

PLASTIC MULCHING FOR CROP PRODUCTION

Gorte Amruta^{1*}, P.B. Wadikar², Zade Yuga³
College of Agriculture, Latur (VNMKV, Parbhani)

Mulching is the process or practice of covering the soil/ground to make more favourable conditions for plant growth, development and efficient crop production. Mulch technical term means 'covering of soil'. Plastic mulch is a product used, in a similar fashion to mulch, to suppress weeds and conserve water in crop production and landscaping. Certain plastic mulches also act as a barrier to keep methyl bromide, both a powerful fumigant and ozone depleter in the soil. The idea of using polyethylene film as mulch in plant production saw its beginnings in the mid 1950s. Dr. Emery M. Emmert of the University of Kentucky was one of the first to recognize the benefits of using LDPE and HDPE film as mulch in vegetable production. Today, Dr. Emmert is considered as the "father of plastic greenhouses". Approximately, 2,500 square miles (6,500km²) of agricultural land utilize polyethylene mulch and similar row covers for crop production in the world.

ADVANTAGES

1. It is completely impermeable to water.
2. It prevents the direct evaporation of moisture from the soil and thus limits the water losses and conserves moisture.
3. By evaporation suppression, it prevents the rise of water containing salts. Mulch can facilitate fertilizer placement and reduce the loss of plant nutrient through leaching.
4. Mulches can also provide a barrier to soil pathogens
5. Opaque mulches prevent germination of annual weeds from receiving light
6. Reflective mulches will repel certain insects
7. Mulches maintain a warm temperature even during night time which enables seeds to germinate quickly and for young plants to rapidly establish a strong root growth system.
8. Synthetic mulches play a major role in soil solarisation process.
9. Mulches develop a microclimatic underside of the sheet, which is higher in carbon di-oxide due to the higher level of microbial activity.
10. Under mulch, the soil structure is maintained during cropping period
11. Early germination almost 2-3 days.
12. Better nodulation in crops like Groundnut.
13. Less nematodes population.
14. Water erosion is completely averted since soil is completely covered from bearing action of rain drops.
15. When compared to organic mulches, it serves for a longer period.

AREAS OF APPLICATION

- a. Moisture conservation in rainfed areas
- b. Reduction of irrigation frequency and water saving in irrigated areas
- c. Soil temperature moderation in greenhouse cultivation
- d. Soil solarisation for control of soil borne diseases
- e. Reduce the rain impact, prevent soil erosion and maintain soil structure
- f. In places where high value crops only to be cultivated

TYPES OF MULCH FILM

- a. Air proof so as not to permit any moisture vapour to escape.
- b. Thermal proof for preservation of temperature and prevention of evaporation
- c. Durable at least for one crop season

