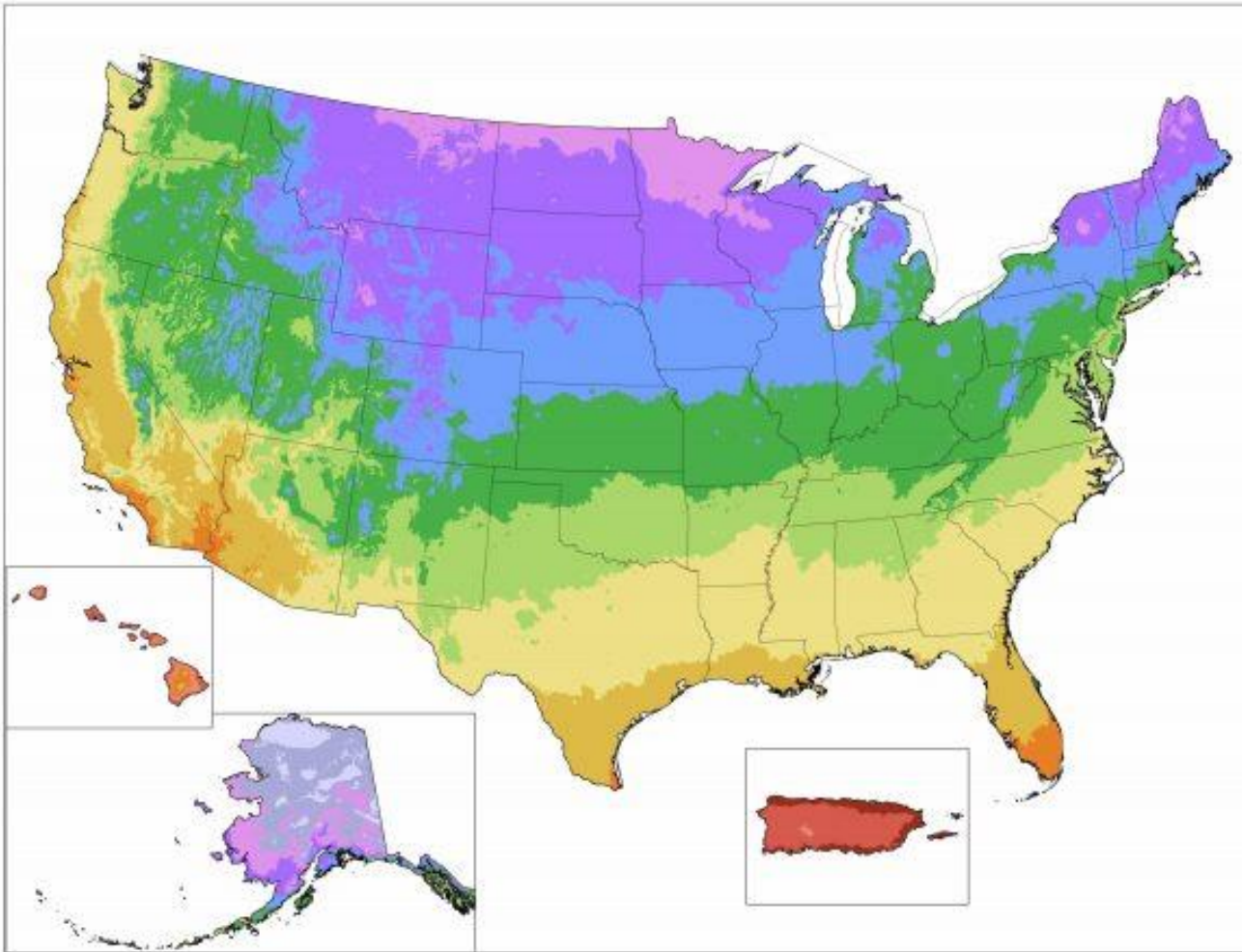# Home Gardening Irrigation Considerations

Table of Content

- Know Your Environment
- Irrigation Requirements
- Irrigation Methods
- Acknowledgements

Know Your Environment

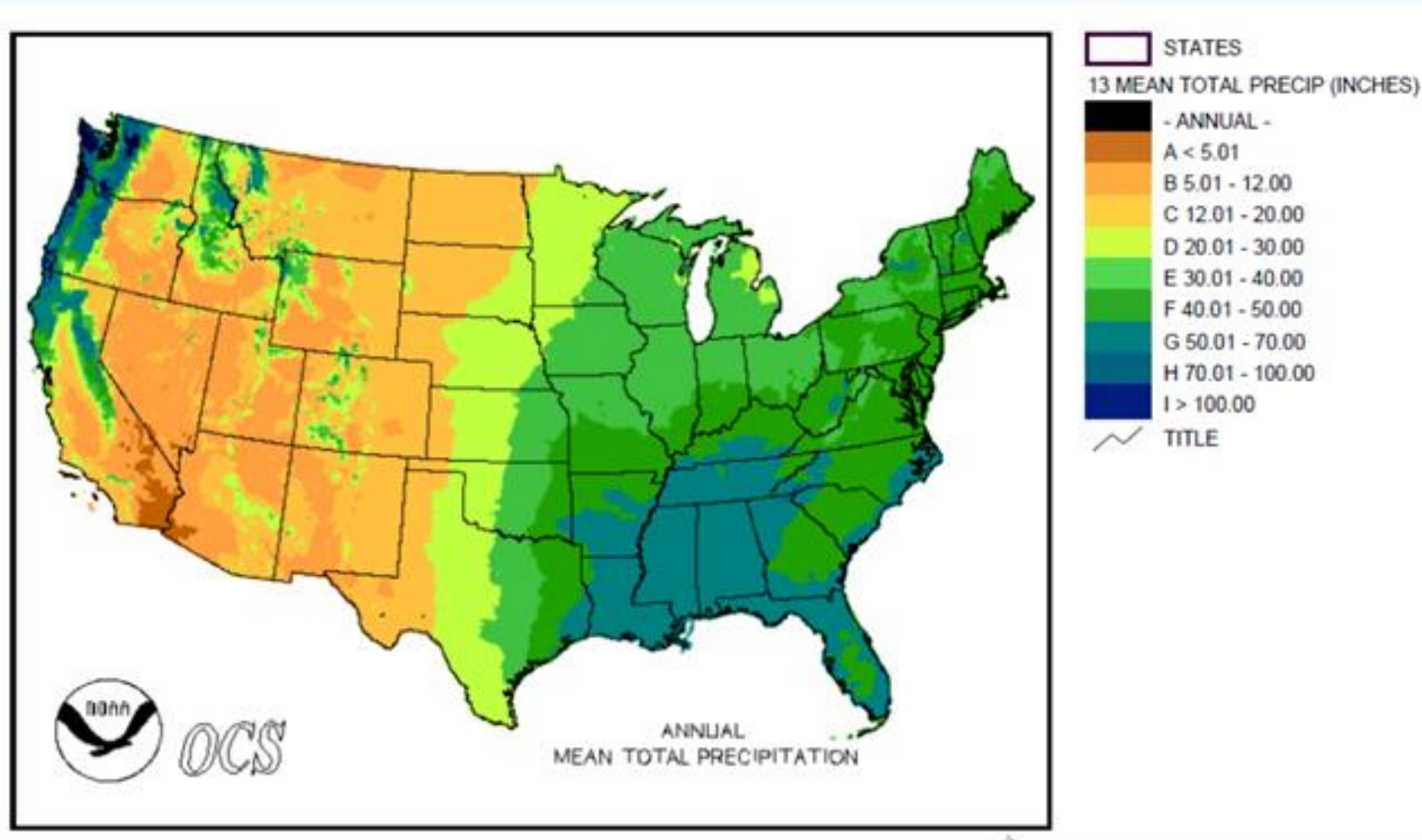*Micro-climates – sun exposure; heat sources; wind patterns*

Temp (F)	Zone	Temp (C)
-60 to -50	1	-51.1 to -45.6
-50 to -40	2	-45.6 to -40
-40 to -30	3	-40 to -34.4
-30 to -20	4	-34.4 to -28.9
-20 to -10	5	-28.9 to -23.3
-10 to 0	6	-23.3 to -17.8
0 to 10	7	-17.8 to -12.2
10 to 20	8	-12.2 to -6.7
20 to 30	9	-6.7 to -1.1
30 to 40	10	-1.1 to 4.4
40 to 50	11	4.4 to 10
50 to 60	12	10 to 15.6
60 to 70	13	15.6 to 21.1

Average Annual Extreme Minimum Temperature 1976-2005

Know Your Environment

Local weather – Supplement "effective precipitation"

ANNUAL MEAN TOTAL PRECIPITATION

STATES
13 MEAN TOTAL PRECIP (INCHES)
- ANNUAL -
A < 5.01
B 5.01 - 12.00
C 12.01 - 20.00
D 20.01 - 30.00
E 30.01 - 40.00
F 40.01 - 50.00
G 50.01 - 70.00
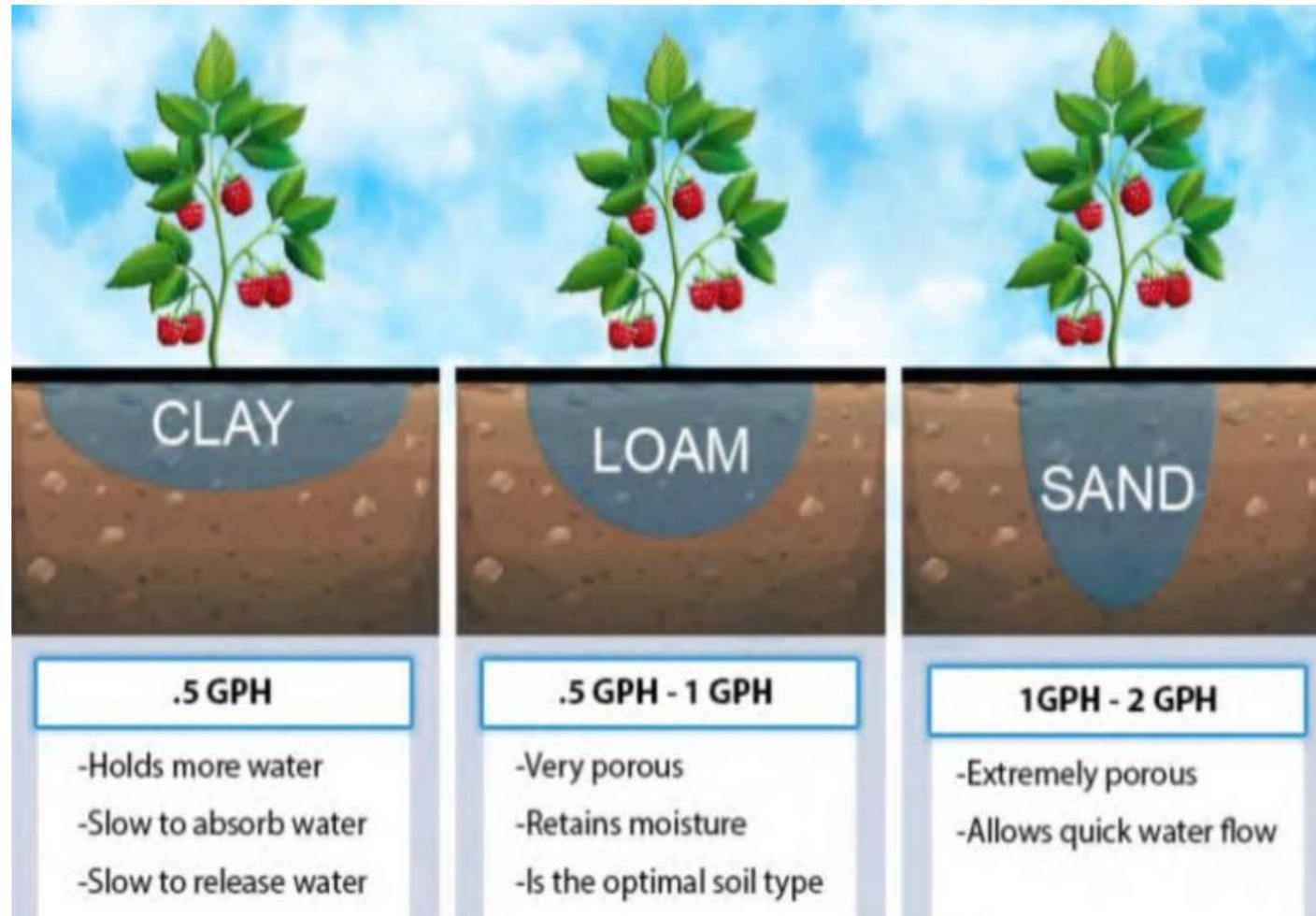H 70.01 - 100.00
I > 100.00
TITLE

Irrigation Requirements

- Water supports vital plant functions:
  - Photosynthesis
  - Support / rigidity / turgor
  - Transpiration
  - Transportation of nutrients and sugars to various plant parts here

- Vegetables Need at Least 1'' of Water per Week
  - 65 gallons per 100sqft
  - 27,000 gallons per acre

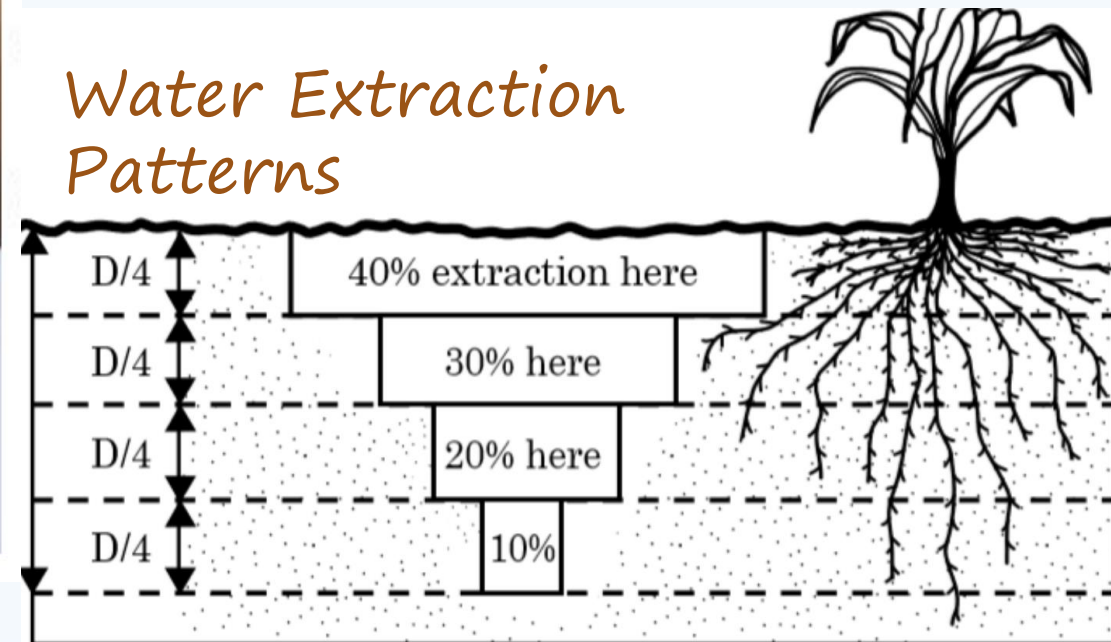- Overwatering is as bad as underwatering

Irrigation Requirements

Soil Drainage Patterns

CLAY — .5 GPH
- Holds more water
- Slow to absorb water
- Slow to release water

LOAM — .5 GPH - 1 GPH
- Very porous
- Retains moisture
- Is the optimal soil type

SAND — 1GPH - 2 GPH
- Extremely porous
- Allows quick water flow

Water Extraction Patterns

D/4	40% extraction here
D/4	30% here
D/4	20% here
D/4	10%

Irrigation Requirements

HOW OFTEN DO YOU NEED TO WATER YOUR GARDEN?

Plant	When to Water	Gallons Needed
Bell Peppers	Steady watering from flowering through to harvest time	2 per week
Cucumber	Frequently during flower and vegetable development	1 per week
Tomato	During the first month after transplanting, and when flowers/fruit form	>1, twice per week
Zucchini	Frequently, at all stages of growth	1 per week
Corn	When tassels form on cobs, and cobs begin to swell	2 at each stage listed
Basil	Regularly, keeping soil moist	Water as needed
Kale	Regularly, keeping soil moist	Water as needed
Potatoes	As soon as potatoes begin to form, and again when they are the size of marbles	2 per week
Peas	When flowers form, during pod formation, and during picking	2 per week
Carrots	During root development, and again before soil is completely dry	1 during root development, then 2 every 2 weeks
Lettuce	Water frequently at all stages of growth	2 per week
Onions	Infrequently under normal conditions, or during early stages during dry weather	1/2 - 1 per week if soil is dry

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INCORRECT

FREQUENT, LIGHT WATERING

Shallow roots
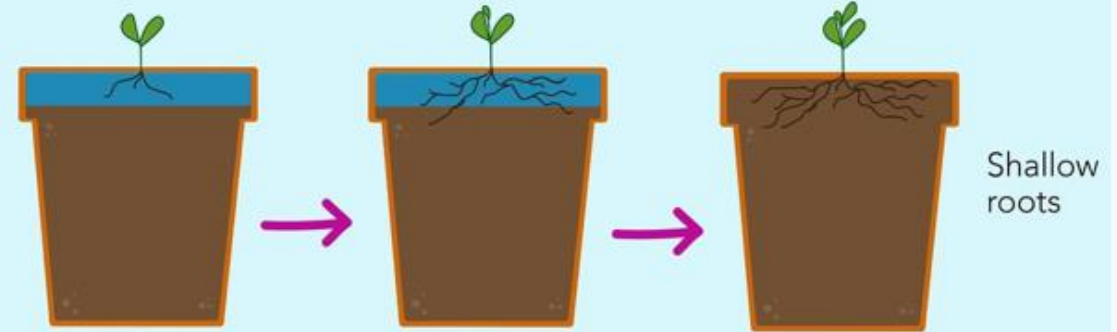
CORRECT

INFREQUENT, HEAVY WATERING

Roots chase water to bottom of pot
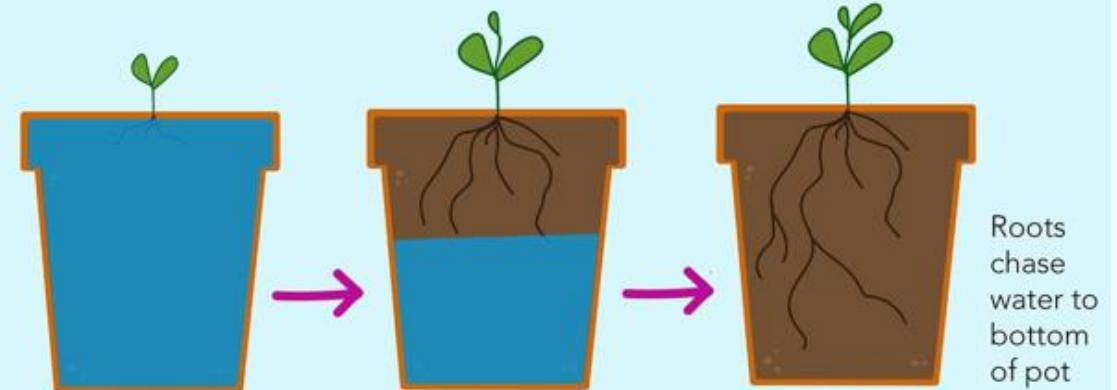
Irrigation Methods
Historical Irrigation System
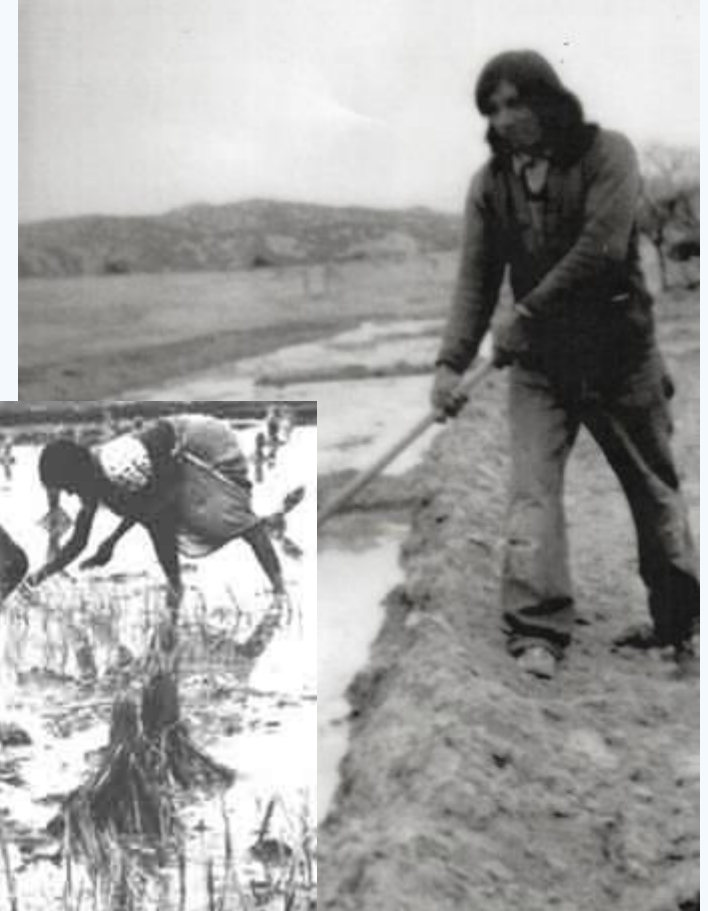
Irrigation Methods
DYI Irrigation System

Repurpose Bottle Irrigation System

Bucket Irrigation System

Rainwater irrigation System

Irrigation Methods
Waffle/Bowel Garden Irrigation System

Irrigation Methods

Furrow Method Irrigation System

Coarse Textured Soil

Fine Textured Soil

Dry Soil   WetSoil

Dry Soil   WetSoil
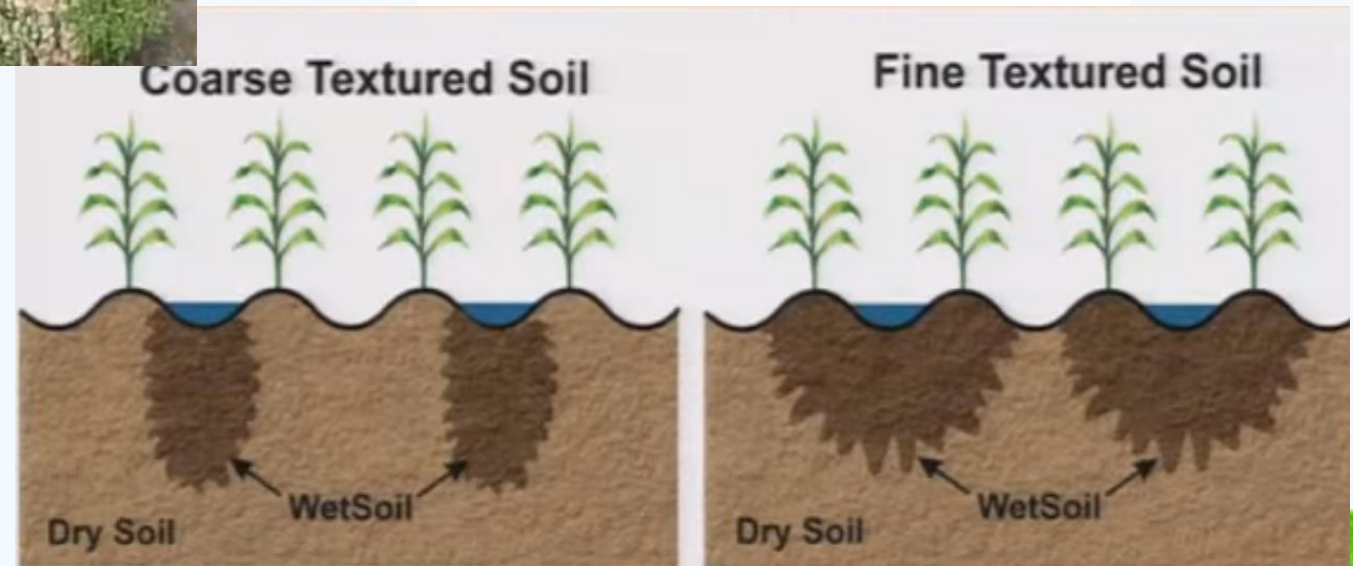
Irrigation Methods

Soaker Hose Irrigation System
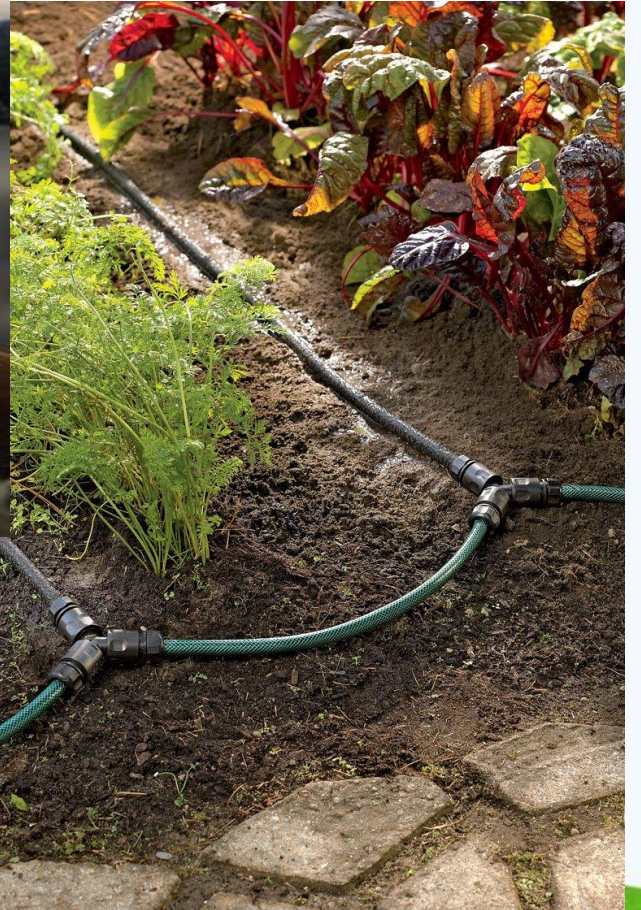
Irrigation Methods

Outdoor Drip Irrigation System

Irrigation Methods
PVC Pipe Irrigation System

Irrigation Methods
Flood Irrigation Systems

Irrigation Methods
Ditch Irrigation Systems

Acknowledgements

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