INTRODUCTION

Guava (Psidium guajava L) is a very important tropical fruit crop grown throughout the tropical and sub-tropical areas and belongs to the family of myrtaceae, commonly known as the apple of tropics. It is a hardy, prolific bearer and highly remunerative fruit crop and also can be grown satisfactorily even in adverse soil and climatic conditions. It is one of the most important fruit in terms of area and production after mango, banana and citrus. The area and production of guava is increasing worldwide, but there is no significant increase in productivity. Presently, the productivity of guava is smaller than productive potential primarily due to traditional system of wider planting and secondarily due to poor canopy management practices. The basic principle of crop regulation is to manipulate the natural flowering and fruiting of guava plant in desired season of the year that contribute to increased fruit yield, quality, profitability and sustainability of the environment by reducing the use of the frequency of the pesticides. (Mahadevan and Kumar, 2014) The crop regulation can be achieved by the adoption of the various practices like training and pruning and growth retardant.

CANOPY REGULATION THROUGH TRAINING AND PRUNING

Open centre systems or delayed open centre is generally recommended. Pruning consists of removal of suckers arising from the base of the trunk. Dried twigs and branches have to be removed and the cut ends may be applied with Bordeaux paste. The flowers are borne on the axils of current season shoots. Light annual pruning after harvesting promotes vegetative growth and flowering. In Tamil Nadu, it is recommended that the tips of 10-12 cm lengths of past seasons shoots are pruned during September and February every year to encourage more laterals. Pruned trees give large fruits and early yields. In this method roots are cut away and irrigation is withheld so as to allow the leaves to shed. Then, the basins are covered with the manures and soil and irrigated copiously. (Kumar, 2010)

The pruning may be helpful in reducing the tree size and improving the fruit quality as well Haropinder and Bal (2006). Lal (1983) indicated that the yield of guava cv. Sadar was improved by pruning. Pruning and hydrogen Cyanamid were found to modify the production curve of guava Quijada et al. (1999). Also, Salah (2005) produced the highest bud emergence of guava by using severe and moderate pruning. Haropinder and Bal (2006) stated that pruning with (10 and 20 cm) and growth regulators (paclobutrazol and ethephon at 500 and 1000 ppm) treatments on guava cv. Allahabad Safed trees during rainy season planted with four different spacings (6 x 2 m, 6 x 3 m, 6 x 4 m and 6 x 5 m). Maximum fruit size, palatability rating, TSS and vitamin C were noted in wider spacing (6 x 5 m). They found that maximum Vitamin C was found in control in guava fruits. Physical characters like fruit weight was improved at 20 cm level of pruning. Whereas, fruit quality (chemical characters) were noted better at 10 cm level of pruning. The time and intensity of pruning affected the manures and soil and irrigated copiously. (Kumar, 2010)

In certain parts of Maharashtra, root pruning is practiced to produce heavy yield. In this method roots are exposed and removed. In the absence of dwarfing rootstocks for guava, techniques that restrict the vegetative growth are important in management of tree canopy. As guava tree respond well to canopy modification with respect to vegetative and reproductive growth therefore, modification of canopy through pruning and use of certain growth retardant along with increasing the plant density may be steps to enhance the production efficiency.

CANOPY REGULATION THROUGH GROWTH RETARDANT

Paclobutrazol (PBZ), a non-polar broad spectrum growth regulator, has been characterized as an environmentally stable compound in soil and water environments with a long half-life under both aerobic and anaerobic conditions. Moreover PBZ is unlikely to volatilize to any significant extent owing to a low estimated vapour pressure. Paclobutrazol is translocated acropetally via xylem in plants (Hamid and Williams 1997, Wang et al.1986), although phloem translocation has also been reported (Witchard 1997). In India PBZ has been registered as a plant growth regulator under the section 9(3) of Insecticides Act, 1968 in November 2009 by Central Insecticides Board & Review
Registration Committee (Kegley et al. 2010) and is available in the market with various trade names.

Paclobutrazol helps in making the plants dwarf by producing a retarding effect on the growth of tree through inhibition of gibberellin biosynthesis, a key plant growth promoter. Similarly, ethephon acts as a ripening hormone and it enhances the ripening process along with its growth retardation effect. Ethephon at higher concentrations (500-3000 ppm) proved to be quite effective in reducing the plant height (Mohammed et al., 1984). Singh (2006) and Singh and Bal (2006) also investigated the positive effect of PBZ application in restriction of vegetative growth of guava plants.

REFERENCE


