

Karonda – A Potential Under Utilized Fruit Crop

(*G. Sathish)

Associate Professor (Hort.), Regional Research Station, Tamil Nadu Agricultural University (TNAU), Vridhachalam, Cuddalore District

*Corresponding Author's email: sathish@tnau.ac.in

Botanical Name: Karonda - *Carissa carandas*

Family: Apocynaceae

It is a hardy, evergreen, spiny and indigenous shrub. Widely grown in India, and found wild in Bihar, West Bengal and south India. It is grown commonly as a hedge plant. Regular plantations of Karonda are very common in Varanasi district of Uttar Pradesh. Fruits are sour and astringent in taste, and richest source of iron containing good amount of vitamin C.



Climate and soil: Karonda is very hardy and drought tolerant, thrives well throughout the tropical and subtropical climates. Heavy rainfall and waterlogged conditions are not desirable. It can be grown on a wide range of soils including saline and sodic soils.



Varieties: Cultivated types are classified on the basis of fruit colour—green-fruited, whitish fruits with pink blush and dark purple fruited. Natal plum, an African species (*Carissa grandiflora*), bearing large and dark red fruits is also grown in India.

CHES- K-II-7 This is promising line indentified from the seedling population at CHES Chettalli .The plants are medium size and flower in the month of Feb.-March and fruit ripe in the month of May-June. Fruits are oblong in shape and 12 -13 g in weight. The colour of fruits is dark blackish violet in colour and thin fruit skin. A four year old trees yield around 1800-2100 fruits per plants per year. Fruits are sweet with TSS 15° Brix and acidity - 1.08%. This is suitable for table purpose and processing.

CHES- K- V-6: This is promising line indentified from the seedling population at CHES Chettalli. The plants are medium size and it flowers in the month of January-February and fruits in May-June. The average fruit weight around 13-15 g, dark blackish red in colour with red pulp and very less seeds. The Total soluble solids of fruit is around 16°Brix with 1.18percent acidity and 21 mg vitamin-C/100g pulp. A four year old tree yield 1200-1500 fruits per year. Fruit are also rich in Vitamin –B. This variety is suitable for table purpose.

Pant manohar This variety is developed from GBPUA&T Pantnagar (Uttarakhand) in 2007. The plants of this varieties are medium– sized dense bushes, fruits are dark pink blush on

white background, weighing 3.49g. seeds 3.94 / fruit , flesh 88.27%, dry weight 12.77% , TSS 3.92%, total titrable acidity 1.82% and yield 27 kg / plant.

Pant Sudarshan This variety is developed from GB PUA&T Pantnagar (Uttarakhand) in 2007. The plants of these varieties are medium– sized dense bushes. Fruits are pink blush on white background. On ripening fruits become dark brown. Average fruit weigh 3.46 g, seeds 4.68 / fruit , flesh 88.47% , dry weight 11.83% , TSS 3.45%. total titrable acidity 1.89% and yield 29 kg / plant.

Pant Suvarna This variety is developed from GB PUA&T Pantnagar (Uttarakhand) in 2007. Plants are upright growing and sparse. Fruits are colour dark brown blush on green background. Average fruit weight 3.62 g, seeds 5.89 /fruit, flesh 88.27%, dry weight 12.39%, total titrable acidity 2.30% and yield 22 kg / plant. On ripening, fruit colour changes to dark brown.

Konkan Bold

This variety is developed from Konkan Krishi VidyaPeeth, Dapoli (Maharashtra) in 2004. The plants are medium in size and vigorous. It flower in the month of Feb.-March and fruit ripe in the month of May-June under Coorg conditions. Fruits are oblong in shape and 12-154g in weight. The colour of fruits is dark purple . The fruits are sweet with 10-12°Brix Total soluble solid. The trees are prolific bearing and produced 2000-2500 fruit per year. This variety is suitable for table purpose.

Propagation: Karonda is commonly grown from seeds. Vegetative methods—air-layering and hard wood cuttings—are not very common). The fresh seeds are sown in nursery during August–September. One-year old seedlings are transplanted. Air-layering is very successful in karonda. It can be performed in the beginning of the monsoon. Rooted layers can be separated 3 months after layering.

Cultivation

Planting: Pits of 45-60 size are dug and filled with organic manure and soil, in a 1:2 ratio. The planting distance for fence/hedge should be 1–1.5m, requiring 300–400 plants for planting the boundary of one hectare land. In intercropping with fruit trees and with regular planting, 2m distance both ways is required. Beginning of monsoon is ideal time of planting.

Training/pruning: Regular plantations of karonda can be trained on single or double stem. Therefore, additional unwanted shoots or laterals are removed from time-to-time to give the plant desired shape. Bearing plants normally do not require any pruning. Suckers arising from ground and diseased, dried twigs should be removed.

Manuring and fertilization: Karonda plants grown as protective hedge are hardly manured or fertilized. Manuring, however, is beneficial. Otherwise its plants slowly get exhausted after taking 2 crops and show symptoms of die back. Therefore, 10–15 kg well-rotten farmyard manure or compost/plant should be applied before flowering.

Aftercare: Since karonda is a hardy plant, it requires very little care. Suckers appearing from the ground in regular plantation must be removed timely. Hoeing is essential for removing the weeds. Seasonal vegetables (chilli and cauliflower) or medicinal plants (matricaria) can be intercropped in first 2 years of regular plantation.

Irrigation: Water requirement of karonda is very low. Irrigation after planting and manuring is essential. Plantation once established does not need much water. However, if there is no rain during the development of fruit, one irrigation is given, which helps increase the fruit size.

Harvesting and Postharvest management: Plants raised with seeds start bearing in third year of its planting. The plants flower during March. The fruits ripen from July to September

in north India. In arid conditions, flowering starts late and fruits ripen in post-monsoon period. Karonda requires 2–3 pickings. On an average a plant provides 3–5kg fruits. Karonda fruits mature 100–110 days after fruit set. At this stage fruits develop their natural colour. Fruits ripen after this stage, taking about 120 days (after fruit set) when they become soft and attain dark purple/maroon/red colour.

Health Benefits of Karonda: Karonda has a lengthy history in Indian folk medicine. Tribes in the Western Ghats use the fruit as a blood sugar stabilizer and as a guard against liver damage. As further explained by the National Bureau of Plant Genetic Resources, various groups have utilized the fruit to remedy biliousness, anemia, parasites, worms, fungal infections, diarrhea, microbes, wounds, skin infections, fevers, and ear infections.

Karonda is a dry land fruit crop which require less amount of water. Research information on Karonda is lacking in India as well as abroad. However, these hardy, evergreen, spiny and indigenous shrubs widely grown in India have the richest of iron mineral among the fruit crops. It can be cultivated in wide range of soils. Karonda is help to cure many diseases and also has important nutrient content i.e., Iron. Cultivating high yield varieties gives benefit to the farmer in dry land condition.

