

## Producer organisms: .....Week 2

Producer organisms ; are plants and bacteria which are said to be autotrophic , in that they take inorganic compounds and manufacture organic materials and living protoplasm from them . All green plants and algae are producers since they exhibit photosynthesis , and some bacteria are producers since they may exhibit photosynthesis and chemosynthesis .

### Consumer organisms :

Consumer organisms ; are animals which utilize the organic materials directly or indirectly manufactured by plants, and they are said to be heterotrophic . Consumers may be classified into two main categories :

1. Primary consumers ; are herbivores which feed directly upon primary producers : examples are seed- eating birds and zooplankton which feed upon phytoplankton . Plant parasites , are consider as herbivores .
2. Secondary consumers ; are carnivores , omnivores and scavengers .

Carnivores or predators , are secondary consumers which feed upon herbivores : examples are birds which consume the leaf- eating insects and fish or aquatic insects which feed upon zooplankton . Animal parasites , are consider as carnivores .

Omnivores or multilevel consumers , are secondary consumers which feed as both herbivores and carnivores . Man is an example of herbivores in consuming vegetables and of carnivores in eating meat .

Scavengers , are a special type of secondary consumers which feed upon dead and decaying plant and animal materials . As examples , sea gulls and eagles are animal scavengers , but insects and earthworms are plant scavengers .

### Decomposer organisms :

Decomposer organisms are bacteria and fungi which degrade organic compounds into simpler inorganic compounds . Their nutrition is said to be saprophytic , that is associated with rotten and decaying organic material . Decomposers are the digestive organisms of an ecosystem , they reduce the complex organic molecules of dead plants and animals to simpler inorganic compounds which can be absorbed by green plants as vital nutrients .

### **Incomplete ecosystems:**

**These are ecosystems lacking one or more basic components of an ecosystem . All ecosystems have the four basic components** , though in some cases it is possible for incomplete ecosystems to exist . An example , of an ecosystem lacking producers is **the abyssal depths of the sea** , where complete darkness prevents the growth of producers, thus only consumers and decomposers exist . Similar ecosystems without producers include **the caves** and **the central core of the city** .

Incomplete ecosystems lacking consumers also exist in special cases in aquatic ecosystems , where **the massive bloom of some toxic algae would create toxic conditions for zooplankton and fish and all other possible consumers** . This phenomenon is called " **red tide** " in marine environment . A third type of incomplete ecosystems called **abiotic ecosystems** , that is , ecosystems with no living organisms . Thus , these ecosystems should more properly be called **abiotic environments** . **Moon** and several areas on earth , such as, the **high altitude ice plateau of Antarctica** and some **polluted areas with toxic fumes from copper smelters** , are all examples of such abiotic environments .

### **Ecosystem development:**

**Biotic communities changes with time as their plant and animal communities change . This process is known as " succession "** , and it involves a sequence of community types from **pioneer stages to developmental and finally to mature or climax stages** . Each community in the series is known as a seral stage , which represents an ecosystem with a certain properties of **production, species diversity, and stability** . Pioneer stages of ecosystems , usually tend to have **greater production , lower species diversity and less stability than mature stages** . In fact, **pioneer and developmental stages** are more favored in agricultural practices, which based on ecosystems with more production than consumption , but need Protection . Thus in agriculture , weeds and pests must be controlled by cultivation , pesticides , or any other form of control .