

Effect of plant growth regulators and fungicides on intensity of fruit drop of Ambia Bahar in Nagpur Mandarin

N.B. PATIL AND S.H. INGLE*

College of Agriculture, JALGAON (M.S.)

ABSTRACT

Fruits retained on each tree under study were counted prior to first application of spray. Fruit dropped were counted at weekly interval and classified into physiological, pathological and entomological fruit drop. Intensity of physiological and pathological fruit drop was minimum *i.e.* 5.93 % and 1.04 %, respectively with T₅ (2,4-D 10 ppm + Carbendazim 0.1 %) while however entomological fruit drop was not significantly influenced by plant growth regulators and fungicides. Maximum days (290 days) required for maturity was observed with T₅ (2,4-D 10 ppm + Carbendazim 0.1%). Maximum cost benefit ratio (1:2.72) in treatment T₅ (2,4-D 10 ppm + Carbendazim 0.1%).

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Key words : Nagpur Mandarinian, Plant growth regulators, Intensity of fruit drop

INTRODUCTION

Citrus is grown in 49 countries of the world and it is choicest fruit having high consumer preference both as a fresh fruit as well as refreshing processed juice. Brazil ranks first in production followed by USA and China. Other important citrus growing countries are Spain, Mexico, India, Italy, Egypt etc. Maharashtra stand first in area under citrus cultivation *i.e.* 1.54 lakh ha followed by Andhra Pradesh, Punjab, Karnataka, Uttar Pradesh and Bihar. Tamil Nadu ranks first in productivity.

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 monetary 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 is occurs mostly due to physiological factors mostly due to formation of abscission layer, pathological factors *i.e.* due to styler end rot and stem end rot and also due to entomological factors.

In India, the problem of pre-harvest fruit drop in citrus has not been tackled extensively, although some work using plant growth regulators only has been done, but hardly any attempt has so far been made to evaluate the relative efficacy of plant growth regulators when mix with other material.

Very little attention has been paid to Nagpur mandarin and thus little information is available on the effect of plant growth regulators and fungicides on pre-harvest fruit drop in Nagpur mandarin.

The investigation of many research workers such as Sharma and Randhawa (1967), Jawanda *et al.* (1972) also observed that several plant growth regulators minimizes fruit drop to a considerable extent.

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. Present investigation entitled “Effect of plant growth regulators and fungicides on intensity of fruit drop of Ambia bahar in Nagpur mandarin” is undertaken.

MATERIALS AND METHODS

The present 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°C and 7 to 10°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°C temperature.

Experimental details:

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

Crop : Mandarin *Citrus reticulata*
Blanco)