

Effect of mulching on growth, fruit yield and quality of strawberry (*Fragaria X ananassa* Duch.)

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ABSTRACT

Effect of different mulches on growth, flowering, yield and quality of strawberry (*Fragaria X ananassa* Duch.) cv. Sweet Charlie was studied at Kanpur (India) during 2002-2003. The mulching types adopted were black polyethylene, sugarcane trash, paddy straw, saw dust, dry grasses and un-mulched control. The results revealed that mulching increased the vegetative growth and flowering of plants. Plants mulched with black polyethylene mulch showed maximum plant height, plant spread, number of leaves and flowers per plant. The number of fruits per plant, average weight and size (length and width) and fruit yield were also maximum with black polyethylene mulch. However, the effect of black polyethylene mulch was statistically at par with paddy straw and sugarcane trash for most of the parameters. The TSS (total sugars and ascorbic acid) increased by mulching treatments but the effect of was non-significant. Best result was obtained with paddy straw closely followed by sugarcane trash.

Key words: Strawberry, Mulching, Vegetative growth, Flowering, Fruit yield, Fruit quality.

vegetative growth, flowering, fruiting, yield and fruit quality of strawberry cv. Sweet Charlie.

Strawberry (*Fragaria X ananassa* Duch.) is one of the most important temperate fruit and it is very much liked for its attractive shape, distinct pleasant aroma and refreshing nature. The crop is cultivated well in temperate climate but it can also be grown in tropical and sub-tropical climate. In recent years, the strawberry cultivation is getting popularity in Uttar Pradesh, specially in peri-urban areas due to high price in market, but the main problem is its small size fruit and poor yield. The strawberry plants require adequate soil moisture and weed free field during whole crop period. Among the various cultivation practices adopted, mulching an old age practice (Jacks *et al.*, 1955) is the process of curing the soil surface around plant basin to create most favourable conditions for growth and development of plant. Mulching plays an important role in soil moisture conservation, improving soil structure, regulation of soil temperature and reducing weed growth (Rao and Pathak, 1998; Reddy and Khan, 2000). Continuous use of organic mulches also improved the organic matter content of soil and better soil aeration (Borthakur and Bhattacharya, 1992). The encouraging results of mulching have been so far reported in fruit crops like banana (Gurung and Chattopadhyay, 1994), ber (Byun *et al.*, 1989), pineapple (Hajarika and Das, 1999), custard apple (Kulkarni *et al.*, 1993) etc. in tropical and subtropical conditions. In view of the above fact, mulch seems to be an ideal solution to improve the productivity of strawberry in sub-tropical conditions. Therefore, an investigation was conducted to study the effect of various mulches on

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MATERIALS AND METHODS

The experiment was conducted at the Horticulture Garden, C. S. Azad University of Agriculture and Technology, Kanpur (U.P.), India during 2002-2003. The trial was conducted with six mulching treatments including an un-mulched control in completely randomized block design with four replications. The mulching types adopted were black polyethylene, sugarcane trash, paddy straw, saw dust, dry grasses and un-mulched control. For each treatment 20 pots were taken and each pot was filled with 10 kg homogeneously fertile soil. The pH of experimental soil was 7.3. The basal dose of NPK fertilizers @ 4 g ammonium sulphate, 7.5 g single super phosphate and 2 g muriate of potash were mixed in each pot soil thoroughly. Plantlets of strawberry cv. Sweet Charlie were planted in the first week of December and different mulching treatments were applied. Black polyethylene of 200 gauge was used for covering the soil surface around the plant basin, while sugarcane trash, paddy straw, saw dust, dry grasses were spread in pots which were 6 cm in thickness. In control, no mulch was applied. Other cultural practices adopted were similar for all treatments. Observations were recorded on increase in vegetative growth of plant (plant height, spread and number of leaves per plant), flowering (days taken to flowering after transplanting and number of flowers per plant), fruit weight, fruit size (length and breadth) and yield per plant. Fruits harvested at different pickings were pooled for total yield per plant. Total soluble solids (TSS)