

The Complete Book on Coconut & Coconut Products (Cultivation and Processing)

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Coconut is one of the oldest crops grown in India and presently covers 1.5 million hectares in this country. Found across much of the tropic and subtropical area, the coconut is known for its great versatility as seen in the many domestic, commercial, and industrial uses of its different parts. Coconuts are part of the daily diet of many people. Its endosperm is initially in its nuclear phase suspended within the coconut water. As development continues, cellular layers of endosperm deposit along the walls of the coconut, becoming the edible coconut flesh. When dried, the coconut flesh is called copra. The oil and milk derived from it are commonly used in cooking and frying; coconut oil is also widely used in soaps and cosmetics. The clear liquid coconut water within is a refreshing drink and can be processed to create alcohol. The husks and leaves can be used as material to make a variety of products for furnishing and decorating. It also has cultural and religious significance in many societies that use it. India stands third in the production of coconut in the world. There are only two distinguishable varieties of coconut; the tall and the dwarf. As a result of cross pollination in the tails, a wide range of variations occur within the same variety. Coconut based cropping/farming systems promote on farm diversity and strengthens ecological base of coconut farming. Coconut husk is the raw material for the coir industry. It is also used as a domestic fuel and as a fuel in copra kilns. Coconut oil comes under edible/industrial group, is used as cooking oil, hair oil, massage oil and industrial oil. It is dominated by saturated fats and high percentage of lauric acid. India accounts for the 18% of total coconut production in the world and it is the third largest coconut producing country in the world. Coconut processing adds value, and a number of products like coconut oil, desiccated coconut, coir fibre, pith, mattresses, desiccated coconut (DC), coconut cream, coconut milk, spray dried coconut milk powder, coconut shell products, shell charcoal, shell powder, virgin coconut oil are obtained. The demand for coconut oil increases 15 to 20 % during the festival season. Coconut oil for edible purposes is now being claimed to be the second best edible oil in the world, after Olive oil. Coconut shell charcoal is most widely used as domestic and industrial fuel.

Some of the fundamentals of the book are product diversification in coconut, future of coconut oil, scope for product diversification, varieties of coconut, farming systems in coconut, organic farming of coconut, spices and herbs, establishment and maintenance of organic coconut plantations, production of organic spices, medicinal and aromatic plants along with coconut, crop improvement, green manuring in coconut garden organic recycling in coconut, soil moisture conservation in coconut garden, harvest and post harvest technology, integrated farming in coconut holdings for productivity improvement, machinery and processing of desiccated coconut, coconut processing sector in India, etc.

Coconut plays an important role in the economic, social and cultural activities of millions of people in our country. India is a major producer of coconut in the world. Coconut provides food,

edible oil, industrial oil and health drink to humanity. All parts of coconut tree is useful in one way or other and the crop profoundly influences the socio economic security of millions of farm families. The present book contains the methods of cultivation and processing of coconut. This book is very beneficial for agriculturist, researchers, professionals, entrepreneurs, agriculture universities etc.

1. PRODUCT DIVERSIFICATION IN COCONUT

Future of Coconut Oil

Scope for Product Diversification

Philippines

Sri Lanka

India

Other Uses

Conclusion

2. VARIETIES OF COCONUT

Tall Variety

West Coast Tall

East Coast Tall

Lakshadweep Ordinary

Lakshadweep Micro

Andaman Ordinary

Andaman Giant

Kappadam

Laguna

San Ramon

Macapuno

Spicata

Performance of exotic cultivars under Indian conditions

Dwarf Variety

Ghowghat Green Dwarf

Chowghat Orange Dwarf

Malyan Dwarf

Gangabondam

Ayiramkachi

Thembili (King Coconut)

Coonino

Mangipod

Niuleka

3. FARMING SYSTEMS IN COCONUT

Rooting Pattern

Crown Structure And Light Transmission

Water Use Efficiency

Nutrients

Choice of Inter / Mixed Crops

Criteria For Selection Of Inter/

Mixed Crops

4. ORGANIC FARMING OF COCONUT, SPICES AND HERBS

Organic Coconut Scenario

Scope For Organic Production of Coconut In India

Characteristics of A Typical Organic
Coconut Farm
Establishment And Maintenance of Organic Coconut Plantations
Conversion Period
Buffer Zone
Choice of Varieties
Raising Nursery
Land Preparation
Preparations for Planting
Aftercare of the Young Plantation
Nutrient Management
Green Manuring and Cover Cropping
Utilization of Waste from Coconut Palm
Improving Soil Conditions
Plant Protection
Biopesticides
Contamination Control
Soil and Water Conservation
Bee Keeping
Animal Husbandry
Conversion of Established Plantations
Conversion Period
Choice of Cultivars/Varieties
Composting of On-farm Crop Residues/
Farm Wastes
Nutrition Management
Weed Management
Processing of Organic Coconut
Production of Organic Spices, Medicinal And Aromatic

Plants Along With
Coconut
Certification of Organic Products

5. PLANTING MATERIAL

Collection of Seednuts
Raising Nursery
Nursery Care
Seedling Selection
Polybag Nursery
Care of Polybag Nursery

6. GARDEN ESTABLISHMENT

Site Selection
Time of Planting
Planting System
Land Preparation And Preparation of Pits For Planting
Replacement of Unproductive Palms
Replanting
Under Planting
After Care

7. CROP IMPROVEMENT

Varieties

Tall Group

West Coast Tall

East Coast Tall

Lakshadweep Ordinary

Lakshadweep Micro

Andaman Ordinary

Kappadam

VPM-3

ALR (CN) 1

Dwarf Group

Dwarf Green

Dwarf Orange

Malayan Dwarf

Gangabondan

Choughat Orange Dwarf

Tall And Dwarf Hybrids

VHC 1

VHC 2

VHC 3

8. CROP PROTECTION

Insect Pests

Rhinoceros Beetle, *Oryctes rhinoceros* L.

Management

Red Palm Weevil, *Rhynchophorus ferrugineus* Oliv. (Curculionidae: Coleoptera)

Management

Black Headed Caterpillar, *Opisina arenosella* Meyr. (Cryptophasidae: Lepidoptera)

Management

Termite, *Odontotermes obesus* Ramb. (Termitidae: Isoptera)

Management

Lacewing Bug, *Stephanitis typicus* Dist. (Tingidae: Hemiptera)

Scale Insect, *Aspidiotus destructor* Sign. (Diaspididae: Hemiptera)

Management

Mealybug, *Pseudococcus longispinus* (T.),

P. citriculus G., *Palmicultor palmarum* (Eh.) (Pseudococcidae : Hemiptera)

Management

Slug Caterpillar, *Latoia lepida* Cram (Cochliidiidae: Lepidoptera)

Slug Caterpillar, *Contheyla rotunda* H.,

(Cochliidiidae: Lepidoptera)

Slug Caterpillar, *Macroleptra nararia* M.

(Cochliidiidae: Lepidoptera)

Management

White Leaf Roller, *Gangara thyrasis* M.

(Hesperiidae: Lepidoptera)

Green Leaf Roller, *Suastus gremius* F.

(Hesperiidae: Lepidoptera)

Long Green Caterpillar, *Turnaca acuta* W.

(Notodontidae: Lepidoptera)

Bag Worm, *Manatha albipes* M.

(Psychidae: Lepidoptera)

Management

Nut Borer, *Cyclodes omma* V.H.

(Noctuidae: Lepidoptera)

Lesser Coconut Spike Moth, *Batrachedra*

arenosella Wlk. (Cosmopterygidae: Lepidoptera)

Flower Caterpillar, *Syntomis passalis* Fab. (Cosmopterygidae: Lepidoptera)

Ash Weevil, *Myloccerus curvicornis* Fab.

(Curculionidae: Coleoptera)

Stem and Bark Weevil, *Diocalandra*

stigmaticollis G. (Curculionidae: Coleoptera)

Management

Shot Hole Borer, *Xyleborus perforans* W.

(Scolytidae: Coleoptera)

Management

Coreid Bug, *Paradasynus rostratus* Dist.

(Coreidae: Heteroptera)

Management

Root Grub, *Leucopholis coneophora* Burm. (Melolonthidae: Coleoptera)

Management

Ant, *Dorylus orientalis* W.

(Formicidae: Hymenoptera)

Red Ant, *Oecophylla smaragdina* F.

(Formicidae: Hymenoptera)

Non Insect Pests

Mites

Management

Package of Recommendations

Management

Nematodes

The Burrowing Nematode,

Radopholus Similis

Management

The Coconut Nematode,

Rhadinaphelenchus Cocophilus

Rodent Pests

Management

Management

Squirrel, *Funambulus Palmarum*

Monkeys

Storage Pests

Management

Diseases

Bud Rot, *Phytophthora palmivora* Butler

Management

Thanjavur Wilt, *Ganoderma lucidum* (Leyss)

Karst and *G. applanatum*

Management

Stem Bleeding, *Thielaviopsis paradoxa*

Management

Leaf Blight, *Pestalotia palmarum*

Management

Pencil Point " (Tapering Wilt)

Management

Tatipaka Disease

Management

Crown Choke Disease

Management

Button Shedding

Management

Root Wilt

Management

Leaf Rot, *Colletotrichum gloeosporioides*,

Exserohilum rostratum, *Fusarium solani*

Management

Mahali (Fruit Rot and Nut Fall),

Phytophthora palmivora

Management

Preparation Of 1% Bordeaux Mixture

Bordeaux Paste

9. INTEGRATED DISEASE MANAGEMENT

Bud Rot Causal Organism

Symptom

Control

Preparation Of 1% Bordeaux Mixture

Bordeaux Paste

Root Disease

Symptoms

Management

Leaf Rot

Causal Organisms

Symptom

Control

Stem Bleeding Disease

Causal Organism

Symptom

Control

Thanjavur Wilt/Ganoderma Disease

Causal Organism

Symptom

Management

Mahali (Fruit Rot And Nut Fall)

Causal organism

Symptom

Control

Leaf Blight Or Grey Leaf Spot

Symptom

Control

Tatipaka Disease

Symptom

Management

Crown Choke Disease

Symptom

Control

10. GARDEN MANAGEMENT

Intercultivation

Fertilizer Recommendations For

Coconut - A Summary

Deficiency Of Nutrients

Nitrogen

Potassium

Magnesium

Boron

Sulphur

Chlorine

Green Manuring In Coconut Garden

Organic Recycling In Coconut

Organic Recycling in Coconut Based
Farming System

Leguminous Green Manure Plants for
Sustaining Coconut Yields

Basin Management with Legume Cover Crops

Growing of Gliricidia as green leaf manure crop
in coconut garden under littoral sandy soil

Recycling of organic wastes from coconut palm

Direct utilization of coconut wastes as mulch

Vermicomposting

Coir pith composting

Water Management

Automatic Irrigation System

Drainage

Weed Control

Soil Moisture Conservation In Coconut Garden

Coconut Based Cropping Systems

Rooting Pattern

Canopy Structure And Light Utilization

Criteria For Selection Of Subsidiary Crops

Intercropping Systems

Tuber Crops

Rhizome Spice Crops

Cereals

Vegetables

Pulses

Oil Seeds

Fruit Crops

Floriculture

Medicinal And Aromatic Plants

Mixed Cropping

Cocoa

Pepper

Clove

Nutmeg

Cinnamon

High Density Multispecies Cropping

System
Coconut Based Mixed Farming System
Coconut Based Sericulture System
Economic Aspects Of Coconut
Cultivation

11. HARVEST AND POST HARVEST TECHNOLOGY

Harvesting
Storage And Seasoning
Post Harvest Processing
Husking
Copra Processing
Sun Drying
Solar Dryer
Indirect Drying
Small Holder's Copra Dryer
Smoke Free Copra Dryer For
Medium Holdings
Large Holder's Copra Dryer
Electrical Copra Dryer
Ball Copra
Copra Grading
Copra Moisture Meter
Coconut Products And Byproducts
Desiccated Coconut
Tender Coconut Water
Snow Ball Tender Nut (Sbtn)
Matured Coconut Water
Nata-De-Coco
Coconut Milk And Milk Products
Coconut Cream
Coconut Spray Dried Milk Powder
Toddy
Coconut Byproducts
Byproducts From Husk
Coconut Shell Charcoal
Activated Carbon
Shell Flour
Coir And Coir Products
Handicrafts From Coconut
Coconut Wood Processing
Mushroom Cultivation Using Coconut Byproducts

12. INTEGRATED FARMING IN COCONUT HOLDINGS FOR PRODUCTIVITY IMPROVEMENT

13. FINANCIAL ASSISTANCE TO PROCESSING INDUSTRIES

14. COCONUT HUSK

Coir
Coir Geotextile
Coir Pith

15. COCONUT OIL

Properties Of Coconut Oil
Extraction Of Coconut Oil
Coconut Oil Based Oleochemicals
Coconut oil based Oleochemicals:
Coconut Oil Cake

16. MACHINERY AND PROCESSING OF DESICCATED COCONUT

Abstract
Introduction
Desiccated Coconut
Proceesing Of Desiccated Coconut
Plant & Machinery For Desiccated
Coconut
Drying Of Desiccated Coconut
The Pilot Plant
Results And Observations
Scale-Up
Quality Of Desiccated Coconut
Conclusions

17. QUALITY STATUS OF DESICCATED COCONUT

Abstract
Introduction
Materials And Methods
Results And Discussion

18. COCONUT PROCESSING SECTOR IN INDIA

Trend In Area, Production And
Productivity
Coconut Industry Vs Indian Economy
Present Status Of The Coconut
Processing Sector
Traditional Coconut Products
And Technological Innovations
Copra
Sun drying
Kiln drying
Indirect hot air drier
Solar drying
Improvement in drying
Coconut Oil
Desiccated Coconut
Coir and Coir Products
Emerging Technologies In The

Processing Sector
Wet Processing of Coconut
Coconut Cream
Coconut Milk Based Consumer Products
Coconut Shell Based Products
Coconut Shell Charcoal
Activated Carbon
Methods of Processing
Destructive Distillation of Shells
Coconut Shell Powder
Miscellaneous Uses of Shells
Coconut Water
Coir Pith and Miscellaneous Products
Problems And Constraints
Future Strategy

19. VINEGAR FERMENTATION WITH SPECIAL EMPHASIS ON POSSIBILITIES OF UTILIZATION OF MATURED COCONUT WATER

Production And Volume
Raw Materials
Production Of Vinegar
Acetification Methods
The Orleans Process or Slow Process or
French Process
Quick Process or German Process
Submerged Method
Other Modern Processes
Coconut Water As Possible Substrate
For Vinegar Fermentation
Preparation of Coconut Water Medium
Pfa Specifications For Vinegar
Standards
Problems In Vinegar Manufacture
Ageing Of Vinegar

20. ACTIVATED CARBON FROM COCONUT SHELLS: SIGNIFICANCE AND PROSPECTS

Protection Against Toxic Gases
Air Purification And Recovery
Purification Of Various Gases
Filters For War Gases/ Nuclear
Fall-Outs
Purifying Working Environments
And Elimination Of Odours
Recovery Of Solvents And
Other Vapours
Typical Plants where Such Solvents are Recovered
Separation Of Hydrocarbon Mixtures
Purification Of Fermentation
Carbon Dioxide
Recovery Of Gold
Carbon Batteries

Miscellaneous Applications
Activated Carbon As Catalyst
And Catalyst Carriers
Impregnated Carbons
Activated Carbon In Pollution
Control
Conclusion

21. COMMERCIAL EXPLOITATION OF COCONUT PITH

Introduction
Coconut Pith
Utilisation Of Pith : Problems
Utilisation Of Pith : Prospects
Pith Fuel Briquettes Briquetting With Binders
Pith As An Ingredient In Agricultural/
Horticultural Farms
Pith As A Heat Insulating Material
Conclusion

22. MODERN SEMI AUTOMATIC COPRA MANUFACTURING UNIT USING WASTE HEAT RECOVERY SYSTEM

Introduction
Present Uses Of Coconut Shell In India
Charcoal Manufacture And Waste
Heat Recovery Unit
Chemical Analysis And Calorific Value
Whu And Pyrolysis Process
Modern Semi-Automatic Copra
Drying Unit
Economic Of A Modern Copra
Drying Unit
Inference

23. COCONUT KERNEL PRODUCTS

Virgin Coconut Oil
Desiccated Coconut
Coconut Milk
Spray Dried Coconut Milk Powder

24. FOOD PRODUCTS

The Wet Meat Or Kernel
Coconut Milk and Related Products
Coconut Skim Milk And Related
Products
Coconut Protein And Edible Oil
Krauss-Maffei/C.F.T.R.I. Process
Texas A & M University Process
The TPI Process
The Modified Solvol Process

Desiccated Coconut
Removal of the Kernels and Paring
Washing
Sterilising
Disintegrating and Desiccating
Edible Copra
Coconut Water
Foods uses of Coconut Water
Other Miscellaneous Uses
Toddy And Toddy Products
Tapping
The yield of Toddy
Suitability of Dwarf Palms
Tapping and Subsequent Yield of Nuts
Composition and Uses of Fresh Toddy
Jaggery
Refined Sugar
Treacle
Fermented Toddy
Arrack
Coconut Vinegar
Miscellaneous Products Of Food Value

25. COMMERCIAL PRODUCTS

Milling Copra
Preparation of Coconuts before Drying
Copra Drying Process and Methods
Sun Drying
Smoke Drying or Drying by Direct Heat in Kilns
Drying by Indirect Heat
The Quality of Copra
Oil Content of Copra
Storage of Copra
Deterioration of Copra
Grading of Copra
Moisture Determination
Coconut Oil
Oil Milling
Yield Of Oil From Copra
Physical Properties
Chemical Properties
Rancidity
Ensuring the Quality of Oil
Quality Standards for Coconut Oil
Uses of Coconut Oil
Consumption Of Coconut Oil And Heart Ailments
Coconut Cake
Use Of Coconut Cake
Coir Or Coconut Fibre
Natural Retting
Mechanical and Chemical Methods of Retting
Extraction of White Fibre

Extraction of Brown Fibre
Yield Of Fibre From Husk
Varieties Of Fibre And Grades
Chemical Composition
Spinning of Coir Yarn
Utilisation of Coir Fibre and Yarn
Rubberised Coir
Coir Pith Or Coir Dust

26. COCONUT SHELL AND MISCELLANEOUS PRODUCTS

Coconut Shell Charcoal
Covered Pit Method
Modified Pit Method
The Drum Method
Uses
Properties
Distillation Of Coconut Shells
Activated Carbon
Coconut Shell Flour
Other Uses
Miscellaneous Products

27. BY-PRODUCTS UTILISATION

Commercial Exploitation Of
Coconut Pith
Pith as a Heat Insulating Material
Coconut Oil
Coconut Product Diversification
Copra Making
White Copra Production
Ball Copra
Vinegar Making
Bio-Confectionaries from Coconut Water
Benefits from Bio-Sweets
Desiccated Coconut
Canning of Coconut Haustorium
Coconut Cream
Coconut Shell Powder
Coconut Milk
Coconut Oil Derivatives
Coconut Oil as an Edible Oil
Production Of Cocopeat
Granulated Charcoal
Biodiesel Plant-Oleochemical
Rubberised Coir Fibre Cushions
Coir Industry
Coconut Shell Based Products
Shell Charcoal
Coconut Shell and Wood Handicrafts
Activated Carbon from Coconut Shells
Protection against Toxic Gases

Purification of Various Gases
Recovery of Solvents and Other Vapours
Typical Plants Where Such Solvents are Recovered
Separation of Hydrocarbon Mixtures
Purification of Fermentation Carbondioxide
Recovery of Gold
Carbon Batteries
As Catalyst and Catalyst Carriers
Impregnated Carbons
Global Competitiveness Of Coconut
Industry
Exports
Competition from Other Oilseed Crops
Low Profitability
Fluctuating Prices
Inconsistent Supplies of Product
Strategies For Future

28. MATURE COCONUT

Optimum Stage For Harvesting
Coconuts
Dehusking
Home Preservation Of Split Coconuts
Mature Coconut Water Products
Coconut Water Beverages
Coconut Vinegar
Nata-De-Coco
Other Products

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