

The Complete Book on Wine Production

Author: H. Panda

Format: Paperback

ISBN: 9789381039021

Code: NI244

Pages: 752

Price: Rs. 2,275.00 **US\$** 60.95

Publisher: NIIR PROJECT CONSULTANCY SERVICES

Usually ships within **5** days

Wine is the most loved beverage across the world and a popular accompaniment with food. The popularity of wine in India has started growing rapidly. Wine is the fermented product of the grape. Because crushed grapes contain all that is needed to create wine, ancient wine producers simply allowed nature to take its course. As time went on, people realized that by intervening at certain times, they could make a wine with more predictable characteristics. Grape cultivation is one of the most remunerative farming enterprises in India. Grapes can be eaten raw or they can be used for making wine, jam, juice, jelly, vinegar. Delicate wine grapes are generally produced in frost free and moderate temperature environments. Thousands of grape varieties are grown all over the world; the wine grape varieties represent only a fraction of them. The colour, size, phenolic distribution and acidity of grapes give each wine its own characteristic. Wine quality is affected by the factors such as soil, climate, viticulture and wine making techniques. Wine quality is dictated mainly by the grapevines, not by the winemaker. Wine must be slightly aged to be drinkable. Grape production, linked with wine processing has provided the much-needed impetus for the growth of the wine industry. Indian government plays a crucial role in the current phase of Indian wine industry, supporting the current momentum amongst others through financial assistance and market protection. Gradual reduction of import duty levels will no doubt lead to increasing competition through imports, but will on the longer term result in a competitive industry that is able to export its top quality products to overseas markets.

Some of the fundamentals of the book are wine quality, mold and mold complexes associated with grapes, grape aroma components, soluble solids in winemaking, the molds and yeasts of grapes and wine molds, yeasts of grapes and wine, by-products of fermentation, chemistry of fermentation and composition of wines, outline of red wine making, stuck wines, white table wine, sparkling wine, vermouth and flavoured wines, cider and apple wine, plum wines in Europe, berry wines in pacific coast states, cherry and plum wines in pacific coast states, pomegranate wine from concord grapes, pineapple wine, pear wine, wine from oranges, grapefruit wine, wine from dried fruits, Swiss research on fruit juice fermentation honey wine (mead), etc. This book provides a complete detail on all aspects of Wine production like describe the varieties of wine available, its manufacturing process, bottling and storage of wine, quality control in wine making and many more. It is hoped that this book will be very resourceful to all its readers, students, scientists, technocrats, existing industries, new entrepreneurs and all those who are related to wine making.

Contents

1. THE COMPOSITION OF GRAPES

How Grapes Ripen

Physical Changes

Chemical Changes

Measurement of Maturity

Importance
How to Sample
Preparation of Sample
Methods of Measurement
Interpretation of Results
Harvesting and Transportation
Composition of Musts
Water
Sugars and Related Compounds
Acids
pH and Buffer Coefficient
Nitrogenous Components
Pigments
Tannin
Vitamins
Enzymes
Odorous Constituents
Metals
Environmental Factors
Temperature
Soil
Rainfall
Other Factors
Variety
White Table Wines
Red Table Wines
Pink or Rosé Wines
Dessert Wines
2. GRAPE MATURITY AND QUALITY
Wine Quality
Clones
Climate
Terroir
Vineyard Yield
Maturity Sampling
Maturity Gauges
Sugar per Berry
Sample Processing
Fruit Quality Evaluation
Mold and Mold Complexes Associated with Grapes
Factors Influencing Botrytis Growth
Sensory Considerations
Quantification of Botrytis
Processing Considerations for Botrytis
Pesticides
Sensory Considerations as an Indicator of Grape Maturity and Quality
Grape Aroma Components
Soluble Solids in Winemaking
Conversion of Sugar-to-Alcohol
Amelioration and Chaptalization
Monitoring Fermentation
Laboratory Measurements of Soluble Solids
Densimetric Procedures

Analysis

3. FRUIT QUALITY AND SOLUBLE SOLIDS

Maturity Sampling

Contribution of Juice Aroma

Color and Phenols

Grower Input

Sugar per Berry

Sample Processing

Fruit Evaluation

Application of Soluble Solids Data in Winemaking

Laboratory Measurements of Soluble Solids

Densimetric Procedures

4. THE MOLDS AND YEASTS OF GRAPES AND WINE

Molds

General Classification of Microorganisms

Molds

Penicilum

Aspergillus

Yeasts

Botanical Classification of Yeasts

Isolation and Purification of Yeasts

Spore Formation

Identification of Yeast Cultures

Yeasts of Grapes and Wine

5. ALCOHOLOMETRY

Yeast Metabolism

Fermentation

By-products of Fermentation

Ethanol Production

Determination of Alcohol Content

Physical Methods

Chemical Methods for Alcohol Determination

6. CHEMISTRY OF FERMENTATION AND

COMPOSITION OF WINES

Fermentation

History

Chemistry

Yield

Factors Influencing Fermentation

Carbon Sources

Alcohol

Carbon Dioxide

Acids

Nitrogen

Minerals

Antiseptics

Substitutes for Sulfur Dioxide

Antibiotics

Growth Factors

Tannins

Temperature

Pressure

Oxygen

Surface Effect
Fermentation Rate
Ethyl Alcohol
Methyl Alcohol
Higher Alcohols
Glycerol
2,3-Butylene Glycol, Acetoin, and Diacetyl
Acetaldehyde
Acetal
Hydroxymethylfurfural
Esters
Volatile Acidity
Fixed Acids
Sugar
Pentoses
Pectins
Nitrogen
Tannins
Color
Oxygen
Minerals
Anions
7. RED TABLE WINE
Outline of Red Wine Making
Varieties
Testing The Grapes
Picking
Transportation
Crushing
Must Treatment
Amelioration
Addition of Sulfur Dioxide
Warming
Addition of Starter
Fermentation
Balling and Temperature Records
Punching and Pumping Over
Stuck Wines
Drawing Off
Pressing
The After-Fermentation
First Racking, Filling up, etc.
Other Methods of Red Wine Fermentation
Care of Wine
Laboratory Examination
Fining and Racking
Aging
Other Cellar Operations
Blending
Rosé
Balance of Products
8. WHITE TABLE WINE
Process

Varieties
Picking and Transporting
Processing
Crushing
Juice Separation
Settling
Amelioration
Addition of Starter
Fermentation
Aging and Finishing
Sweet Table Wines
Stabilization
9. SHERRY
California Sherry
Grapes
Picking and Delivery
Crushing
Fermentation
Settling and Racking Before Fortification
Fortification
Settling
Treatment Before Baking
Baking
Cooling and Stabilization
Clarification
Aging
Colour Removal
Blending
Addition of Sulfur Dioxide or Tannin
Excess Metals
Unbaked Sherry
Finishing
Bottling
Australia and South Africa
Spanish Sherry
Harvesting
Crushing
Plastering
Draining and Pressing
Addition of Sulfur Dioxide
Fermentation
The Solera System
The Flor Film
Blending and Finishing
Stabilizing
Spoilage
Classes of Spanish Sherries
The Yeasts
Sulfur Dioxide Tolerance
Effect of Film on Acids
Effect of Sugars and Yeast Nutrients
Effect of Yeast Lees on Flavor
Winery Experiments

Submerged Flor Process
Australia and Canada
In California
Flor Sherry Process in Australia
Grapes and Yeasts
Methods of Production
Fornachon's Investigations
Flor Sherry Process in South Africa
Flor Process in France and Russia
Composition of Commercial Sherries
10. PORT AND OTHER DESSERT WINES

Port
Normal Vinification of Port
Fermenting Dry Before Fortification
Extraction of Color by Heat
Balancing the Port Cellar
Use of Concentrate
Clarification
Stabilization
Aging
Finishing
Red Muscatel
White Port
Angelica
Muscatel
Varieties
Fermentation
Fortification
Finishing
Spoilage During Fermentation
Proper Aging
California Tokay
California Malaga, Madeira, and Marsala

11. SPARKLING WINE

Definition
Type I Sparkling Wines
Type II Sparkling Wines
Type III Sparkling Wines
Champagne
Other Regions
California
Type IV Sparkling Wines
Production of the Cuvée
Varieties
Processing
Blending
Sugaring
Yeast
Bottling
The Second Fermentation
Finishing
Carbonation

12. VERMOUTH AND FLAVOURED WINES

Origin
Herbs and Spices
Methods of Flavoring Base Wine
Italian-Type (Sweet) Vermouth
Italian Methods
Aging and Finishing
California Methods
French-Type (Dry) Vermouth
European Methods
California Methods
Composition of Vermouth
Non-vermouth Types
Special Natural Wines
13. FRUIT WINES
Cider and Apple Wine
Statistics
Apples for Cider in Europe
Composition of Cider Apples
French Methods
Swiss Methods
German Methods
English Methods
Californian Methods
Oregon and Washington Methods
Sparkling Apple Wine
The Freezing Method
Other Fruit Wines
Berry Wines in Europe
Cherry Wines in Europe
Plum Wines in Europe
Berry Wines in Pacific Coast States
Cherry and Plum Wines in Pacific Coast States
Pomegranate Wine
From Concord Grapes
Pineapple Wine
Pear Wine
Wine from Oranges
Grapefruit Wine
Wine from Dried Fruits
Swiss Research on Fruit Juice Fermentation
Honey Wine (Mead)
14. THE BOTTLING AND STORAGE OF WINES
Preparation for Bottling
Final Filtration
Membrane Filtration of Wines
Preparations for Membrane Filtration
Charge-Modified Filter Media
Dissolved Gases in Wines
Acidity Effects of Dissolved CO₂
Chemical Additives
Bottling Operations
Quality Control
The Bottling Room

Dedusting and Rinsing of Bottles
Filling Machines
Corks and Cork-insertion Machines
Labeling Machines
Capsulators and Foiling Machines
Gas Exchange During Bottling Operations
Pressure in Filled Bottles
Other Operations
Transport and Storage Considerations
Storage Temperature and Temperature Variations
The Cooling and Warming of Bottled Wine
15. MICROBIOLOGICAL SPOILAGE OF WINE AND ITS CONTROL
Definitions of Microbiological Spoilage
Origins of Wine Spoilage Microorganisms
Diagnosis of Spoilage as Microbiological
Kinds of Microbiological Spoilages of Wine
Identification of Wine Spoilage Microorganisms
Importance of Identification
Cultivation, Isolation, and Purification of Wine Microbes
Spoilage by Molds and Yeasts
Spoilage by Molds
Corkiness
Spoilage by Wild Yeasts
Spoilage by Wine Yeasts
Spoilage by Zygosaccharomyces Yeast
Spoilage by Brettanomyces Yeast
Spoilage by Lactic Acid Bacteria
Misplaced Malolactic Fermentations
Malolactic Fermentation by Undesirable Bacteria
Ropy Wines
Ferocious Lactobacillus Fermentations
Spoilage of Fortified Wines by Lactobacillus
Mousey Wines
Other Spoilages by Lactic Acid Bacteria
Spoilage by Acetic Acid Bacteria
Kinds of Wine-Related Acetic Acid Bacteria
Prevention and Control of Acetic Acid Bacterial Spoilage
Taxonomy of the Wine-Acetic Acid Bacteria
Spoilage by Other Aerobic Bacteria
Spoilage by Bacillus
Spoilage by Zymomonas
16. CARBOHYDRATES : REDUCING SUGARS
Reducing Sugars (Hexoses)
Sucrose
Pentoses
Polysaccharides
Analysis of Reducing Sugars
Rapid Determination of Reducing Sugars
Brix Vs. Reducing Sugar Values
17. YEAST AND BIOCHEMISTRY OF ETHANOL FERMENTATION
Definition, Origins, and Identification of Wine-Related Yeasts

Definition of Wine-Related Yeasts
Origins of Wine-Related Yeast
Identification of Wine-Related Yeasts
Natural Grape and Winery Flora
Fermentation Inoculation Practices
Starter Cultures
Natural Fermentations
Dominance by Saccharomyces
Yeast Morphology and Cellular Organization
Yeast Nutrition and Growth Characteristics
Carbon Metabolism
Noncarbon Nutrition
Fermentation Biochemistry
Glycolysis
Fermentation Kinetics
The Rate of Cell Growth
Cell Growth and Substrate Preference
Sugar Consumption by Cell Maintenance
Rate of Sugar Consumption
Rates of Cell Death
Rate of Formation of Ethanol
Rate of Change in Density
Temperature Effects
Rates of Heat Release
End Products of Yeast Metabolism
Glycerol, Volatile, and Nonvolatile Organic Acids
Higher (Fusel) Alcohols
Nitrogen Metabolism during Fermentation
Uptake and Transport
Utilization Preferences
Intracellular Pools
Utilization Pathways
Important End Products of Nitrogen Metabolism
Nitrogen Metabolism and Effect on Glycolytic Flux
Sulfur Metabolism during Fermentation
Problem Fermentations
Stuck or Sluggish Fermentations
Production of Off-Characters
Ethanol Tolerance
Fermentation Bouquet and Other Volatile Esters
18. PHENOLIC COMPOUNDS AND WINE COLOR
Representative Grape and Wine Phenols
Nonflavonoid Phenols
Flavonoid Phenols
Complex Phenols (Tannins)
Sensory Considerations
Anthocyanins/Anthocyanidins
Grape Growing and Processing Considerations
Grape Phenols
Grape Maturity and Wine Phenols
White Wine Processing Considerations
Red Wine Processing Considerations
Factors Contributing to Wine Color and Color Stability

Alternative Techniques for Color Extraction

Oxidation

Enzymatic Oxidation of Musts

Oxidation of Wines

Secondary Browning Reactions

Phenol Instability

Oak Barrel Components

Processing Considerations

Evaluation of Color by Spectrophotometry

Tristimulus Color

Spectral Estimations of Red Juice and Wine Phenols

Spectral Estimation of White Juice and Wine Phenols

Analysis

19. OXYGEN, CARBON DIOXIDE AND ASCORBIC ACID

Oxygen

Importance of Oxygen in Yeast Metabolism

Redox Potentials of Wine Systems

Acetaldehyde

Carbon Dioxide

Ascorbic Acid

Modes of Action of Ascorbic Acid

20. EVALUATION OF WINES AND BRANDIES

Sensory Examination

Tasting Glasses

Appearance

Odor

Taste

Flavor

Difference Tasting

Scoring Wines Numerically

Hedonic and Flavor Profile

Frequency of Tasting

Microscopical Examination

Musts

Examination of Yeast Starters

Wines

Chemical Analysis of Wines

Hydrometers

Acidity

Volatile Acidity

Fixed Acidity and pH

Alcohol

Extract of Dealcoholized Sample

Reducing Sugars

Balling-Alcohol-Extract Chart

Determination of Sulfur Dioxide

Tannin and Coloring Matter

Color

Aldehydes

Iron Determination

Copper Determination

Ester Determination

Hydroxymethylfurfural

Carbon Dioxide
Modified Hubach Test
Other Determinations
Brandy
Apparent Proof
True Proof
Extract
Acidity
Fusel Oil
Aldehydes
Furfural

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 **Website:** NIIR.org

Tue, 25 Jun 2024 05:47:15 +0530