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EFFECT OF PLANT GROWTH REGULATORS AND MICRONUTRIENTS ON FRUITING AND YIELD PARAMETERS OF KAGZI LIME (*Citrus aurantifolia* swingle) FRUITS

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ABSTRACT

An experiment was carried out twice during the years 2002 and 2003 on Kagzi lime cultivar Pramalini at Department of Horticulture, Marathwada Agricultural University, Parbhani. Fifteen years old *Kagzi* lime orchard was treated with two growth regulators, NAA (100 and 200 ppm) and GA_3 (50 ppm) and micronutrient mixture (0.5 % and 1 % spray) singly and in combination. The results reveled that NAA 200 ppm + micronutrient mixture 1 % spray was the best treatment observed for increasing fruit retention, number of fruits per tree, weight of individual fruit, yield per tree and reducing fruit drop.

Key words : Plant growth regulators, Micronutrients, Kagzi lime, Fruiting, Yield parameters.

Citrus fruits are more popular provide better nutritional security, more employment, more cash and foreign exchange. Kagzi lime is one of the important citrus crop occupying more than 10 per cent of the total area under citrus in India. To increase the yield of Kagzi lime, application of major and minor nutrients is helpful as well as this can also be improved by breeding programme. Now a days plant growth regulators and use of micronutrients have been tried to improve fruiting and ultimately yield. Salem *et al*. (1974), Babu and Lavania (1985) and Singh and Rethy (1995) tried various growth regulators and micronutrient mixture alone and in combination to obtain fruit setting, fruit size, fruit weight and ultimately yield and obtained encouraging results under different environmental conditions. Hence, it was felt necessary to undertake the work on the effect of foliar spray of plant growth regulator on yield of Kagzi lime under Maharashtra conditions.

MATERIALS AND METHODS

The trial was conducted at the Department of Horticulture, College of Agriculture, Marathwada Agricultural University, Parbhani on Kagzi lime cv. Pramalini during the year 2002 and it was repeated in the next year, 2003, and pooled data was analysed. The experimental soil was fairly deep black cotton soil with good drainage. The trial was laid out in Randomized Block Design with twelve treatments and three replications. The treatments consisted of two growth regulators, GA_3 (50 ppm) and NAA (100 and 200 ppm) and micronutrient mixture spray (0.5% and 1%). The micronutrient mixture consisted of Fe-2.5 %, Mn-1 %, Zn-3.0 %, Cu-1%, Mo-0.1 %, B-0.5 %. The aqueous solution of different treatments was sprayed singly and in combination on sunny days during first week of January at flower emerging stage and first week of March pea size fruit stage in both years. Uniform cultural practices were adopted and observations on total soluble solids (TSS), Acidity, ascorbic acid, total sugars, reducing and non reducing sugars of fruit was estimated by hand refractometer, titration against sodium hydroxide solution, 2,6-Dichlorophenol indophenol visual titration, Lane and Eyson (1923), Lane and Eyson (1973), respectively. Where as chlorophyll-a and chlorophyll-b were estimated by using Dimethyl sulphoxide using Spectronic-20 at different wave length as given by Hiscox and Israelstan (1979).

RESULTS AND DISCUSSION

Fruiting parameters:

Number of days from initiation of flower to fruit set:

Data presented in the Table 1 shows that GA_3 50 ppm (25.37 days) significantly reduced the days required for fruit set which was at par with NAA 200 ppm (25.72 days) and NAA 100 ppm (25.62 days). Similar results were obtained by Haribabu (1980) in Kagzi lime. He