

Crop Production

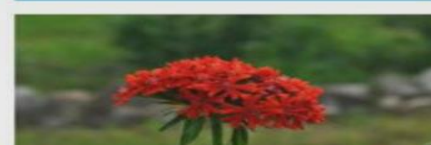
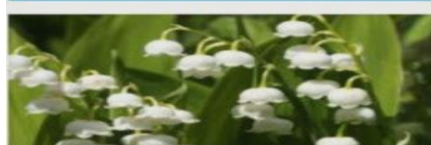
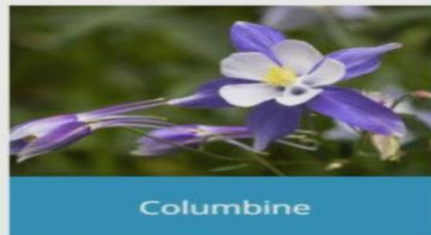
Agriculture

- Science that deals with growing crops and rearing animals

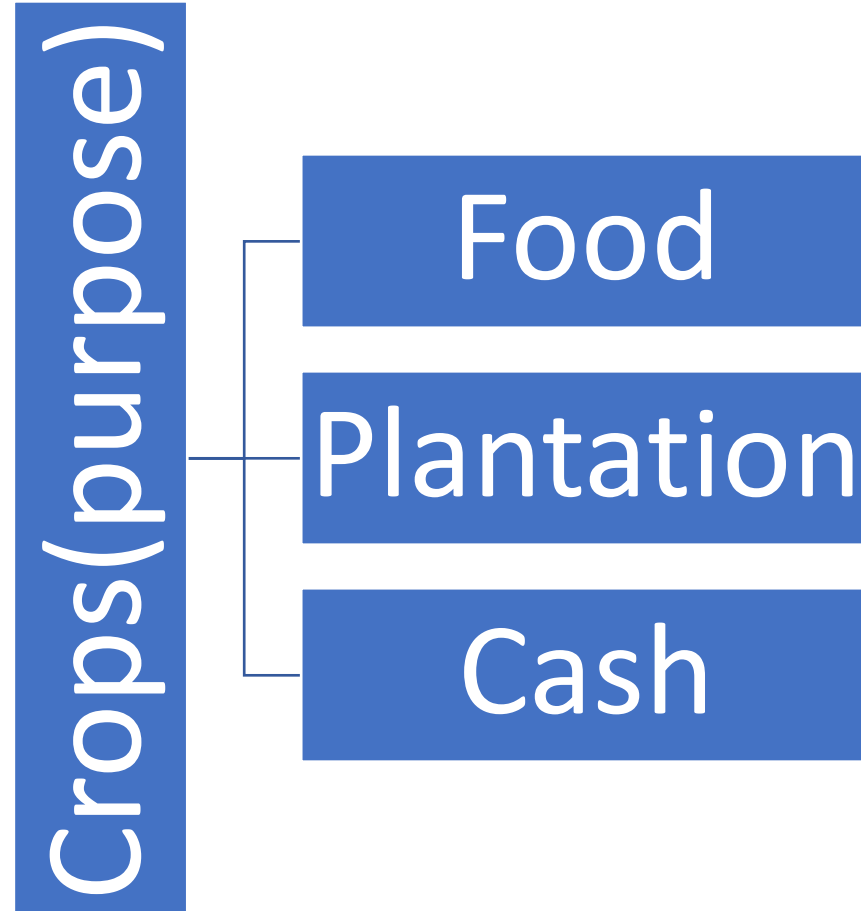
Horticulture

- Branch of agriculture
- Deals with production of vegetables, fruits, flowers and decorative plants.

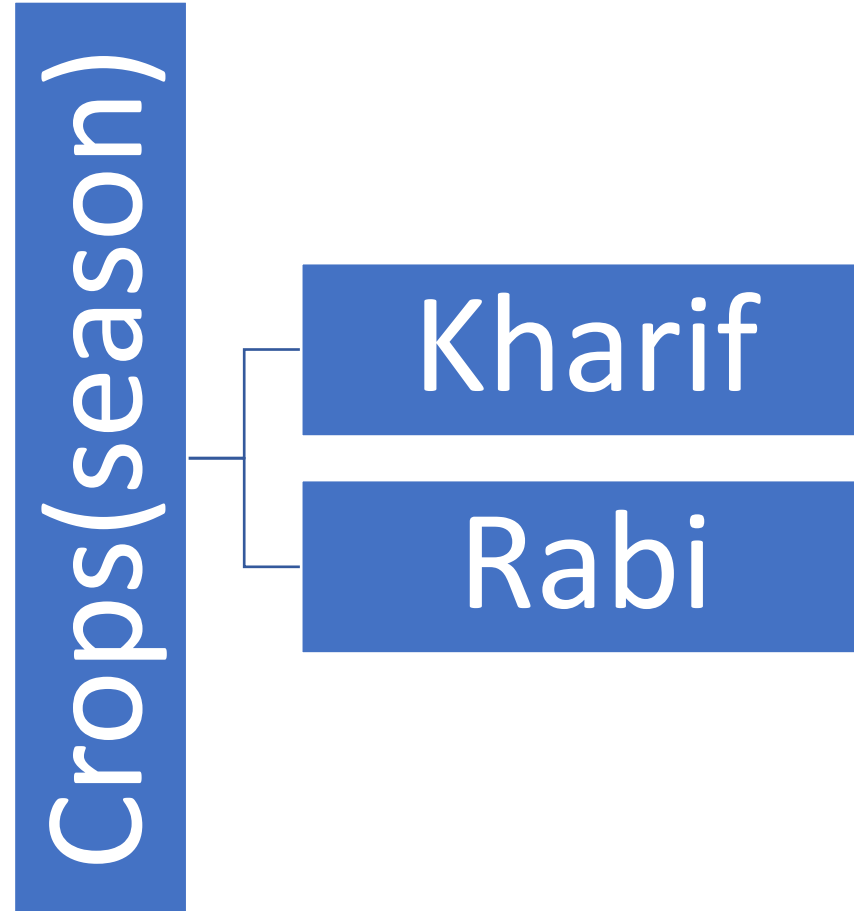
Decorative plants



Crop Plants



Crop Plants



Methods of Crop production:

- Preparation of soil
- Seed selection and Sowing
- Manuring
- Irrigation
- Weeding
- Protection from pests and diseases
- Harvesting
- Threshing and Winnowing
- Storage

Preparation of soil

- Loosening and Turning
- Process – Tilling or Ploughing
- Big lumps - levelled – Wooden or Iron leveller



Seed selection and Sowing

- Seed – Good quality, healthy and free from diseases
 - Planted at proper depth and distance
 - Manually – Broadcasting
 - Seed drill
 - Activity – To separate healthy seeds from unhealthy ones
- <https://youtu.be/Cjz10xwaqQY>

Manuring

- Natural methods:
 - Field Fallow
 - Crop rotation
 - Mixed cropping
- Using Fertilizers and manures
 - Green manure – legumes, rye grass(kambu), fenugreek
 - Compost – rich in organic nutrients – decomposition of dead plants and animal waste using Bacteria and fungi
 - Fertilizers – human-made chemicals - NPK



Irrigation

- Supplying right amount of water to crops at the right time
- More yield
- Rain – vary, does not supply enough
- Sources – rivers, reservoirs, lakes, ponds, wells and tubewells

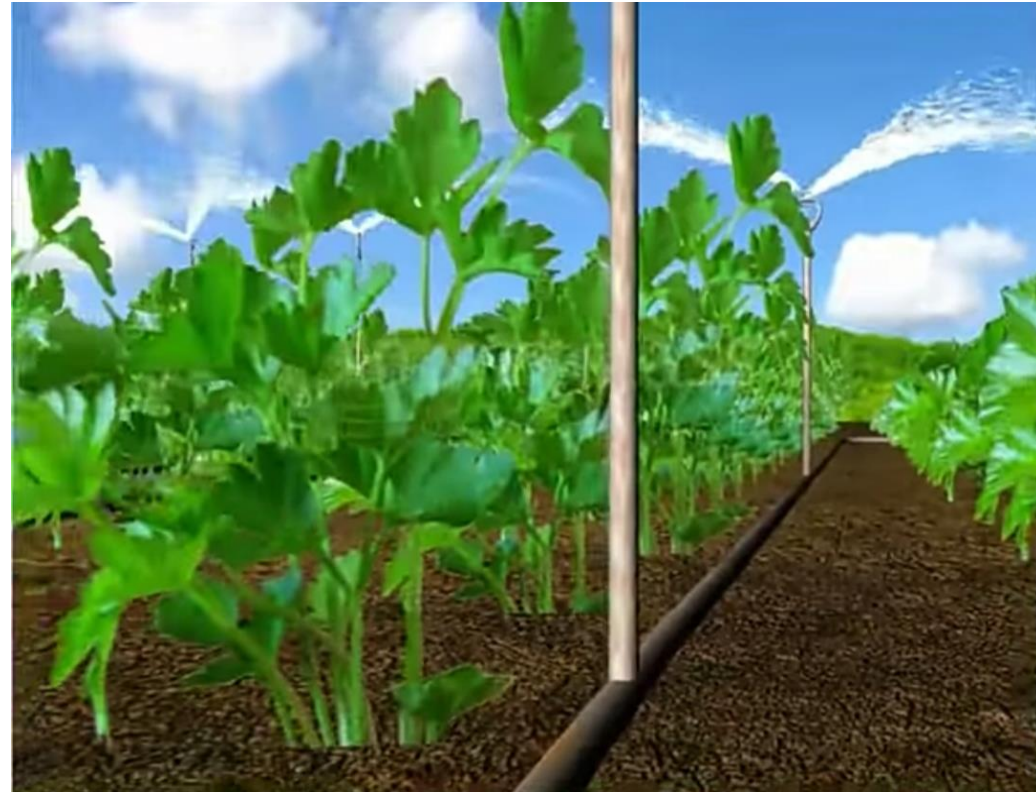


Irrigation

- Waterlogging – replaces air in the soil with water
- Reduces the supply of air to the roots of plants
- Stops the growth of the plants
- Increases the amount of salt in the soil – harmful for crops

- <https://youtu.be/j9GQbylwm18>

Modern methods of Irrigation:



Weeding(removing weeds from field)

- Unwanted plants
- Compete with crops
- Reduce crop yield
- Spreads very fast
- Different types – crops, place and season

Weeds(competitive plants) - Examples

- Palmer amaranth – cotton
- Parthenium weed
- Yellow starthistle
- Giant sensitive tree



Weeding

- Manually
 - Pulling by hand using trowel or harrow
- Spraying herbicide or weedicide
 - Dalapon
 - Metachlor
 - Siniazine
- Insects
 - Under research



Protection from pests:

- Pests – organisms that attack and damage crops
- Examples:
 - Rodents (eat the grains)
 - Insects (Damage the crops and grains)



Protection from pests:

Locusts



Termites



Protection from pests:

Pest control:

- Pesticides – poisonous chemicals used to kill pests, their eggs and larvae without affecting plants
- Sprayed at correct time in the correct dosage
- Sprayed by hand- operated machines or by low-flying aircraft

Weevils



Protection from pests:

- Insecticides – used to kill insects
- Rodenticides – used to kill rodents
- Examples – malathion and disyston

Protection from diseases:

- Caused by fungi, bacteria or virus
- Transmitted through seeds, air, soil and insects
- Wheat – fungal disease – rust and smut
- Potatoes – fungal disease – blight
- Wilt – bacteria – block xylem tissue – water cannot be conducted up



Protection from diseases:

Smut

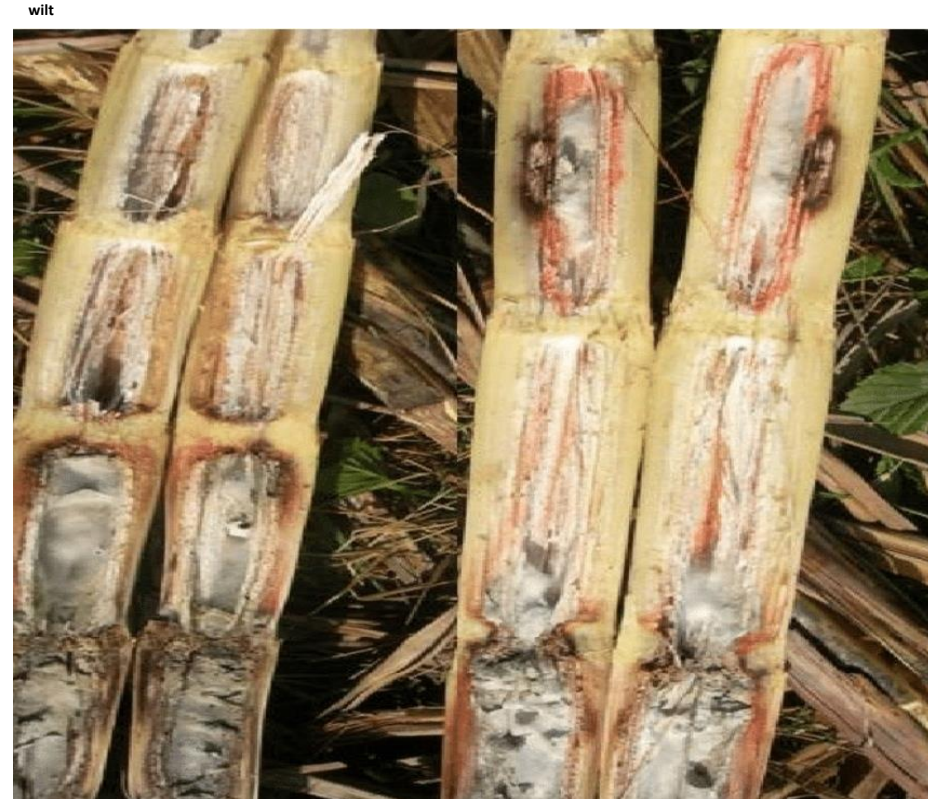


blight



Protection from diseases:

- Fungicides – to destroy fungi
- **Caution:**
 - Kill useful insects like honeybees
 - Humans – Irritation of skin, respiratory problems
 - Able to mix with soil and water – absorbed by plants -enter our body through fruits and vegetables



Precaution Steps:

- Wash them carefully before eating

Harvesting(cutting and gathering)

Manually(sickle)



Machine(harvester) -combine

- <https://youtu.be/B316IVUr3jU>

Threshing(separation of grain from the cut crop)

Manually(oxen or buffaloes trample over)-stepping heavily

- <https://youtu.be/Wd4ootCEbt4>

Machine (Thresher)

- <https://youtu.be/Wd4ootCEbt4>

Winnowing (grain has to be separated from the chaff or husk)

Manually(wind)

Winnowing



Winnowing Machine

- <https://youtu.be/VfvCTyM8YN0>

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Winnowing:

- Stem of the crop – cut into small pieces – used as cattle fodder
- Stubs(unused part) were left in the field - burnt by farmers – pollution
- Safer way - Left in the field – to minimize erosion, return nutrients, to increase soil organic matter, to increase soil water holding capacity , to suppress weeds and to minimize soil water evaporation.

