



## Importance of Mulching in Crop Production

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**Mulching** is the process of applying natural or artificial layer of plant residue or other materials on the soil surface. In other words, Mulching means it is a process of covering the soil and makes more favourable conditions for plant growth, development.

Mulch is a layer of material applied to the surface of soil. Reasons for applying mulch include conservation of soil moisture, soil temperature, improving fertility, nutrient loss, and health of the soil, reducing weed growth.

**Overall, the main usage of Mulching is as follows:**

- Retain soil moisture
- Regulate soil temperature
- Suppress weed growth
- Reduce soil erosion
- Prevent freezing of roots

**Types of Mulching:**



Mainly Mulching has two types-

- 1) Organic mulching
- 2) Inorganic mulching

### 1) Organic Mulching

An organic mulch is made up of natural materials such as leaves, paddy straw, wheat straw, bark, dry grasses, wood chips, dry leaves, sawdust, grass clipping, etc.

Organic mulch material gets decomposed easily and needs frequent replacement, and attracts insects, slugs, and cutworms.

## 1. Straw Mulch

This is the most common material used in organic mulch. Paddy and wheat straw is the most common mulching materials used for vegetable crops and fruit crops. Among organic mulching materials, straw has a long life compared to other mulches like grasses, leaves, and sawdust.



Paddy straw and wheat straw after decomposition makes the soil more fertile.

## 2. Soil Mulch or Dust Mulch

If the soil surface is loosened, it acts as mulch for reducing evaporation. Inter cultivation creates soil or dust mulch in growing crops.

## 3. Grass Clipping Mulch

This is one of the most easily available material - green grass or dry grass used for grass clipping. After decompose, grass provides nitrogen to the soil which help in maintain soil fertility and crop production.

## 4. Biodegradable Mulch

Biodegradable mulches are made out of plant starches and sugars or polyester fibers. These starches can come from plants such as wheat and maize. These mulch films may be a bit more permeable allowing more water into the soil. This mulch can prevent soil

erosion, reduce weeding, conserve soil moisture, and increase temperature of the soil.

## 2) Inorganic mulching

In Inorganic mulching, materials like plastic films can be used as inorganic mulch. Inorganic mulches are extensively used in commercial agriculture. Plastic mulch is the most common material used among all inorganic mulches. It does not decompose easily.

### 1. Plastic mulch

It's made up of polyethylene material; using plastic in agriculture is called Plasticulture. The various types of plastic mulching are available according to crop and need.

### 2. Black Mulch

As the name suggests in black mulch, both side of this black colour polyethylene is used. This mulch doesn't transfer any light. It helps in conserving moisture, controlling the weed.

### 3. Yellow- Brown Mulch

In this mulch, the brown side is touching the soil, and the yellow is facing upward. It is used in the area where you have a lot of infestation of whitefly. Yellow colour attracts whitefly so when whitefly comes into contact with mulch due to sun heat they killed.

### 4. Silver- Black Mulch

Silver- black, this is very popular, most popular in the farmer. This mulch is suitable for almost every crop. This mulch

reflects about 27% of the light to the fruits and plant it improves colour development.

### Advantages of Mulching

Water conservation and weed control are the main benefits of mulch but many other advantages are as follows -

- **Water conversion** It prevents the direct evaporation of soil water; hence crops required less water.
- **Weed control:** This is the most important motive behind many farmers using mulching techniques. It helps to suppress weed growth.
- **Soil moisture:** It helps prevent water in the soil from evaporating and maintaining soil moisture for a long time, and preserves the plant root zone's constant humidity level.
- **Pest control:** The mulching film reflects light, so pests like aphids and thrips, leaf miner, so easy to control. It is also very effective against nematode. While- Yellow mulching films attract whitefly help to control whitefly growth.  
Salinity level It is observed that there less salinity level around the dripper where mulch-film is used.
- **Heat and cold insulator:** The mulching film acts as a heat and cold insulator in winter; mulch helps prevent soil from rapidly freezing, while in summer, it helps control soil temperature.

- **Soil erosion:** Mulching becomes a barrier between soil and raindrop and slows down the soil erosion process.

### Selection of mulching

#### Thickness

Normally the thickness of the film does not affect the mulching except when it is used for solarization. The early mulch films used were of 60-75 micron (240-300 gauges) thickness, and today it is possible to have 15 micron thick film due to advent of film extrusion technology.

#### Width

This depends upon the inter row spacing. Normally a one to one and half meter width film can be easily adapted to different conditions.

#### Perforations

The perforations may be advantageous under some situations and disadvantageous for some other situation. The capillary movement of water and fertilizer distribution will be better and more uniform under unperforated condition. But for prevention of water stagnation around the plants, perforation is better. But it has got the disadvantages of encouraging weed growth.

#### Conclusion

Mulching is used for boosting crop yields and productivity. It maintains soil moisture and reduces the weeds from the field. Use only quality material and according to crop need.