

#### 4. Phytophthora fruit rot

Water-soaked lesions on unripe fruit that oozes latex; withering fruit; water-soaked lesions on leaf scars of fruit bearing stem; mature fruit covered in white mycelium.

**Management:** It can be controlled such as mancozeb or Bordeaux mixture@1%.



#### 5. Cercospora black spot

Tiny black dots on fruit which enlarge to 3 mm across; spots are slightly raised and although indistinct on unripe green fruit, become visible on ripening to yellow; lesions on leaves are irregular in shape and gray-white in color; if infestation is severe, leaves may turn yellow and necrotic and drop from plant.

**Management:** It can be controlled such as mancozeb or Bordeaux mixture@1%.



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## Advance Production Technology of Papaya



**Prepared by:** Ph. Chandramani Singh, ACTO (Horticulture)

**Published by:** Dr. Debasis Sasmal

Programme Co-ordinator I/C, KVK, Lohit, Namsai District.  
under

Director, ICAR-NRC on Yak, Dirang, W. Kameng, Arunachal Pradesh

**Typed and Designed by:** Md. Ziaur Rahman, Programme Assistant  
(Computer)

[For further details contact](#)

**E.mail :** pckvklloit@gmail.com / Ph.No. 03806200100 & 222381

**Krishi Vigyan Kendra,  
Lohit, Namsai Dist., Momong  
Arunachal Pradesh**

**Pin-792102**

**Under**

**ICAR-NRC on Yak, Dirang, West Kameng Dist.  
Arunachal Pradesh**

**Papaya** (*Carica papaya*) has a high nutritive and medicinal value. Papain prepared from dried latex of its immature fruits is used in pharmaceutical industries, textile and garment cleaning paper.

**Varieties:** Pusa Delicious, Pusa Majesty, Pusa Giant, Pusa Dwarf, Pusa Nanha, Taiwan.

**Planting Material:** Papaya is commercially propagated by seed and tissue culture plants. The seed rate is 250-300 g./ha. The seedlings can be raised in nursery beds 3m. long, 1m. wide and 10 cm. high as well as in pots or polythene bags.. About 15-20 cm tall seedlings are chosen for planting in about two months.

**Planting season:** Papaya is planted during spring (February-March) and monsoon (June-July).

**Spacing:** A spacing of 1.8 x 1.8 m. is normally followed. A closer spacing of 1.2 x 1.2 m. for cv. Pusha Nanha is adopted for high density planting, accommodating 6,400 plants/ha.

**Planting Method:** The seedlings are planted in pits of 60x60x60 cm. size. In the summer months the pits are dug about a fortnight before planting. The pits are filled with top soil along with 20 kg. of farmyard manure., 1 kg. neem cake and 1 kg. bone meal.

**Nutrition:** Papaya plant needs heavy doses of manures and fertilizers. Apart from the basal dose of manures (@ 10 kg./plant) applied in the pits, 200-250 g. each of N, P<sub>2</sub>O<sub>5</sub> and K<sub>2</sub>O are recommended for getting high yield. Application of 200 g. N is optimum for fruit yield but papain yield increases with increase in N upto 300 g.

**Removal of male plants:** About 10% of the male plants are kept in the orchards for good pollination where dioecious varieties are cultivated. As soon as the plants flower, the extra male plants are uprooted.

## Importance Insect, Pest and Diseases:

### 1. Papaya mealybug

Flattened oval to round disc-like insect covered in cottony substance on tree; chlorosis, plant stunting, leaf deformation, early leaf and fruit drop insects attract ants which may also be present; insect colony may also be associated with growth of sooty mold due to fungal colonization of sugary honeydew excreted by the insect.



**Management:** Mealybugs can potentially be controlled by natural enemies such as lady bird beetles . Spraying of insecticides like Dimethoate or Imidacloprid @1.5 ml/L

### 2. Papaya ring spot

Dark green rings on fruit which may be slightly sunken and become less distinct as the fruit ripens; fruits may have uneven bumps; leaves often exhibit a bright yellow mosaic pattern and new leaves are small and plant growth is stunted.



**Management:** Spraying of insecticides like Dimethoate or Imidacloprid @1.5 ml/L

### 3. Anthracnose and charcoal spot

Small water-soaked lesions of fruit during ripening, circular sunken lesions with light brown margins.

**Management:** Spraying of Mancizeb or Carbendazim @2g/L; dipping fruits in hot water at 48°C for 20 minutes reduces the incidence of the disease.

