

Crop Rotation

- ✓ Legumes :- converts atmospheric Nitrogen into Nitrogen oxide because it contains Nitrogen Fixing bacteria.

Crop Rotation Example			
Year 1	Bed 1	Bed 2	Bed 3
	Vegetable	Vegetable	Cereals
Year 2	Vegetable	Cereals	Legume
Year 3	Legume	Cereals	Tomato
	Bed 1	Bed 2	Bed 3

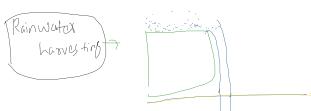
- ✓ mostly legumes are included in crop rotation to increase soil fertility.
- Fertilizers use is decreased.

Compost and Vermicompost

- ① using earthworms to hasten the process
- ② Vermicompost



River lift systems - Canal System fails.
River lift Systems bring water into produce

Bio Manure

6-8 weeks (Flowering stage)

1-2 months (budding).

conserving the soil in nitrogen and phosphorus.

Fertilizers

✓ commercially produced plant nutrient

✓ N, K, P.

→ fertilizers can't be applied in Juvenile Stage

Description

All living organisms require water - (humans as well as plants)

Photosynthesis
- sunlight, water,
- sunlight, CO₂

→ plants water requirement are fulfilled by rain. well

Irrigation → Fresh water resources

→ Rivers
→ water bodies

Dog wells

Wells - Two types of wells

Water bearing Shallow - Earth's layer where water is present.

Mixed cropping
Ex - Rice - 6 months

along with Rice, 3rd)
to cultivate some other crops which can be harvested in 2-3 months so that it can give more scope

Ex -
wheat + bean
leguminous crops
does Nitrogen fixation

at in crease the nitrogen in soil.

1.2

1.1
1.2
1.3
main crop
nitrogen rich
nitrogen poor

Inter-cropping is growing two or more crops simultaneously on the same field in a definite pattern [Fig.15.2]. A few rows of one

Methods to control weeds

uprooting of weeds with the help of hand shovels, ploughing etc.

(i) Mechanical methods - This include -

(ii) Preventive methods - Proper bed preparation.

(iii) Chemical methods - Timely sowing of seeds.

↓ Spraying weedicides.

→ Proper bed preparation.

→ Timely sowing of seeds.

→ Intercropping, crop rotation.

Pests

- insects or animals which destroy the crop plants are called pests

Generally insect pests attack the plants in three ways (i) they eat the root, stem and leaf, (ii) they suck the cell sap from various parts of the plant, (iii) they bore into stem and fruits. They thus affect the health of the crop and reduce yields.

Pests can be controlled by -

→ Using resistant varieties

→ Summer ploughing - Ploughed deep to destroy weeds & pests.

Cattle diseases

- Diseases are caused by pathogens like - bacteria, fungi & viruses
- Pathogens are transmitted through soil, water & air.
- Diseases are controlled by the use of -
 - Fungicides
 - Disease resistance Variety.

Storage of grains

During storage of grains, high losses can occur.
→ Factors responsible for losses can be:-

- (i) Biotic factor:- rodents, fungi, insects, mites & bacteria.
- (ii) Abiotic factors:- inappropriate moisture & temperature in the place of storage.

These factors cause:-

- Degradation in quality.
- Poor germination capacity.
- Discolouration of produce.
- Loss in weight.

These lead to poor marketability & economic loss.

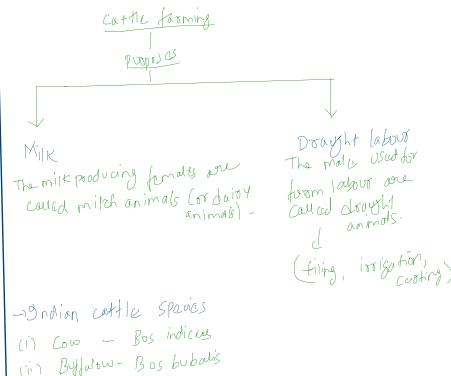
Preventive and control measures are used before grains are stored for future use. They include - proper cleaning, pest-free storage, proper drying of the produce first in sunlight and then in shade, and fumigation using chemicals that can kill pests.

With
Fumes you're killing
the pests-

Proper treatment & systematic management of warehouse

Animal husbandry

Scientific rearing of animal livestock-



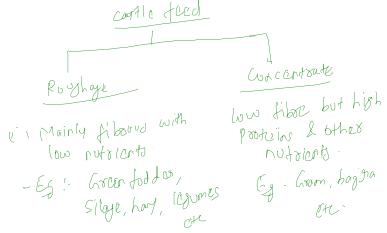
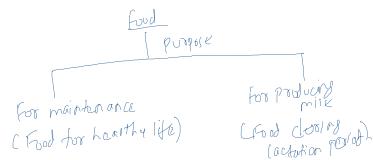
Lactation period → duration of milk production after the birth of a calf.

Breeds

- Exotic or foreign breeds (long lactation period)
 - Eg:- Jersey, Brown swiss
- Cross breeds (desired qualities)
- Indigenous or local breeds (desire qualities)
 - Eg:- Red Sindhi, Sahiwal

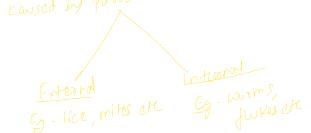
Farm management

- Regular brushing of animals to remove dirt & loose hair.
- Shelters should be well ventilated, roofed shed.
- The floor of cattle-shed needs to be sloping.
- Cattle Shed should be spacious & cleaned regularly.



Diseases

→ Diseases caused by parasites



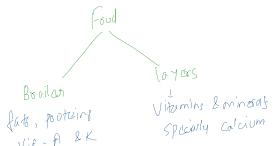
→ Infectious disease

→ Non infectious disease

• Vaccination can be given to farm animals against viral & bacterial diseases.



- purpose
- eggs → layers < white leghorn for eggs
- meat → Broilers → meat
- Breeds
 - Shantou broiler (Leg. Ascal)
 - foreign brood (Leg. Leghorn)
- Both Indian and Foreign breeds are crossed to get new variety with desirable trait like :-
- (i) Increase in the number & quality of chicks.
- (ii) Reduction in size of egg laying bird.
- (iii) During broiler period for commercial chick production (iv) Summer adaptation / tolerance to high temp.
- (v) Low maintenance requirement.



- care of poultry is taken :-
 - to avoid mortality (death).
 - to maintain feathering and carcass quality.
- ↑ (Caret).

- Management practices
 - Maintenance of temperature & hygiene in sheds.
 - Proper ventilation.
 - Proper food.
 - Prevention & control diseases & pest.

Diseases & their prevention

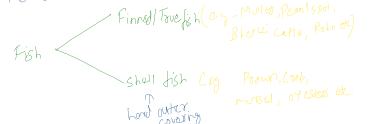
- Diseases are caused by - bacteria, virus, fungi, parasites nutritional deficiency

- Prevention :- proper cleaning, sanitation, spraying of disinfectants and vaccination.

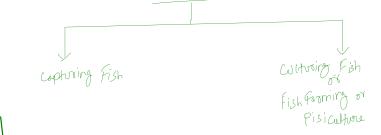
Broilers	Layers
i) Give us meat	i) Give us egg
ii) Their food mainly contains proteins, fat, vita-A & K.	ii) Their food mainly contain vitamins & minerals specially calcium.
iii) They require conditions for growth.	iii) They require enough light & space.
iv) Mature 1-2 weeks	v) Mature 3-4 weeks

Fish Production

Fish is the cheapest animal protein.



Fish Production



Marine Fisheries → Fish production

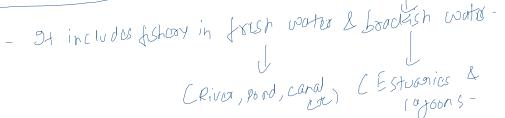
- ↳ means capturing & culturing of fish in marine water.

- It includes fishery in ocean and sea.
- Marine fishes - pomfret, tuna, Sardines, bamboo shark etc.

- Marine fish capture is done by fishing net & fishing boat, guided by echosounder & satellites.

- Some fishes are also farmed in seawater. This is called mariculture. Such fishes are bhetki, pomfret, oysters, pearl spot etc.

Inland Fisheries



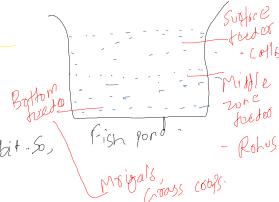
- Aquaculture = Farming of useful aquatic plants & animals.

- Some time fishes are grown in the paddy field.

→ Composite fish culture (Polyculture)

- Combination of 5 or 6 fish species is cultivated in a single fishpond.

- All the species have different food habits. So they do not compete for food.



Composite fish culture (Polyculture)

- Advantages → It increases the yield of fish with less space cost.
- It provides complete utilization of land.
- 5, 6 types of fish can be cultured at the same time.
- Disadvantages - Many fish breed during monsoon. Thus, quality of eggs are less available.
- To overcome this fish are bred in ponds using hormonal stimulation.

Bee Keeping

Scientific names - Apis

Agriculture - The rearing, care & management of honey bee for obtaining honey & wax.

- Require low investment.
- Additional source of income for farmers.
- Bee farms are also called apianies.

<u>Scientific name</u>	<u>Common name</u>
Apis cerana indica	Indian bee
Apis dorsata	Rock bee
Apis florea	Little bee
Apis mellifera	Italian bee

Desirable characteristics of honey bees.

- They should have high honey collecting capacity.
- They should not sting much.
- They should stay in a given beehives for long periods and breed well.

- The quality (taste & quantity) of honey depends upon Pasturage.

Pasturage → Availability of flowers from which bees collect nectar & pollen.