

# **Cultivation of Tropical, Subtropical, Vegetables, Spices, Medicinal and Aromatic Plants**

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Plant spices grown in tropical countries on small scale family farms of commercial farms, to provide foods for human or live stock, in dry or humid regions are highly abundant and taxonomically diversified. Vegetables comprise of a large number of plants, mostly annual, of which different parts like leaf, stem, flowers, fruit, root etc. are eaten. They are rich in nutrients and are essential items of a balanced diet. Vegetables are called protective food as their consumption can prevent several diseases. Many vegetables are important items of commerce and thus can play a major role in the economic development. Generally classification of horticulture plants are based on nature of growth climatic requirement continuation of growth types of fruit parts used botanical relationship, salinity tolerance, ripening behaviour, botanical relationship, hardness or temperature tolerance, cool season vegetables, warm season vegetables, parts used as food, methods of raising, etc. Medicinal and aromatic plants are important for human health. These plants have been used from the prehistoric times to present day. These plants based medicines are consumed in all civilizations. It is believed that the herbal medicine can give good effect to body without causing side effects to human life. Besides, the usage of medical plants has been increasing as an important role that can support the economic system. The medical and aromatic plants for health are used as herbal treatments and therapies that can be new habits for culture. Medicinal and aromatic plants constitute a large segment of the flora, which provide raw materials for use by various industries. They have been used in the country for a long time for their medicinal properties. The decision to cultivate medicinal herbs should only be made in response to demand for particular herbs. The market is very competitive and could easily be oversupplied.

This book majorly deals with classification of horticultural plants, classification of flowers, classification of spices, soil and climatic requirements of horticultural plants, beet root, bottle gourd, harvesting and post harvest management, poly house vegetable production in temperate regions, vegetables growing in containers, tea, performance of plants from cutting, vegetative propagation, rubber, biofertilizers in vegetable cultivation, postharvest management of tropical tuber crops, etc.

This is an informative resource of the cultivation, irrigation, manuring, fertilization, harvesting and post harvest management of tropical, subtropical, vegetables, spices, medicinal and aromatic plants. This book is useful for entrepreneurs, ayurvedic institutes, libraries and consultants.

## 1. CLASSIFICATION OF HORTICULTURAL PLANTS

Plant Kingdom

Classification of Fruits

Based on Nature of Growth

Based on Climatic Requirement

Based on Continuation of Growth

Based on Types of Fruit

Based on Parts Used

Based on Botanical Relationship

Based on Salinity Tolerance

Based on Ripening Behaviour

Based on Ethylene Evolution

Based on Bearing Behaviour

Classification of Vegetables

Based on Botanical Relationship

Based on Hardness or Temperature Tolerance

Cool Season Vegetables

Warm Season Vegetables

Based on Tolerance to Soil Acidity

Based on Tolerance to Salt

Based on Parts Used as Food

Based on Methods of Raising

Based on Forcing

Based on Rate of Respiration

Classification of Flowers

Based on Season of Growing

Based on Colour of Flower

Based on Purpose of Growing

Based on Nature of Growth

Based on Mode of Propagation

Based on Growth Behaviour

Classification of Spices

Based on Completion of Life Cycle

Based on Growth Behaviour

Based on Importance

Based on Part Used

Based on Utility

Based on Cultural Management

Based on Botanical Relationship

Classification of Plantation Crops

Based on Botanical Relationship

Based on Growth Behaviour

Based on Utility

Based on Extent of Growing

Based on Intensity of Cultivation

## 2. SOIL AND CLIMATIC REQUIREMENTS OF HORTICULTURAL PLANTS

Soil

Alluvial Soils

Tarai Soils

Arid Soils

Black Soils

Red Soils

Laterite Soils  
Marshy Soils  
Climate  
Temperate Climate  
Tropical Climate  
Sub-Tropical Climate  
Different Types of Horticulturally Potential Zones  
of the Country  
Temperate Zone  
North-Western Sub-Tropical Zone  
North-Eastern Sub-Tropical Zone  
Central Tropical Zone  
Southern Tropical Zone  
Coastal/Tropical Zone  
Influence of Climatic Factors  
On the Growth of Plants  
Temperature  
Humidity  
Wind  
Rainfall  
Solar Radiation

### 3. VARIETAL WEALTH OF HORTICULTURAL CROPS

Fruits  
Vegetables  
Flowers  
Plantation Crops  
Seed Spices  
4. AGATHI  
Climate and Soil  
Varieties  
Cultivation  
Manuring and Fertilization  
Aftercare  
Yield

### 5. AMARANTH

Climte and Soil  
Varieties  
Badi Chaulai  
Chhoti Chaulai  
Pusa Kiran  
Pusa Lal Chaulai  
Pusa Kirti  
Cultivation  
Sowing  
Manuring and Fertilization  
Irrigation  
Interculture  
Seed Production  
Harvesting and Postharvest Management

### 6. ASH GOURD

Climate and Soil  
Varieties  
Apau Shakthi

Cultivation  
Irrigation  
Crop Regulation  
Manuring and Fertilization  
Harvesting and Postharvest Management

## 7. BEET ROOT

Climate and Soil  
Varieties  
Detroit Dark Red  
Crimson Globe  
Propagation and Rootstock  
Cultivation  
Planting  
Training and Pruning  
Manuring and Fertilization  
Aftercare  
Irrigation  
Harvesting and Postharvest Management  
Physiological Disorders

## 8. BITTER GOURD

Climate and Soil  
Varieties  
Cultivation  
Sowing  
Irrigation  
Manuring and Fertilization  
Intercultural Operations  
Harvesting and Postharvest Management

## 9. BOTTLE GOURD

Climate and Soil  
Varieties  
Arka Bahar  
Kalyanpur Hari Lambi  
Punjab Komal  
Punjab Long  
Punjab Round  
Pusa Manjari  
Pusa Meghdut  
Pusa Naveen  
Pusa Summer Prolific Long  
Pusa Summer Prolific Round  
Rajendera Chamatkar  
Cultivation  
Field Preparation  
Sowing  
Manuring and Fertilization  
Training  
Interculture  
Irrigation  
Harvesting and Postharvest Management

## 10. BRINJAL

Climate and Soil  
Varieties

Cultivation  
Sowing  
Manuring and Fertilization  
Interculture  
Irrigation  
Harvesting and Postharvest Management

#### 11. BROCCOLI

Climate and Soil  
Varieties  
Palam Samridhi  
Cultivation  
Manuring and Fertilization  
Irrigation  
Interculture  
Harvesting and Postharvest Management

Physiological Disorders

#### 12. BRUSSELS SPROUT

Climate and Soil  
Varieties  
Jade Cross  
Hilds Ideal  
Rubine  
Cultivation  
Manuring and Fertilization  
Irrigation  
Interculture  
Harvesting and Postharvest Management

#### 13. CABBAGE

Climate and Soil  
Varieties  
Copenhagen Market  
Drumhead Savoy  
Golden Acre  
Pride of India  
Pusa Drumhead  
Pusa Mukta  
Red Cabbage  
September  
Cultivation  
Planting  
Manuring and Fertilization  
Interculture  
Irrigation  
Harvesting and Postharvest Management

#### 14. CAPSICUM

Climate and Soil  
Varieties  
Cultivation  
Sowing  
Planting  
Training and Pruning  
Manuring and Fertilization  
Aftercare

Irrigation  
Harvesting and Postharvest Management  
15. CARROT  
Climate and Soil  
Varieties  
Tropical or Asiatic Types  
Temperate or European Types  
Cultivation  
Land Preparation  
Sowing  
Manuring and Fertilization  
Aftercare  
Irrigation  
Harvesting and Postharvest Management  
Physiological Disorders  
16. CAULIFLOWER  
Climate and Soil  
Varieties  
Cultivation  
Raising of Nursery  
Transplanting  
Aftercare  
Irrigation  
Harvesting and Postharvest Management  
Physiological Disorders  
Riceyness  
Fuzziness  
Leafy Curds  
Blindness  
Buttoning  
Chlorosis  
Hollow Stem  
Browning (brown-rot or red-rot)  
Whiptail  
17. CELERY  
Climate and Soil  
Varieties  
Fork Hook Emperor  
Standard Beared  
Wright Grove Giant  
Cultivation  
Manuring and Fertilization  
Irrigation  
Interculture  
Harvesting and Postharvest Management  
18. CHILLI  
Climate and Soil  
Varieties  
Cultivation  
Raising Seedlings  
Manuring and Fertilization  
  
Irrigation and Interculture

Weed Control  
Harvesting and Postharvest Management  
19. COWPEA  
Climate and Soil  
Varieties  
Arka Garima  
Pusa Barsati  
Pusa Dofasali  
Pusa Komal  
Pusa Phalguni  
Pusa Rituraj  
Philippines Early  
Yard Long Bean  
Cultivation  
Sowing  
Manuring and Fertilization  
Irrigation  
Aftercare  
Harvesting and Postharvest Management

20. CUCUMBER  
Climate and Soil  
Varieties  
Himangi  
Japanese Long Green  
Poinsett  
Poona Khira  
Pusa Sanyog  
Sheetal  
Cultivation  
Sowing  
Manuring and Fertilization  
Aftercare  
Irrigation  
Harvesting and Postharvest Management

21. CURRY LEAF  
Climate and Soil  
Varieties  
Cultivation  
Propagation  
Planting  
Manuring and Fertilization  
Aftercare  
Harvesting and Postharvest Management

22. DRUMSTICK  
Climate and Soil  
Varieties  
Chavakacheri Muringai  
Chemmurungai  
Jaffna Type  
Kattumurungai  
Kodikalmurungai  
Palmurungai  
Punamurungai

Yazphanam Muringa  
Cultivation  
Sowing  
Crop Production  
Manuring and Fertilization  
Aftercare  
Weeding  
Intercropping  
Harvesting and Postharvest Management

## 23. FRENCH BEAN

Climate and Soil

Varieties

Arka Komal

Bountiful

Contender

Jampa

Kentucky Wonder

Lakshmi

Pant Anupma

Premier

Pusa Parvati

Cultivation

Sowing

Aftercare

Irrigation

Harvesting and Postharvest Management

Physiological Disorders

## 24. GARLIC

Climate and Soil

Varieties

Propagation and Planting Material

Cultivation

Planting

Manuring and Fertilization

Aftercare

Irrigation

Harvesting and Postharvest Management

Physiological Disorders

## 25. KALE

Climate and Soil

Varieties

Cultivation

Manuring and Fertilization

Irrigation

Interculture

Harvesting and Postharvest Management

## 26. KNOL-KHOL

Climate and Soil

Varieties

King of North

Large Green

Purple Vienna

White Vienna



Cultivation  
Planting  
Manuring and Fertilization  
Aftercare  
Irrigation  
Harvesting and Postharvest Management

## 27. LABLAB BEAN

Climate and Soil  
Varieties  
Pusa Early Prolific  
Cultivation  
Field Preparation  
Aftercare  
Harvesting and Postharvest Management

## 28. LETTUCE

Climate and Soil  
Varieties  
Cultivation  
Propagation  
Planting  
Manuring  
Aftercare  
Irrigation  
Harvesting and Postharvest Management  
Physiological Disorder

## 29. MUSKMELON

Climate and Soil  
Varieties  
Arka Jeet  
Arka Rajhans  
Durgapura Madhu  
Hara Madhu  
Hisar Madhur  
Hisar Saras  
Punjab Hybrid  
Pusa Madhuras  
Pusa Rasraj  
Punjab Rasila  
Pusa Sharbati  
Punjab Sunehri  
Cultivation  
Sowing  
Land Preparation  
Manuring and Fertilization  
Hoeing and Weeding  
Irrigation  
Harvesting and Postharvest Management

## 30. OKRA

Climate and Soil  
Varieties  
Arka Abhay  
Arka Anamika  
Azad Kranti

Harbhajan Bhindi  
Hisar Unnat  
Parbhani Kranti  
Perkins Long Green  
Punjab Padmini  
Pusa Makhmali  
Pusa Sawani  
Red Bhindi  
Varsha Uphar  
Cultivation  
Sowing  
Training and Pruning  
Manuring and Fertilization  
Aftercare  
Irrigation  
Harvesting and Postharvest Management

### 31. ONION

Climate and Soil  
Varieties  
Cultivation  
Planting  
Transplanting  
Planting by Bulbs  
Direct Sowing  
Planting by Sets  
Manuring and Fertilization  
Cultural Operations  
Irrigation  
Harvesting and Postharvest Management

### 32. PALAK OR INDIAN SPINACH

Climate and Soil  
Varieties  
Cultivation  
Sowing  
Planting  
Manuring  
Aftercare  
Irrigation  
Harvesting and Postharvest Management

### 33. PARSLEY

Climate and Soil  
Varieties  
Cultivation  
Manuring and Fertilization  
Irrigation  
Interculture  
Harvesting and Postharvest Management

### 34. PEA

Climate and Soil  
Varieties  
Arkel  
Bonneville  
Harbhajan

Lincoln  
Cultivation  
Planting  
Manuring and Fertilization  
Aftercare  
Irrigation  
Harvesting and Postharvest Management

### 35. POINTED GOURD

Climate and Soil

Varieties

CHES Elite Line

Chhota Hilli

Dandali

Hilli

Shankolia

Swarna Alaukik

Swarna Rekha

Propagation

Cultivation

Planting

Manuring and Fertilization

Training

Interculture

Irrigation

Harvesting and Postharvest Management

### 36. PUMPKIN

Climate and Soil

Varieties

Ambili

Arka Chandan

Pusa Vikas

Pusa Vishwas

Cultivation

Sowing

Land Preparation

Interculture

Irrigation

Off-season Cultivation

Seed Production

Hybrid Seed Production

Harvesting and Postharvest Management

### 37. RADISH

Climate and Soil

Varieties

Asiatic or Tropical

Arka Nishant

Japanese White

Jaunpuri Giant or Newari

Kalyani White

Nadauni

Punjab Safed

Pusa Chetki

Pusa Desi

Pusa Himani  
Pusa Reshmi  
European or Temperate Varieties  
Chinese Pink  
Rapid Red White Tipped  
Scarlet Globe  
White Icicle

Cultivation  
Preparation of Land  
Sowing  
Manuring and Fertilization  
Interculture  
Irrigation  
Growth Regulators  
Seed Production  
Postharvest Management  
Physiological Disorders

#### 38. RIDGE GOURD

Climate and Soil  
Varieties

Pusa Nasdar  
Satputia  
Cultivation

Sowing  
Interculture

#### 39. ROUND MELON

Climate and Soil  
Varieties

Arka Tinda  
Tinda Ludhiana  
Tinda Tonk  
Tamil Nadu Selection

Cultivation  
Planting  
Manuring and Fertilization  
Interculture  
Irrigation

Harvesting and Postharvest Management

#### 40. SNAKE GOURD

Climate and Soil  
Varieties

Cultivation  
Sowing

Interculture  
Harvesting and Postharvest Management

#### 41. SPINACH

Climate and Soil  
Varieties

Cultivation  
Propagation  
Planting  
Manuring  
Aftercare

Irrigation  
Harvesting and Postharvest Management  
42. SPONGE GOURD  
Climate and Soil  
Varieties  
Cultivation  
Sowing  
Interculture  
Harvesting and Postharvest Management  
43. TOMATO  
Climate and Soil  
Varieties  
Cultivation  
Raising seedlings  
Direct Seeding  
Planting  
Training and Pruning  
Aftercare  
Irrigation  
Seed Production  
Harvesting and Postharvest Management  
Physiological Disorders  
44. TURNIP  
Climate and Soil  
Varieties  
Early Milan Red Top  
Golden Ball  
Purple Top White Globe  
Pusa Chandrima  
Pusa Kanchan  
Pusa Swarnima  
Pusa Sweti  
Snow Ball  
Cultivation  
Manuring and Fertilization  
Irrigation  
Interculture  
Seed Production  
Harvesting and Postharvest Management  
Physiological Disorder  
45. WATERMELON  
Climate and Soil  
Varieties  
Arka Jyoti  
Arka Manik  
Asahi Yamato  
Durgapura Kesar  
Durgapura Meetha  
Improved Shipper  
New Hampshire Midget  
Pusa Bedana  
Sugar Baby  
Cultivation

Pruning and Training  
Manuring and Fertilization  
Aftercare  
Forcing Watermelons out of Season  
Irrigation  
Harvesting and Postharvest Management

#### 46. POLYHOUSE VEGETABLE PRODUCTION IN SUBTROPICS

Selection of Sites  
Polyhouse Structures  
Frames and Cladding Material  
Environment Control  
Selection of Vegetables  
Nursery Raising  
Off-season Vegetables Production  
Aftercare

#### 47. POLYHOUSE VEGETABLE PRODUCTION IN TEMPERATE REGIONS

Polyhouses  
Benefits  
Status  
Indian Polyhouses  
Plastic Low Tunnels  
Soil Trench  
Site Selection  
Polyhouse Structure  
Vegetable Production  
Nursery Raising  
Vegetable Production  
Seed Production  
Hydroponics and Micropropagated Vegetables  
Polyhouse Pests and Diseases  
Some Problems  
Prospects in India

#### 48. VEGETABLES GROWING IN CONTAINERS

Types of Containers  
Tools, Manures, Seeds, Fungicides and Insecticides  
Suitable Vegetables and their Varieties  
Cultivation  
Sowing/planting  
Aftercare  
Harvesting and Postharvest Management

#### PROPAGATION OF PLANTATION CROPS

##### 49. TEA

Seed Propagation  
Storage  
Germination  
Seed-Size  
Seed-Coat  
Treatment with Growth Substance  
Treatment with Fungicides  
Temperature  
Biochemical Changes during Germination

Seedling Growth  
Seed Size  
Effect of Insecticides  
Irradiation  
Vegetative Propagation  
Cutting  
Type of Cutting  
Etiolation and Girdling  
Media  
Season  
Clonal Variations  
Effect of Growth Substances  
Stock Plant  
Oxygen  
Fungicide and Nematicide  
Type of Cutting and Growth Substances  
Type of Cutting and Media  
Type of Cutting and Season  
Type of Cutting, Media and Temperature  
Type of Cutting, Season and Growth Substances  
Type of Cutting, Media and Growth Substance  
Type of Cutting and Treatment with Nutrients  
Growth Substance, Media and Temperature  
Type of Cutting, Light, Humidity, Media and Growth Substance  
Storage of Cutting  
Other Treatments  
Root Cutting  
Performance of Plants from Cutting  
Layering  
Grafting  
Methods  
Budding  
Rootstock  
Effect on Growth and Yield  
Micropropagation  
50. CACAO  
Seed Propagation  
Storage and Viability  
Germination  
Stage of Harvest  
Depth of Sowing  
Air Drying  
Size of Pod  
Position of Seed in Pod  
Temperature  
Media  
Sugar  
Endogenous Substances  
Seedling Survival and Growth  
Stage of Harvest of Seeds  
Container and Media  
Effect of Growth Substance and Antitranspirant

Hybrids  
Age of Seedling at Transplanting  
Vegetative Propagation  
Cutting  
Stock Plant  
Type of Cutting  
Media  
Humidity  
Light  
Effect of Growth Substances  
Type of Shoot and Growth Substances  
Etiolation  
Growth Substance and Fungicides  
Type of Cutting and Growth Substance  
Media and Light  
Media and Growth Substance  
Type of cutting and Humidity  
Type of Cutting, Media and Humidity  
Type of Cutting, Growth Substance and Media  
Type of Cutting, Media, Humidity and Temperature  
Type of Cutting, Media, Light and Growth Substances  
Humidity, Temperature, Growth Substance and Light  
Clonal Variation  
Hardening of Cutting  
Layering  
Grafting  
Budding  
Methods  
Preparation of Budwood  
Top Working  
Rootstock  
Effect on Growth and Yield  
Incompatibility  
Effect of Different Methods of Propagation  
Micropropagation  
51. COFFEE  
Seed Propagation  
Viability  
Germination  
Collection of Seed  
Moisture Content of Seed  
Effect of Cover  
Media  
Seed Treatment  
Seedling Growth  
Depth of Sowing  
Container  
Media  
Growth Substances, Fungicides and Nutrition  
Vegetative Propagation  
Root Sucker  
Cutting  
Type of Cutting



Time of Taking Cutting  
Media  
Humidity  
Temperature  
Effect of Growth Substances  
Type of Cutting and Growth Substances  
Type of Cutting, Media and Temperature  
Type of Cutting, Media and Growth Substances  
Growth Substances and Media  
Media, Temperature and Humidity  
Root Cutting  
Leaf Cutting  
Layering  
Stooling  
Grafting  
Methods  
Type of Scion  
Season  
Effect of Leaves  
Growth of Grafted Plants  
Top Working  
Budding  
Storage of Budwood  
Rootstock  
Compatibility  
Growth and Adaptability to Environment  
Nematode, Disease and Pest Resistant Rootstock  
Micropropagation  
52. RUBBER  
Seed Propagation  
Harvesting  
Viability  
Germination  
Seedling Growth  
Vegetative Propagation  
Cutting  
Type of Cutting  
Juvenility  
Ringing  
Effect of Light  
Effect of Growth Substances  
Effect of Fungicides  
Humidity and Temperature  
Type of Cutting and Growth Substances  
Grafting  
Methods  
Performance of Grafted and Budded Plants  
Budding  
Methods  
Selection of Budwood  
Age of Rootstock  
Budding Material  
Treatment

Care of Budded Plants  
Performance of Budded Plants  
Top Working  
Rootstock  
Effect on Growth and Yield  
Resistant to Pests and Diseases  
Influence of Scion on Growth and Yield  
Micropropagation

### 53. OIL PALM

Seed Propagation  
Storage and Viability  
Germination  
Effect of Media and Temperature  
Effect of Oxygen  
Effect of Irradiation  
Effect of Growth Substances  
Biochemical Changes  
Seedling Growth  
Storage of Clone  
Vegetative Propagation  
Micropropagation

### 54. ARECANUT

Seed Propagation  
Selection of Seed Nuts and Viability  
Germination  
Raising of Seedling  
Selection of Seedlings  
Vegetative Propagation  
Layering

### SPICES

### 55. BETELVINE

Climate and Soil  
Varieties  
Propagation  
Cultivation  
Construction of Bareja or Boroj  
Raising of Support Plant in Open Cultivation  
Land Preparation  
Soil Treatment  
Planting  
Training/pruning  
Manuring and Fertilization  
Aftercare  
Irrigation  
Harvesting and Postharvest Management

### 56. BLACK PEPPER

Climate and Soil  
Varieties  
Propagation  
Cultivation  
Planting  
Training/pruning  
Manuring and Fertilization

Aftercare  
Irrigation  
Harvesting and Postharvest Management  
57. CARDAMOM (SMALL)  
Climate and Soil  
Varieties  
Propagation  
Cultivation  
Planting  
Manuring and Fertilization  
Aftercare  
Irrigation  
Harvesting and Postharvest Management  
58. CARDAMOM (LARGE)  
Climate and Soil  
Varieties  
Bebo  
Bharlangey  
Golsey  
Ramla  
Ramsey  
Sawney  
Propagation  
Primary Nursery  
Secondary Nursery  
Cultivation  
Planting  
Aftercare  
Irrigation  
Shade Regulation  
Roguing and Gap-filling  
Manuring and Fertilization  
Harvesting and Postharvest Management  
59. CINNAMON  
Climate and Soil  
Varieties  
Propagation  
Cultivation  
Planting  
Manuring and Fertilization  
Irrigation  
Harvesting and Postharvest Management  
60. CLOVE  
Climate and Soil  
Propagation  
Cultivation  
Planting  
Manuring and Aftercare  
Irrigation  
Postharvest Management  
61. CORIANDER  
Climate and Soil  
Varieties

Sindhu  
Sadhna  
Swathi  
Cultivation  
Sowing  
Manuring and Fertilization  
Weed Control  
Irrigation  
Harvesting and Postharvest Management  
Physiological Disorders

#### 62. CUMIN

Climate and Soil  
Varieties  
Cultivation  
Sowing  
Manuring and Fertilization  
Weed Control  
Irrigation  
Harvesting and Postharvest Management

#### 63. FENNEL

Climate and Soil  
Varieties  
Cultivation  
Sowing  
Manuring and Fertilization  
Weed control  
Irrigation  
Harvesting and Postharvest Management  
Physiological Disorder

#### 64. FENUGREEK

Climate and Soil  
Varieties  
Rajendra Kanti  
Hissar Sonali  
Cultivation  
Sowing  
Manuring and Fertilization  
Weed Control  
Irrigation  
Harvesting and Postharvest Management

#### 65. GINGER

Climate and Soil  
Varieties  
Cultivation  
Planting  
Manuring and Fertilization  
Weeding and Mulching  
Rotation and Intercropping of Ginger  
Harvesting and Postharvest Management

#### 66. NUTMEG

Climate and Soil  
Varieties  
Propagation and Rootstock

Cultivation  
Nursery  
Planting  
Aftercare  
Irrigation  
Harvesting and Postharvest Management

#### 67. TAMARIND

Climate and Soil

Varieties

Urigam

Cultivation

Propagation

Planting

Aftercare

Harvesting and Postharvest Management

#### 68. TURMERIC

Climate and Soil

Varieties

Propagation

Cultivation

Manuring and Fertilization

Aftercare

Intercropping

Irrigation

Harvesting and Postharvest Technology

#### MEDICINAL PLANTS

##### 69. ASGAND

##### 70. DILL

##### 71. GUGGAL

##### 72. HENBANE

##### 73. ISABGOL

##### 74. KHASI KATERI

##### 75. LIQUORICE

##### 76. OPIUM POPPY

##### 77. PERIWINKLE

##### 78. PIPALI

##### 79. RAUVOLFIA

##### 80. SENNA

#### AROMATIC PLANTS

##### 81. AMBRETTE SEED OR MUSKDANA

##### 82. CELERY

##### 83. CHAMOMILE

##### 84. DAVANA

##### 85. FRENCH JASMINE

##### 86. INDIAN BASIL

##### 87. JAVA CITRONELLA

##### 88. KEWADA

##### 89. LEMON GRASS

##### 90. MINT

Peppermint

Spearmint

Bergamot Mint

##### 91. PALMAROSA OIL GRASS

92. PATCHOULI

93. ROSE GERANIUM

94. SCENTED ROSE

95. VETIVER

96. BIOFERTILIZERS

Nitrogen Fixing Biofertilizers

Symbiotic Nitrogen Fixation

Asymbiotic Nitrogen Fixation

Azotobacter

Phosphate Solubilizing Biofertilizers

Mycorrhizal Fungi

Actinorhizal Plants

Biofertilizers in Vegetable Cultivation

Seed Treatment

Cutting/Set Treatment

Seedling Treatment

97. MANAGEMENT OF DISEASES

Disease Management

Escape From Pathogen

Preventing Entry of Inoculum

Eradication

Protection

Reaction of Host Crop

Prophylactic Measures (Therapeutics)

Biological Control

Chemical Control

98. POSTHARVEST MANAGEMENT OF POTATO

Harvesting

Postharvest Management

Drying, Curing and Grading

Dormancy

Postharvest Losses

Physiological Losses

Pathogenic Losses

Refrigerated Storage

Non-refrigerated Storage

Traditional Storage

Processing

99. POSTHARVEST MANAGEMENT OF TROPICAL

TUBER CROPS

Cassava

Harvesting and Handling

Storage

Utilization

Processing

Toxic Principles

Sweet Potato

Harvesting and Handling

Storage

Utilization

Processing

Anti-nutritional Factors

Elephant-Foot Yam

Harvesting and Handling

Utilization

Anti-nutritional Factors

Taro

Harvesting and Handling

Storage

Utilization

Anti-Nutritional Factors

Tannia

Harvesting and Handling

Storage

Utilization

Anti-Nutritional Factors

Lesser Yam

Harvesting and Handling

Storage

Utilization

Greater Yam

Harvesting and Handling

Storage

Utilization

White Yam

Harvesting and Handling

Storage

Utilization

Arrow-Root

Harvesting and Handling

Utilization

Chinese Potato

Harvesting and Handling

Storage

Utilization

Yam Bean

Harvesting and Handling

Storage

Utilization

Winged Bean

Harvesting and Handling

Winged Bean

Storage

Utilization

## 100. POSTHARVEST MANAGEMENT OF MUSHROOMS

Postharvest Technologies

Handling Fresh Mushrooms

Harvesting

Pre-Cooling

Sorting

Dipping/Treatments

Packaging

Transportation

Storage

Processing

Low Temperature

High Temperature  
Drying  
Chemicals  
Pickling and Lactic Acid Fermentation  
Irradiation  
Minimal Processing  
Other Products  
Future Thrust and Export  
101.Tools and Equipments used in Horticulture

## About NIIR

**NIIR PROJECT CONSULTANCY SERVICES (NPCS)** is a reliable name in the industrial world for offering integrated technical consultancy services. NPCS is manned by engineers, planners, specialists, financial experts, economic analysts and design specialists with extensive experience in the related industries.

Our various services are: Detailed Project Report, Business Plan for Manufacturing Plant, Start-up Ideas, Business Ideas for Entrepreneurs, Start up Business Opportunities, entrepreneurship projects, Successful Business Plan, Industry Trends, Market Research, Manufacturing Process, Machinery, Raw Materials, project report, Cost and Revenue, Pre-feasibility study for Profitable Manufacturing Business, Project Identification, Project Feasibility and Market Study, Identification of Profitable Industrial Project Opportunities, Business Opportunities, Investment Opportunities for Most Profitable Business in India, Manufacturing Business Ideas, Preparation of Project Profile, Pre-Investment and Pre-Feasibility Study, Market Research Study, Preparation of Techno-Economic Feasibility Report, Identification and Section of Plant, Process, Equipment, General Guidance, Startup Help, Technical and Commercial Counseling for setting up new industrial project and Most Profitable Small Scale Business.

NPCS also publishes various process technology, technical, reference, self employment and startup books, directory, business and industry database, bankable detailed project report, market research report on various industries, small scale industry and profit making business. Besides being used by manufacturers, industrialists and entrepreneurs, our publications are also used by professionals including project engineers, information services bureau, consultants and project consultancy firms as one of the input in their research.

Our Detailed Project report aims at providing all the critical data required by any entrepreneur vying to venture into Project. While expanding a current business or while venturing into new business, entrepreneurs are often faced with the dilemma of zeroing in on a suitable product/line.

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