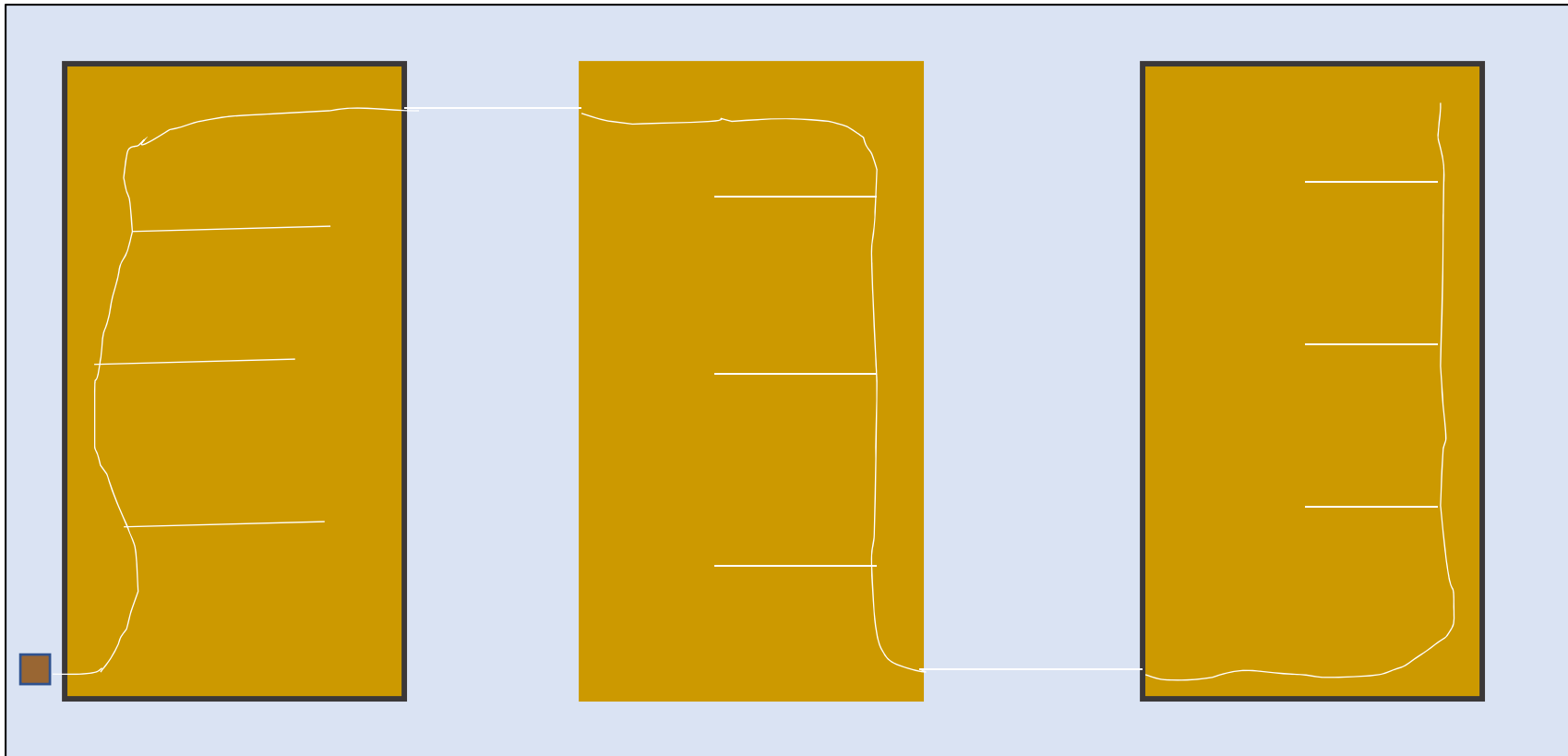
3.Soaker hose

4.Drip

# Examples



# Poly-tube placement



# PVC & Poly-tube

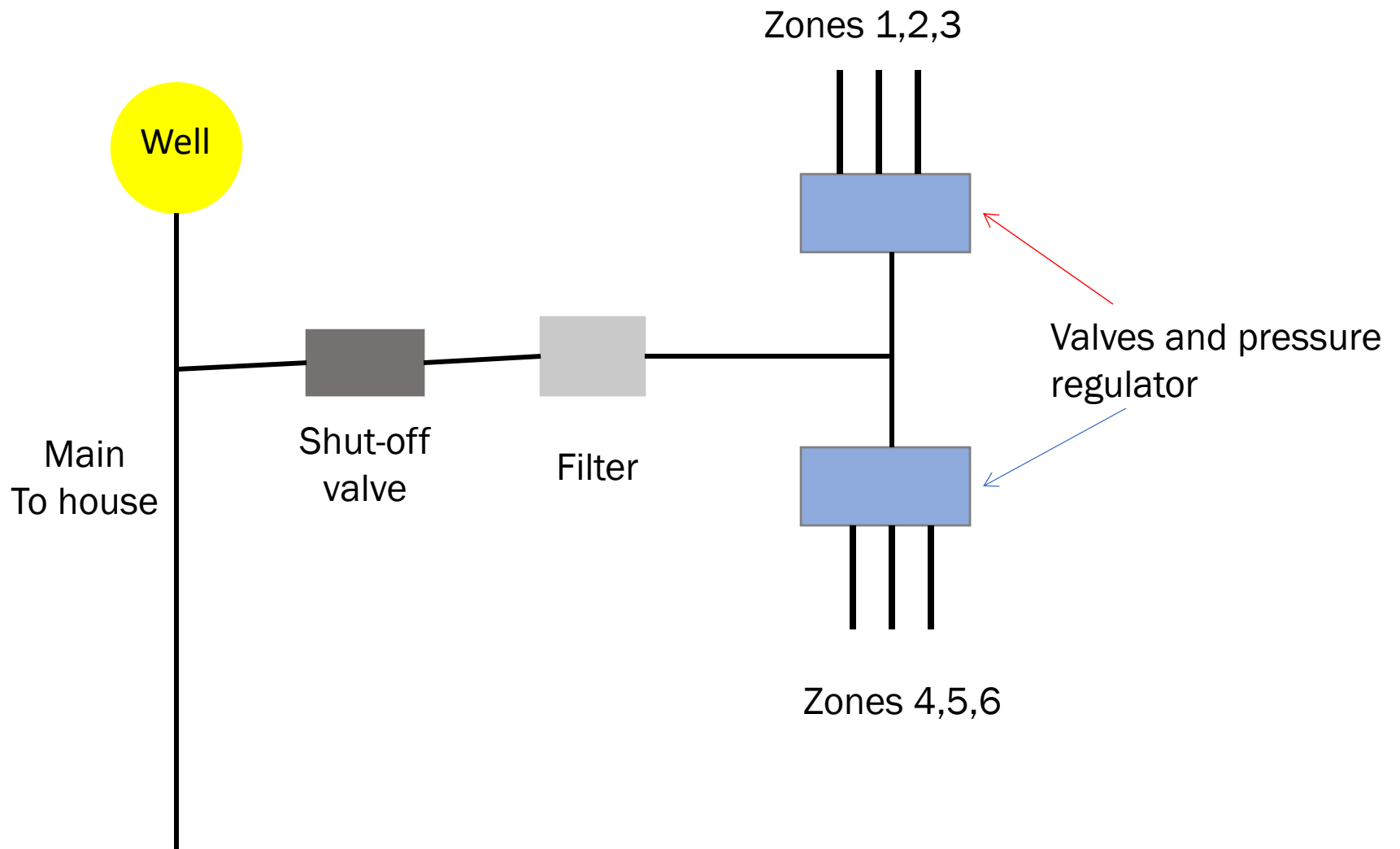
## Sub-assemblies (PVC):

1. Shut-off valve
2. Pressure regulator
3. Filter
4. Backflow preventer
5. Valve(s)
6. Timer

## Sub-assemblies (Poly-tube):

1. Hose bib
2. Timer
3. Pressure regulator
4. Backflow preventer
5. Filter
6. Poly-tube, spaghetti tube, connectors, emitters

# Set-up



# Controllers





# PVC



## PVC contd.

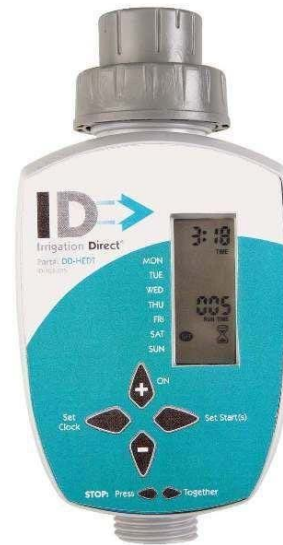


### String size:

3-5/16" = 3/4" PVC

4-1/8" = 1" PVC

# Poly-tubing



# Poly-tubing contd.



# Questions????



# Gray Water

# Gray Water

Gray water is non-toilet waste water.

Gray water may contain:

Grease

Hair

Detergent

Cosmetics

Dead Skin

Food Particles

Small amounts of fecal matter

# Gray Water Use

What gray water can be used?

Don't use water from	OK to use water from
Dish-washer Kitchen sink Laundry w/diapers	Shower / bath Sinks Washing machine

Dish-washer and kitchen sink water is considered dark or black water.



## Impact on Plants

- Use on edible plants not recommended (except citrus & nut trees); best used on landscape plants
- Cautions:
  - Soaps and detergents are biodegradable but can be a problem with extensive use
  - Cleaning agents contain sodium salts (can damage plants)

## More Cautions

- Avoid detergents that advertise “softening power” (contain sodium-based compounds)
- Phosphates in detergents are good for plants, but those detergents also contain large amounts of sodium
- Washing machine – cut down or eliminate bleach, do not use detergents that contain boron (too much could be toxic to plants)
- For household cleaning, use products with ammonia rather than bleach

## How to apply

- Bucket or modified household plumbing
- Apply directly to soil surface (don't spray)
- Don't use with drip emitters (will clog)
- Use on flat areas; avoid run-off
- Apply over large area; don't concentrate on one site
- Alternate use of gray w/ fresh water to leach soil contaminants
- Apply thick organic mulches to speed decomposition of waste residues

# Legal Guidelines

Resources –

- ADEQ (Arizona Department of Environmental Quality)
- General permit (ARS 49-204)

# Questions????

