

## Chapter 12

### Harvesting and threshing of crops

Harvesting is the process of removal of entire plants or economic parts after maturity. The economic product may be grain, seed, leaf, root or entire plant. The remaining portion of the stem that is left on the field after harvest is known as stubble.  
or

Harvesting is the act of removing a crop from where it was growing and moving it to a more secure location for processing, consumption or storage.

Some root crops and fruits trees can be left in the field or orchard and harvested as needed, but most crops reach a period of maximum quality that is they ripen or mature and will deteriorate if left exposed to the elements.

While the major factor determining the time of harvest is the maturity of the crops other factors such as weather, availability of harvest equipments, packing, drying, transport and storage facilities.

Economic and marketing issues are often even more important to consider when to harvest commodity. Before harvesting of crop, grower must be sure about demand of the produce.

Harvesting the crop at optimum maturity is critical for reaping the benefits of season long efforts on crop production. After final decision on crop maturity, care must be taken to avoid losses during harvest, threshing, transport and storage. Processing is equally important to keep the produce in good condition for realizing good price.

**Crop maturity:** There are different types of maturity namely physiological maturity, harvest maturity and storage maturity.

**Physiological maturity:** It is the stage of development in the life cycle of plant when the plant reaches maximum dry weight. At this stage any further increase in inputs does not produce any gain in yield. There is cessation in growth and grain filling at this stage. Grain at this stage has 40 per cent moisture and 90 per produce is matured and remaining 10 per cent still immature. So farmers should harvest at stage to get maximum benefit.

**Harvest maturity:** This is the stage at which produce is at maximum yield (both quantity and quality). The moisture content will be 18-20 per cent depending on type of crop.

**Storage maturity:** When there is no scope for post harvest drying, the crop is harvested at stage where it can be directly stored. For this produce is left in the field after harvest maturity and moisture will be less than 8-10 depending on different crops.



### Symptoms of Maturity:

Sl.No.	Crop	Symptoms
1	Rice	➤ 80 % of panicles turn to straw colour
2	Sorghum	➤ Yellow colored ears with hard grains
3	Finger millet	➤ Brown colored ears with hard grains
4	Maize	➤ Husk color turns pale brown
5	Wheat	➤ Yellowing of spikelets
6	Redgram	➤ 80-85 per cent of pods turn brown
7.	Blackgram	➤ Pods turn brown or black with hard seeds inside pods
8.	Groundnut	➤ Pods turn dark from light colour ➤ Dark colored patches inside the shell ➤ Kernels red or pink ➤ Drying and shedding of old leaves

### Methods of harvesting:

Different methods of harvesting are followed in different countries, largely depending on timely labour availability and costs associated with harvesting. While mechanical harvesting dominates in developing countries.

**Manual harvesting:** Manual harvesting is still the major method in developing countries and in India. Certain crops can be harvested without tools, groundnut crop can be harvested by uprooting with hand, provided soil moisture is optimum for hand pulling. Similarly in case with green gram, black gram, horse gram and cowpea.

**Mechanical harvesting:** Different types of reapers are available tractor side mounted, tractor front mounted, power tiller operated, self propelled walking and self propelled riding types have been developed for harvesting of crops like soybean, wheat, rice and mustard.

**Combine harvesting of rice, wheat and soybean** has been accepted by farmers in regions with labour shortage during harvesting period.

### Threshing and shelling:

Threshing or shelling consists of separating the grains or the kernels in the case of groundnuts, from the portion of the plant that holds them. The separation is done by hand or machine or shaking produce or passing rollers or tractors and hitting against hard surface.

### Drying:

Drying is the post harvest process where the produce is either shade or sun or



artificial dry to bring the moisture per cent to safe storable level.

