The Complete Book on Wine Production

Author:- H. Panda Format: paperback Code: NI244 Pages: 752 Price: Rs.2275US\$ 200 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.

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 Yeasting 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** Acetaldehvde 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, Startup 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 varies 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: <u>npcs.india@gmail.com</u> Website: <u>NIIR.org</u>

Sat, 17 May 2025 07:14:54 +0000