

IMPROVEMENT IN FOOD RESOURCES

Improvement in food resources means increase the efficiency of production for both crop and livestock.

Improvement in Crop Fields

Types of crop:

- **Cereals:** Include crops like wheat, rice, maize, barley etc. They provide us carbohydrates.
- **Seeds:** Edible seeds include oil seeds and nuts. They provide us fats.
- **Pulses:** They include legumes such as gram, pea, black gram, green gram, lentil. They provide us proteins.
- **Vegetables, Spices and fruits:** They provide us vitamins & minerals. They include apple, mango, cherry, banana, water-melon etc.

Different crops require different conditions (temperature, moisture, etc.), different photo-periods (duration of sunlight) for their growth and completing life cycle.

Approaches which enhance the crop yield are as following:

- (i) Crop variety improvement
- (ii) Crop production improvement
- (iii) Crop protection improvement

Crop variety improvement

Ways by which variety improvement can be done are:

→ Hybridisation

☒ Genetic Modification

Hybridisation:

It is the process of crossing between two or more genetically dissimilar plants of different sexes to produce a new variety with good properties of both the crops.

Types of Hybridisation:

- ***Intervarietal Hybridisation:***

Intervarietal hybridization is the process of crossing two plants from different varieties of the same species to create a hybrid.

Example:

Triticum aestivum var. Kalyan sona × Triticum aestivum var. Sonalika

- ***Interspecific Hybridisation:***

Process of crossing two plants from different species of the same genus.

Example:

Brassica nigra (Black mustard) × Brassica rapa (Turnip) -----> Brassica juncea (Brown mustard)

- ***Intergeneric Hybridisation:***

Process of crossing two plants from different genus.

Example:

Triticum aestivum (Wheat) × Secale cereale (Rye) ----> Triticale (Wheat with high fibre content)

Genetic Modification:

Genetically modified crops are created when a desired gene is inserted into the genetic sequence of a crop.

Example : Golden rice (A rice variety which has Carotene pigment).



Factors for which improvement can be done:

Higher Yield: Increasing the productivity of the crop per unit area.

Improved quality : For different crops different qualities are considered .

For pulses, protein quality is considered

For cereals, amount of fibres or other nutrients like Vitamins and minerals are considered

For vegetables it's lifetime or preserving quality

For oil seeds, amount of good quality fat(unsaturated fat).

Desirable agronomic characters : Each type of crops prefers different characters. Fodder or vegetables plants should be tall and branched. Cereals should be dwarf as they will intake less nutrient.