Improvement in Food Resources

Chapter Flowchart

The Chapter Flowcharts give you the gist of the chapter flow in a single glance.

Food Resources

Food supplies proteins, carbohydrates, fats, vitamins and minerals needed by body.

Plants

- Has been main source of food
- Products: cereals, pulses, vegetables, fruits, etc.

Improvement in crop yields

- Green revolution contributed in increases in food grain production
- Growth of plants and flowering are dependent of sunlight

Crop Variety Improvement

- Varieties tolerant to high soil salinity developed
- Varieties grown in diverse climatic conditions developed
- Done to increase yield, quality, resistance, adaptation and characteristics

Breeding

- Science of changing genetic composition of plants to produce a superior quality
- High yielding varieties of paddy: Pusa 205, IR 8.
- High yielding varieties of wheat: Sonara 64, Hira

Crop Production Improvement

- Farmer's purchasing capacity for inputs decides cropping system and production practices
- Different levels of production practices: 'no cost' production, 'low cost' production, 'high cost' production

Nutrient management

- 16 essential nutrients are supplied to plants by air, water and soil
- Of these, 6 nutrients are require in large quantities (macronutrients) and the other 7 in small quantities (micronutrients)

Irrigation

Irrigation systems adopted:

- **Wells :** In dug wells water is collected from water bearing strata and in tube wells water is tapped from deeper strata
- **Canals :** Receive water from reservoirs or rivers and is branched into distributaries
- River lift systems: Water is directly drawn from rivers
- Tanks : Small storage reservoirs

Cropping Pattern

Different ways adopted for maximum benefit

Crop Protection Improvement

- Technique of protecting and growing crops and preserving agricultural products from natural enemies like insects, weeds, etc.

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Genetics engineering

Introducing a gene from one organisms to otherthat provides desired characteristics

Hybridisation

Cross between different varieties (intervarietal) or different species of same genus (interspecific) or different genera (intergeneric)

Manure

- Increase fertility and enriches soil with nutrients and organic matter
- Prepared by decomposition of animal excreta and plant waste

Fertiliser

- Commercially produced plant nutrients (nitrogen, phosphorus, potassium)
- Increase yield, ensure good vegetative growth and give rise to healthy plants
- Continuous use can destroy soil fertility

Compost

Formed by process of decomposition of farm waste materials in pits (composting) and by using earthworms to hasten process (vermicomposting)

Green Manure

Formed by ploughing plants like sun hemp or guar into the soil prior to sowing seeds

Crop Rotation

- Growing different crops on a piece of land in a preplanned pattern
- E.g., growing cereal and legume alternately

Mixed Cropping

- Growing two or more crops simultaneously on same piece of land
- E.g. wheat + gram or wheat + mustard

Inter Cropping

- Growing two or more crops simultaneously on same field in definite pattern
- E.g., soyabean + maize or finger millet + cowpea

Multiple Cropping

- Growing more than two crops in a year in the same field
- E.g., cotton + groundnut

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Animals

- Used as food either directly (meat) or Indirectly (animal products)
- Products: milk, honey, egg and milk products

Animals Husbandry

Scientific management of animal livestock
- Includes various aspects-feeding, breeding and disease control

Cattle Farming

- Dona for milk (milch animals) and draught labour for agricultural work (draught animals)
- Species of Indian cattle: Bos Indicus (cow). Bos bubalis (buffalo)
- Increase milk production by Increasing lactation period
- Increase cattle breed by crass-breeding foreign breeds (for long lactation period)
with local breeds (for disease resistance)

Bee Keeping

- Products of bee: honey and bee wax
- Quality of honey depends on pasturage and kind of flower available
- Indian varieties: *Apis cerana indlca* (Indian bee), *A. dorsata (rock bee),*
A. florae (little bee)
- Italian variety: *A. mellifera*

Fish Production

- Fish obtained by capture fishing (from natural resources) or culture fishing (by farming fish)
- Water source of fish—seawater or fresh water

Poultry Farming

- Undertaken to raise domestic fowl for egg and chicken meat
- Cross-breeding is done between Indian (e.g., Aseel) and foreign breeds (e.g.. Leghorn)

Egg and broiler production

- Fed with vitamin-rich supplementary feed
- Cleaning, sanitation and spraying
of disinfectants done at regular intervals
- Vaccinailon to prevent diseases

Pest Control

- **Pesls** cut root, starn and leaf of plant; suck cell sap from various parts; bore Into stem and fruits
- Controlled by pesticides Including herbicides, Insecticides and fungicides

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Inland Fisheries

- Marine water resources: 7500 km of coastline, deep seas
- Popular varieties: pomphret, mackerel, tuna, sardines, Bombay duck
- Some marine fish are farmed In seawaler: mullets, prawns, oysters, mussels

Inland Fisheries

- Fresh water resources: canals, ponds, reservoirs, rivers
- Popular varieties: Calla, Rohu, Mrigal, Common Carp, Grass Carp
- Methods of fish culture: aquaculture, growing in paddy fields, composite fish culture systems

Disease Control

- Diseases caused by bacteria, fungi and viruses.
- Pathogens present in and transmit by soil, water and air
- Controlled by spraying compounds of sulphur, mercury, arsenic, zinc and copper

Weed Control

- Weeds are unwanted plants In cultivate field, e.g., *Xanthium, Parthenium*
- Controlled by picking weeds manually, spraying weedicldes or herbicides, using Insects that feed on particular weeds

Storage of Grains

- Biotic (Insects, rodents, bacteria, etc.) and abiotic (moisture and temperature) factors damage grains
- Before storage grains should be cleaned, dried and fumigated to kill pests