



## Research Paper

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# Influence of plant growth regulators on growth, yield and quality of strawberry (*Fragaria x ananassa* Duch) cv. SWEET CHARLIE

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**Abstract :** An experiment was conducted to study the effectiveness of foliar spray of gibberellic acid at (25, 50 and 75 ppm), triacontanol (1.25, 2.5 and 5 ppm) and cycocel (300, 600 and 900 ppm) on strawberry cv. Sweet Charlie. The results revealed that plants treated with 75 ppm gibberellic acid showed an increase in all the vegetative characteristics of plants viz., plant height (46.10 cm), petiole length (15.53 cm), number of leaves (15.54), plant spread (29.40 cm) and leaf area Index (0.816), while highest number of fruits (23.31), yield (376.69 g/plant), yield per hectare (27.90 tonnes), length:diameter ratio of fruit (1.50), specific gravity (1.28%), pH value of fruits (3.69), and cost benefit ratio were recorded with triacontanol 5 ppm treated plants. The plants treated with 900 ppm cycocel showed the highest T.S.S. (9.63°B), total sugar (9.40 %), vitamin-C content (55.00 mg/100g), juice content (93.66 %) and lowest acidity (0.52 %). Thus, a spray of 75 ppm gibberellic acid is best for vegetative growth, while 900 ppm cycocel showed best result for fruit quality of strawberry.

**Key words :** Strawberry, Gibberellic acid, Cycocel, Triacontanol, Sweet Charlie

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The cultivated strawberries (*Fragaria x ananassa* Duch.) are one of the most delicious and refreshing soft fruits of the world. It is the most widely distributed fruit crop due to its genotypic diversity, highly heterozygous nature and broad range of environmental adaptation (Larson, 1994; Childers *et al.*, 1995) It is a profitable fruit crop in the shortest possible time as compared to the other fruits. It is also nutritious and beneficial to anemic patients. Strawberry consumption can reduce the risk of developing cancer by 50 per cent due to high levels of vitamin-C (30-100 mg/100g of fruit) as well as foliate and photochemical compound such as the ellagic acid present in the fruit. Besides this, vitamin-C is also a fairly good source of vitamin-A (60 IU/100g of edible portion). Now, strawberries are available as fresh fruit throughout the year rather than being a traditionally season crop. The world area and production of strawberry is 21.78 lakh ha and 2.99 lakh mt, respectively (F.A.O., 1999)

Plant growth regulators (PGR's) are plant hormone

enhancers or disruptors. They can be man-made or naturally derived. Plant hormones play many roles in a plants growth, as root or shoot growth, leaf drop, flower development and fruiting. Many of these functions are still unknown processes. The manipulation of growth and increasing productivity of plants is the basis for most plant-related research. Gibberellins (GA's) are a family of plant hormones that mediate many responses in plants, from seed germination to senescence. The most widely available compound is GA<sub>3</sub> or gibberellic acid, which induces stem and internodes elongation, seed germination, enzyme production during germination and fruit setting and growth (Davies, 1995). Plant growth regulators are also used in order to control vegetative growth (Latimer, 1991). Cycocel is an onium compound, which blocks GA biosynthesis at the step between geranylgeranyl pyrophosphate and copalyl pyrophosphate. Plants treated with this compound, have shorted internodes and enhanced photosynthesis. Plant growth retardants generally have great effects on expending