

**PLNT 1213**  
**Note outline**

**Cropping environment**

Chapters 10 and 14

**Objectives:**

Understand soil physical properties that influence plant growth

Describe the role of water in a cropping system

**Soil**

What is soil?

Soil develops as a result of

Soil horizon

There are 4 major soil horizons (you will learn more in SOIL 2124!). They are:

A horizon
B horizon
C horizon
R horizon

How does soil affect plants?

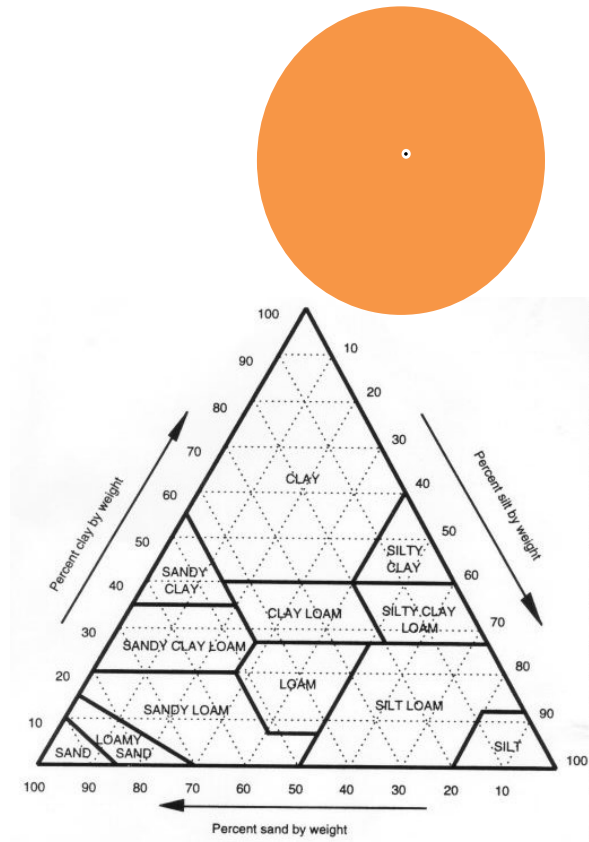
Soil tillth

**Soil properties that influence plant growth:**

1. \_\_\_\_\_

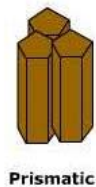
Soil particle size

Soil textural triangle



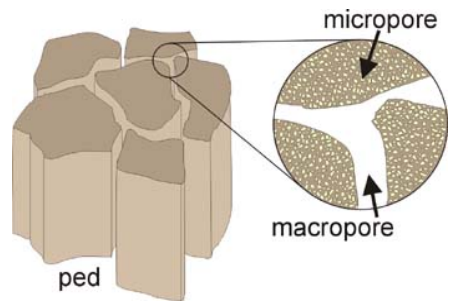
What is the texture of a soil that is 40 % sand, 10% silt, 50% clay?

2. \_\_\_\_\_

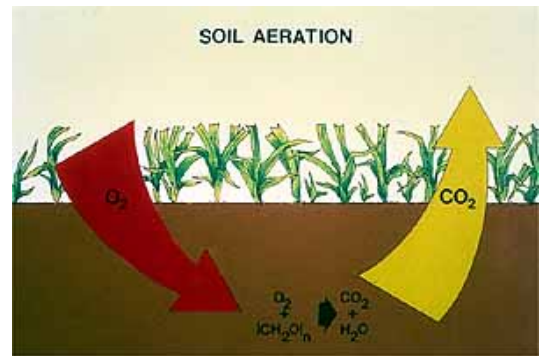


3. \_\_\_\_\_

4. \_\_\_\_\_



5. \_\_\_\_\_



6. \_\_\_\_\_

Plants need water

1.

2.

3.

The critical times of water need are:

Water use is influenced by:

1. the plant
2. the environment

### The plant

Transpiration

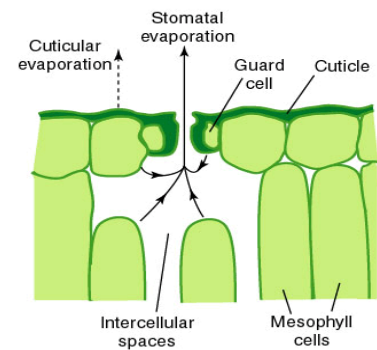
1.

2.

3.

Plant water use efficiency

WUE =



### The environment

Evapotranspiration.

Factor	Crop water need	
	High	Low
Temperature		
Humidity		
Windspeed		
Sunshine		

## Irrigation

Gravity flow irrigation



Sprinkler irrigation



# Microirrigation



To be most effective, irrigation timing should be carefully planned.

## Sources of irrigation water

Groundwater

Surface water

Salinization



## **Tillage and Soil Conservation**

Chapter 12

Objectives:

Understand the reasons for tillage

Know tillage methods

Describe conventional and conservation tillage

Know soil conservation practices

### **The goals of tillage**

1.

2.

3.

### **Types of tillage**

Primary tillage

Primary tillage implements

1.

2.

3.

4.

Secondary tillage

Secondary tillage implements

1.

2.

3.

4.

### **Tillage systems**

Conventional tillage

Advantages

Disadvantages

Soil erosion

Conservation tillage

Advantages

Disadvantages

Types of conservation tillage systems

1.

2.

3.

4.

**Additional soil conservation practices**

1.

2.

3.

4.

5.

6.

### **Importance of soil conservation**

1.

2.

3.

### **Soil conservation history**

Soil Conservation Service

Soil and Water Conservation Districts

Natural Resources Conservation Service

Examples of NRCS conservation programs