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A REVIEW ON IMPACT OF ORGANIC MANURES AND BIOFERTLIZER ON GROWTH AND QUALITY PARAMETERS OF STRAWBERRY

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Introduction

Strawberry is one of the important temperate fruit of India but also being grown in sub-tropical and tropical climates. It can be grown up to 12,000 feet from sea level in humid and dry regions. Its successful cultivation requires an optimum day temperature of 22-23°C and night temperature of 7-13°C in India. It is excellent sources of natural antioxidants including carotenoids vitamins, phenols, flavonoids, dietary glutathionine endogenous metabolites and exhibit a high level of antioxidant capacity against free radical species. Strawberries (Fragaria x ananassa) are one of the most popular and economically significant fruit crops globally. The cultivation of strawberries has witnessed a growing interest in organic and sustainable farming practices. In this context, the use of organic manures and biofertilizers has gained prominence as they offer a more environmentally friendly and soil-nourishing alternative to conventional chemical fertilizers.

This article explores the impact of organic manures and biofertilizers on the growth and quality parameters of strawberries.

The Role of Organic Manures:

Organic manures, such as compost and well-rotted animal manure, contribute to soil health and fertility. When incorporated into strawberry cultivation, they enhance the growth and quality of the fruit in several ways:

Improved Soil Structure: Organic manures enhance soil structure, increasing its water-holding capacity and aeration. This promotes root development, leading to better nutrient uptake and overall plant growth.

Nutrient Supply: Organic manures are a source of slow-release nutrients, including essential macronutrients (nitrogen, phosphorus, potassium) and micronutrients. These nutrients are made available to the strawberry plants over time, reducing the risk of nutrient imbalances.

Microbial Activity: Organic manures foster beneficial soil microorganisms that aid in nutrient cycling and disease suppression.

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This can lead to healthier strawberry plants and higher yields.

The Role of Biofertilizers:

Biofertilizers are living microorganisms that form symbiotic relationships with plant roots, promoting nutrient uptake and overall plant health. Two common types of biofertilizers used in strawberry cultivation are mycorrhizal fungi and rhizobia:

Mycorrhizal Fungi: Mycorrhizal fungi establish a symbiotic relationship with strawberry roots, extending their reach into the soil to access water and nutrients more effectively. This enhances the plant's ability to withstand stress and results in healthier, more vigorous growth.

Rhizobia: Rhizobia form symbiotic associations with legume crops, and though strawberries are not legumes, some research suggests that specific rhizobia strains may have a beneficial impact on strawberry growth and nitrogen fixation.

Impact on Growth Parameters:

The incorporation of organic manures and biofertilizers in strawberry cultivation has a significant impact on growth parameters:

Increased Plant Size: Organic amendments and biofertilizers promote robust growth, resulting in larger strawberry plants with more extensive root systems.

Enhanced Flowering and Fruit Set: Improved soil health and nutrient availability lead to better flowering and higher fruit set, increasing the potential yield.

Resistance to Stress: Mycorrhizal fungi, in particular, help strawberries cope with various environmental stressors, such as drought and soil-borne diseases.

Impact on Quality Parameters:

The influence of organic manures and biofertilizers on strawberry quality is equally noteworthy:

Better Taste: Organically grown strawberries are often praised for their superior flavor compared to conventionally grown counterparts.

Healthier Fruits: Organic manures and biofertilizers promote the production of strawberries with fewer chemical residues and higher levels of essential nutrients.

Extended Shelf Life: Strawberries from organic systems tend to have a longer shelf life due to their firmer texture and better disease resistance.

Conclusion:

The use of organic manures and biofertilizers in strawberry cultivation has demonstrated positive effects on growth and quality parameters. Organic practices not only promote environmentally sustainable farming but also result in healthier, more flavorful, and longer-lasting strawberries. As consumers

continue to seek out nutritious, chemical-free, and sustainably grown produce, the adoption of organic and biofertilizer-based approaches in strawberry cultivation is likely to increase, benefiting both growers and consumers alike.

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