



Mulching: An organic approach in fruit crops production

Dimpy Raina

Krishi Vigyan Kendra Ferozepur (Punjab) India

In most of the agricultural related cultivation or farming or plantation, mulch or mulching is the common word used. Mulching is the process or practice of covering the soil/ground to make more favorable conditions for plant growth, development and efficient crop production. Mulching is an important soil management practice of covering the soil surface around the base of plants to make conditions more favorable for growing and to conserve the available soil moisture. Mulch is a layer of material applied to the surface of an area of soil. The word mulch has probably been derived from the German word “*Molsch*” means soft to decay, which apparently referred to the gardener’s use of straw and leaves as a spread over the ground as mulch. Mulch affects soil temperature (depending on colour, soil-mulch contact, bed orientation, time of year, light quality), reduces the weeds and keeps the fruit clean.

Objective of mulching:

Main objective is to conserve soil moisture and to control the weed growth.

– Organic mulch includes fallen leaves, paddy straw, saw dust, hay etc. grass clippings pruned materials in fruit orchards that will decompose. Living mulches are usually non competing legume plants that are planted around the desired crop. These living mulches are considered more environmentally friendly than plastics and add nitrogen to the primary crop (Durham, 2003). These natural mulches

improve soil quality and contain high amounts of nutrients.

– Inorganic mulches (plastic mulch, rubber mulch and polygene etc) or Plasticulture are non-living materials applied to the soil surface such as rock, stone and plastics. These products do not break down and must be removed after each growing season when used in gardens. Plastic mulch helps prevent soil water loss during dry years and sheds excessive water away from the crop root zone during periods of excessive rain fall. This can reduce irrigation frequency and amount of water. It may help to reduce the incidence of moisture related physiological disorders such as blossom end rot on tomato, fruit cracking in lime and pomegranate.

Plasticulture: Improvement in plastic industry has resulted in development of films with optical properties that are ideal for a specific crop in a given location. The use of plastic mulch depends on the understanding of the optimum above and below ground environment of a particular crop before. Photo-degradable plastic mulch gets destroyed by sun light in a shorter period and bio-degradable plastic mulch is easily degraded in the soil over a period of time. Proper selection of plastic mulch determines the soil environment that depends on film composition, colour and thickness. Films are available in variety of colours including black, transparent, white, silver, blue red, etc.

Role of mulch material in fruit crops: Mulching

Table 1: The selection of the colour of plastic mulch film depends on specific targets and on the ecological situations and primary and secondary aspects of mulching

Purpose of mulching	Type of mulches
Rainy season	Perforated mulch
Orchard and plantation	Thicker mulch
Soil solarisation	Thin transparent film
Weed control through solarisation	Transparent film
Weed control in cropped land	Black film
Sandy soil	Black film
Saline water use	Black film
Summer cropped land	White film
Insect repellent	Silver colour film
Early germination	Thinner film

Table 2 : Some of examples of use of mulch in fruit crops

Sr.No.	Fruit crop	Type of material	Use of mulch
1.	Strawberry	Paddy or wheat straw mulch	Prevents fruit coming into contact with soil and kept clean, protected since they fall on the mulches
		White plastic	Combination with soil fumigation with methyl bromide and chloropicrin increases yields
2.	Anola	Black polythene mulch	Use in April–June – conserves moisture
		Paddy straw or wheat straw	During summer apply at the base of the tree upto 15-20 cm from the trunk
3.	Citrus fruit	Film mulching	Increases the quality of fruit
4.	Mango	Plastic mulch	Enhanced flowering in mango
5.	Guava	Black polythene	Produced maximum number of fruits and yield per plant
		Paddy straw	Effective to improve the fruit quality of guava



application in fruit crops is beneficial to several purposes as it protect the seeds in nursery stage from predators (birds). A layer of mulch will lessen the impact and run-off of raindrops and allows the absorption of more rain water and reduces irrigation frequency. As organic surface mulches decompose and add the humus content in soil, they work down into the soil to increase air space, moisture retention and nutrient holding capacity and also reduce soil temperature, thus allowing plants to grow better during the heat of the summer .This provides a soil environment conducive to good root growth. Mulching also minimizes the freezing injury, suppress weed growth. Mulches reduce the spread of disease by protecting above-ground plant parts from being splashed with fungal or bacterial inoculums from the soil. Mulches like white polyethylene reflect the light which plays a beneficial role in fruit production.

Finally we concluded that mulching treatments in

general showed a positive response to plant growth, fruit yield and superior quality of fruits. Mulch is used to protect the soil from direct exposure to the sun which would evaporate moisture from the soil surface and cause drying of the soil profile. Organic and inorganic mulches have shown to improve the soil moisture retention. Mulching is an excellent horticultural technique that is beneficial to improving the growth, quality and productivity of fruit crops. Therefore, it can be adopted by growers to achieve more returns.

References:

- Durham, S. (2003).** Plastic mulch: harmful or helpful? *Agricultural Research*, **51**(7): 14.
- Sawant, A. (2018).** Mulching guide – Improve your crop yield. Retrieved from: <https://agricultureguruji.com/mulching/>

Received : 13.03.2019

Revised : 08.05.2019

Accepted : 24.05.2019