

Lesson 1: Importance of Plants

Plants and their role in the survival of humans and animals on this planet are irreplaceable. Plants provide food, shelter, clothing, and a variety of other benefits. People will always need what plants provide; however, most plants can survive without people. Research and study continue to reveal new discoveries and uses of plants. Technology continues to make possible the means by which the growing demands for food and fiber from plant sources can be met.

The Importance of Plants

Plants play an important part in the food chain. Many animals depend on plants for their survival. Since the earliest recorded history, ancient civilizations have been concerned with providing food for their people. Plants have always played a major role in providing food.

As the human population increased, hunting and gathering could no longer provide enough food. Agricultural practices that involved large scale production of food crops such as corn, wheat, oats, barley, and rice enabled farmers to provide enough food for humans and livestock.

Nonfood products can also come from plants. Fiber crops provide many needed products. Cotton, hemp, flax, jute, and sisal are all fiber crop species, with cotton being the most widely grown. Production of fiber crops provides the raw materials needed to produce products like clothing, bedding, rope and cords along with other textiles.

Most plants can survive without any assistance from humans. However, people cannot survive without plants. Aside from the production of food and fiber crops, plants provide much more. Plants and the processes involved with plant growth are beneficial to the environment.

The Environment

Plants play a major role in the environment. All forms of life need energy for growth and maintenance. Plants, algae, and some bacteria are able to take energy from

the sun and convert it into food. This process is known as photosynthesis. Life forms that are unable to obtain energy through photosynthesis must eat plants or other animals that eat plants in order to get their energy.

During the process of photosynthesis, plants absorb water from the soil and carbon dioxide from the air. Water and carbon dioxide combine with energy from the sun to produce carbohydrates (food) for the plant. This process produces oxygen. Without oxygen, people cannot live. Plants provide some of the food humans eat and the oxygen they breathe.

Besides using carbon dioxide, plants act as holding organisms for carbon dioxide (carbon sinks). Carbon sinks are extremely beneficial to humans. Carbon dioxide is a natural component in the environment. A problem arises when natural carbon dioxide levels are increased by exhaust from industries and automobiles and when plants are destroyed. The removal of trees and underbrush creates an imbalance in the environment. Care must be taken when altering the balance of these natural processes.

Soil erosion is another problem that plants can reduce or prevent. Trees, bushes, and grasses help break the force of pounding rains, fast moving surface water, and damaging winds. Soil is a precious natural resource that must be conserved. Certain agricultural methods in crop production, such as leaving crop residues (corn stalks or wheat stubble) on the field, help to prevent soil erosion. These crop residues and grasses can be turned into the soil to increase the organic content and quality of the soil.

Another major role of plants in the environment is beautification. People spend millions of dollars on beautifying homes, cities, businesses, towns, interstates, restaurants, etc. Cut flowers, houseplants, indoor trees, gardens, etc., provide a more pleasing environment. Plants can change the environment. They can be used as sound barriers (block out traffic noise) or visual barriers (block off an unappealing view). Grasses can be used for recreational areas such as football and softball fields.

Plant Science

Crops and Origins

There are many food and fiber crops grown in the U.S., but very few are native to this country. Of all the food crops grown in the U.S., corn is the only crop native to North America. Corn was introduced to the Pilgrims by the Native American Indians; however, it is believed to have originated in southern Mexico.

There are many stories about how the different food crop species were introduced to the North American continent. Table I.1 helps identify some common crop plant species grown in the U.S., the time period when they were introduced, their origin, and their uses.

Table I.1 – Crop Origin

Crop	Introduced into the U.S.	Origin	Crop Use
Barley	Pilgrims	Abyssinia & Southeastern Asia	Food, feed
Corn	A.D. 700	Mexico	Food, feed, oil, alcohol, industry products
Wheat	Shortly after the discovery of America by Columbus	Southwestern Asia, Euphrates and Tigris Valleys	Food, feed
Oats	Shortly after the discovery of America by Columbus	Eastern Europe or Western Asia	Food, feed
Rice	1964 – South Carolina	Southeast Asia	Food, some oil, industrial use
Peanuts	Early days of Colonization	Brazil	Food, oil, feed
Potatoes	Between 1705-1749	South America	Mainly food, some feed
Sorghums	Early days of Colonization	Africa and India	Sugars, feed, industrial uses
Cotton	Actual date not known – found on the Continent when discovered by Columbus	Mexico and India	Fibers, oil from seeds, feed, food from seed
Flax	1800s	Mesopotamia, Assyria, Egypt	Oil, feed, industrial uses
Soybeans	During early colonial period	China	Food, feed, oil
Alfalfa	Introduced into what is now known as Mexico by the Spanish in the 1500s. Introduced into California in the early 1840s.	Different alfalfa plant species come from different places (e.g., Russia, India)	Forage crop for feed

Uses

Plants are used in a variety of ways. One obvious use is in the production of food and fiber crops. Researchers also use plants. Biotechnology (genetic manipulation) is used to produce genetically superior plants. Crossbreeding is also used to produce hybrid varieties of plants with specific desirable qualities. If a disease or pest-resistant plant species is needed for a certain location in the world, biotechnology or crossbreeding can be used to develop such a variety.

Plants are also used in the production of nonfood products. Examples of nonfood products include medicines, clothing, rubber, perfumes, and spices. Even though scientists continue to work on developing synthetic products, plants continue to be the primary producers. Plants are used for beautification in lawns, parks, etc.

Summary

Plants and plant products provide many things for the world. They provide food, fibers, and oxygen. Humans cannot survive without plants.

Credits

Bishop, D.D., S.R. Chapman, and L.P. Carter. *Working in Plant Science*. New York: McGraw-Hill, 1978.

Janick, Jules, Robert W. Schery, Frank W. Woods, and Vernon W. Ruttan. *Plant Science: An Introduction to World Crops*. 2nd ed. San Francisco: W.H. Freeman and Company, 1974.

