

SS 2 BIOLOGY WEEK TWO (2)

FOOD PRODUCTION AND STORAGE

CONTENT

- ✓ Introduction
- ✓ Role of Government in Agricultural Food Production
- ✓ Environmental Factors Required for Food Production
- ✓ Ways of Improving Crop Production
- ✓ Effects of food shortage on population
- ✓ Methods of food preservation
- ✓ Effects of food storage overpopulation

STEP I: INTRODUCTION

Food production depends on the following

1. Role of government in agricultural production
2. Environmental factors required for food production
3. Ways of improving crop production

STEP II: ROLE OF GOVERNMENT IN AGRICULTURAL PRODUCTION

The role of government in agricultural production include

1. Provision of agro-chemicals
2. Provision of financial assistance.
3. Provision of high-quality planting materials
4. Provision of tractors and other implements
5. Provision of extension services
6. Establishment of river basin authorities
7. Provision of storage and processing facilities
8. Provision of effective transportation network
9. Efficient quarantine measures
10. Provision of research work

STEP III: ENVIRONMENTAL FACTORS REQUIRED FOR FOOD PRODUCTION

Environmental factors affecting food production include the biotic and abiotic factors.

Abiotic factors include

- I. Rainfall II. Temperature III. Wind IV. Sunlight V. Relative humidity VI. Solar radiation

Edaphic factor soil pH, soil texture, and soil structure.

Biotic factors affecting food production include I. Soil organisms II. Pests III. Parasites IV. Diseases V. Weeds VI. Predators

STEP IV: WAYS OF IMPROVING FOOD PRODUCTION

Food production can be improved by;

1. crop improvement method,
2. proper timing of plant,
3. adoption of better cultivation methods,
4. control of weeds,
5. use of good crop varieties,
6. use of resistant variety,
7. use of manures and fertilizers,
8. control of pests of crops,
9. control of diseases of crops.

STEP V: EFFECTS OF FOOD SHORTAGE ON POPULATION SIZE

There is a direct relationship between population size and food supply. As the population of organisms increases, the quantity of food produced should increase accordingly. However, when there is a food shortage due to food wastage, the following result:

-High cost of food making food unavailable to the common man.

-Competition: Situation in which the organisms in a population struggle for limited available essential of life e.g. food. This results in survival of the fittest in the population.

-Cannibalism: This is an animal feeding on one another.

-Emigration: This is the outward movement of organisms from a particular population when there is a shortage of food.

-Increased death rate (which is called mortality): especially of organisms which could not survive competition or migrate out.

STEP VI: METHOD OF FOOD PRESERVATION

1. **Refrigeration/Freezing:** This involves keeping food in the refrigerator or freezer at low temperature. Such food includes fruit, vegetables, milk, bread, fish, meat etc. Low temperature reduces the metabolic rate of microbes. Some can even be killed thus reducing spoilage considerable.

2. **Pasteurization:** This is the heating of some food product to a very high temperature (72°C) for about 10 minutes and its immediate cooling for the purpose of storage. The high temperature destroys the spoilage microbes. Milk, cheese, beef can be preserved this way. Pasteurization usually precedes canning or bottling method of food preservation.

3. **Canning/Bottling:** This is the storage or sealing of processed and consumable food in cans or bottle under special conditions for future consumption. This is used for food like fruit, meat,

fish, and beans. etc. Microbes are gradually killed, the entrance of new ones is prevented and long storage is ensured.

4. Irradiation: This is the subjection of some food e.g. Milk, Canned food, tubers, fruit juices etc, to high radiation such as ultraviolet rays. The irradiation kills the microbes in the food and also prevents the entrance of new ones.

5. Chemicals: This is the addition of harmless chemicals to food e.g. soft drink, vegetables etc. Principle: The chemical choke spoilage organisms in the food. It also dehydrates or detoxicates the microbes.

STEP VII: EFFECTS OF FOOD STORAGE ON POPULATION

1. Prevention of hunger and famine: Hunger or famine that would have resulted from food shortage is averted with the preservation of food.

2. Maintenance of stable price: During harvest, food is cheap. However, food storage ensures the availability of food throughout the year. This helps in the maintenance of a stable price.

3. Reduce the effect of natural disaster, flood, earthquake, pest attack and even war cause farm crop failure or destroy entrance farm activities. Food already stored etc. harvest will save people from starvation in the period of scarcity.

4. Food storage provides employment for workers, especially in food processing company.

SUMMARY: The primary aim of agriculture is to provide adequate food for an ever increasing human population. The issue of food production, preservation, storage and wastage has been challenging to both the agriculturist and the government.

HOMEWORK

1. What are the effects of food storage on the population?
2. Highlight ways of improving food production.
3. Mention four abiotic factors that affect food production.
4. List the edaphic factors that affect food production.
5. What is pasteurization?