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Impact of Globalization on Sustainable Development

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CONTENTS

Sr No	Paper Title	Page No.
1	A Comparative Study of Population composition in Junnar Tahsil of Pune District: Mr. Ashok Jayavanta Dushing , Mr. Sambhaji Arjun Bansode	1-3
2	The Impact of Globalization on Indian Culture and Literature: Shashi Deshpande's Novel Roots and Shadows Dr. Dattatraya Shahane	4-6
3	Impact of Excessive Use of Water, Air and Soil in Sustainable Development Mr. Dattatraya Shivaji Thorat	7-9
4	The Use of ICT Tools In The Teaching and Learning Process: An Impact of Globalization Jagadishchandra Mulik	10-12
5	Brutality Of Afghanistan War And Its Impact Dr. Rajkumar Ramrao Patil	13-15
6	Geographical Analysis Of Route Optimization For Solid Waste Collection In Satara City Dr. R. S. Mane-Deshmukh, P. R. Vhatkar	16-18
7	Analysis Study On Globalization And Human Behaviour. Dr. Bajrang Ananda Metil, Mr. Vishnu Khadakhade	19-20
8	Synthesis And Structural Properties of Mn, Zn And Mn-Zn Nanoparticle polycrystalline Ferrite R.A. Bugad , R.G. Khanapure, B.G. Pawar, R.D. Mahimkar, C.L. Jambhale, P.R. Babar , T.R. Mane	21-25
9	Impact of Irrigation on Level of agriculture Performance in Chandrapur district Rajendrakumar K. Dange	26-28
10	Conservation and Protection of Bio-Diversity in India Dr. D. S. Harwalkar	29-34
11	Sustainable Development of a Nation-Role of Youth incorporated with Literature Sonika Saini Manrai	35-38
12	Subaltern Study in Toni Morrison's Beloved Dr. D. N. Patil	39-41
13	A Geographical Analysis of Land Potentiality in Osmanabad District Dr. N. I. Dhayagode , Dr. V. K. Pukale	42-46
14	Stage of Ground Water Development: A Geographical Analysis of Osmanabad District in Maharashtra State Dr. Vijaykumar Pukale	47-50
15	Piscivorous Birds Of Gharni Dam Gharni Dist -Latur (M.S.) India Dr Rahul Ramesh Jadhav	51-52
16	Human Rights and Environment Dr.Madhu Khobragade	53-54
17	The Prisoner of Zembla as a farce or Parody of the Medieval Romance Dr. N. B. Masal	55-57
18	The Problems in Agricultural Sector in India Dr. Sanjay Raosaheb Sawate	58-60
19	Sustainable Development of Agro Tourism and Functional Analysis of Tourist in Junnar Tehsil, Dist Pune Dr. Shivaji B. Shinde	61-67
20	Social Study Of Katkari, Community In Mandangad Tahshil Jaybhaye Vishnu Sarjerao	68-70
21	Provisions And Facts Of Gender Equality In India Dhammadip Pandhari Gavle , Dr. Vijay Ghorpade	71-74
22	Ecological energy used in the dairy Industry for milk processing Yedatkar R .B, Naik A .P	75-78
23	Role of ICT Utensils in Enhancement of Quality Education Dr. Tulshiram Laxman Dabde , Dr. Manoj Chandrashekhkar Zade	79-82
24	Impact of Globalization on Indian Society: An Overview Pramod D. Borhade , Yogesh S. Amle , Rutuja Kotkar , Renuka Tanpure, Shradha Bhandari Dhananjay S. Borhade	83-86

25	Evaluate Analysis of Educational Quality Improvement and a Goal of Education for All Principle of Action Adopted Ms. Renuka Subhash Tanpure , Ms. Ruruja Vilas Kotkar , Mr. Yogesh Sunil Jorwekar	87-90
26	Impact of Globalization on Environment Dr. Anita Madhusudan Shelke	91-94
27	Impact of Covid 19 (Corona Epidemic) on Human Life and Behavior: A Short Review Dr. Rajesh Pandurang Meshram	95-96
28	Quality Education: An Overview Dr. I. M. Khairdi	97-100
29	Structural properties of Lithium Ferrite (Li _{0.5} Cr _x Fe _{2.5-x} O ₄) Swati Patil	101-103
30	Jibanananda Das's Rupasi Bangla: Searching for Home in a Globalized World Durbadal Datta, Dr. Shankar Nath Sen	104-106
31	Micro-level Analysis Of Land Holdings And Agricultural Practices: Case Studies Dr. Gaikwad D. S.	107-115
32	Contemplation of globalization in Shashi Tharoor's novel 'The Great Indian Novel'. Savita Sadanand Jadhav	116-118
33	Gender Equality and Human Rights Dr. Sanjay S. Shivasharan	119-121
34	The Need of the Quality Education in the Post Covid-19 Scenario Uttam Sawant	122-124
35	Women Social Network in Naxalites Area: A Review on Armori Panchayat Samiti Payal Chamatkar	125-129
36	The Globalization of Technology and Its Implications for Developing Countries. Prof. Rutuja Kotkar , Prof. Pramod Borhade , Prof.Renuka Tanpure , Prof.Yogesh S. Amle	130-133
37	Globalization and Economic Development of India. Bansode Vidya Laxman , Menkudale Kiran Prakash	134-139
38	Current Status of Covid- 19 Pandemic: A Case Study of Solapur District Dr. Rajguru Sachin Adinath	140-143
39	Implementation of Environmental Agenda: An Urgent Need of Time Dr. Indrayani S. Jadhav, Dr. Tejaswini D. Patil	144-147
40	Application Of GIS For Developing Micro Watershed Planning In Drought Prone Area: A Case Study Dr. Gaikwad V. P, Mr. Gorad D. G	148-156



Ecological energy used in the dairy Industry for milk processing

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Abstract

Milk Manufacturing Is A Completely Vital Detail Of The Entire Dairy Chain. Milk Call For Is Encouraged Through The Variety Of Humans And The Quantity Of Milk That All And Sundry Is Inclined To Drink And May Afford. India Is International Biggest Milk Manufacturers And One Of The Chief In End Result, Veggies And Grains Manufacturing. Milk Leaves The Udder At Body Temperature Containing Only A Few Microorganisms. The Number Increases Rapidly At This Temperature, If Growth Is Not Checked Immediately By Chilling The Milk. Chilling Is Necessary After Receiving Milk At Collection/Chilling Centre.

Keywords: India, Dairy Processing, Milk Production Diet, Transformation, Food Supply, Dairy Farm Structure

Introduction

Whole World, Extra Than Six Billion Humans Eat Milk And Milk Products, And The Wide Variety Is Growing. At The Equal Time, Over 750 Million Humans Stay In Dairy Farming Households, Mainly In Rising Economies. Most Dairy-Farmers Function At A Small-Scale Level; The Worldwide Suggest Milk Yield Is Eleven Litres In Step With Farm In Step With Day, Produced With The Aid Of Using Mean Wide Variety Of Cows. Hence, The Improvement Of The Small-Scale Dairy Zone Might Be Effective Device For Decreasing Poverty And Making A Living Withinside The Growing World. The Milk Price Chain Specifically Is Going Thru 4 Steps: Milking, Transportation To Take Advantage Of Series Centres, Processing, And Retail. During The Milking Process, It's Far Essential To Fulfil The Ok Hygienic Requirements That Assist To Keep Away From A Bacterial Contamination Of The Milk. In Many Countries, Milk Coming Into The Formal Zone Is First Chilled At Village Series Centres. However, A Few Difficult Dairies And Cooperatives Manipulate The Pleasant Of The Gathered Milk And Reject Milk This Is Spoilt. Enhancing Milk Managing Practices And Elevating Cognizance Of Milk-Borne Sickneses Can Assist Lessen Fitness Risks. Cleaning The Device And Ordinary Animal Husbandry Are Essential Measures To Lessen Losses And Offer A Higher Pleasant Of Produce. Access To Veterinary Support, The Perfect Fodder, And Making Sure Water Availability For The Farm Animals Is Critical To Enhance Milk Yields. Furthermore, Introducing Cooling Centers Proper After Milking Can Lessen Bacterial Boom Considerably. In Fact, Special Technology Were Advanced In An Effort To Offer An Uninterrupted Cooling Chain Till Attaining The Milk Series Centres, Decreasing The Quantity Of Milk This Is Rejected, Growing Farmers' Earning And Enhancing Meals Security. Further, Whilst Cooling Gadgets Are Run On Renewable Power, They May Be Used Off-Grid And Are Climate-Friendly, Which Removes Extra Prices From Power Supply. As Preliminary In Advance Capital Prices Are Frequently The Principle Limitations For Adopting Those Progressive Approaches, Special Financing Alternatives Were Advanced, Permitting Smooth Get Entry To To Smallholder Farmers. Increasing The Power Performance Withinside The Dairy Price Chain Implies The Use Of Additionally Its With The Aid Of Using-Products. Cattle Manure May Be Used For Biogas Production That Can Generate Warmth For Cooking, Heating, Band Power – Which In Flip Can Electricity Cooling Structures And Consequently Save You Spoilage Of Milk.

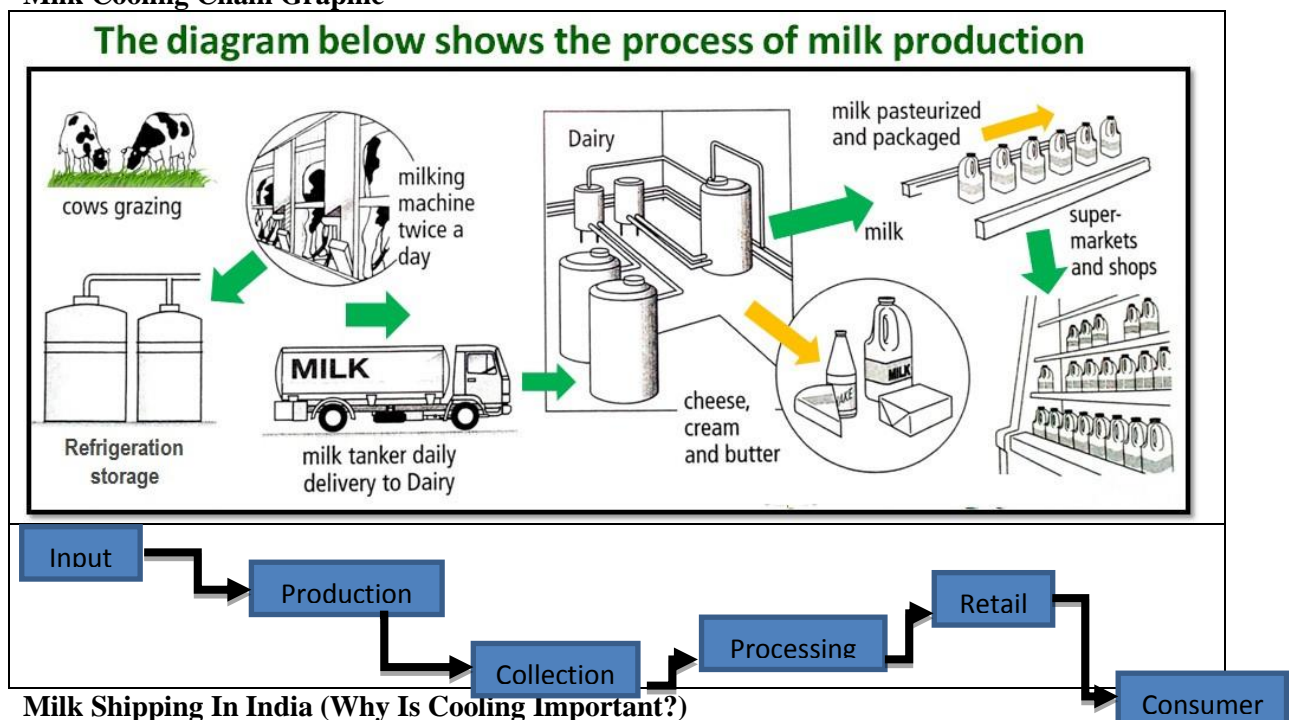
Clean Energy Solutions For Milk Cooling

In Low-Earnings Countries, Maximum Of The Milk Is Produced With The Aid Of Using Smallholder Farmers, As It's Far One Of The Few Commodities That May Be Produced Even With The Aid Of Using The Landless. The Surplus Milk May Be Offered At The Nearby Markets. Due To Its Composition, Milk At Ambient Temperature Gives A Perfect Medium For Bacterial Boom, Which

May Be A Vector For Infectious Sicknesses, Being Unsafe For Human Consumption. Cooling Milk Slows Down Bacterial Boom, Decreasing Spoilage, Growing Farmers' Earnings And Imparting A Positive Protection For The Milk Consumer.

In India, Farmers Have A Tendency Now No Longer To Personal Their Personal Cooling Centers. In India, Milk Is Gathered And Reaches Dairy Cooperatives Inside 3.5 Hours After Milking. However, Preserving An In Depth Community Of Series Centers Which Often Depend On Diesel Turbines To Lower Back Up The Much Less Dependable Power Grid Imposes Huge Monetary Burdens. Milk Transportation To The Gathering Centres With Cooling Centers Commonly Takes Longer Than 3.5 Hours And Nighttime Milk Desires To Be Fed On On-Farm As Series Centres Best Open Withinside The Morning. Due To The Excessive Prices For Lower Back-Up Power For Cooling Centers. The A Hit Software Of Easy Power Cooling Era Withinside The Milk Price Chain Has The Capacity To Enhance The Pleasant And Growth The Amount Of Milk Offered Into The Formal Market, Enhancing Meals Protection For Consumers, And Growing Farmers' Earning, At The Same Time As Developing Process Possibilities Inside Organizations That Offer Easy Power Solutions.

Milk Cooling Chain Graphic



In India, However, Procurement Of Milk Organised Through Cooperatives And Personal Dairies Withinside The Formal Cost Chain Is Extraordinarily Green, With The End Result That Morning In Addition To Night Milk Reaches Chillers In Village Series Centres Inside 3.5 Hours After Milking. Cooling Is An Strength Extensive Manner, However, And Keeping An In Depth Community Of Series Centers Which Often Rely Upon Diesel Mills To Returned Up The Unreliable Strength Grid Imposes A Sizable Monetary Burden At The Cooperatives And Personal Dairies. The A Success Software Of Smooth Strength Cooling Era Withinside The Milk Cost Chain Consequently Has The Capability To Enhance The First-Rate And Growth The Amount Of Milk Offered Into The Formal Market, Growing The Profits Of Smallholder Farmers And Enhancing Meals Protection For Consumers. It Also Can Offer Possibilities For Increase For Companies Supplying Smooth Strength Answers. The Important Obstacles To Upscale Renewable Strength Answers For Cooling In Milk Cost Chains Are The Excessive Prematurely Fee Of Era Blended With A Loss Of Financing Mechanisms For Smooth Strength. A 2d Barrier Is The Lack Of Understanding Of To Be Had Era Amongst Farmers, Dairies And Cooperatives. The Applicable Guidelines And Policies For Meals Protection Aren't Constantly Enforced, And On Casual Markets, First-Rate Trying Out Isn't Always Carried Out. Besides Temperature, Different Elements Can Have An Effect On The First-Rate Of The

Milk, Like Hygienic Practices Or Negative Animal Coping With Have A Tendency To Purpose Infection Quickly After Milking. This Helps The Argument For The Deployment Of Different Recognition Elevating Efforts And Of Similarly Smooth Strength Answer Within The Cost Chain, Along With Sun Water Warmers For Gadget Cleaning. However, Small Dairies Are Much Less In All Likelihood To Have Get Entry To To The Information And Capital Required To Put Money Into Current Era For His Or Her Cooling Centers And Processing Plants. Enhancing Get Entry To To Finance Can Also Additionally Permit To Put Money Into Strength Green And Smooth Strength Answers, Which Could Cause Decreased Costs, And Growth Farmers' Incomes.

Reducing Milk Spoilage Thru Solar-Powered Chilling

Perishable Meals Really Well Worth Of 10 Billion US Dollars Is Wasted Yearly In India Due To Unreliable Cold-Chain Deliver Networks. Especially In Farming Regions And Villages, The Dearth Of Dependable Strength Is A Mission For Strolling Refrigeration Structures. With India Being The Most Important Client And Manufacturer Of Milk Within The World, Promethean Power Systems Collectively With Hatsun Agro And Orb Energy Have Advanced A Sun Milk Cooling Machine That Makes Use Of An Progressive Thermal Strength Battery Pack. Charging On Intermittent Energy Reassets Along With Sun Energy And/Or Some Hours Of Grid Strength, It Lets In Converting The Nearby Meals Scenario Considerably.

TRANSPORTATION

Solar Milk Cooling With Insulated Milk Cans

Milk Produced On Small-To Medium-Scale Farms Is Normally Transported To Exploit Series Centers. The Spoilage Because Of Bacterial Increase At Some Stage In Transportation Because Of Heat Temperatures Ends In Milk Being Refused Through Vendors. Secondly, Many Farmers Do Now No Longer Promote Their Night Milk To The Gathering Centres, Because It Can't Be Saved Accurately In A Single Day. Instead, They Promote The Milk To Neighbours Or Use It Themselves. This Can Growth The On-Farm Losses And Decrease Profits. The Sun Milk Cooling Machine Advanced Through The University Of Hohenheim (Germany) Makes Use Of Sun Strength For Ice Manufacturing. The Produced Ice Is Used To Chill The Milk Through Setting It Into An Ice-Compartment Of An Insulated Milk Can. This Machine Lets In Decrease Temperatures At Some Stage In Transportation And In A Single Day Storage, Growing The Farms Manufacturing And Profits.

Energy Manufacturing

By-Merchandise From The Milk Cost Chain May Be Applied For Functions Along With Strength Era Or Natural Soil Fertilizers. Biogas Is A Renewable Strength Source, Which May Be Produced At Special Scales And Is Thus, A Smooth Strength Answer For Farm Animals Farms Of All Sizes.

Biogas For Power Generation From Dairy Cattle

Biogas Is Produced Thru Anaerobic Digestion (AD), A Biochemical Manner That Includes The Decomposition Of Natural Rely Through Symbiotic Micro Organism Residing In Anaerobic Environments. Biogas Created From Farm Animals Manure May Be At Once Combusted For Heating, Cooking, Generating Strength And Generating Methane. From One Tonne Of Dairy Farm Animals Manure, The Biogas Produced Can Generate Round One Hundred Twenty Five Kwh Of Strength. Depending At The Farm Size, Special Packages May Be Used. Commercial Packages Require Better Capital Investments And Deliver Extra Green Large-Scale Era. Pro-Negative Packages Are Appropriate For Much Less Than 10 Head Of Farm Animals In Step With Plant And Permit Blending Manure With Different Feedstocks To Growth Strength Manufacturing. The Strength Produced Normally Even Exceeds The Farm's Wishes For Cooling And Milking. As A Derivative Of The Anaerobic Digestion Manner, The Digestate (Along With Indigestible Fabric And Useless Micro-Organisms) May Be Used As A Soil Conditioner And Fertilizer, As Nutrient Content Material Stays The Same, While Getting Rid Of Maximum Pollution And Pathogens. Synthetic Fertilizers, Which Require Excessive-Strength Inputs At Some Stage In Manufacturing, May Be Substituted And Thus, Lessen The Carbon Footprint. Biogas Structures Offer Smooth Strength To Dairy Farmers And Allow Them To Diversify Their Profits (Whilst Biogas Is Offered), Lower Dependency On Imported Strength Reassets, Generate Manure Remedy And Sanitation, And Convey First-Rate Soil

Conditioner. Biogas Is An Opportunity Shape Of Strength Get Entry To That Facilitates Keep Away From Meals Losses In Case Of Unreliable Energy Deliver For Cooling.

Pasteurization Process

Pasteurization Is The System Of Heating A Liquid To Beneath The Boiling Factor To Smash Microorganisms. It Turned Into Advanced With The Aid Of Using Louis Pasteur In 1864 To Enhance The Maintaining Characteristics Of Wine. Commercial Pasteurization Of Milk Started Out Withinside The Late1800s In Europe And Withinside The Early 1900s Withinside The United States. Pasteurization Have Become Obligatory For All Milk Offered Withinside The Town Of Chicago In 1908, And In 1947 Michigan Have Become The Primary Kingdom To Require That Every One Milk On The Market Withinside The Kingdom Be Pasteurized. Pasteurization Is The System Of The Heating Beverages For The Cause Of Destroying Viruses And Dangerous Organism. It Turned Into Advanced In 1864 To Enhance The Maintaining Characteristics Of Milk. Pasteurization Normally Makes Use Of Heating And Cooling Cycle At Temperatures Above The Boiling Factor Of Milk And Above The Freezing Factor. As Society Industrialized Across The Flip Of The 20th Century, Extended Milk Manufacturing And Distribution Caused Outbreaks Of Milk Borne Diseases. These Ailments Have Been Truly Removed With The Industrial Implementation Of Pasteurization, In Aggregate With Stepped Forward Control Practices On Dairy Farms. In 1938, Milk Merchandise Have Been The Supply Of 25% Of All Meals And Waterborne Ailments That Have Been Traced To Sources, However Now They Account For Some Distance Much Less Than 1% Of All Meals And Waterborne Ailments. Pasteurized Milk System Is A Dairy System That Consumes Huge Quantity Of Power Such As Strength And Fuel.

Conclusion: Cooling Technology Can Considerably Enhance Milk First-Rate And Upload Cost Alongside The Milk Cost Chain. Cool Milk May Be A Feasible Option. Biogas Home Milk Chillers And Sun Milk Coolers Are Appealing From A Monetary Factor Of View And Feature Socio-Financial And Environmental Internet Co-Benefits. Policies, Financing Mechanisms And Capability Constructing Sports To Facilitate The Adoption Of Renewable Strength Cooling Answers For Milk Include: The Improvement Of A Clean Country Wide Approach For The Milk Sector, Strict Milk First-Rate Requirements And A Fee Top Class For First-Rate Refrigerated Milk, The Status Of Controls And Fines In Opposition To Unlawful Milk Commercialization, Eradication Of Counterfeit RE Merchandise, Monetary Incentives, Extension Services, Technical Assistance, Records Programmes And Training. Natural Gas Provides Approximately 67% Of The Energy Used In The Dairy Processing Industry With The Remainder Sourced From Grid Electricity (13%), Fuel Oil (13%) And Coal (6%).

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