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IMPORTANCE OF MULCHING IN ROSE

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Abstract: -

Mulching plays a vital role in regulating soil microclimate, conserving moisture, suppressing weeds, and improving nutrient availability, which directly influences growth and flowering of ornamental crops like roses. In rose cultivation, organic mulches such as paddy straw, sawdust, and farmyard manure, as well as inorganic mulches like black polyethylene, have been widely studied for their influence on plant performance. Studies have shown that mulching significantly improves soil temperature and water-holding capacity, leading to enhanced plant height, number of shoots, and flower yield. Black polyethylene mulch is particularly effective in conserving soil moisture and suppressing weeds, thereby resulting in higher flower production and longer vase life. Organic mulches, on the other hand, not only conserve moisture but also improve soil organic matter, microbial activity, and nutrient cycling, which contribute to better flower quality and colour intensity. Comparative studies have revealed that while inorganic mulches enhance immediate productivity, organic mulches contribute to long-term soil health and sustainability in rose cultivation. Therefore, the integration of suitable mulching materials, depending on the growing environment and resource availability, is essential for maximizing both yield and quality of cut roses.

Keywords: Mulching, Rose, Cut Flowers, Organic Mulch, Inorganic Mulch etc.

Introduction:

Roses belonging to the family Rosaceae, are one of the most beloved and

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iconic flowering plants globally. Renowned for their enchanting beauty and fragrance, roses have been cultivated for centuries. The rose crop encompasses a diverse range of varieties, from hybrid teas to climbers and shrubs. These resilient plants thrive in well-drained soil and require ample sunlight for optimal growth. Successful rose cultivation involves regular pruning to enhance blooming and control shape. Roses are not only cherished in gardens but also hold cultural and symbolic significance, often used to express emotions. With careful attention to watering and disease prevention, a flourishing rose crop can adorn landscapes with vibrant colours and delightful aromas. Rose is a highly sought-after cut flower, boasting a global production exceeding 300 million stems annually. Roses play a crucial role in the perfume industry, where various scented rose varieties are utilized, marking a significant industrial application for these flowers.

Mulching

Mulching in rose involves placing a protective layer around a plant's root zone to shield it from the impact of drastic temperature changes. Mulch less soil is like a cold night with no blanket.

When to mulch in roses?

- In regions with milder winters, it's advisable to mulch just before roses begin leafing out and weeds start sprouting.
- While mulching can be applied at any time, it's typically recommended to renew it every two to three months

Benefits of mulching in rose

- Preserves soil moisture by minimizing evaporation.
- Regulates soil temperature through insulation, preventing extreme fluctuations.
- Manages weed proliferation beneath the mulch film by acting as a growth barrier.
- Alleviates soil compaction resulting from human and equipment impact.
- Mitigates soil erosion caused by both wind and water forces.
- Prevents fertilizer leaching, preserving nutrient availability.
- Diminishes disease like Black spot occurrence by shielding above-ground plant parts from soil-borne pathogens.
- Enhances produce (flower, essential oil) quality.
- In colder areas of the world mulching around roses before onset of winter will help the rose to combat effect of severe freezing.
- Promotes early maturity of plants.

- Creates a favourable growth environment for plants.
- Boosts overall productivity of the plant.
- Organic mulches provide microclimate for flora & fauna

Types of mulches

Mulches are of two types based on the material we used, they are - **1.** Organic mulches, **2.** Inorganic mulches.

1. **Organic mulches:** Organic mulch is derived from natural materials such as plant leaves, crop residues, By-products, straw, bark, compost, or wood chips, providing numerous benefits to soil and plants. It decomposes over time, enriching the soil with nutrients and improving its structure. These are ecofriendly and non-pollutant to nature, it require in bulky amount for mulch application. Mulching your roses with organic matter also helps to stabilise the pH levels of the soil to around neutral are slightly acidic, which are well suited to roses.
2. **Inorganic mulches:** Inorganic mulch consists of non-organic materials like plastic, gravel, or rubber. Unlike organic mulch, it doesn't decompose, offering long-lasting weed suppression and moisture retention. While it doesn't contribute to soil nutrient content like organic mulch, it serves as a durable and aesthetically pleasing alternative in various gardening and landscaping applications.

Plastic mulches are available in different colours they are

One-sided colour mulches:

- Black mulches
- Clear or transparent mulches
- Silver mulches

Two-sided colour mulches:

- White/black (cools the soil)
- Yellow/black (attracts certain insects & thus acts as a trap for them, which prevents disease)
- Silver/black (cools the soil, though not to the extent of white/black film & repels some aphids & thrips)
- Red/black (Partially translucent allowing radiation to pass through and warm soil but also reflects radiation back into plant canopy changing ratio of R:FR light, which results in changes in plant vegetative, flower development and metabolism to early flowering and increased yields.

The best mulch for your rose plant depends on the soil in your garden.

- For Roses in sandy soils → leaf mould is best,
- For nutrient poor soils → horse manure should be used,
- In clay soils→compost composed of garden waste is the best mulch and

- For suppressing weeds → wood chip is the best mulch.

Successful research work done in varieties of roses

When compared to an unmulching control, black polyethylene mulch was found to improve flower output, stem length, and vase life in rose cv. "First Red" (Kumar *et al.*, 2015). According to Gupta and Bhattacharjee (2003), cultivating cv. "Gladiator" and "Grand Gala" with organic mulch such as paddy straw and farmyard manure also improved their development and bud initiation. According to Choudhary et al. (2014), black polyethylene mulch produced the best yield performance in rose cv. "Taj Mahal," whereas organic mulches increased soil microbial activity and intensified bloom colour. Mulching also produced favourable results for the rose varieties "Rakta Gandha" and "Pusa Ajay," with paddy straw increasing soil fertility and black polyethylene exhibiting greatest bud formation (Reddy *et al.*, 2018).

Subsidy on plastic mulching

The Indian government offers a 50% subsidy, amounting to Rs.10,000/ha, for farmers adopting mulching, which is a capital-intensive practice. This subsidy is provided under schemes such as the National Horticulture Mission (NHM) and Horticulture Mission for North Eastern & Himalayan states (HMNEH), with a maximum limit of two ha per beneficiary. The implementation of these initiatives occurs through the Horticulture Department in individual states.

Conclusion

Mulching is a simple, cost-effective, and eco-friendly practice that offers multiple benefits in rose cultivation. Both organic and inorganic mulches have unique advantages: inorganic mulches ensure immediate results in terms of weed control and yield, while organic mulches enhance soil health and sustainability. For commercial rose growers, integrated use of mulching materials tailored to local agro-climatic conditions is recommended to optimize yield, quality, and long-term soil productivity.

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