Saint Andrew's High School
Form 4 Agricultural Science
2022

Semester 1, Week 1 notes

Strand 10.1 Crop Production

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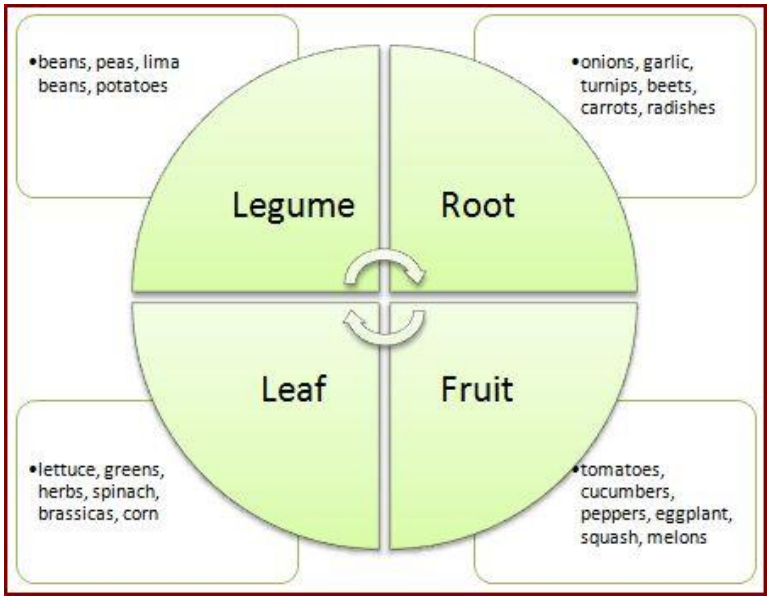
Topic 1: **Crop Production (Field Practices)**

I. Crop Rotation

- Is a system of varying successive crops in a definite order on the same ground, especially to avoid depleting the soil and to control weeds, disease and pests.
- Crop rotation can be grown plants with different types of crops in succession. For example types of crops: root, leaves, fruit, flowers, legumes. The first year you plant a crop harvested for its root. The following year you plant a crop for fruits and on.



a. Importance of Crop Rotation

- Crop rotation helps to maintain soul structure and nutrient levels and to prevent soul borne pests from getting a foothold in the garden. When a single crop is planted in the same place every year, the soil structure slowly deteriorates as the same nutrients are used time and time again.

b. Factors influencing crop rotation

- There are numerous factors that must be taken into consideration when planning a crop rotation. Planning an effective rotation requires weighing fixed and fluctuation production circumstances.
    - Market
    - Farm size
    - Labor supply
    - Climate
    - Soul type
    - Growing practices

II. Cropping System

- Refers to the crops, crop sequences and management techniques used on a particular agricultural files over a period of years.
- For example, mixed cropping, mono cropping

c. Mono cropping

- Is the agricultural practice of growing a single crop year after year in the same land, in the absence of rotation through other crops or growing multiple crops in the same land.

Advantages

- The farmer can optimize his or her operations given that growing requirements, planting.
- Maintenance (including pest control) and harvesting will be the same across the farmed land.
- Crops that are best suited for the land can be planted so that soul and climate specificities since as winds, droughts or a short growing season, don't impact the yield as much.

Disadvantages

- Put our long term food production potential at risk
- Depletes valuable soil nutrients that plants rely on
- High cost in compensated for deficient or plant nutrients.

d. <u>Inter cropping</u>

- Is the practice of growing two or more crops in one piece of land
- The most common goal of intercropping is to produce a great yield on a given lives of land by making use of resources that would otherwise not be utilized by a single crop.

Advantages

- Gives additional yield income/unit area than sole cropping;
- It helps to avoid inter-crop competition and thus a higher number of crop plants are grown per unit area;
- Inter cropping system utilizes resources efficiently and their productivity is increased
- Better utilization of growth resources like nutrients, light, and moisture.

Disadvantages

- Intercropping is not always suited to a mechanized farming system. Time consuming: It requires more attention
- increased intensive
- , expert management.
- There is reduced efficiency in planting, weeding and harvesting which may add to the labour costs of these operations.

e. Mixed cropping

- Is a system of sowing two or three crops together on the same land, one being the main crop and the others the subsidiaries. For example, growing wheat and gram in the same land at the same time is mixed cropping.

Advantages

- The risk of total crop failure due to uncertain monsoon is reduced.
- Chances of pest infestation are greatly reduced.
- Fertility of the soil is improved by growing two crops simultaneously.

Disadvantages

- Seeds of two crops are mixed before sowing and there is no definite pattern for sowing the seeds.
- Products of different crops are harvested, threshed, marketed and consumed in mixed form.

f. Shifting Cultivation

- Isa a system of cultivation in which a plot of land is cleared and cultivated for a short period of time, then abandoned and allowed to revert to producing is normal vegetation while the cultivator moves in to another plot.

Advantages

- Simple growing method
- Small investment
- No need of animal labour power
- Reduce incidences of soil borne disease
- Pest management are the main beneficial aspects

Disadvantages

- Leads to deforestation
- Loss of fertility of a particular land
- Leads to Soil erosion
- Burning of trees causes air pollution
- Insufficient cultivation of crops for a large population.

III. **Mulching**

<u>What is Mulch?</u>

- A layer of material placed on soul surface

g. Types of mulch used in Agriculture

- Organic materials (bark, wood chips, leaves, banana leaves, grass clippings, etc.
- Inorganic materials (plastic, gravel, pebbles, or woven ground cloth, etc

h. Importance of mulch

- Improves soul
- Eases maintenance
- Improves plant performance- Additional roots form in the mulch layer, yielding more roots than an un mulch ed plant
- Adds beauty to the landscape
- Suppresses weeds
- Organic materials improves soul structure and fertility
- Buffers soul temperature
- Prevent soul compaction
- Minimizes erosion
- Chemicals that inhibit plant growth
- Fresh mulches have these chemical peripheries
- Both positive and negative effects
- Can inhibit weed growth
- Can inhibit weed seed germination and growth of young bedding plants

Organic Mulching

- Organic mulching are those natural origin materials which can decompose naturally, like agricultural wastes which are used as mulch, such as bark chips, grass clippings, plant leaves, compost, sawdust, etc.

Advantages of organic materials

- Organic mulches can suppress annual weeds
- Offer other important benefits, such as: organic matter, nutrients, moisture conservation, soil protection, and moderation of soil temperature

Disadvantages of organic materials

- Expensive to transport because it is bulky

Plastic Mulching

- Plastic mulch is a product used in plasticulture in a similar fashion to mulch, to suppress weeds and conserve water in crop production and landscaping.
- Materials, such as sawdust, straw, manure, paper, and black plastic. Longer than 2-mil plastic.

Advantages of plastic materials

- Increasing the soil temperature
- Intensifying sunlight
- Preserving soil moisture to reduce drought
- Improving fertilizer use efficiency
- Conserving soil
- Reducing weed growth

Disadvantages of plastic materials

- Hard to dispose of
- Excessive heat
- Excessive Moisture