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Study of Mango Crop and Its Physiological Disorders – A Review

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ARTICLE ID: 35

Introduction

Mango (Mangiferaindica) is the leading fruit crop of India and considered to be the king of fruits related (family-Anacardeaceae) besides delicious taste, excellent flavor and attractive fragrance, it isrichin vitamin A & C. The tree is hardy in nature, can be grown in a variety of soil and requires comparatively low maintenance costs. Mango fruit is *utilized* at all stages of its development both in its immature and *mature state*. Raw fruits areusedformakingchutney, pickles and juices. The ripe fruits besides beingused for desert are also *utilized* for preparing several products like squashes, syrups, nectars, jams and jellies.

Scope for Mango Cultivation and its NationalImportance

- Mango production in the country is estimated to increase 4.24 percent to 21.12 million tons in the crop year 2020-21 ending June.
- The national average productivity is a slow as 5.5 t/ha while Uttar Pradesh, which tops in the productivity produces more than10 t/ha.
- Uttar Pradesh and Andhra Pradesh are having the largest area under mango each with around 23 % of the total area followed by Karnataka, Bihar, Gujarat and Tamilnadu.
- Fresh mangoes and mango pulp are the important items of agri-exports from lndia. India's main export destinations for mango are UAE, Bangladesh, UK, Saudi Arabia, Nepal, Kuwait, USA and other countries.
- India's share in the world mango market is about 15%.

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Climate and soil requirement

Mango can be growing under both tropical and sub-tropical climate. A good rainfall and dry summer are ideal for mango cultivation. Mango can be grown on a wide range of soils from alluvial to later. *its*. *Prefers lightly acidic* soil (pH 5.5 to 7.5).

Irrigation

Young plants are watered frequently for proper establishment. In case of grow nuptrees, irrigation at 10 to 15 days interval from fruit set to maturity is beneficial for improving yield.

Varieties:-

Though there are nearly 1000 varieties of mango in lndia.

1. **Mallika**-It is a cross between Neelam and Dasheri. Fruits are medium sized and good quality, reported to be a regular bearer.
2. **Amr apali**-It is a cross between Dasheri and Neelam.
3. **Ratna**-It is a cross between Neelam and Alphonso. It is a regular be are and free from spongy tissue.

Other varieties:- Alphonso, Bangalora, Banganpalli, Bombay Green, Dasheri, Fazli, Fernandin, Himsagar, Kesar, Kishen Bhog, Langra, Mankhurd, Mulgoa, Neelam, Samarbehist, Chausa, Suvarna rekha, Vanaraj and *etc.*

Propagation:-Farmers should always get vegetative propagated, true to type plants from recognized *nurseries. Inarching*, veneer grafting, side grafting and *epicotyls* grafting are the popular methods of propagation in mango.

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Spacing and population

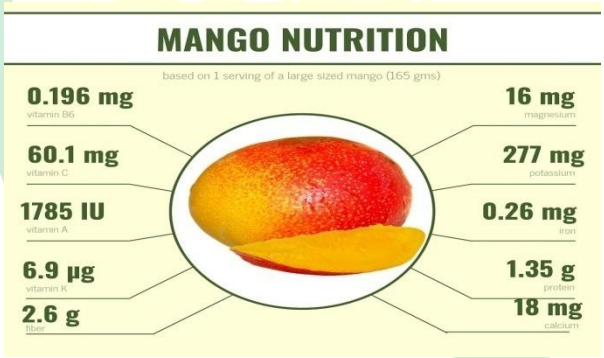
Spacing 10 m x10 m/ Plant Population.

Fertilizer and Nutrients required:

Manures and Fertilisers (kg/plant)	1 Year old	Annual increase	6th year onwards
FYM	10.0	10.0	50.0
N	0.2	0.2	1.0
P_2O_5	0.2	0.2	1.0
K_2O	0.3	0.3	1.5

Nutritional value of mango:-

The mango is high nutritional fruit having rich source of vitamin A and other vitamins and minerals also.



Post-Harvest Management

- **Storage**: Shelf life of mangoes being short (2 to 3 *weeks)* they are cooled as soon as possible to storage temperature of 13°C. A few varieties can with stand storage temperature of 10°C.
- **Packaging**: Mangoes are generally packed in corrugated fibre board boxes 40 cm x 30 cm x 20 cm in size. Fruits are packed *i*n single layer 8 to 20 fruits per carton. Having holes on for proper *air circulation*.
- **Other operations like***:-post* harvest handling include *preparation*, grading, washing, drying, waxing, packing, pre-cooling, palleti sation and transportation.

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Diseases of mango fruit / tree:-

1. **Powdery mildew**

This is a major disease of mango. Mildew disease ofmango are affect all mango growing country, in *India* majorly this disease caused in mango and caused yield loss and more economic loss of farmers.

Causal organism –*Oidium mangiferae* (fungus)

Important point

- Most serious disease caused in month of Feb-March.
- Loss up to 30-90 % in mango yield
- Resistant var – Lal sinduri
- Control – 0.1 % karathane

2. **Anthrecnose**

Important point

Causal organism - *Colletotrichum gloesporoides*

- Optimum temp:-24-32°C favourable for fungus development of this disease.
- Use hot water treatment and fungicide for control of this disease.
- Resistant variety- Adward (in Kerala).

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3. **Bacterial canker**

Important points

- Causal organism - Bacteria
- Management :- streptomycin or agromycin 2 %.
- Cultural practices can be done for disease control i.e.bacterial canker .

Physiological disorders of mango

1. **Mango Malformation**

Causes-

- Due to low temperature,Mites, virus or fungus cause the harm on mango floral part.
- Control measures- Bombay-green-highly susceptible. Spray NAA(200°ppm) in oct.

2. **Fruit dropping**

Pre-mature fruit dropping in mango is very serious problem which caused by environmental factors and nutrition unavailability.

Control -

- Maximum fruit drop takes place in last week of April or first week of may.
- Spray 20 ppm 2,4-D-(2 g in 100 lit water).

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3. **Black tip of Mango**

In mango black spot are seen this is caused due to smoke of brick kilns (chimeny) the harmful gases like sulphur dioxide, carbon monoxide and nitrogen dioxide cause black spot on the tip portion of mango. Due to this the quality of mango redused.

Control-

- Borax spray 0.6 % and ensure the mango tree are planted away from chimneys.
- Regular spray of water on foleage of mango tree will helpful.

4. **Spongy tissue**

It is a major problem in Alphonso, where a pulp patch fails to ripen. This malady is caused due to inactivity of ripening enzymes due to high temperature, convective heat and post harvest exposure to sunlight

Control-

- Use of mulching and post harvest exposure to low temperatures between 10-15 C for
- 10-18 hours has been useful in reducing the malady.
- The earlier harvesting of the fruit and its subsequent ripening with ethylene was

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- reported to reduce the incidence of spongy tissue disorder in 'Alphonso' mango.
- Use the verities which tolerate this disease.