

CHAPTER 21: WHAT IS A PLANT?

I. Introduction

- A. Plants are multicellular autotrophs.
- B. Plants use chlorophyll to photosynthesize
- C. The oldest plant fossils are dated to be 500 m.y.a.

II. Land Adaptations

A. Preventing water loss

1. **Cuticle**- a waxy clear covering on the leaves and stems.
2. **Leaves**- a broad flat structure for photosynthesis. Leaves turn toward the light for max. photosynthesis.
3. **Roots**- anchor the plant into the ground, absorb water and minerals from the soil. Food storage in the winter.
4. **Stems**- transport water and minerals up to the leaves. Transport food products down to the roots. some plants store food in the stems. Ex. sugar cane.
5. **Reproduction**- Seeds contain plant embryos, food supply, and a protective coating. Plants reproduce with seeds or spores.

III. Plants, People, and Food

- A. **Corn**- the most grown crop in the U.S.
products: starch, oil, sugar, meal, cereals, alcohol,
animal feed
- B. **Wheat**- the most grown crop in the world (1/3 of the land)
products: cereals, pasta, breads, flour
- C. **Rice**- Basis of the diet in Asia, used to feed humans.
Only grain that can be grown under water.
products: rice grain, rice flour
- D. **Potatoes**- origins in S. Am. moved to Europe in the
1500's. High in amino acids, Vit. B,C, Ca, Fe and
carbohydrates.
- E. **Oats**- Native grain to Europe. Eaten by humans and
animals. High in carbohydrate, amino acids, Vit. B,
minerals.
- F. **Barley**- first grown in 6000 B.C., used in cereals and
soups. Can be grown in harsh lands where other crops
won't grow.
- G. **Sorghum**- major food crop in Africa. Sorghum flour and
hay is used for animals.
- H. **Other plant uses**: Lumber, fuel, vegetables, medical.

IV. Survey of Plants

A. Non-seed plants

1. There are 7 Divisions of non-seed plants.
 - a. 3 nonvascular, non-seed divisions. pg. 585-586
 - b. 4 vascular, non-seed divisions.
2. **Vascular, Non-Seed plants** (cloned offspring)
 - a. Psilophyta(whisk ferns). Air fern. 10-13 species.
neither roots nor leaves. most tropical.
 - b. Lycophyta (club mosses) 1000 species.
Have leaves, stems, roots. 25 cm tall.
 - c. Sphenophyta (horse tail) 15 species.
Hollow jointed stems, scalelike leaves.
 - d. Pterophyta (regular ferns) 12,000 species
Have roots, stems, leaves. large leaves up to
500 cm. Most common in the tropics.
3. **Seed Plants** (sexual reproducing offspring)
3 divisions of Seed Plants
 - a. **Ginkogophyta**- 1 species living.
Ginkgo biloba - tree with fan shaped leaves used
in health extracts.
 - b. **Coniferaphyta**- 550 species, the cone trees
They produce seed in cones, with no fruit
surrounding the seed.

c. **Anthophyta** - 240, 000 species, flowering plants.

The most recent of the plant fossils. Two groups.

1. Monocots- one seed leaf. EX. corn, grass
2. Dicots- two seed leaves. EX. rose, daises, most flowers.