ABSTRACT

Guava (*Psidium guajava* L.) the apple of tropics occupies a premier position among the tropical and subtropical fruits which bear crops more than once during a year. It belongs to the family Myrtaceae.

There is a distinct quality difference in the fruit produced in different seasons and winter is considered more favourable for quality guava production. Guava fetches a very attractive price in market and the consumers get a supply of this luscious and nutritive fruit during winter, when there is a general scarcity of fruits. The main crop which ripens in winter is better in quality as compared to rainy season crop which has insipid and poor keeping quality. The rainy season fruits also get spoiled rapidly with loss of glossy appearance and discoloration from blemishes, deciccation, loss of firmness, protopectin and vitamin after harvest. To obtain a good winter crop, it is desirable to eliminate the rainy season crop which is done by various means like chemical defoliation, root pruning, with holding irrigation and fertilisation.

The fruit growers particularly of this region, at present have no authentic information to obtain the most profitable crop during winter. Since the orchardist are looking forward to simple, efficient and cost effective method of crop regulation through which higher returns with quality fruit production can be ensured. Hence a study was conducted to develop economically efficient crop regulation technique for concentrating production of quality guava fruits during winter season. Keeping this view, an experiment entitled, "Crop regulation in guava (*Psidium guajava* L.) cv. Arka Mridula" was conducted during the year 1999 and 2000 at CHES, Plandu. The experiment consisted of nine levels of chemicals (Control, NAA 200, NAA 400, MH 150, MH 200 ppm, respectively and urea 8, 12 and KI 0.5, 1 per cent, respectively) and three levels of pruning (Control, 50 and 75 per cent). Thus altogether 27 treatments replicated thrice in RBD.

75 per cent level of pruning markedly increased the per cent leaf and flower abscission and reduced the per cent fruit set and yield during rainy season. However, during winter season 50 per cent of pruning level recorded significantly higher number of flowers, per cent fruit set and yield (kg) per plant. The quality parameters of fruit viz. total sugars (reducing and non reducing) and ascorbic acid contents were recorded significantly higher in 50 per cent pruning level during both rainy as well as winter season.
The application of 1% KI gave maximum leaf defoliation (87.77%) andflower abscission (89.34%) and minimum fruit set (10.65%) and yield (1.76 kg) during rainy season. The highest fruit set (37.82%) and yield (5.62 kg) per plant were recorded in control trees. However, in winter season maximum number of flowers per tree (105.07), highest fruit set (86.11%) and yield per tree (9.98 kg) were recorded in trees treated with NAA 400 ppm. The quality parameters of fruit like total sugar (reducing and non reducing) and Vitamin C were recorded significantly higher in tree treated with 400 ppm NAA during both the seasons. However, maximum TSS (10.71 °brix) and minimum acidity (0.22%) were recorded in tree treated with urea 12 % and NAA 200 ppm, respectively during rainy season. The maximum TSS (11.78 °Brix) and minimum acidity (0.354%) were recorded in the tree treated with urea 12 per cent.

The application of 1% KI with 75 per cent pruning recorded maximum leaf (89.93%) and flower (91.01%) abscission and minimum fruit set (8.99 %) and yield (1.28 kg) during rainy season. However, in winter season maximum number of flowers (113.95) per plant was recorded in tree treated with NAA 400 ppm in combination with 50 per cent pruning which also gave significantly highest yield (11.62 kg) per tree. However, the per cent fruit set was observed maximum (90.74%) in tree treated with NAA 200 ppm along with 50 per cent pruning during winter season. The total sugar and ascorbic acid content were also recorded significantly higher than control with NAA 400 ppm in combination with 50 per cent pruning during winter season.

The maximum net profit per plant (Rs. 129.15) was obtained under urea 12% with 50 per cent pruning followed by NAA 200 ppm with 50 per cent pruning (Rs. 125.53) and urea 8% with 50 per cent pruning (Rs. 124.85).

The best treatment was spraying of tree with NAA 400 ppm along with 50 per cent pruning recording maximum yield (11.62 kg) during winter season. The total sugar, acid and ascorbic acid content were also recorded higher in this treatment. However, the mean net profit per plant was obtained in treatment urea 12% with 50 per cent pruning due to low cost of urea.