

### ➤ Protection from Weeds

Undesirable plants that grow naturally along with the crop are called **weeds**. Removal of weeds is called **Weeding**.

### Why is weeding necessary?

Removal of weeds is essential because:

- Weeds compete with crops for space, light, water, and nutrients.
- They may interfere in harvesting and can be poisonous for animals and human beings.

### How do farmers remove weeds?

Farmers remove weeds by:

- Tilling before sowing of crops (to uproot and kill weeds),
- Manually removing them using khurpi to uproot them or cut them close to the ground,
- Spraying **weedicides** (chemicals that kill weeds but do not damage crops), such as 2, 4 Dichlorophenoxy acetic acid (2, 4-D), Naphthalene acetic acid, and Atrazine.

### What should farmers keep in mind while using weedicides?

The best time to remove weeds is before they produce flowers and seeds.

Weedicides are diluted with water and sprayed in the fields. Farmers should cover their nose and mouth with a piece of cloth while spraying them.

### ❖ Harvesting

Cutting of crop after it matures is called **Harvesting\***.

- Cereal crops usually take 3-4 months to mature.
- In India, many festivals are associated with harvesting, such as Pongal, Baisakhi, Holi, Diwali, Nabanya and Bihu.

Harvesting can be done manually (using sickle) or by machine (called **Harvester**).



Harvesting



Threshing



Winnowing

After harvesting, separating chaff from grain can be done through **threshing** and **winnowing**.

**Threshing** is separating chaff from grain by beating the crop against a stone or wooden bar. In this process, grains fall from the stalk due to force. After threshing, **winnowing** separates the husk from the seeds by blowing air through it. In this process, the husk (which is lighter) flies away and the seeds (which are heavier) fall down.

There is a machine called 'Combine' which works as a harvester as well as a thresher. (olympiads)

### ❖ **Storage**

**How are grains protected from pests, bacteria and fungi?**

- Grains (seeds) are dried in the sun to reduce their moisture.
- At small scale, grains are stored in jute bags or metallic bins.
- At large scale, they are kept in silos and granaries.
- Dried neem leaves are used at home to protect food grains.
- In big godowns, chemical treatments are done to protect the large quantities of grain.

### **What precautions should be taken during storage of grains?**

Precautions to be taken during storage of food grains are:

- Grains should be dried properly or they might rot easily.
- They should be stored in completely dry gunny bags.
- The bags should be kept in a place which is completely moisture-free.
- Storage areas should be well-ventilated.
- In larger godowns, care should be taken that chemicals used to repel or kill insects and rats do not contaminate food grains.

## **Food from Animals**

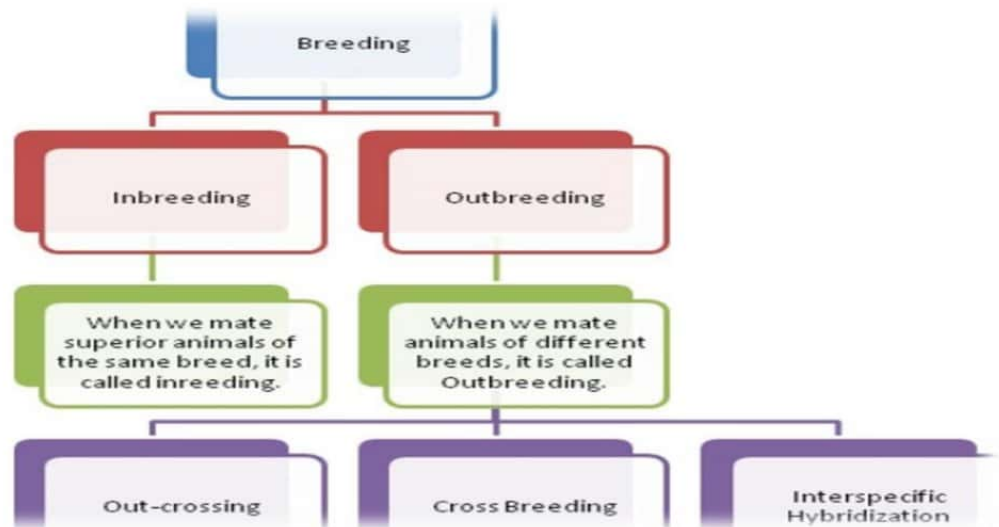
When animals are reared at a large scale to obtain food from them, it is called **Animal Husbandry**.

Animal husbandry includes taking care of animals, breeding them, and domesticating them for different purposes such as meat, wool, milk, eggs, honey etc. Types of animal husbandry popular in India include:

- Beekeeping or Apiculture
- Cattle farming
- Dairy farming
- Fish Farming or Aquaculture
- Poultry farming
- Sheep farming

**Breeding** means mating animals with superior characters to create a new breed (or offspring that is more useful to us than its parents). Breeding can be of two types:

- Inbreeding
- Outbreeding



### **What are the advantages and disadvantages of inbreeding?**

Inbreeding allows us to eliminate the harmful recessive genes in a breed and selectively choose and nurture superior genes. In the case of cattle, a

superior female produces more milk per lactation while a superior male produces superior progeny than other males.

However, continuous inbreeding can reduce the fertility and productivity of animals that are bred. This is called inbreeding depression. It can be overcome by outbreeding.

### **What are the three types of outbreeding programme?**

- **Out-crossing:** When animals of the same breed are mated together but they have no common ancestors (on either side of the pedigree) for four to six generations, it is called **Outcrossing**. The resultant offspring is called **Outcross**.
- **Cross Breeding:** When superior males of one breed are mated with superior males of another breed, it is called **Cross Breeding**. This helps scientists to combine the desirable qualities of the two breeds. In Punjab, Bikaneri ewes were mated with Marino rams to create a new breed of sheep called **Hisardale**.
- **Interspecific Hybridization:** When a male and a female of two different species of animals are mated together, it is called **Hybridization**. For Example, when a donkey and a horse is mated, a new breed called **Mule** is born. (Olympiads)

### **What are the advantages and disadvantages of hybridization?**

Hybridization passes along the favorable traits of the two chosen species. It can also prolong the survival of a species that is considered threatened or endangered at present.

However, successful breeding through hybridization and finding suitable mates for the purpose is difficult. Moreover, whether done naturally or through human initiation, the hybridization often fails to pass on the life-sustaining genes to offspring which means that most of the offspring do not survive for long after birth.

❖ **Next Part : Green Revolution in India**