



# Cape gooseberry

## Remunerative Crop for Marginal Farmers Livelihood

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Cape gooseberry (*Physalis peruviana* L) is one of the herbaceous minor fruit crop and belongs to the family Solanaceae. In India, it is mainly grown in few pockets of tropical, sub-tropical and temperate condition of Uttar Pradesh, Punjab, Rajasthan, Bihar, W.B. and J&K. etc. In Bihar, Cape gooseberry is traditionally cultivated by several small and marginal farmers of Nalanda, Gaya, Aurangabad, Buxer

and adjoining areas of districts of Bihar. The Cape gooseberry produces cherry size, attractive golden-yellow delicious fruits. The ripe fruits are marketed in local market especially on the occasion of Saraswati worship and Maha Shivratri and farmers get high fruit values. A farmer can fetch net return Rs. 3.03 lac form one hectare of six month crop.

### Introduction

Cape gooseberry (*Physalis peruviana* L) is underutilized fruits and traditionally known as Mokai, Tipari, Bhutka, Rashbhari etc. The genus *physalis* contains around more than 100 species of annual and perennial herbs. Several species of *physalis* are grown for their edible

fruits like, *P. peruviana* L. (Cape gooseberry), *P. pruinosa* L (Strawberry tomato), *P ixocarpa* Brot. (Husk Tomato). It is cultivated as an annual, but in the absence of frost it can be a perennial (Legge, 1974).



Fig 1. Cape gooseberry at farmers field



Fig 2. Cape gooseberry at farmers field



Fig 3. View of individual plant of cape gooseberry with heavy bearing



Fig 4. Fruits of cape gooseberry

It is grown successfully as cash crop in the form of sole crop, intercropping along with perennial fruit orchards and kitchen garden for their cherry size, attractive golden yellow and delicious fruits. Fruits are yellow-orange berries (1-3.5cm diameter), very juicy, aromatic, with slight bitter and sweet taste. The fruits are enclosed by the calyx which grows at a faster rate after fertilization and covers the fruit completely forming a bladder shape cover (Morton, 1987). The fruits are eaten fresh or can be prepared as excellent jam, ice cream and sweet pickles; sometimes it is canned in heavy

### **Package of practices for cultivation of Cape gooseberry**

#### **Climate & Soil**

It has wide range of climatic adaptability but well suited to Cooler months of Tropical and Subtropical areas. Loam to sandy loam soil with 6.5-7.5 pH is ideal for cultivation but it can be well grown in organic matter rich soils with well drainage facilities.

#### **Land preparation**

Land must be well prepared by first deep ploughing during summer afterward tillage should be done by power tiller/cultivator. At the time of final land preparation apply Phorate 10 G @ 15 Kg./ha. to control soil borne pests. After land preparation, field should be divided into small plots and sub-plots for convenience of transplanting and irrigation.

#### **Planting**

Cape-gooseberry is commercially propagated by seed. So, the seed must be sown on raised nursery bed in the month of August-September and about 30-35 days old seedlings should be transplanted in the well prepared field as per layout (at 60 x 60 cm spacing). Transplanting should be done during the evening and apply light irrigation just after transplanting with watering cane and continue till establishment of the plants.

#### **Manure and fertilizers:**

For better growth and yield of the plants, 20-25 t/ha Farm Yard Manures, 90 Kg./ha. Nitrogen, 80 Kg./ha. Phosphorus and 60 Kg./ha. Potash should be applied. 1/3<sup>rd</sup> Nitrogen + whole amount of Phosphorus, Potash and Farm Yard Manures should be mixed in the soil at the time of final land preparation before transplanting. Remaining nitrogen will be applied in 2 split doses, first dose one month after planting and

sugar syrup. The origin and diversification of Cape gooseberry is Andean zone, mainly in Colombia, Peru and Equador, from where it was disseminated to different climates of tropical, subtropical and temperate regions (Hawkes, 1991). In India, it is mainly grown in few pockets of tropical, sub-tropical and temperate condition of Uttar Pradesh, Punjab, Rajasthan, Bihar, West Bengal. and Jammu & Kashmir. etc. The major growing districts in Bihar are Nalanda, Gaya, Patna, Buxer and adjoining areas.

second dose one month later during the earthing up.

#### **Irrigation**

Irrigation is important factor which affects the growth and yield, therefore, proper irrigation management is necessary. First irrigation apply just after transplanting and subsequent irrigations should be given at an interval of 10-15 days depending upon climatic condition, soil texture and water holding capacity of the soil. Heavy irrigation may harm the plants and vegetative growth will extend and ultimately fruit setting will be less like other solanaceous crops.

#### **Weed management**

For weed management, plot must be inter-culture manually at 15, 30 and 60 days after transplanting. After 30-35 days of transplanting, earthen-up making heap at the base of the plant.

#### **Plant protection**

Mostly termites attack on the cape gooseberry plants. So, to control termite use Chlorpyrifos @ 3ml/litre water and drench in the affected plots. Aphids suck the plant sap and produces blackish appearance due to secretion of sooty mould. Aphids may be controlled by spray of Imidacloprid @ 0.5 ml/liter or Dimethoate 30 EC @ 1ml/litre of water. Mites may cause leaves defoliation and can be controlled with the spray of Sulfex 80% WP @ 2gm/litre of water.

Sometimes, sporadic Mosaic symptoms and curling of leaves can be observed in the field. Uproot and destroy the affected plants. Vectors (insects) population should be managed by spraying of systemic insecticides. Sometime crop may be attack by powdery mildew and leaf

spot. It can be controlled with the two spray of Sulfex 80 % WP @ 2gm/litre of water at 15 days interval.

#### Harvesting

After 90-100 days of transplanting, fruits started to reach at physiological maturity. Picking started when cape of the fruit converted into straw colour from green. Changing of fruit colour from green to orange indicated that fruit are ready for picking and further picking may be done after 5-7 days intervals.

#### Yield (Quintal/hectare)

Yield of fruits varies due to climatic conditions, locality, soil types, cultivars/genotypes and management practices. However, under good

management of crop produces 184-220q/ha fruits in sub-tropical condition of Bihar.

#### Economic profitability

The well adopted thirteen local collections of Cape gooseberry were grown at the farm of Nalanda College of Horticulture, Noorsarai, Nalanda during the last week of August for its suitability, yield and economics. Amongst them, 'NCOH CAP S-9 (Gaya-1)' produced maximum fruit yield (184.03 q/ha), highest gross return Rs. 4.60 lac, net return Rs.3.03 lac, and benefit cost ratio 2.92 were recorded (Table-1). Cost of cultivation and net return may vary as per cost of fixed and variable inputs and price of fruits in the local market.

**Table:-1. Average fruit yield and economics of Cape gooseberry under sub-tropical conditions of Nalanda, Bihar.**

Date of sowing	25 <sup>th</sup> August
Cultivar/genotype	NCOH CAP S-9 (Gaya-1)
Yield (q/ha)	184.08
Gross return (Rs. Lac)	4.60
Net return (Rs. Lac)	3.03
Benefit cost ratio	2.92

#### Conclusion

It can be concluded that the cultivation of Cape gooseberry may be beneficial to small and marginal farmers to get remunerative income from six-month crop. Average return Rs. 3.0 lac could earn with suitable date of sowing i.e. 25<sup>th</sup>

August. Development of proper marketing channel, post-harvest technology and value addition would be rewarding for commercial cultivation of this valuable crop.

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