

TILLAGE

AGE

It is derived from word 'Till' means to cultivate, to loose or to open soil. Simply it means opening of soil. or

It is practice of working the soil to provide conditions favorable to growth of plants.

OBJECTIVES OR PURPOSES OR BENEFITS OF TILLAGE

Primary purpose of tillage is to control weeds. Tillage is one of the important mechanical methods of controlling weeds.

To destroy hibernating insects live either in the soil or on plant residues of weeds. When the plant residues are buried deeply and weeds are destroyed, the places for living of insects are also destroyed. Insects are also exposed to the sun rays and to attack of birds during cultivation, and are destroyed.

To improve physical condition of soil e.g. structure, infiltration or water holding capacity of soil.

To shatter the hard pan.

To aerate the soil.

To increase microbial activity. It results in faster decomposition of organic matter and release of nutrients.

To loosen to soil so that the roots of seedlings can penetrate.

To incorporate crop residues into the soil, which when break, add to soil fertility.

To prepare the land surface for irrigation.

To aid in erosion control in some cases (contour tillage).

DIFFERENT TILLAGE OPERATIONS

1. Fallow cultivation or primary tillage

Tillage carried out after harvesting one crop for complete coverage of crop residues and to break clods when land is in resting. It usually begins after the harvest of previous crop and come to an end when seed preparation is started. After the removal of the previous crop and irrigation is commonly applied to make the cultivation possible. Shortly before sowing another irrigation called "Rauni" is applied.

2. Secondary tillage or seed bed preparation.

It is the tillage provided to make the soil loose, well aerated and pulverize for sowing of a crop. This operation starts when soil comes to proper moisture or "wattar" condition after rauni and come to an end with sowing of crop.

Amount or intensity of tillage depends on type of soil and previous crop stubbles. For example heavy soil usually requires more number of tillage than medium or light soils. Whereas depth of tillage depends on roots system of crop.

3. Inter tillage or hoeing

Cultivation of soil after germination and during growth period of a crop.

Advantages of intertillage

1. Soil becomes loose to which more penetration and extension of roots occur. Consequently plants absorb nutrients and water from more area.
2. Hoeing results in breakdown of capillary action and hence upward movement of water stops. Water holding capacity of soil increases and it remains in "wattar" condition for a longer period of time.
3. By hoeing upper layer of soil separates from lower one and serves as a natural mulch due to which evaporation losses are reduced especially in early growth stages. Consequently crop requires water after a more interval.
4. More aeration and biological activities due to loosening of soil.
5. The most important advantage is the removal of weeds.

Ans. Broad cast crops intertillage is not possible

Deep hoeing is done before 1st irrigation which improves the root structure.

TIME OF HOEING

(بزرگ)

Crops are succulent

It should be done in early growth stages of crop because primary and 2nd irrigation when soil comes in "wattar" in most of the crops kept cotton. In winter seasons it should be done when "dew" is off to avoid breakage of plants due to more succulence.

EARTHING-UP

(دکھ بزرگ)

It is the building up of a ridge along the base of plants with soil moved from adjacent furrows. It is carried out for.

- Better root development
 - To support the plants
 - To prevent lodging and breakage of plant.
- 4) Moisture conservation high
5) Less requirement of water

It is done in row crops like cotton, maize, sugarcane, sunflower etc.

Raini: After harvesting the previous crop ^{to the preparation of soil} the first irrigation to the field called Raini.

irrigation

Intertillage

Ploughing or hoeing in the standing crops.

It is possible in Row, beds, furrows and Ridges of Sugarcane, Maize, sunflower, vegetables, cottons/Rows

Earthing up in long stem, especially in Sugarcane & Maize. If it is not done then lodging occurs.