Chapter 10

Cropping systems and its principles

Cropping Systems: It is defined, as the order in which the crops are cultivated on a piece of land over a fixed period

or

Cropping system is the way in which different crops are grown. In the cropping systems, sometimes a number of crops are grown together or they are grown separately at short intervals in the same field.

Cropping Pattern:

Cropping pattern is the yearly sequence and spatial arrangement of crops and fallow on a given area.

i.e. It is the pattern of crops for a given piece of land

Difference between cropping pattern and cropping system

	Cropping pattern	Cropping system
1	Crop rotation practiced by a majority of farmers in a given area or locality.	Cropping pattern and its management to derive benefits from a given resource base under specific environmental conditions.
2	Type and management of crops in time and space.	The cropping patterns used on a farm and their interaction with farm resources, other farm enterprises and available technology which determine their make up.
3	Yearly sequence and spatial arrangement of crops or crops and fallow on a given area. The proportion of area under various crops at a point of time in a unit area	Pattern of crops taken up for a given piece of land, or order in which crops are cultivated on a piece of land over a fixed period, associated with soil,management practices such as tillage, manuring and irrigation.

Mono cropping : The land is occupied by one crop during one season / year Ex : Rice

Sole cropping : It is defined as the cultivation of one crop variety alone in the pure stand at normal density in a certain time and place. Eg : Rice

Multiple cropping :

Growing 2 or more crops on the same piece of land in a year. It includes both sequence and inter cropping. Sequential cropping is intensification of cropping with time and intercropping is intensification of cropping in both time and space.

Row Intercropping : Two or more crops are mixed with definite row proportion

Ex : Maize + GN (4 : 2)

Mixed intercropping: : Two or more crops are mixed without definite row proportion Ex ; Maize and Pulses

Relay intercropping:

The second crop is sown in the standing crop before harvesting of first crop and they will be together for some time. Ex : Rice – green gram system where green gram seeds are broadcasted in the standing crop of rice a month before harvesting in order to utilize the residual moisture.

Strip intercropping:

Strip intercropping is the practice of growing two or more crops in strips.

Multistoried cropping: cultivation of two or more crops of different heights simultaneously in a piece of land in certain period of time so as to utilize the available resources like sunlight, soil, water and nutrients

Ex: Coconut, cocoa, turmeric, pepper/ betelvine.

Sequence cropping : Two or more crops grown in definite sequence one after another

Ex : Rice – Wheat

Double cropping : Two different crops grown in a year in sequence

Ex : Rice – Bengal gram

Triple cropping : Three different crops grown in a year in sequence

Ex : Rice – Whet-Greengram

Quadruple cropping : Four different crops grown in a year

Ex : Rice – Greengram - Rice - Cowpea

Crop rotation:

Growing of different crops in succession on a piece of land to in a certain sequence is called crop rotation.

The main objective of crop rotation is to avoid exhausting the soil and to control weeds, pests, and diseases.

Principles of crop rotation:

1. The crops with tap roots should be followed by those with fibrous root system. This helps in proper and uniform use of nutrients from the soil.
2. The leguminous crops should be grown after non-leguminous crops. Legumes fix atmospheric nitrogen in the soil and add more organic matter to the soil.
3. More exhaustive crops should be followed by less exhaustive crops.
4. The crop of the same family should not be grown in succession because they act like alternate hosts for pests and diseases.
5. An ideal crop rotation is one which provides maximum employment to the family and farm labour,farm machineries and equipments are efficiently used.
6. Selection of the crop should be demand based.

7. The selection of crops should be problem based.
8. The selection of crops should suit to the farmer's financial conditions.
9. The crops selected should also suit to the soil and climate conditions.