Crop Regulation in High Density Guava Through One Leaf Pair Shoot Pruning

Guava (*Psidium guajava* L.) is a popular fruit crop of tropical and subtropical region of India. It is considered as one of the legendry, nutritionally valuable and remunerative fruit because of its hardy and prolific bearing nature even in marginal lands as it can be grown in all types of soils having pH ranging from 4.5-8.2. Guava occupies 5th position in terms of area after mango, citrus, banana and apple and also 5th position in production in India. It contributes 3.90 percent of the total production of fruits in India, which is around 3.648 million tonnes from an area of 0.262 million hectare and productivity is around 13.92 tonnes per hectare(NHB 2017), whereas, In Uttarakhand, it occupies an area of 2420 ha with an annual production of 16170 metric tonnes having the productivity of 6.68 tonnes per hectare. The major guava growing districts in Uttarkhand are U. S. Nagar, Dehradun, Haridwar, Nainital, Chamoli, Tehri and Pauri.

Guava bears three crops in a year i.e. summer, rainy and autumn with corresponding harvesting periods rainy, winter and spring seasons. It is generally observed that guava trees produce heavy crop in rainy season, light crop in winter and very light crop in spring season. In Tarai regions of Uttarakhand, guava tree produce more than 90 % crop in rainy season. It is common experience that rainy season crop is rough, insipid, poor in quality, less nutritive and are also attacked by many insect-pests and diseases. On the other hand, fruits of winter season crop are superior in quality, comparatively free from insect-pests and diseases with better storage life and fetch two to three times more price in the market during winter season.

At present, guava is cultivated largely through traditional systems and at wider spacing due to large tree canopy, thereby, requiring high inputs. Moreover, in this system guava tree takes 5-6 years in contrast to 2-3 years for high density for coming into commercial bearing and thus maximize the overall cost of production per unit area. The available land area for fruit cultivation is shrinking due to urbanization and industrialization and it is difficult to achieve the desired level of production per unit area under presently adopted traditional systems. Under such circumstances the concept of high density plantation has become extremely significant to increase fruit yield and productivity and ultimately increase the income of farmers/ guava growers.

Presently shoot pruning has emerged as eco-friendly alternative method for regulating the guava crop. It is free from all the demerits of existing methods. On the other hand, pruning may be helpful in reducing the tree size and improving the fruit quality. Shoot pruning in high density orchards is prerequisite to maintain the desired canopy of this fast growing guava plant. The need exists for some refinement in one leaf pair shoot pruning technique where flowering and fruit setting can be regulated to attain winter season fruiting with superior quality and higher yield especially for high density plantation.