

# Handbook on Agro Based Industries (3rd Edition)

**Author:** P.K. Tripathi

**Format:** Hardcover

**ISBN:** 9788195676934

**Code:** NI12

**Pages:** 221

**Price:** Rs. 1,775.00 **US\$** 45.00

**Publisher:** NIIR PROJECT CONSULTANCY SERVICES

Usually ships within **5** days

Handbook on Agro Based Industries (Garlic Oil and Powder, Biomass Briquettes from Bio Waste, Moringa Oleifera (Drumstick) Powder, Dehydrated Onion, Aloe Vera Gel and Powder, Cashew Nut Shell Oil and Cardanol, Rice Powder, Puttu and Wheat Powder, Fructose Syrup from Broken Rice, Potato Powder, Granules and Pellets, Rice Flakes and Puffed Rice, Cashew Nut Processing Unit, Banana, Onion, Orange and Tomato Powder & Disposable Plate and Cups from Waste Rice Husk Powder)

The term "agro" refers to agriculture, which is the cultivation of crops and the rearing of animals for various purposes. The agro-based industry, "agro" encompasses all the activities related to farming, including growing crops, raising livestock, and harvesting natural resources. Agro is the foundation of the agro-based industry, as it involves the production of raw materials and agricultural products that are essential for various sectors. This includes crops such as grains, fruits, vegetables, and oilseeds, as well as livestock such as cattle, poultry, and fish.

Agro-based industries use these agricultural products as raw materials for further processing and manufacturing. For example, crops can be processed into food products such as flour, oil, and beverages, while livestock can be processed into meat, dairy products, and leather. In addition to food and beverages, the agro based industry also includes sectors such as biofuels, forestry, and fisheries. Biofuels are derived from agricultural crops and are used as an alternative to traditional fossil fuels. Forestry involves the sustainable management of forests and the production of wood products. Fisheries focus on the breeding and harvesting of fish and other aquatic organisms.

Agro is the backbone of the agro-based industry, providing the necessary raw materials and resources for various sectors. It is an integral part of our economy and plays a vital role in meeting the growing demand for food, fuel, and fiber products.

India is one of the largest producers of food, and is the second largest producer of rice, wheat, fruits, and vegetables in the world. Nearly 70% of the population depends on agriculture and agro-based industries. Since it would cause diversification and commercialization of agriculture, it will thus enhance the incomes of farmers and create food surpluses. It is a well-recognized fact across the world, particularly in the context of industrial development that the importance of agro industries is relative to agriculture increases as economies develop. It should be emphasized that food is not just produce. Food also encompasses a wide variety of processed products. It is in this sense that the agro-industry is an important and vital part of the manufacturing sector in developing countries and the means for building industrial capacities. The development of agro-based industries commenced during pre-independence days. Cotton mills, sugar mills, jute mills were fostered in the corporate sector.

The major contents of the book are production of Garlic Oil and Powder, Biomass Briquettes from Bio Waste, Moringa Oleifera (Drumstick) Powder, Dehydrated Onion, Aloe Vera Gel and Powder, Cashew Nut Shell Oil and Cardanol, Rice Powder, Puttu and Wheat Powder, Fructose Syrup from Broken Rice, Potato Powder,

Granules and Pellets, Rice Flakes and Puffed Rice, Cashew Nut Processing Unit, Banana, Onion, Orange and Tomato Powder, Disposable Plate and Cups from Waste Rice Husk Powder with Manufacturing Process, Project Profiles (with cost estimation) and process flow diagrams. This book is also a fantastic resource for people interested in or who have worked in the Agro Based industry. Profitable and viable business opportunities exist in the Agro sector. As a result, creating your own business is a good way to get into it. To learn more about Agro based industry in depth, read this book. It will assist you in figuring out how to establish your own Agro Business. Because of the increasing demand for Agro based Products in today's market, it's a terrific method to earn money.

## **Contents**

1. AGRO BASED INDUSTRIES	1
1.1. INTRODUCTION	
1.2. INDIAN AGRI-BUSINESS FACTS AND FIGURES	
1.3. SWOT ANALYSIS OF AGRO-PROCESSING INDUSTRY INFRASTRUCTURE IN INDIA	
1.3.1. Strengths	
1.3.2. Weaknesses	
1.3.3. Opportunities	
1.3.4. Threats	
1.3.5. Agribusiness	
1.4. SCOPE FOR AGRIBUSINESS IN INDIA	
1.5. QUALITY CONTROL & STANDARDS	
1.6. BUREAU OF INDIAN STANDARDS (BIS)	
1.6.1. Agricultural Mechanisation	
1.6.2. Demonstration of Newly Developed Agricultural/Horticultural Equipments	
1.6.3. Outsourcing of Training	
1.6.4. Post Harvest Technology and Management	
1.6.5. State Agro Industries Corporations	
1.6.6. Legislative Framework	
2. GARLIC OIL AND POWDER	12
2.1. INTRODUCTION	
2.2. PROPERTIES	
2.3. USES	
2.3.1. Medicinal Use of Garlic as an Antifungal Agent	
2.3.2. Storing Garlic in Oil	
2.3.3. Uses of Garlic Powder	
2.4. B.I.S. SPECIFICATIONS	
2.5. DIFFERENT FORMS OF GARLIC	
2.5.1. Garlic Flakes	
2.5.2. Garlic Powder	
2.6. RAW MATERIAL	
2.7. MANUFACTURING PROCESS	
2.7.1. Garlic Oil	
2.7.2. Dehydration Process of Garlic Powder	
2.8. SAFETY PRECAUTIONS IN GARLIC DEHYDRATION	
2.9. PROCESS FLOW DIAGRAM OF GARLIC OIL & POWDER	
2.10. PLANT ECONOMICS	
3. BIOMASS BRIQUETTES FROM BIO WASTE	25
3.1. INTRODUCTION	
3.2. TYPES OF BRIQUETTES ON THE BASIS OF RAW-MATERIALS	
3.2.1. Saw Dust Briquettes	

- 3.2.2. Mustard Husk Briquettes
- 3.2.3. Cotton Briquettes
- 3.2.4. Guar Briquettes
- 3.2.5. Peanut Shell Briquettes
- 3.2.6. Agro Waste
- 3.3. USES AND APPLICATIONS
- 3.4. BENEFITS OF THE BIOMASS BRIQUETTES
  - 3.4.1. Environmental Benefits
  - 3.4.2. Social Benefits
  - 3.4.3. Economic Benefits
- 3.5. ADVANTAGES
- 3.6. PROPERTIES
- 3.7. CHARACTERIZATION OF BRIQUETTES
- 3.8. BIOMASS CHARACTERISTICS
- 3.9. FACTORS INFLUENCING BIOMASS UTILIZATION
- 3.10. ENVIRONMENTAL ASPECTS
- 3.11. RAW MATERIALS
  - 3.11.1. Biomass Classification on the Basis of Different Sector
- 3.12. MANUFACTURING PROCESS
- 3.13. PROCESS FLOW DIAGRAM
- 3.14. HEALTH AND SAFETY MEASURES IN BRIQUETTE PRODUCTION
- 3.15. PLANT ECONOMICS
- 4. MORINGA OLEIFERA (DRUMSTICK) POWDER 47
- 4.1. INTRODUCTION
- 4.2. HISTORY OF MORINGA
- 4.3. VARIETIES OF DRUMSTICKS (MORINGA)
- 4.4. USES OF MORINGA
- 4.5. NUTRITIONAL VALUES OF MORINGA
- 4.6. USES OF DRUMSTICK POWDER
- 4.7. HEALTH BENEFITS OF DRUMSTICKS
- 4.8. NUTRITIONAL VALUE OF DRUMSTICK
- 4.9. MANUFACTURING PROCESS
- 4.10. PROCESS FLOW DIAGRAM
- 4.11. QUALITY SPECIFICATIONS
- 4.12. FOOD SAFETY & STANDARD REQUIREMENTS
- 4.13. WASTE COLLECTION AND MANAGEMENT PROCEDURES
  - 4.13.1. Major Waste Generating Activities
  - 4.13.2. Waste Management Practices
- 4.14. POLLUTION PREVENTION AND CONTROL
- 4.15. PLANT ECONOMICS
- 5. DEHYDRATED ONION 60
- 5.1. INTRODUCTION
- 5.2. TYPES OF DEHYDRATED ONION
- 5.3. NUTRITIONAL VALUES
  - 5.3.1. Onion
  - 5.3.2. Dehydrated Onion Flakes
- 5.4. PRODUCTS SPECIFICATIONS
  - 5.4.1. Dehydrated Onion
- 5.5. USES & APPLICATIONS
  - 5.5.1. Uses
  - 5.5.2. Applications
- 5.6. B.I.S. SPECIFICATIONS
- 5.7. HEALTH BENEFITS OF ONION

- 5.8. HUNDRED PERCENT (100%) EXPORT ORIENTED UNIT
- 5.9. DEHYDRATION PROCESS OF ONION
- 5.10. PACKAGING OF DEHYDRATED ONION
- 5.11. PROCESS FLOW DIAGRAM
- 5.12. FOOD SAFETY REQUIREMENTS & STANDARD REQUIRED
- 5.13. WASTE COLLECTION AND MANAGEMENT PROCEDURES
  - 5.13.1. Major Waste Generating Activities
  - 5.13.2. Waste Management Practices
- 5.14. POLLUTION PREVENTION AND CONTROL
- 5.15. PLANT ECONOMICS
- 6. ALOE VERA GEL AND POWDER 76
  - 6.1. INTRODUCTION
  - 6.2. THE CHEMISTRY OF ALOE VERA
  - 6.3. HEALTH BENEFITS
  - 6.4. PROPERTIES OF ALOE VERA
    - 6.4.1. Active Components with its Properties
  - 6.5. USES & APPLICATIONS
    - 6.5.1. Aloe Vera Gel
    - 6.5.2. Aloe Vera Powder
  - 6.6. BENEFITS OF ALOE VERA POWDER
    - 6.6.1. Health Benefits
  - 6.7. BENEFITS OF ALOE VERA GEL
  - 6.8. MANUFACTURING PROCESS
  - 6.9. DETAILS MANUFACTURING PROCESS
    - 6.9.1. Aloe Vera Powder
  - 6.10. PROCESS FLOW DIAGRAM
  - 6.11. THE STAGES OF THE TTS (TIME, TEMPERATURE AND SANITATION) ALOE PROCESS
    - 6.11.1. Timing of Leaf Process
  - 6.12. PLANT ECONOMICS
- 7. CASHEW NUT SHELL OIL AND CARDANOL 95
  - 7.1. INTRODUCTION
    - 7.1.1. Cashew Nut Shell Oil
    - 7.1.2. Cardanol
    - 7.1.3. Characteristic of Cardanol
  - 7.2. USES & APPLICATION
    - 7.2.1. Cashew Nut Shell Oil
    - 7.2.2. Cardanol
  - 7.3. PROPERTIES
  - 7.4. COMPOSITION OF CASHEW NUT
  - 7.5. PROPERTIES OF CNSL RESIN
  - 7.6. APPLICATION OF CNSL RESIN
  - 7.7. CHEMICAL COMPOSITION OF CNSL
    - 7.7.1. Separation of Cardanol from CNSL Oil
    - 7.7.2. Feasibility of Cardanol for Biofuel
  - 7.8. B.I.S. SPECIFICATIONS
  - 7.9. MANUFACTURING PROCESS
    - 7.9.1. Cashew Nut Shell Oil Processing
    - 7.9.2. Process Flow Diagram of Cashew Nut Shell Oil
    - 7.9.3. Cardanol Processing from CNSL
    - 7.9.4. Process Flow Diagram of Cardanol
  - 7.10. QUALITY CONTROL & STANDARDS
    - 7.10.1. Untreated Cashew Nut Shell Liquid
    - 7.10.2. Treated Cashew Nut Shell Liquid

7.10.3. Cold Pressed Cashew Nut Shell Liquid	
7.10.4. Machine Performance Evaluation	
7.10.5. Extraction Efficiency	
7.11. ENVIRONMENT POLLUTION AND EFFLUENT TREATMENT	
7.11.1. Effluent Treatment Plant Equipment	
7.12. PLANT ECONOMICS	
8. RICE POWDER, PUTTU AND WHEAT POWDER	120
8.1. INTRODUCTION	
8.1.1. Wheat Flour	
8.1.2. Wheat Varieties	
8.1.3. Benefits	
8.1.4. Health Benefits	
8.2. USES	
8.2.1. Health Benefits of Rice Flour	
8.2.2. Gluten-Free	
8.2.3. Protein	
8.2.4. Fiber	
8.3. MANUFACTURING PROCESS	
8.3.1. Rice Flour	
8.3.2. Puttu	
8.3.3. Production Process for Puttu	
8.4. PLANT ECONOMICS	
9. FRUCTOSE SYRUP FROM BROKEN RICE	129
9.1. INTRODUCTION	
9.2. PROPERTIES	
9.3. USES AND APPLICATIONS	
9.4. RAW MATERIAL	
9.5. MANUFACTURING PROCESS	
9.6. PROCESS FLOW DIAGRAM	
9.7. PLANT ECONOMICS	
10. POTATO POWDER, GRANULES AND PELLETS	135
10.1. INTRODUCTION	
10.1.1. Potato Powder	
10.1.2. Potato Granules	
10.1.3. Potato Pellets	
10.2. PROPERTIES	
10.2.1. Potato Powder	
10.2.2. Potato Granules	
10.2.3. Potato Pellets	
10.3. USES	
10.3.1. Potato Powder	
10.3.2. Potato Granules	
10.3.3. Potato Pellets	
10.4. BENEFITS	
10.4.1. Potato Powder	
10.4.2. Potato Granules	
10.4.3. Potato Pellets	
10.5. VARIETY OF INDIAN POTATO	
10.6. RAW MATERIAL DETAILS	
10.7. MANUFACTURING PROCESS	
10.7.1. Potato Powder	
10.7.2. Potato Granules	
10.7.3. Potato Pellets	

- 10.7.4. Basic Raw Material Required:
- 10.8. PROCESS FLOW DIAGRAM
  - 10.8.1. Potato Powder
  - 10.8.2. Potato Granules
  - 10.8.3. Potato Pellets
- 10.9. FOOD SAFETY REQUIREMENTS & STANDARD REQUIRED
- 10.10. WASTE COLLECTION AND MANAGEMENT PROCEDURES
  - 10.10.1. Major Waste Generating Activities
  - 10.10.2. Waste Management Practices
- 10.11. POLLUTION PREVENTION AND CONTROL
- 10.12. PLANT ECONOMICS
- 11. RICE FLAKES AND PUFFED RICE 151
  - 11.1. INTRODUCTION
  - 11.2. USES & APPLICATIONS
  - 11.3. HEALTH BENEFITS OF PRODUCT
    - 11.3.1. Rice Flake
    - 11.3.2. Puffed Rice
  - 11.4. PROPERTIES
    - 11.4.1. Rice Flakes
    - 11.4.2. Puffed Rice
    - 11.4.3. B.I.S. SPECIFICATIONS
  - 11.5. RAW MATERIALS DETAILS
  - 11.6. INDIAN PRODUCTION OF RICE
  - 11.7. RICE VARIETIES
    - 11.7.1. Physical Characteristics of Rice Types
    - 11.7.2. Milled or White Rice
    - 11.7.3. Nutrition Value of Rice
  - 11.8. HEALTH BENEFITS OF RICE
  - 11.9. RICE FLAKES MANUFACTURING PROCESS
  - 11.10. PROCESS FLOW DIAGRAM
  - 11.11. PUFFED RICE MANUFACTURING PROCESS
  - 11.12. PROCESS FLOW DIAGRAM
  - 11.13. PLANT ECONOMICS
- 12. CASHEW NUT PROCESSING UNIT 164
  - 12.1. INTRODUCTION
  - 12.2. NUTRITIVE VALUE/COMPOSITION
    - 12.2.1. Cashew Nut Kernel
    - 12.2.2. Overall Composition
    - 12.2.3. Nutritive Value in Cashew Nut
  - 12.3. CASHEW NUT SHELL OIL
  - 12.4. CASHEW APPLE
  - 12.5. USES OF CASHEW NUT
  - 12.6. HEALTH BENEFITS OF CASHEW NUTS
  - 12.7. PROPERTIES
  - 12.8. ADVANTAGES OF CNSL BASED POLYMERS
  - 12.9. B.I.S. SPECIFICATIONS
  - 12.10. CASHEW NUT PROCESSING
  - 12.11. MEASUREMENT OF THE MOISTURE CONTENT OF CASHEW KERNELS
  - 12.12. EXTRACTION OF CASHEW NUT SHELL LIQUID
  - 12.13. MANUFACTURING PROCESS OF CNSL
  - 12.14. PROCESS FLOW DIAGRAM
  - 12.15. CASHEW KERNEL PROCESSING STEPS
  - 12.16. PROCESS FLOW DIAGRAM OF CNSL

- 12.17. QUALITY CONTROL (PLANT SANITATION)
  - 12.17.1. Quality Control of Cashew Kernels
- 12.18. HYGIENE AND SAFETY
- 12.19. FOOD POISONING AND ITS CAUSES
- 12.20. ENVIRONMENTAL STANDARDS FOR CASHEW PROCESSING INDUSTRIES
  - 12.20.1. Air Pollution Emission Standards
  - 12.20.2. Wastewater Discharge Standards
  - 12.20.3. Solid Waste Disposal Practices
- 12.21. PLANT ECONOMICS
- 13. BANANA, ONION, ORANGE AND TOMATO POWDER 183
  - 13.1. INTRODUCTION
  - 13.2. B.I.S. SPECIFICATIONS
  - 13.3. BANANA POWDER
    - 13.3.1. Introduction
    - 13.3.2. Nutritional Value
    - 13.3.3. Uses and Applications
    - 13.3.4. Raw Material
    - 13.3.5. Manufacturing Process
  - 13.4. Process Flow Diagram
  - 13.5. ONION POWDER
    - 13.5.1. Introduction
  - 13.6. NUTRITION FACTS OF ONION POWDER
    - 13.6.1. Uses and Applications
    - 13.6.2. Raw Material
    - 13.6.3. Manufacturing Process
    - 13.6.4. Process Flow Diagram
  - 13.7. ORANGE POWDER
    - 13.7.1. Introduction
    - 13.7.2. Nutritional Value
    - 13.7.3. Raw Material and its Availability
    - 13.7.4. Manufacturing Process
    - 13.7.5. Process Flow Diagram
  - 13.8. TOMATO POWDER
    - 13.8.1. Introduction
    - 13.8.2. Uses and Applications
    - 13.8.3. Manufacturing Process
    - 13.8.4. Process Flow Diagram
  - 13.9. PLANT ECONOMICS
- 14. DISPOSABLE PLATE AND CUPS FROM WASTE RICE HUSK POWDER 200
  - 14.1. INTRODUCTION
  - 14.2. PRODUCT DETAIL
  - 14.3. BENEFITS
  - 14.4. RAW MATERIAL DETAILS
  - 14.5. PROPERTIES
  - 14.6. MANUFACTURING PROCESS
  - 14.7. PROCESS FLOW DIAGRAM
  - 14.8. PLANT ECONOMICS

## 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.

---

**NIIR PROJECT CONSULTANCY SERVICES** , 106-E, Kamla Nagar, New Delhi-110007, India. **Email:** [npcs.india@gmail.com](mailto:npcs.india@gmail.com) **Website:** [NIIR.org](http://NIIR.org)

Sat, 27 Apr 2024 12:00:01 +0530