



Effect of Micronutrients on Growth, Fruits Yield and Quality of Strawberry (*Fragaria* × *ananassa*)

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Abstract

To study the effect of pre-harvest foliar application of nutrients on growth, yield and fruit quality of strawberry. Camarosa an experiment was conducted at the Agriculture Research Farm, Department of Agriculture, Mata Gujri College, Sri Fatehgarh Sahib, Punjab during the year 2020-22. The experiment was laid out in a Randomized Block Design (RBD) having ten treatments with three replications. Sprayed with water served as the control. The result revealed that plants treated with 0.6% ZnSO₄ showed Maximum plant height (26.12 cm), plant spread (35.75 cm), number of leaves per plant (25.00), leaf area 88.6c), leaf area index (4.71), number of flowers per plant (18.67), number of fruits per plant (11.38). However, the plants treated with 0.6% Boron showed highest fruit weight (22.23 g), fruit length (40.11 mm), Fruit breadth (39.22 mm), yield per plant (211.12 g), yield per hectare (9.10 tonnes), TSS (10.09 °B), total Sugar (6.03 %) and titratable acidity (0.88 %). Studies indicated that pre-harvest foliar application of iron, zinc and boron are quite useful for improving vegetative growth, quality and shelf-life of strawberry cv. Camarosa.

Introduction

Introduction Strawberry (*Fragaria* × *ananassa* Duch.) is one of the most important temperate fruit belongs to the family Rosaceae. It is an octoploid (8x) in nature having (x=7) basic chromosome number. Botanically it is an aggregate fruit which is highly perishable in nature. Basically, it is herbaceous, perennial and short-day plant. Among all the berries, strawberry gives the quickest return in a shortest possible time (Boriss et al., 2006) [7]. Strawberry has gained the status of being one of the most important soft fruits in the world. Nutritionally, strawberry is a low calorific carbohydrate fruit. It is a rich source of Vit. A (60 IU/100 g of edible portion), Vit. C (30-120mg/100 g of edible portion), fiber and also has high pectin content (0.55%) available in the form of calcium pectate. Water is a major constituent of strawberry fruit. It contains 90% water. Ellagic acid is a naturally occurring plant phenol in its fruit. Strawberry fruits have great demand in fresh market, in processing industries as well as in preserve and confectionaries industries. It's phenomenal increases in production during the recent years show the popularity of strawberry fruit cultivation. In India, the total area of strawberry is 1000 Ha with production of 5000 MT (Anonymous, 2015-16) [2]. Here, Maharashtra is the leading State in production of strawberry fruits. It is also commercially grown in Haryana, Punjab, Uttar Pradesh, Jammu and Kashmir, Uttarakhand and lower hills of Himachal Pradesh. The nutrition status in the strawberry plant plays a vital role in determining the growth, yield and quality of fruits since it is a very sensitive plant to nutritional balance (Mohamed et al., 2011) [33]. An optimal fertilization is contributive in obtaining high yield of good quality and high biological value. Both macro and micro-nutrients are well known to ameliorate plant growth, yield and quality of fruit plants.

Effect of nutrients on vegetative growth parameters

Abdollahi et al. (2010) conducted an experiment to study the effect of paclobutrazol, boron and zinc on Vegetative growth, yield and fruit quality of strawberry (*Fragaria × ananassa* Duch.) cv. Selva. They found that Zinc sulphate (100, 200 mg l⁻¹) had positive effect on the criteria measured viz. number of leaves, leaf area, Length and diameter of petiole, fresh and dry shoot root ratio in Selva strawberry.

Bakshi et al. (2013) evaluated the influence of foliar application of iron (0, 0.2 and 0.4%) and zinc (0, 0.2 and 0.4%) on vegetative growth, flowering, yield and fruit quality of strawberry (*Fragaria × ananassa* Duch.) cv. Chandler. They reported that plants treated with 0.4% FeSO₄ showed maximum plant height (19.65 cm), plant Spread (30.12 cm), number of leaves per plant (19.12), leaf area (64.60 cm²), number of crowns per plant (2.97).

Effect of nutrients on yield attributing character and yield parameters

Abdollahi et al. (2010) conducted an experiment with the aim of reducing vegetative growth and increasing Yield and fruit quality of Selva strawberry cultivar using paclobutrazol (0, 100 mg l⁻¹), boric acid (0, 150, 300 Mg l⁻¹) and zinc sulphate (0, 100, 200 mg l⁻¹). They found that foliar application of ZnSO₄ prior to flowering Had positive effect to increase fruit quality, total soluble solid, acidity and vitamin C content of Selva Strawberry.

Baranwal et al. (2017) studied the effect of foliar application of zinc and boron on fruit growth, yield and Quality of winter season guava (*Psidium guajava* L.). They observed that foliar spray of Borax @ 0.6% Solution attained significantly maximum values of 8.25 % total sugar, 12.04 °Brix TSS, and 186.92 mg Ascorbic acid per 100g fruit.

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