

①

HARVESTING: Removal of entire plants or economic parts after maturity is called harvesting.

The portion of the stem left in the field is called stubble. The economic product may be grain, seed, leaf, root or entire plant.

TIME OF HARVEST: If the crop is harvested early, the produce contain high moisture and immature grains. The yield will be low due to unfilled grains. It is difficult to store the produce as shrivelled grains with high moisture are easily attacked by pests in the store. Late harvesting results in shattering of grains, germination even before harvest during rainy season and breakage during processing. Harvesting at correct time is essential to get good quality grains and higher yield. Crop can be harvested at physiological maturity or at harvest maturity.

1. Physiological Maturity: - A developmental stage after which no further increase in dry matter occur in the economic part of the crop.

2. Harvest Maturity: - Harvest maturity generally occurs 7 days after physiological maturity. The important process during this period is the loss of moisture from the plants. The general symptoms of harvest maturity are yellowing of leaves, drying of grains & pods. It is advisable to harvest crops at harvest maturity.

133%  
66%  
166%

b. guara buried (GM)-wheat-toria-cotton  
c. wheat-fallow-cotton  
d. kharif fodder-gram-cotton + senji-wheat

rice = 100%  
rice - wheat = 200%  
Two-year rotations:  
wheat - fallow - wheat - cotton = 150%



Table: Harvest maturity symptoms of some important crops.

Crops	Symptoms
Rice	Hard and yellow coloured grains
Wheat	Yellowing of spikelets.
Sorghum	Yellow coloured ears with hard grains
pearl millet	Compact ears, on pressing hard seeds come out.
pulses	Brown coloured pods with hard seeds inside pods.
Groundnut	Pods turn dark from light colour. Dark coloured patches inside the shell, kernels red to pink
Sugarcane	Leaves turn yellow, Sucrose content more than 10% and brix reading more than 18 percent.
Tobacco	Leaves slightly yellow in colour,

Method of Harvesting

There are two methods of harvesting

- i) Manual: It is done by sickle. The other tool used for harvesting is knife.
- ii) Mechanical Harvesting: Reapers and combine harvester.

Reaper only cut the crop while combine harvesters cut, separate the grains from the straw, cleans it and transport the grains to the storage tank.

THRESHING: Separating fruits or seeds from the plants or ears is called threshing. In cereals straw and grains are separated and in pulses seeds are separated from pods.

Winnowing: Separating grain or seed from chaff is known as winnowing. Japanese paddy thresher, wheat thresher, rollers made of stones are used to separate grains from sorghum, millet etc. Mangle sheller.

DRYING: Moisture content of grain at the time of harvesting is about 10 to 20%. Moisture content for safe storage is less than 14% for most crops. Drying is a process by which moisture content is reduced by solar energy or artificial heating.



## STORAGE

3

The market value of the produce is generally low at harvesting time. It is therefore, necessary to store the produce for different periods.

### FACTORS AFFECTING STORAGE

The most important factor determining the storability of the produce is moisture content of grains.

Higher the moisture content of grain shorter will be the shelf storage life.

Moisture content for safe storage of grains of most crops is about 14%.

Among the climatic factors temperature, light and relative humidity are important factors influencing storage of food grains.

Insect development is generally limited below 10°C and

Above 45°C

30-35% relative humidity is safe for storage of seeds.

Light influences oviposition and development of stored grain pests.

In the storage fumigation is done with Aluminium phosphide or methyl bromide. The pests are killed by the poisonous gas released by from the fumigant.

Storage Fungi (Aspergillus, penicillium), insects, Rats & birds are main storage pests.