

Mulching in Agriculture

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Mulch – A word derived from the German word ‘*molsch*’ means easy to decay. It basically means spreading various covering materials on the soil’s surface to minimize moisture losses and weed population to increase crop yield.

Mulching also provides certain environmental benefits, such as temperature regulation of soil and plant roots, reduced nutrient losses, reduced soil erosion, and so on. Growing grass, barley crop, straws, cereal crop wastes, legumes, and needle-like pine needles are the greatest examples of live mulch.

Effects of Mulching on the Soil

Mulching with straw increased the contents of Potassium (K), Calcium (Ca), Magnesium (Mg), Phosphorous (P), and Boron (B) in the soil. The effect is most marked for Potassium.

It has also been discovered that mulching young trees minimizes indicators of potassium deficit. However, the benefits of mulching are not always positive. Apple growth and fruit size were boosted by hay and seaweed mulches. Sawdust, on the other hand, increased fruit and decreased leaf colour (due to nitrogen deficit).

Advantages of Mulching in Agriculture

- ✚ Soil moisture conservation
- ✚ Minimizing soil compaction and erosion
- ✚ Regulation of soil temperature
- ✚ Soil fertility improvement
- ✚ Mitigation of salt stress
- ✚ Plant growth development and yield
- ✚ Decline of weeds

Advantages of mulching in environment management

- ✚ Remediation of heavy metals
- ✚ Diminishing pesticide use
- ✚ Visual enhancement of mulch

Types of mulching material

1-Organic mulches

Mulches can be formed from agricultural wastes, industrial wood wastes, processed leftovers, and animal manures. Straw, bark mulches, wood chips, sawdust, compost, and newspaper are all examples of ex-straw.



2-Inorganic mulches

- ✚ It is made up of plastics, fabrics, stones rocks, etc. Ex- (PVC or polyethylene films).



3-Biodegradable mulches

It is a more ecologically friendly alternative to traditional plastic mulch. Polyethylene mulch must be removed after usage, whereas biodegradable mulch is tilled into the soil and is supposed to biodegrade. Ex-plastic mulch (starch, polylactic acid (PLA), and polyhydroxylalkanoates (PHA)).



Methods of application of mulch:

Two ways of application of mulch exclusively exercised

1. Flat Mulching

- ✚ Traditional type
- ✚ Covering of soil top layer

2. Ridge shape mulching-

- ✚ Ridge coated with plastic film
- ✚ Enhance water use efficiency

Why mulching is very popular nowadays?

Climate change causes an increase in temperature and a decrease in rainfall, putting strain on water supplies to meet the needs of the agricultural sector.

Mulching conserves soil water, lowers evaporation, maintains soil temperature, and inhibits weed development, among other benefits. Mulching may be utilized to save water and soil, making sustainable farming a breeze. Let's look at how it improves both the environment and the economy.

Soil environment	Economy
Conserve soil water	Enhance crop yield
Reduce evaporation	Increases fruit and vegetable quality
Regulates soil temperature	Increase water use efficiency
Insects and pest control, minimize weed growth	Increase water holding capacity
Improve soil health	Earlier harvest
Increase nutrient status	profitable

Cost of Mulching

Mulch films can increase the initial cost of production but later it will be helpful as they provide lots of benefits. The average price of mulch in India is around ₹1,400/roll.

Top mulch manufacturer companies

- ✚ Neo corp international limited
- ✚ Captain Polyplast limited
- ✚ Rad global private limited- Hippo
- ✚ TilakPolypack Pvt. Ltd
- ✚ Kothari agritech private limited

Conclusion

The fast rise in industry and urbanization has led in rising global temperatures throughout the years, upsetting the global balance of agro ecological systems. We required some new environmentally friendly agriculture practices for long-term food production. Mulching benefits soil evaporation, moisture conservation, soil temperature



regulation, weed control, and microbial activity in a variety of ways. Mulches mitigate various stress conditions caused by climate change in agricultural areas and landscapes.

