

Topic: Food Shortage

Introduction

In all habitats, producers provide the food that support all consumers either directly or indirectly. In a well established habitat, population sizes of the various species are adjusted to the quantity of food that is available in the habitat. Certain factors can, however decrease the food supply to the habitat causing food storage.

Causes of Food Shortage

The following factors are responsible for shortage of food in a habitat:

1. **Overpopulation:** An increase in population without a corresponding increase in food supply tends to create food shortage.
2. **Poor storage facilities:** Lack of or inadequate storage facilities to store excess produce do result in losses leading to food shortage.
3. **Flood:** The occurrence of flood in a particular year may result in destruction of crops and farmlands which can also lead to food shortage.
4. **Drought:** Severe drought can lead to poor agricultural activities resulting in the production of little food. This eventually leads to food shortage.
5. **Pests:** Crops may be attacked by pests, e.g. pests like locusts, aphids, grasshoppers, weevils etc can attack crops leading to low yield. The poor harvest from such crops can lead to food shortage.
6. **Diseases:** Various diseases of plants and animals reduce production hence food shortage will occur.
7. **Bush Burning:** Bush burning also lead to the destruction of useful soil organisms, reduces soil fertility and expose the soil to erosion. These conditions of the soil can lead to poor yield and subsequent food shortage.
8. **Poor harvest:** Poor harvest or low yield of crops and animals due to one problem or the other can result in food shortage.
9. **Infertility of the soil:** Soil infertility due to erosion or bush burning lead to poor yield of crops which can also cause food shortage.

10. **War:** During wartime, attention is not given to food production and this leads to food shortage.



Factors Affecting a Population

A number of factors referred to as environmental resistance control the population of organisms in a particular habitat.

These factors are classified as abiotic and biotic factors.

Abiotic Factors

The abiotic factors comprise the following;

1. **Heat:** The degree of hotness of a place can determine the size of population. Hot environment generally is not conducive for habitation as organisms tend to run away from such areas. Heat can cause stress and death of individuals.
2. **Water:** Availability of water in a habitat determines the rate of survival of the population. While availability of water can cause increase in population, lack of it can decrease a population.
3. **Space:** Space is very important to all organisms for normal growth and development. Lack of space leads to overcrowding and competition among organisms.
4. **Light:** Light is an important abiotic factor especially in plant community. Without light, green plants (producers) will not be able to manufacture the food needed in a habitat. Low light intensity also can result in weak plant growth and development.
5. **Nutrients:** Plants require nutrients in the soil to synthesize their various food substances. Lack of nutrients can result in stunted growth and poor yield of crops.

Biotic Factors

The biotic factors are made up of the effects of other plants and animals on a given organisms.

Examples of biotic factor are:

1. **Competitions:** Competition involves the interactions among two organisms of the same species or different species in which one neither outgrows the other nor survives while the other cannot grow nor survive.
2. **Parasitism:** This is a close association between two organisms in which one called the parasite lives in or on, and feeds at the expense of the other organisms called the host. The parasite benefits from the association while the host usually suffers harm or even die.
3. **Commensalism:** Commensalism neither is an association between two organisms living together in which only one (the commensal) benefitted nor is harmed.
4. **Predation:** Predation is a type of association between two organisms in which the predator kills the other called the prey and feeds directly on it.
5. **Pathogens:** These are micro-organisms which can cause diseases in plants and animals leading to their reduction through death.
6. **Mortality:** Mortality is the death rate of organisms (plants or animals) in an environment. Mortality generally reduces the population of organisms in any habitat.
7. **Migration:** This is the movement of organisms either into a new habitat (immigration) or out of a habitat (emigration). These movements usually have effects on the other organisms inhabiting that habitat.
8. **Dispersal:** Dispersal is the spreading of new individuals from their parents to new habitat so as to start a new life in the new environment. Such spreading habits may affect the lives of other organisms in the new area.
9. **Natality:** This is the rate of giving birth to new offspring. Natality is generally known to increase the population of the habitat which will subsequently lead to certain problems among the organisms in that habitat.

10. **Food:** Availability of food in a habitat generally leads to increase in population while lack of food leads to starvation and dearth.
11. **Diseases:** Diseases are known to reduce the population of organisms (both plants and animals) in any habitat.
12. **Pest:** Pests are also known to affect the performance of plants in terms of yield and growth, in severe cases, the plants may even die.

iii. **Edaphic factors:** These consist of soil, its water, chemical and physical composition, its pH, its nutrient, profile, structure and texture.

Dynamic Equilibrium

The factors which affect population size include abiotic factors such as temperature, water, space etc and biotic factors such as food, competition, parasite etc. When these factors are favourable, growth is promoted, but when they are scarce or unfavourable, growth is retarded.

A factor which limits population growth is called **limiting factor** and the sum of all limiting factors is known as **environmental resistance**.

The net effect of these abiotic and abiotic factors is that at a point, the population size of living organisms tends towards a dynamic equilibrium known as **balance in nature**. When the population increases, the environmental resistance increases too. This means that when population is on the increase, the available food tends to decrease. This calls for competition which will later lead to death of the weaker organisms, thereby keeping the population relatively constant.

Human beings are able to control the population by family planning and birth control whereas in nature, biological equilibrium is attained by predator – prey relationship.

Family Planning/Contraception

Family planning is a device by which couples (husband and wife) determine the number of children they want and when they want them.

Birth control on the other hand refers to a method used to prevent a woman from becoming pregnant for as long as she wishes. Many parents decide to have a few

number of children so they can afford to cater for their feeding, clothing, housing, education and medical care.

Without family planning, the population of a nation can rise indiscriminately and may not be able to match the available food and other resources, hence famine and death can result.

It is very important to point out that family planning is centred on prevention of pregnancy rather than termination of life (abortion). When family planning is carefully carried out, the issue of unwanted pregnancy is prevented.