# Effect of plant growth regulators and fungicides on pre-harvest fruit drop in Nagpur Mandarin

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Fruits retained on each tree under study were counted prior to first application of spray. Fruit dropped were counted at weekly interval. Minimum pre-harvest fruit drop (11.07 %) was found with the application of  $T_5$  (2, 4-D 10 ppm + Carbendazim 0.1 %). Retention per cent of fruits was found to be maximum (88.93 %) was observed with  $T_5$  (2,4-D 10 ppm + Carbendazim 0.1%). Fruit yield in respect of number of fruits per tree and weight of fruits per tree were found significantly maximum (1058.88 fruits/tree and 159.15 kg respectively) with the spray of  $T_5$  (2, 4-D 10 ppm + Carbendazim 0.1%) which was superior to all other treatments.

Key words : Nagpur Mandarin, Pre-harvest fruit drop, Plant growth regulator

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## INTRODUCTION

India is one of the important citrus growing country and ranks 6<sup>th</sup> position in the world. Mandarin is most important fruit crop among citrus species. Citrus fruits are highly recognized for their nutritive as well as medicinal values. But, citrus fruits are mainly known for vitamin 'C' (25-85 mg/100 ml of juice), TSS in sweet orange rangeing from 8-11 per cent while titrable acidity ranges from 0.5 to 1.5 per cent for mandarin and orange, TSS-acid ratio being 14:1.

Fruit drop, particularly at pre-harvest stage is a very complex problem and is known to be the net result of lack of adequate production of hormones within the tissue of plant, nutrient deficiency and pathological causes resulting in heavy monitory loss. Under adverse conditions, the losses go to such an extent that, it renders the citrus cultivation unprofitable to the orchardists. Pre-harvest fruit drop occurs mostly due to physiological factors mostly due to formation of abscission layer, pathological factors *i.e.* due to stylar end rot and stem end rot and also due to entomological factors.

Keeping in view the past research work on controlling pre-harvest fruit drop by using growth regulators and fungicides, a very limited research work have been carried out on above aspect under this region particularly in Nagpur mandarin.

## RESEARCH METHODOLOGY

The present study on the effect of plant growth regulators and fungicides on pre-harvest fruit drop in Nagpur Mandarin was carried out on 18 year old Nagpur Mandarin trees.

### Climate and weather conditions:

Akola has got dry summer and moderately cold winter. During summer, maximum temperature range is 41.3 to  $45.05^{\circ}$ C and 7 to  $10^{\circ}$ C in winter as minimum temperature. While maximum relative humidity is 60.94 per cent and 31.23 per cent is minimum. In winter, December is the coolest month with  $10^{\circ}$ C temperature.

### **Experimental details:**

From 18-year-old mandarin orchard, 72 trees of uniform growth were selected for study.

Crop	:	Mandarin ( <i>Citrus</i> reticulata Blanco)
Variety	:	Nagpur mandarin
Year of planting	:	1987
Age of tree	:	18 year
Spacing	:	6 x 6 m
Number of trees /	:	2
treatment		