

## AGRICULTURE FORUM FOR TECHNICAL EDUCATION OF FARMING SOCIETY

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### Organic Cultivation of Strawberry

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#### INTRODUCTION

Strawberry is one of the most popular soft fruits grown worldwide and holds great commercial importance due to its high market demand and profitability. It is consumed both as fresh fruit and in processed forms such as jams, juices, ice creams, and bakery products. Nutritionally, strawberry is a rich source of antioxidants, vitamins, and minerals, which contribute to human health.

Organic farming of strawberry focuses on maintaining soil health, conserving biodiversity, and ensuring ecological sustainability while producing high-quality fruits. This system emphasizes the use of organic manures, biofertilizers, and biological pest control methods instead of synthetic inputs. As a result, it supports long-term agricultural sustainability and environmental protection.

Strawberry (*Fragaria × ananassa*) is a high-value fruit crop widely known for its attractive color, pleasant aroma, and excellent taste, along with its rich nutritional composition including vitamin C, antioxidants, and dietary fiber. In recent years, organic cultivation of strawberry has gained significant importance due to increasing consumer demand for pesticide-free and environmentally safe produce. Organic farming avoids the use of synthetic fertilizers and chemicals and instead relies on natural inputs, biological processes, and ecological balance. This article presents detailed information on the principles, practices, advantages, and challenges associated with organic strawberry cultivation.



#### 2. Climate and Soil Requirements

Strawberry grows best under temperate and subtropical climatic conditions where moderate temperatures prevail. The optimum temperature range for growth and fruit development is between 15°C and 25°C. Cool weather conditions are particularly favorable during flowering and fruiting stages, as they improve fruit quality and yield. High temperatures can adversely affect fruit size, color, and overall productivity.

The crop performs well in well-drained sandy loam soils that are rich in organic matter and have good aeration. Proper drainage is essential to prevent waterlogging, which can cause root diseases. The ideal soil pH for strawberry cultivation ranges from 5.5 to 6.5, which ensures better nutrient availability and root development.

#### 3. Suitable Varieties for Organic Farming

Selection of appropriate varieties is an important factor in organic strawberry cultivation. Varieties that are resistant to pests and diseases and well adapted to local climatic conditions should be

preferred. Commonly cultivated varieties include Chandler, Sweet Charlie, Winter Dawn, Camarosa, and Festival. These varieties are known for their good yield, fruit quality, and adaptability. Choosing disease-resistant varieties helps reduce dependence on external inputs and ensures better performance under organic conditions.

#### 4. Land Preparation

Proper land preparation is essential for the successful establishment of strawberry plants. The field should be deeply ploughed to loosen the soil, followed by harrowing to achieve a fine tilth and remove weeds. Well-decomposed farmyard manure should be incorporated into the soil at a rate of 20–25 tonnes per hectare to improve soil fertility and structure.

Raised beds are recommended for planting as they provide better drainage and aeration, which are crucial for root development. Soil solarization using polythene sheets during hot summer months is an effective method to control soil-borne pathogens, nematodes, and weed seeds in an organic system.

#### 5. Planting Material and Time

The use of healthy and disease-free planting material is critical for achieving good yield and quality. Certified runners free from pests and diseases should be selected for planting. The planting time varies depending on the region. In North India, planting is generally carried out during October to November, while in hilly regions it is done during March to April.

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Proper spacing is necessary to ensure adequate growth and air circulation. A spacing of 30 × 30 cm or 45 × 30 cm is commonly adopted, which helps in reducing disease incidence and facilitates better crop management.

#### 6. Nutrient Management (Organic)

Nutrient management in organic strawberry cultivation is based on the use of organic manures and biofertilizers. Application of farmyard manure or compost at the rate of 20–25 tonnes per hectare improves soil fertility, structure, and microbial activity. Vermicompost, applied at 5–10 tonnes per hectare, enhances nutrient availability and supports plant growth.

Biofertilizers such as Azotobacter and phosphate-solubilizing bacteria help in nitrogen fixation and phosphorus solubilization, respectively. Liquid organic formulations like Jeevamrit and Panchagavya are used to promote plant growth and improve soil health. Mulching with organic materials also contributes to nutrient conservation and soil fertility improvement.

#### 7. Irrigation Management

Efficient irrigation management is essential for maintaining optimum soil moisture in strawberry cultivation. Drip irrigation is the most suitable method as it provides water directly to the root zone, reduces water wastage, and minimizes disease occurrence.

The soil should remain moist but not waterlogged, as excess moisture can lead to root rot

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and other diseases. Irrigation is particularly important during flowering and fruit development stages, as water stress during these periods can negatively affect yield and fruit quality.

#### 8. Weed Management

Weed management in organic farming relies on non-chemical methods. The use of organic mulches such as straw, dry leaves, or crop residues helps suppress weed growth by blocking sunlight and reducing weed germination.

Hand weeding is also practiced to remove weeds manually, especially during the early stages of crop growth. Mulching not only controls weeds but also conserves soil moisture and improves soil health.

#### 9. Pest and Disease Management (Organic)

In organic strawberry cultivation, pest and disease management is based on preventive and biological methods. Neem oil sprays are commonly used to control insect pests due to their natural insecticidal properties. Botanical extracts such as garlic and chilli solutions are also effective in repelling pests. Sticky traps are used for monitoring and controlling insect populations, while beneficial insects help in biological control.

Disease management includes the use of resistant varieties, proper spacing, and good aeration to reduce humidity and disease incidence. Application of beneficial microorganisms such as Trichoderma helps control soil-borne pathogens. Bordeaux mixture can be used in limited quantities

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as per organic farming guidelines to manage fungal diseases.

#### **10. Mulching**

Mulching is an important practice in organic strawberry cultivation. The use of straw mulch or biodegradable plastic mulch helps conserve soil moisture, regulate soil temperature, and suppress weed growth. It also prevents direct contact of fruits with the soil, keeping them clean and reducing the risk of disease.

#### **11. Flowering and Fruit Development**

Proper pollination is essential for successful fruit development in strawberry. Bees play a significant role in pollination, and their activity should be encouraged in the field. The use of chemical sprays should be avoided during the flowering stage to protect pollinators and ensure effective fruit set.

#### **12. Harvesting**

Strawberry fruits are generally ready for harvesting about four to five weeks after flowering. Fruits should be harvested when they are fully red and ripe to ensure the best flavor and quality. Harvesting should be done in the early morning hours to maintain freshness and extend shelf life. Careful handling is necessary to prevent bruising and damage to the fruits.

#### **13. Yield**

In organic farming systems, the initial yield may be slightly lower compared to conventional methods due to gradual improvement in soil fertility. However, with proper management and improved soil health over time, the yield becomes stable and

satisfactory. The average yield of organic strawberry ranges from 15 to 20 tonnes per hectare.

#### **14. Post-Harvest Handling**

Proper post-harvest handling is essential to maintain fruit quality and extend shelf life. Pre-cooling immediately after harvest helps remove field heat and slows down deterioration. Fruits should be stored at low temperatures ranging from 0°C to 4°C. Eco-friendly packaging materials should be used, and rough handling should be avoided to prevent damage.

#### **15. Advantages of Organic Strawberry Cultivation**

Organic strawberry cultivation offers several advantages, including the production of chemical-free and safe fruits that fetch higher market prices. It improves soil health by increasing organic matter and microbial activity. The system is environmentally sustainable and reduces pollution caused by chemical inputs. Additionally, organically grown strawberries often have superior taste, aroma, and nutritional quality.

#### **16. Challenges**

Despite its benefits, organic strawberry cultivation faces certain challenges. The initial yield may be lower, and the system requires higher labor input for practices such as weeding and pest management. Controlling pests and diseases without synthetic chemicals can be difficult and requires proper knowledge and skill. The certification process for organic produce can also be complex and costly.

### **CONCLUSION**

Organic cultivation of strawberry is a sustainable and profitable approach when managed effectively. It enhances soil fertility, ensures environmental safety, and meets the increasing demand for organic produce. By adopting improved organic practices, maintaining proper crop management, and strengthening market linkages, farmers can achieve higher profitability and long-term sustainability in strawberry cultivation.