

## Effects of plant growth, regulators on physical and chemical characteristics of apple cv. RED DELICIOUS

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### ABSTRACT

The investigations were carried out to study the effect of plant growth regulators on physical and chemical characteristics of apple was carried at Division of pomology SKUAST (K) Shalimar campus on "Red delicious" tree during the cropping seasons 2001-2002. Paclobutrazol was applied through soil to the basin of the tree as per the trunk diameter and gibberellic acid and benzyl adenine was sprayed at two different flowering stages, application of paclobutrazol decrease tree limb girth, shoot Extension, length . breath L/D ratio, pedicel length , acidity and ascorbic acid of fruits. Paclobutrozol increased to total soluble solids and firmness of fruits. He physiological loss weight and acidity were reduced gibberellic acid and benzyl adenine changed the influence of paclobutrazol.

**Key words :** Paclobutrazol, Gibberellins acid, Benzyl adenine.

**A**pple ( *Mals domestic Borkh* ) the premier table fruit and native of south western Asia and Europe is growing all over the world in temperate climates. In India J&K, H.P are the principal apple growing states. Jammu Kashmir has a significant position in horticulture map of the country. It accounts for about 40% of total area of 2.21 lakh heacters, covering the area of about 90.08 thousand heacters. The annual production of apple in the state is 10.09 lacks tons at an average field of 10.69 tones per heacter. (Anonymous 2003) high field of good quality fruits can only be obtained when growing inputs result in clean well structure orchards. In an established orchard one can control these factors through management practices. Vegetative growth control, regulation of cropping and fruit quality are important components of management of apple orchard. Constitutes more then half of the total labor costs in typical commercial orchard (Castaldi, M. and Forshey ,C.G. 1986) suggestion that more effect and economical growth control methods are needed .Growth regulators improve physico- chemical characteristics apple fruits.

### MATERIALS AND METHODS

The present investigation on the effect of plant growth regulators an physical and chemical characteristics of apple was conducted in the division of pomology SKUASTCK in the year 2001-2002. Red delicious apple of 20 years old trees were selected for the studies and laid out in randomized black design with one tree per treatment replicated thrice. During the entire period of

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experimentation all the trees were given uniform cultural practices including fertilizers application, insect pest and disease control. Paclubutrozal was applied as a soil drench around the tree away from trunk under the canopy area, GA3 and BA was sprayed at two different flowering stages, one at king bloom and second at petal fall stage. At the time of harvest, fruit yield was recorded in terms of number of standard wooden boxes removed from each tree. The observation on fruit length /breadth and fruit weight were recorded from ten fruit per tree and mean was work out. Fruit color was recorded by comparing green to red color ratio. Total soluble solids were determined by hand refractometer made in Itely (A.O.A.1970). Titrable acidity, total sugars reducing sugars and non reducing sugar were determined by A.O.A. 1970.

### TREATMENT :

T1-Control  
T2 -125mg PBZ cm<sup>-1</sup> T-D  
T3- 250 PBZcm T-D  
T4 -35mg cm<sup>-1</sup> T-D  
T5 125 mg T-D + 25 ppm + 25 ppm BA At Ist bloom  
T6 -PBZ @ 250mg cm<sup>-1</sup> T-D+25ppm G.A+25ppm BA  
T7 -PBZ@ 375 mg cm<sup>-1</sup> T-D+ 25ppm G.A+25 ppm B.A  
T8- PBZ@ 125mg cm<sup>-1</sup> T-D +25 ppm G.A + 25 ppm B.A  
T9- PBZ @ 250 mg cm<sup>-1</sup> T-D + 25 ppm G.A + 25 ppm B.A  
T10 -PBZ@ 375 mg cm<sup>-1</sup> T-D +25 ppm G.A + 25 ppm B.A  
(T=Treatments T-D=Trunk Diameter  
PBZ= Pactobutrazol)

### RESULTS AND DISCUSSION

In the present study the soil application alone and in