GUAVA (*Psydium guajava*, Myrtaceae)

# INTRODUCTION:-

Guava is originated in Central America or Mexico and then it spread across the world. In India, guava was introduced by Portuguese in the early 17th century. Till independence, Allahabadi safeda was the only variety in use (grown in 27000 hac area). After independence, more emphasis was given on research and development, a marked transformation occurred during 1990-2005 in all aspects of Guava. Presently in India, approx. 2.19 lakh ha area (3.3% of total fruit area) is under guava cultivation, producing 25 lakh tonnes of Guava (3.3% of total fruit production) (ref. NHB 2011-12).

Today Guava has well established markets in more than 60 countries. India is the biggest producer of guava, followed by Brazil and Mexico. In India, guava is well adapted in almost all the states, among them Maharashtra (3.2 lakh MT) is the biggest producer of guava followed by MP (2.55 lakh MT), UP (2.51 lakh MT) and Bihar (2.45 lakh MT). The area under cultivation of guava is increasing every year at an avg. Rate of 3.15 % and production increasing at an avg rate of 3.83%. In spite of this, The demand of fruits is also increasing at the rate of 4% every year (ref. NHB and FAO).

# VARIETY:-

* **VNR-BIHI:-** This variety is the latest development in guava cultivation. It has bigger sized fruits of 300 gms to 1 kg. The shelf life of fruits of this variety is reported to be 8-10 days at room temperature and >25 days if kept at 6-7\*C temperature. Also, this variety has very less no of seeds, thick mesocarp and uniform light green colour. Yield from this variety of guava is taken after 2 years of planting.

# ECOLOGICAL REQUIREMENTS:-

Guava is grown under a wide variety of climatic conditions. It is highly resistant to drought than any other fruit crop.

* **SOIL:** Guava can be grown in almost all types of soil. It thrives well in soils having pH ranging from 4.5 to 9.5.
* **ALTITUDE**:- In the tropics, the guava tree can be grown from sea-level to an altitude of about 1500m.
* **Temperature**:- Guava grows well in a temperature range between 15-46\* C. The optimum temp. During flowering and fruiting is reported to be between 23-28\* C. In winters, when temp goes down to 7\*C, plant growth ceases and leaves become purple.
* **Rainfall:-** For max. Production in tropics, guava crop requires 500-1000 mm of rain, evenly distributed throughout the year.

# PACKAGE OF PRACTICES:-

* **Layout of Orchard:-** Guava can be planted in square or rectangular system of planting. The spacing farmers can opt for Guava depends on their ease to perform inter-cultural operations. Planting of guava plants should be done on raised beds for proper management of orchard. Different spacing opted by farmers for VNR-BIHI variety of Guava are:-

1. 16\*8 ft (for fully mechanised intercultural operations like- harvesting)
2. 12\*8 ft (for partially mechanised intercultural operations, a small 20HP tractor can easily move between the rows)
3. 10\*8 ft (all operations will be manual)

* **Orientation of orchard:-** In case of rectangular system of planting, the rows of plants should be along N-S direction for best interception of sunlight.
* **Planting:-** planting of guava plants in main field can be done throughout the year except months of extreme summers (>40\*C) and severe winters(<10\*C). For planting, a pit of 2\*2\*2 ft should be dug and left open for 15 days in proper sun for killing of soil borne pests to guava. The pit should be treated with Tricel (2.5 ml/lit water) to prevent termite infestation. Then, recommended amount of well rotten FYM (25 kg/pit) and other fertilizers are mixed well in dug-out soil mass and the pit is filled with mixture of soil, FYM and fertilizers. Subsequently, small portion of pit mixture is scooped out from the centre of the pit and the plant along with it’s earth-ball is planted and pressed. After planting, plant is copiously watered.
* **Irrigation:-** Guava is a hardy crop and can withstand periods of stress. For better crop growth and ease in management, irrigation is given through drip irrigation. Amount of water required varies according to the age of the plant. Following table gives water requirement of guava through drip:-

**Age of plants Drip irrigation (liters/day/plant)**

1st year 4 to 6

2nd year 8 to 12

3rd year 15 to 20

4th year 25 to 30

5th year 35 to 40

* **Fertigation:-** The practice of giving fertilizers along with irrigation is called fertigation. After 30 days of planting, fertilizers along with irrigation should be given at regular intervals as per fertigation chart.
* **Staking:-** Staking is giving proper support to the plant for proper growth. Plants of guava should be staked with a bamboo stick of 2 inches of dia. and 6 ft of length. This bamboo is placed near the plant, 1.5ft deep in the pit. The plant is then tied at two points (6 inches below top and 6 inches above base) with sack weaving thread (not plastic).
* **Training:-** In guava, open centre type of training system is followed. In this system, top of the plant is cut when it reaches 2 ft of height from base and no side-branch is allowed. Then 4 branches in different directions just below the cut-top are allowed to grow for initial 2 years of growth. Only few secondary branches are taken.
* **Pruning:-** Guava bears fruits on current season’s growth, hence Pruning of Guava tree is done twice a year. It is possible to take year round fruiting from guava in Central and South India with proper management practices like-concurrent pruning. Flowering occurs 2 months after pruning and it takes further 3-4 months to develop into a full sized ready to harvest fruit.
* **Insect/pest management:-** Guava tree is attacked by comparatively lesser no. of insects/pests as compared to other fruit crops. In insects, fruit fly, mealy bug, fruit borers are the main threats, these insects can be controlled by spraying of Thiomethaxam 8gm and Lambda-cyhalothrin 15 gm per 15 lit of water.

In diseases, fruit rotting is the major threat, for controlling this, any systemic insecticides like- COC, Ridomil, Dithane M-45 @3gms/lit water can be given as spray or through drip irrigation or drenching. Repeated application of same fungicide or insecticide should not be done.

* **Bagging and covering of fruits:-** To protect the fruits of guava from infestation of insects and infection of fungus, they are individually bagged in an anti-fog polythene bag with 4 cuts at base when they attain ber size (2.5 “dia). Better practice is to also install foam net before bagging to protect the fruit from injury while harvesting and transportation. After bagging, fruits are wrapped in newspaper cover for better colour development of fruits.
* **Harvesting:-** Harvesting of VNR-BIHI fruits is done when they attain expected size and color. This is attained generally after 3-4 months of flowering. Fruits should be kept in shade after harvest to remove field heat and then packed.
* **Yield:-** The yield of VNR-BIHI variety of guava is expected 60 kgs from a 4 years old tree.
* **Grading and sorting:-** Guava fruits are graded and sorted on the basis of their size and outer appearance.
* **Packaging:-** Packaging of guava is done in CFB boxes of 15 kg or 20 kg capacity. Guava fruits are placed layerwise separated with newspapers and cushions at top and base of box.