

# Value Added Products from coconut

Being a zero wastage product, the product basket from coconut is enormous. Some of the value added products from coconut are Desiccated Coconut (DC), Virgin Coconut oil, Coconut chips, Coconut milk, Coconut milk powder, Coconut Vinegar, Coconut oil, Tender Coconut water, Ball copra, Neera and Neera products, Coconut ice cream, Coconut body lotion and so on. As part of the product promotion, commercial production units have been started in various parts of the country under Technology Mission on Coconut (TMoC).

**CDB is providing financial assistance @ 25% of the project cost limited to Rs.50 lakh for entrepreneurs and 33.3% of the project cost limited to Rs. 50 lakh per project for SC/ST Women entrepreneurs for establishment of coconut processing units.**



## Coconut Chips



Coconut chips is a ready-to-eat snack food. It is prepared in salted and sweetened forms. The Central Plantation Crops Research Institute, Kasaragod has standardized the process for preparation of chips. Coconuts of 9-10 months are used for the preparation of chips.

### Composition of Coconut Chips

Sl. No	Parameters	per 20 g
1	Fat	9.42g
2	Lauric acid	4.82g
3	Calcium	2.10mg
4	Fiber	1.93g
5	Iron	1.30mg
6	Cholesterol	0.00

Installed Capacity - 10000 nuts/day  
Investment - Rs. 35 lakhs  
IRR - 22 %  
Incentive: 25% of the project cost or a maximum of Rs. 50 lakhs





# Coconut Oil

Coconut oil is rather a unique cooking oil as it contains the short and the medium chain saturated fatty acids. It finds extensive use in the food industry due to its characteristics such as easy melting behaviour, resistance to oxidative rancidity, pleasing flavour and good digestibility. Coconut oil has gained importance as a dietary fat because of its high content of lauric acid, the source of monolaurin in the body and 16W content of Omega 6. It can be used for manufacturing margarine and shortenings. Coconut oil is preferred as a fat in the preparation of filled milk, infant milk powder, ice-cream and confectionery and bakery products. Because of its stable character, coconut oil is the preferred fat for deep frying.



Coconut oil - Product Specification	
(IS-542-1968)	
Moisture % wt., Max.	0.25
Colour in 1/4 cell Lovibond Y+5R, not Deeper than	4
Acid value, Max.	2.0
Unsap. matter % by wt., Max.	0.8
Polenske Value, Min.	0.8

Installed Capacity - 3 tonnes/day

IRR - 28%

Investment - 65 lakhs

Incentive: 25% of the project cost or a maximum of Rs. 50 lakhs

### Studies undertaken by the Biochemistry Department, University of Kerala showed that coconut oil:

- Does not elevate blood total cholesterol and increases blood HDL cholesterol
- If consumed along with coconut kernel, lowers blood cholesterol
- Does not elevate LDL cholesterol or LDL cholesterol/HDL cholesterol ratio
- Decreases serum triglycerides

A large number of branded coconut oil in consumer packs are marketed in the country. Coconut oil is refined for industrial use. The refined coconut oil is water white in colour with no aroma. Since coconut oil has the lowest level of unsaturated fatty acids among all vegetable oils, the cost of hydrogenation is much less than all other oils.

Parameters	In 100 ml
Total solids%	6.5
Reducing sugars %	4.4
Minerals %	0.6
Protein %	0.01
Fat %	0.01
Acidity mg %	120.0
pH	4.5

Parameters	In 100 ml
Potassium mg%	290.0
Sodium mg%	42.0
Calcium mg%	44.0
Magnesium mg %	10.0
Phosphorous mg%	9.2
Iron mg%	106.0
Copper mg%	26.0

## Copra



Two types of copra, namely the milling and the edible, are made in India. The milling copra is used to extract oil while the edible copra is consumed as a dry fruit. Edible copra is made in the forms of balls and cups. Copra contains the highest percentage of oil compared to other oil seeds. It contains 15-20 percent carbohydrates, 9 percent protein and 4.10 percent crude fibre besides 65-68 percent fat. The carbohydrate fraction consists of a large percentage of cellulose and sucrose together with other sugars. Besides glucose and fructose the presence of galactose, raffinose and pentoses is also reported.

Installed Capacity - 10000 nuts/day Investment - Rs. 35 lakhs

IRR - 18 %

Incentive: 25% of the project cost or a maximum of Rs. 50 lakhs

# Coconut Water based Products

## Tender Coconut Water

The water of tender coconut (TCW) is a sterile, nutritious and thirst quenching health drink. It possesses therapeutic properties. The TCW has a calorific value of 17.4 per 100gm.

TCW is rich in potassium and other minerals. Sugars form an important constituent of the TCW. The concentration of sugars in the nut water steadily increases from about 1.5 per cent to 5-5.5 per cent in the early months of maturation and then slowly falls reaching about 2 per cent at the stage of the full maturity of the nut.

Installed Capacity - 10000 litres/day  
IRR - 22%

Investment - Rs. 1.5 crore  
Incentive: 25% of the project cost  
or a maximum of Rs. 50 lakhs

## Vinegar

Coconut vinegar is made from fermented coconut water and is used extensively as a preservative and flavouring agent in pickles, salads, sauces and many other condiments. Coconut vinegar is also made from the sap of the coconut tree and is similar to the fresh coconut water. Naturally fermented coconut vinegar is rich in minerals and vitamins such as beta carotene, calcium, iron, magnesium, phosphorous, potassium and sodium. Raw, unfiltered organic coconut vinegar is similar to the one that is fermented naturally. Coconut vinegar helps in digestion and improves the quality of cooked meat and fish. It is a healthier alternative to synthetic vinegar.

Installed Capacity - 1000 litres/day  
IRR - 20%

Investment - Rs. 10 lakhs  
Incentive: 25% of the project cost  
or a maximum of Rs. 50 lakhs



## Coconut squash

It is a nourishing and refreshing healthy soft drink concentrate prepared by mixing coconut water, sugar and natural preservatives like lemon and ginger. It is rich in vitamins and minerals with low calorie. The product has a shelf life of three months under ambient conditions. The product is a new item and is gaining popularity in Asia and Pacific countries.

Installed Capacity - 1000 litres/day  
IRR - 20%

Investment - Rs. 50 lakhs

Incentive: 25% of the project cost or a maximum of Rs. 50 lakhs



## Nata-de-coco

Nata-de-coco a cellulosic white to creamy yellow substance formed by acetobacter aceti subspecies Xylinium, on the surface of sugar enriched coconut water / coconut milk / plant extract / fruit juices or other waste materials rich in sugar.

It is popularly used as a dessert. It is also used as an ingredient in food products, such as ice cream, fruit cocktails, etc.

“Nata” is a Spanish word, derived from the latin word “Natare” meaning “to float”. Nata making plays an important role in the development of our coconut industry because of the growing interest in its production from coconut water, an abundant waste product of coconut processing units.



Nata can be prepared from various fruits like banana, pineapple, tomato etc. and the product is named after the media used, like “Nata de coco” from coconut, “Nata de pina” from pineapple etc. We can also use coconut milk, finely shredded coconut meat or coconut water in preparing Nata.



Installed Capacity - 50 kg/day

Investment - Rs. 10 lakhs

IRR - 20%

Incentive: 25% of the project cost  
or a maximum of Rs. 50 lakhs

## COCONUT INFLORESCENCE Based Food Products

### Neera

The vascular sap collected from immature unopened coconut inflorescence is popularly known as Neera in fresh form. It is a sugar containing juice and is a delicious health drink and a rich source of sugars, minerals and vitamins. It is sweet and oyster white in colour and translucent. It is tapped from the coconut inflorescence and is filtered, pasteurized and bio preservatives are added to preserve the product. Treated Neera can be preserved in cans upto two months at room temperature. It can also be packed in tetra packs or glass bottles. Tapping can be done for six months in a year. It is an abundant source of minerals, 17 amino acids, vitamin C, broad spectrum B vitamins and has a nearly neutral pH.



Composition of Neera			
Sl. No	Parameters	Raw Neera	Packed Neera
1	pH	6.2	5.2
2	Brix/TSS	15.13%	15.37%
3	Total sugar	15.00 %	15.00 %
4	Total mineral matter	0.27 %	0.26 %
5	Protein	0.106 %	0.106 %
6	Fat	traces	nil

**Installed Capacity - 5000 litres/day**  
**Investment - Rs. 2.5 crore**  
**IRR - 28%**  
**Incentive: 25% of the project cost or a maximum of Rs. 50 lakhs**



## Coconut Jaggery

Coconut jaggery is prepared by boiling fresh neera to 118-120<sup>o</sup> C and allowed to cool for solidification. The solid mass is known as coconut jaggery or 'gur'. Coconut jaggery is made in traditional coconut growing tracts in the country on a cottage scale. Calcium and phosphorus are the important minerals contained in coconut jaggery. Treacle is another product manufactured from sweet toddy. It is obtained by boiling down the toddy. Fresh toddy is also a good source of baker's yeast. The fresh neera rapidly ferments and the sugar is replaced by about 5-8 per cent alcohol, which on distillation yields arrack. Fermented neera on acetic fermentation yields vinegar containing 4-7% acetic acid.

Nutritional value of jaggery		
Sl No	Parameters	Amount (%)
1	Moisture	9.1
2	Carbohydrate	87.54
3	Protein	0.72
4	Minerals	1.97
5	Fibre	0.46



**Installed Capacity - 200 Kg/day**    **Investment - Rs. 15 lakhs**  
**IRR - 18%**  
**Incentive: 25% of the project cost or a maximum of Rs. 50 lakhs**

## Coconut Palm Sugar

The coconut palm syrup or jaggery can be crystallized to produce fine granules of sugar. Transition of coconut jaggery into a ground granule sweetener is more accepted by global markets. The recovery of palm sugar from coconut palm jaggery is 15%. The application of this sugar is tremendous and offers huge potential owing to its most important health attributes, the low Glycemic index and the high nutrient content. It can be the most suited alternative sweetener, especially when agave sugar is being rejected owing to the high fructose content. This alternative sugar industry is estimated to be a \$1.3 billion industry and hence the market prospects are enormous.

