106-E, Kamla Nagar, New Delhi-110007, India.
Tel: 91-11-23843955, 23845654, 23845886, +918800733955
Mobile: +91-9811043595

Email: npcs.ei@gmail.com, info@entrepreneurindia.co

Website: www.entrepreneurIndia.co

Handbook on Drying, Milling and Production of Cereal Foods (Wheat, Rice, Corn, Oat, Barley and Sorghum Processing Technology)2nd Revised Edition

Code: NI171	Format: paperback
Indian Price: ₹1295	US Price: \$125
Pages: 472	ISBN: 9788178331720
Publisher: Asia Pacific Business Press Inc.	

Description

availability of cheap labor.

Cereals, or grains, are members of the grass family cultivated primarily for their starchy seeds (technically, dry fruits). Cereal grains are grown in greater quantities and provide more food energy worldwide than any other type of crop; they are therefore staple crops. Oats, barley, and some food products made from cereal grains. They are used for both human and animal food and as an industrial raw material. India produces cereals like wheat, rice, barley (jau), buckwheat, oats, corn (maize), rye, jowar (sorghum), pearl millet (bajra), millet (ragi), Sorghum, Triticale, etc. India is the world's second largest producer of Rice, Wheat and other cereals. The huge demand for cereals in the global market is creating an excellent environment for the export of Indian cereal products. India is not only the largest producer of cereal as well as largest exporter of cereal products in the world. India have been offering

incredible opportunities as they have an abundant amount of raw materials and a wide

The book provides comprehensive coverage of the Drying, Milling and information regarding production method of Cereal Foods .lt also covers Plant Layout, Process Flow Sheets and photographs of plant & Machinery with supplier's contact details. Some of the fundamentals of the book are origin of wheat classification of wheat, endeavors to find industrial uses for wheat, criteria of wheat quality, botanical criteria of quality, milling principles, extraction rate and its effect on flour composition, grain structure as affecting grinding, definition of flour extraction stone milling: yields of products, roller milling: flour extraction rates, rice production and utilization, origin of rice, comparison of rice with other cereal grains, composition of rice and cereal,

breeding rice varieties with specific, industrial uses for rice and rice by products, caryopsis and composition of rice, gross structure of the rice caryopsis and its milling fractions etc.

This book is essential for those who are interested in cereal areas can find the complete information from manufacture to final uses of Cereal Foods. The present time is an era of information, one should know about what is happening in the world to be able to compete effectively. It will be very informative and useful to consultants, new entrepreneurs, startups, technocrats, research scholars, libraries and existing units.

Content

1. Wheat

Origin of Wheat

Classification of Wheat

Moisture Consideration

Comparison of Nutrient Values

The Concept of Wheat Quality

Feed Uses For Wheat

Endeavors to Find Industrial Uses for Wheat

Criteria of Wheat Quality

Botanical Criteria of Quality

Species

Varieties

Physical Criteria of Quality

Weight Per Unit Volume

Kernel Weight

Kernel Size and Shape

Kernel Hardness

Vitreousness

Color

Damaged Kernels

Impurities

Milling Quality

Chemical Criteria Of Quality

Moisture Content

Alpha-amylase Activity

Fat Acidity

Crude Fiber and Ash

Wheat-Grading Systems

Composition of Wheat **Proteins** Carbohydrates Lipids Minerals **Vitamins** Fiber **Pigments** Enzymes Milling Principles Extraction Rate and its Effect on Flour Composition Grain Structure as Affecting Grinding **Definition of Flour Extraction** Stone-milling: Yields of Products Roller-milling: Flour Extraction Rates Extraction Rate and Flour Color Some Factors Determining Commercial Extraction Rates Changes in Ash, Thiamine, and Color with Increasing Extraction Rate General Composition of Flours of different Extraction Rates Effect of Increasing Extraction on Baking Quality Roller-Milling Process **Breaking Process Reduction Process** Grouping of Flour Streams According to Composition: Effect of Change in Extraction Rate Some Recent Developments Characteristics of Individual Flour Streams in Milling of White Flour Proportions and Ash Contents. **Reduction Flours** Minerals **Phosphorus** Other Minerals Flour Streams Gluten Protein Peptization, Proteolysis, Viscosity

Sugars and Maltose Figure

Sugars

Maltose Figure

B-Vitamins

Thiamine

Riboflavin

Niacin

Pentosans

Loaf Crumb Color

Baking Quality

Water-Absorption

Bread

Cookies (Biscuits)

Dry-cleaning of Wheat

Wheat Conditioning, Moisture Movement,

Temperature Effects

Washing

Pick-up of Water by Wheat in Washing

Penetration Into Endosperm

Conditioning In Practice

Cold-Conditioning

Warm-Conditioning

Hot Conditioning

Steam-Treatment

Rolling Temperatures

Protein Displacement

Air Classification

Special Grinding of Flour

Usefulness of Products

Damage to Starch Granules in Milling

Factors In Individual Reductions

Coarse Particle (A) Reduction

F1ne Particle Reduction

Effects With Successive Reductions

Effect of Wheat Type

The Breaking System

Quantitative Assessments

Germ in Milling

Path of the Germ in Milling

Contribution to Oil of Flour

Endosperm Structure as Affected by Milling

Endosperm Cells

Cell Walls

Experimental Milling

Criteria of Flour Quality

Definition of Flour Quality

Flour Quality and Strength

Components of Quality

Protein Content

Flour Viscosity

Enzyme Content

Amylase

Protease

Lipase

Absorption

Ash and Flour Color

Granulation Or Particle Size

Response to Additives

Color-Removing Agents

Maturing Agents

Enzyme Supplementation

Starch Damage

Methodology

Microbiology

Summary

Wheat Pigments and Flour Colour

Chemical Nature of Wheat Pigments

Xanthophyll

Carotene

Flavones

Pigments in Wheat and Flour

Pigments in the Developing Grain

Determination of the Total of Yellow Pigments

In Flour Expressed as Carotenoids

Flour Color

Sources of Flour Colour

Methods of Measuring Flour Color

Technology of Flour Color

2. Rice

Production and Utilization

Origin of Rice

Comparison of Rice with Other Cereal Grains

Composition of Rice and Cereals

Breeding Rice Varieties With Specific

Industrial Uses for Rice and Rice by-Products

Caryopsis and Composition of Rice

Gross Structure of the Rice Caryopsis and its Milling Fractions

Gross Structure

Pericarp and Tegmen

Aleurone Layer

Embryo

Starchy Endosperm

Milling Fractions

Changes In Structure During Grain Development

Structure and Composition

Structure of the Rice Kernel

Important Components

Proteins

Starch

Lipids

Vitamins

Minerals

Other Constituents

Criteria of Rice Quality

Objective Versus Subjective Measurements of Criteria

Varieties

Grain Size, Shape, Weight, and Uniformity

Color and Translucence

Test Weight

Moisture Content

Impurities and Damaged Rice

Dockage

Damaged Kernels

Chalky Grains

Red Rice

Seeds or Kernels

Odours

Milling Quality

Milling Yield

Degree of Milling

Physicochemical Tests

Rice Drying

Harvesting Methods

Optimum Harvest Time

Preharvest Chemical Drying

Rice-Drying Terminology and Fundamentals

Kinds of Rice

Milling Yields

Weights

Moisture Content

Equilibrium Moisture Content

Drying-Rate Computation

Drying Methods

Forced-Air Drying

Deep-bed Driers

Supplemental Heat

Materials-Handling for Bin Driers

Continuous-flow, Heated-Air Driers

Tempering

Combination System of Drying

Batch Driers

Other Drying Methods

Commercial Rice Drying

Types of Enterprise

Receiving and Storing Undried Rice

Method for Increasing Drier-Facility Capacity

Sun and Shade Drying

Threshing and Winnowing

Mechanical Drying

Seed Rice

Rice Milling Technology

Removal of Foreign Matter from Rough Rice

Removal of Hulls

Removal of Bran

Sizing of Milled Rice

Solvent Extractive Rice Milling

The X-m Concept

The Development of X-M

Process Description

X-M Products

X-M Milled Rice

X-M Bran

X-M Rice Oil

Rice Milling Yields

Technology Expansion Prospects

Rice Storage

Deterioration of Stored Rice by Fungi

Fungi Associated with Rice Deterioration

Effect on Economic Value

Effect on Nutritive Value

Mycotoxins

Factors Influencing Deterioration

Storage Technology

Rice Storage Structures

Turning

Aeration

Aeration-System Design

Measuring Airflow

Operation for Dry Rice

Operation for Undried Rice

Pest Control

Stored-grain Insects

Other Pests

3. Barley

Genetics and Breeding

Inheritance and Heritability

Biotechnology

Breeding

Population Breeding Methods

Hybrid Barley

Plant

Spike

Kernel

Soil and Climatic Requirements

Rotations

Planting

Fertilizing and Water Use

Harvesting

Pest Control

Diseases

Weeds

Insects

Chemical Composition

Carbohydrates

Starch Soluble Sugars Nonstarch Polysaccharides Protein **Fats** Minerals **Vitamins** Phenolic Compounds Processing and Utilization Feed and Food Barley Animal Human Malting Barley Uses Marketing Classification and Prices Received Storage 4. Corn Anatomical Structure, Composition, and Properties Corn Types and Their Compositions Corn Quality and Grading Standards Corn Utilization Corn as Livestock Feed Direct Utilization of Corn as Food Alkali-Cooked Corn-based Foods Sweet Corn Popcorn, the Original Snack Food Separation of Corn Into its Component Fractions Dry Corn Milling The Tempering-Degerming Milling Process Products from the Tempering-Degerming Process Wet Corn Milling The Wet-Milling Process Wet Corn Mill Products Conversion of Raw Fractions into Value-Added Ingredients and Chemicals **Modified Starches** Corn Sweeteners Furfural Production from Corncobs 5. The Millets Introduction

Structure and Physical Properties Composition Polyphenols and Antlnutritional Factors Postharvest Technology Milling Wet Milling Food Uses **Nutritional Value** Feed Use **Nutritional Value Human Studies** Effect of Decortication on Nutritional Value 6. Oats History Origin of Cultivated Oats Genetics and Breeding Cytogenetic Relationship of Species within Avena Genetic Markers **Utilization of Germplasm Resources** Breeding **Breeding Objectives Breeding Procedures** The Oat Plant The Mature Grain **Chemical Composition** Protein Protein Content and Distribution Solubility Classification Amino Acid Composition and Distribution Lipids Lipid Content and Distribution **Lipid Composition** Polysaccharides Starch B-glucan Minerals **Vitamins** Processing and Utilization Utilization **Processing**

Cleaning

Drying and Cooling

Hulling

Cutting and Flaking

Oat Flour

7. Rye

Rye Breeding

Morphology and Kernel Characteristics

Growing Conditions

Rye Storage and Rye Grain Reserves and Disappearance

Rye Milling

Rye Flours

Nutrient Composition of Rye

Antinutritional Factors in Rye

Food Uses of Ryes

Industrial Uses of Rye

Rye As Animal Feed

8. Sorghum

Introduction

Origin

Structure and Physical Properties

Appearance of Sorghum Grain and its Genetics

Composition

Tannins and Polyphenols: Effects on Sorghum

Quality and Nutritional Value

Industrial Utilization

Wet Milling

Sorghum Starches

Dry Milling

Alcohol Production

Use of Sorghum for Beer and Malt

Lager Beer

Sorghum Malt

Clear Sorghum Beer

Sour, Opaque Beer

Processing For use in Feeds

Processing for Food

Traditional Food Systems

Sorghum in Baked and Pasta Products

Sorghum Syrup, Molasses, and Sugar

Nutritional Value Nutritional Value of Sorghum as Livestock Feed Human Digestibility Studies Effect of Processing

9. Triticale

History

General Characteristics

Grain Development and Structure

Genetics and Breeding

Production

Quality Factors

Damaged Kernels

Defects

Dockage

Foreign Material

Heat-Damaged Kernels

Other

Shrunken and Broken Kernels

Basis of Determination

Ergoty Triticale

Garlicky Triticale

Light Garlicky Triticale

Light Smutty Triticale

Smutty Triticalp

Composition and Nutritional Factors

Utilization

Future

- 10. Photographs of Plant & Machinery with Supplier's Contact Details
- 11. Sample Plant Layout and Process Flow Sheets

About NIIR Project Consultancy Services (NPCS)

NIIR Project Consultancy Services (NPCS) is a reliable name in the industrial world for offering integrated technical consultancy services. Its various services are: Prefeasibility study, New Project Identification, Project Feasibility and Market Study, Identification of Profitable Industrial Project Opportunities, Preparation of Project Profiles and Pre-Investment and Pre-Feasibility Studies, Market Surveys and Studies, Preparation of Techno-Economic Feasibility Reports, Identification and Selection of Plant and Machinery, Manufacturing Process and/or Equipment required, General

Guidance, Technical and Commercial Counseling for setting up new industrial projects and industry. NPCS also publishes various technology books, directories, databases, detailed project reports, market survey reports on various industries and profit making business. Besides being used by manufacturers, industrialists, and entrepreneurs, our publications are also used by Indian and overseas professionals including project engineers, information services bureaus, consultants and consultancy firms as one of the inputs in their research.

NIIR PROJECT CONSULTANCY SERVICES 106-E, Kamla Nagar, New Delhi-110007, India. Tel: 91-11-23843955, 23845654, 23845886, +918800733955 Mobile: +91-9811043595

Email: npcs.ei@gmail.com, info@entrepreneurindia.co Website: www.entrepreneurIndia.co