Guava
Psidium guajava L.  
Family: Myrtaceae

- Apple of tropics
- 4th in position
- High adaptability
Composition & Uses

- Lot of vitamins & minerals
- Vitamin-C & pectin - (Vitamin-260 mg/100g)
- Jam, Jelly, Cheese, Juice, Canned segments, nectar, RTS
- Jelly – most important
- Leaves – Diarrhea, dyeing & tanning
Origin & Distribution

- Tropical America
- **Countries** :- South Asia, Hawaiian Islands, Cuba & India.
- **States** :- Uttar Pradesh, Bihar, Madhya Pradesh, Maharashtra, Andhra Pradesh, Tamil Nadu, Karnataka, Uttar Pradesh (Allahabad)
- In India, guava is grown in an area of 0.13 m ha with a production of 1.50 m tonnes.
- In H.P., area under guava is 2003 ha and production is 415 MT.
BOTANY

- Mountain guava: *P. montanum*
- Chinese guava: *P. friedrichsthalianum*
- Strawberry guava: *P. cattleianum*

  Large shrub or a small spreading tree up to 10 m, fairly thin trunk and scaly multi coloured bark.

Leaves: opposite, light green, simple, oval shape.

Flowers: white, epigynous and develop on current growth in cymes or solitary in leaf axils.

Fruits: round to pyriform.
Varieties

1. Allahabad Safeda

- Most important in Uttar Pradesh
- Vigorous
- Erect growing (5.8 – 6.2 m)
- Long shoots, fruits medium, round, smooth
- Skin yellowish white
- White flesh
- Good keeping quality
2. Lucknow - 49

- Selection from Allahabad safeda
- Semi dwarf (2.3 – 3.4 m)
- Spreading & profuse bearing
- Fruits roundish ovate, yellow colour, soft flesh, white, good keeping quality
3. Chittidar

- Tall tree with spreading branches,
- Fruits smaller,
- Round to ovate
- Yellow skinned with red dots on skin
- Soft flesh
- White with good keeping quality
4. Red Flesh

- Vigorous with spreading branches
- Crown ‘vase’ form & open,
- Fruits roundish ovate
- Yellow in colour
- Pink flesh
- Medium keeping quality
5. Seedless

5. A tall tree with upright branches
5. Not commercial because of shy bearing
5. Fruits globose and yellow
5. Flesh thick and creamy white
5. Keeping quality poor
Hybrids

- FRS, Sangareddy
- Safed jam – A. Safeda x Kohir
- Kohir Safeda – Kohir x A. Safeda
Arka Amulya

- IIHR, Bangalore
- Seedless x A. Safeda
- Hybrid 16 – Apple color x A. Safeda
- Bright red skin
Other varieties

- Lalit
- Pant Prabhat
- Arka Mridula
- Dhareedar
Climate

- Tropical and subtropical
- Area with distinct weather – better quality
- Arid zones good taste
- Elevation upto 1200 m amsl
- Annual rainfall < 1000 mm between June & September
- Temperature > 46°C – ‘No’
- Optimum → 23-28°C
- High temp @ fruit development → fruit drop
- Fairly tolerant to drought but highly susceptible to frost.
Soil

- Wide range (Alluvial to Lateritic)
- Even salt affected soils (EC 8 m.mhos (cm))
- Saline water also
- Sensitive to water logging
- pH 4.5 – 7.5
- Maximum concentration of roots @ 0.20 m depth.
- Best soils: Deep, friable and well-drained.
Propagation

Seed

- Viability lost very quick
- 90% germination on soaking in water 4 days & GA$_3$ 1000 ppm 24 hours
- Soaking in conc. H$_2$SO$_4$ – 2 to 3 minutes – very effective
**Budding**

- Patch (or) Forkert – July – August
- Rootstock - *P. cattelianum*

**Stooling**

- 3 to 5 years old – cut back allowed to shoot
- IBA 5000 ppm – on ring of shoot - July

**Veneer**

- 76 to 96% success
Air layering – July (most commercial)

Wedge Grafting

Inarching – laborions – Rootstock *P. cattelianum*

Cutting – Under mist with IBA
Planting – onset of monsoon (July- August)
Deep ploughing
Leveling
Pits – 1 meter cube
40-50 kg FYM + surface soil
- Spacing – 6 x 6 m or 5 x 5 m
- 7.5 m x 7.5 m – fertile soil
- 4.9 m x 4.5 m shallow soil
- HDP – 3 – 3.5 x 3 – 3.5 m (800 – 900 pl/ha)
- Salinity – 5-10 kg gypsum (CaSO₄) per pit in rains
Intercropping

- Peas,
- Beans,
- Cowpea,
- Grams]
- Papaya and
- pineapple
# Flowering in guava

<table>
<thead>
<tr>
<th>Flowering</th>
<th>Fruiting</th>
<th>Bahar</th>
<th>Quality</th>
</tr>
</thead>
<tbody>
<tr>
<td>April-May</td>
<td>Rainy season</td>
<td>Mrig</td>
<td>Poor quality</td>
</tr>
<tr>
<td>Rainy season (Aug-Sep)</td>
<td>Winter</td>
<td>Hasth</td>
<td>Moderate</td>
</tr>
<tr>
<td>Autumn (Oct-Nov)</td>
<td>Spring Mar-April</td>
<td>Ambe</td>
<td>Very good</td>
</tr>
</tbody>
</table>
Crop regulation

1. Hand thinning
2. Withdraw irrigation from Jan – May
3. Root exposure in Mar – April
4. NAA spray @ 80-100 ppm in April.
5. Defoliation by Urea @10% or Ethephon @ 1200ppm
6. Pruning of 25-50% shoots in End April-May.
Training and pruning

- Open centre
- No criss – crossing
- Primary branches @ 75 cm above
- Off-shoots, dried & diseased-removed
- Bearing on current season’s growth
- Therefore, light annual pruning
**Irrigation**

- Low requirements
- Early stages, 8-10 irrigations a year.
- Full grown bearing, 15 days interval in April – June – good yield
- South India – Irrigation – fruits through out the year.
<table>
<thead>
<tr>
<th>AGE (Yr.)</th>
<th>FYM (kg)</th>
<th>N (g)</th>
<th>P$_2$O$_5$ (g)</th>
<th>K$_2$O (g)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>5</td>
<td>50</td>
<td>40</td>
<td>90</td>
</tr>
<tr>
<td>2</td>
<td>10</td>
<td>100</td>
<td>80</td>
<td>180</td>
</tr>
<tr>
<td>3</td>
<td>15</td>
<td>150</td>
<td>120</td>
<td>270</td>
</tr>
<tr>
<td>10</td>
<td>50</td>
<td>500</td>
<td>400</td>
<td>900</td>
</tr>
</tbody>
</table>
# MANURES & FERTILIZERS

<table>
<thead>
<tr>
<th>AGE (Yr.)</th>
<th>CAN (g)</th>
<th>SP (g)</th>
<th>MOP (g)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>200</td>
<td>250</td>
<td>150</td>
</tr>
<tr>
<td>2</td>
<td>400</td>
<td>500</td>
<td>300</td>
</tr>
<tr>
<td>3</td>
<td>600</td>
<td>750</td>
<td>450</td>
</tr>
<tr>
<td>10</td>
<td>2000</td>
<td>2500</td>
<td>1500</td>
</tr>
</tbody>
</table>
Time of Fertilizer Application

- Apply FYM in December.
- Apply fertilizers in two doses during May-June and September-October.
Micro-nutrition

Zinc

- Zn + B - Important
- Zn – Intervenal chlorosis
- Reduction in leaf size and fruits - Rosette
- Common in water logged areas:
- **Control** – 1 Kg. ZnSO4 + 1 Kg unslaked lime / 100 lit water – 2 sprays
Harvesting

- 2nd (or) 3rd year
- Greenish yellow & softness
- 4-5 months for maturity
- 1000 fruits – 10 year tree
- 12-15 t/year/ha
Post Harvest Management

- Highly perishable
- Therefore, immediate marketing
- Storability – 2 days @ room temperature
- Lucknow-49 – 1 month @ 10°C
- MH 1000 ppm + 6% waxol – higher shelf-life
- Storage: 8-100°C temperature; 80-90% RH and can be stored for 4 weeks
Thank you