Effect of growth regulators on flowering and yield of sapota [*Manilkara achras* (Mill.) Forsberg]

S.R. CHAVAN, M.B. PATIL, G.N. PHAD **and** A.B. SURYAWANSHI

See end of the article for authors' affiliations

Correspondence to:

G.N. PHAD
Department of Horticulture, Marathwada Agricultural University, PARBHANI (M.S.) INDIA

ABSTRACT

An experiment was conducted to study the effect of growth regulators on flowering and yield of sapota at Department of Horticulture, Marathwada Agricultural University, Parbhani during the year 2006-2007. the treatment T_6 (NAA 150 ppm) produces more number of flowers (54.0), highest per cent of fruit set (43.13), higher per cent retention (over fruit set) at pea stage (18.77) and at lag phase (17.21), produces maximum number of fruits (2633.00) and yield (115.02 kg/tree) followed by T_5 (NAA 100 ppm) while the lowest performance was observed in T_7 (control).

Key words : Growth regulators, Yield, Quality and sapota

Sapota [*Manilkara achras* (Mill.) Forsberg] commonly called chiku in India is a native of tropical America probably originated in the southern Mexico. It was not known when sapota first introduced to India, but sapota cultivation was taken up for the first time in Maharashtra in 1898 in a village named Gholwad. In 1953, the area under this crop was 800 ha only but now area has also increased also in non coastal area of the country. India is a leading producer of sapota and area under sapota cultivation is estimated to be 64.4 lakh ha with a production of 800.3 million tones.

The harvesting periods in west coast and northern India are March-April and August-September while in south more fruits ripen in February-June and September-October. The crop flowering in July and August matures March-April, where as crop of October-December flowering matures in month of July-August when the price is comparatively remunerative.

Sapota produces a number of flowers throughout the year in different flushes. But flowers and fruits tend to drop in different stages of development right from its setting to maturity. However fruit drop at later stage of development drastically reduces the yield. In recent years considerable attention has been given to increase fruit set and to check fruit drop of many fruit crops with the help of plant growth regulators. With taking into account of this fact the present experiment was conducted to study the effect of growth regulators on flowering and yield of sapota.

MATERIALS AND METHODS

The present investigation entitled "Effect of growth regulators on flowering and yield of sapota (*Manilkara achras* (Mill.) Forsberg] var. kalipati" conducted at Department of Horticulture, Marathwada Agricultural University, Parbhani (M.S.). A field experiment was laid out in 2006-2007 in Randomized Block Design with seven treatments and three replications. The treatment details are as follows : T_1- GA 50 ppm, T_2- GA 100 ppm, T_3-GA 150 ppm, T_4-NAA 50 ppm, T_5- NAA 100 ppm, T_6- NAA 150 ppm and T_7-Control.

The spraying of each treatment was carried out one at the time of flowering and another two at pea stage and lag phase of fruit development. The observations on various characters were recorded and subjected to statistical analysis.

RESULTS AND DISCUSSION

Analysis of variance carried out for yield contrituting attributes and flowering parameters is present in Table 1.

Number of flowers per shoot:

The treatment T_6 (NAA 150 ppm) produced highest number of flowers per shoot which was at par with T_5 (NAA 100 ppm) and significantly superior over the rest of the treatments, while least number of flowers recorded in T_1 (GA 50 ppm) and T_2 (GA 100 ppm) being at par with each other.

The result of present studies showed that the higher concentration of NAA at 150 ppm produced 27.05 per cent and 24.13 per cent more flowers over 50 ppm GA and control, respectively.

Duration of flowering:

Data regarding duration of flowering revealed that significantly less duration of flowering was recorded in