Volume 23, Issue 3/2023 **PRINT ISSN 2284-7995**

E-ISSN 2285-3952

SCIENTIFIC PAPERS

SERIES "MANAGEMENT, ECONOMIC ENGINEERING IN AGRICULTURE AND RURAL DEVELOPMENT"

Scientific Papers Series "Management, Economic Engineering in Agriculture and Rural Development"
PRINT ISSN 2284-7995, E-ISSN 2285-3952

Volume 23, Issue 3/2023
Copyright 2023

To be cited: Scientific Papers Series "Management, Economic Engineering in Agriculture and Rural Development", Volume 23, Issue 3/2023.

Publishers:
University of Agronomic Sciences and Veterinary Medicine of Bucharest, Romania. Address: 59 Marasti Blvd., District 1, 011464 Bucharest, Romania, Phone: + 40213182564, Fax: +40213182888**,** www.managusamv.ro
Ceres Publishing House, Address: 29 Oastei Street, District 1, Bucharest, 013701, Phone/Fax: +40213179023, E-mail: edituraceres@yahoo.com
All rights reserved

The publishers are not responsible for the content of the scientific papers and opinions published in the Volume. They represent the authors' point of view.

EDITORIAL BOARD
Editor in Chief: Prof. Ph. D. Toma Adrian DINU
Executive Editor: Prof. Ph. D. Agatha POPESCU
Members:

Prof. Ph.D. H.C. Miguel Moreno MILLAN, University of Cordoba, Spain
Prof. Ph.D. Doc. Svend RASMUSSEN, University of Copenhagen, Denmark
Prof. Ph.D. Mogens LUND, Institute of Food and Resource Economics, Copenhagen, Denmark
Associate Prof. Ph.D. Ove MADSEN, Grinsted Agricultural Academy, Denmark
Prof. Ph.D. Pascal Anton OLTENACU, Oklahoma State University, Stillwater, United States of America
Prof. Ph.D. Rangesan NARAYANAN, University of Nevada, Reno, United States of America
Ph.D. Patrick ANGEL, US Department of the Interior, Office of Surface Mining Appalachian Regional Office, United States of America
Prof. Ph.D. Gerhard MOITZI, University of Natural Resources and Applied Life Sciences, Vienna, Austria
Acad. Prof. Ph.D. Paolo GAJO, University of Florence, Italy
Prof. Ph.D. Diego BEGALLI, University of Verona, Italy
Prof. Ph.D. Alistair Mc CRACKEN, The Queen's University, Belfast, United Kingdom
Ph.D. Hab. Stefan MANN, Research Station Agroscope, Federal Office for Economics, Tanikon, Switzerland
Prof. Ph.D. Drago CVIJANOVIC, University of Kragujevac, Serbia
Prof. Ph.D. Jonel SUBIC, Institute of Agricultural Economics, Belgrade, Serbia
Prof. Ph.D. Nebojsa RALEVIC, University of Belgrade, Serbia
Prof. Ph.D. Mamdouh Abbas HELMY, Modern University for Technology and Information, Cairo, Egypt
Prof. Ph.D. Tarek FOUDA, Tanta University, Egypt
Prof. Ph.D. Christopher Ogbonna EMEROLE, Abia State University, Uturu, Nigeria
Prof. Ph.D. Vecdi DEMIRCAN, Isparta University of Applied Sciences, Turkey
Prof. Ph.D. Mevlüt GÜL, Isparta University of Applied Sciences, Turkey
Prof. Ph.D. Philippe LEBAILLY, University of Liege, Belgium
Prof. Ph.D. Philippe BURNY, University of Liège, Belgium
Prof. Ph.D. Hab. Volodymyr Anatoliiovych KOLODIICHUK, Stepan Gzhytskyi National University of Veterinary Medicine and Biotechnologies, Lviv, Ukraine
Acad. Prof. Ph.D. Hab. Pavel MOVILEANU, Agricultural State University of Moldova, Chisinau, Republic of Moldova
Acad. Prof. Ph.D. Hab. Alexandru STRATAN, National Institute of Economic Research, Chisinau, Republic of Moldova
Associate Prof. Ph.D. Veronica PRISĂCARU, Agricultural State University of Moldova, Chisinau, Republic of Moldova
Associate Prof. Ph.D. Veronica MOVILEANU, Agricultural State University of Moldova, Chisinau, Republic of Moldova
Associate Prof. Ph.D. Hab. Mariana DOGA-MIRZAC, Moldova State University, Chisinau, Republic of Moldova
Associate Prof. Ph.D. Hab. Dariusz KUSZ, Rzeszow University of Technology, Poland
Associate Prof. Ph.D. Zuzana PALKOVA, Slovak University of Agriculture, Nitra, Slovakia
Associate Prof. Ph.D. Petar BORISOV, Agricultural University of Plovdiv, Bulgaria
Associate Prof. Ph.D. Rashid SAEED, International Islamic University, Islamabad, Pakistan
Ph.D. Cecilia ALEXANDRI, Institute for Agricultural Economics, Romanian Academy, Bucharest, Romania
Prof. Ph.D. Emilian MERCE, University of Agricultural Sciences and Veterinary Medicine, Cluj-Napoca, Romania
Prof. Ph.D. Gheorghe MUREȘAN, University of Agricultural Sciences and Veterinary Medicine, Cluj-Napoca, Romania
Associate Prof. Ph.D. Radu Lucian PÂNZARU, University of Craiova, Romania
Prof. Ph.D. Stejărel BREZULEANU, "Ion Ionescu de la Brad" Iasi University of Life Sciences, Iasi, Romania
Prof. Ph.D. Gavrilă ȘTEFAN, "Ion Ionescu de la Brad" Iasi University of Life Sciences, Iasi, Romania
Prof. Ph.D. Vasile GOȘA, Banat University of Agricultural Sciences and Veterinary Medicine "King Mihai I of Romania", Timisoara, Romania
Prof. Ph.D. Nicoleta MATEOC-SÎRB, Banat University of Agricultural Sciences and Veterinary Medicine "King Mihai I of Romania", Timisoara, Romania
Prof. Ph.D. Tiberiu IANCU, Banat University of Agricultural Sciences and Veterinary Medicine "King Mihai I of Romania", Timisoara, Romania
Prof. Ph.D. Ioan BRAD, Banat University of Agricultural Sciences and Veterinary Medicine "King Mihai I of Romania", Timisoara, Romania
Prof. Ph.D. Ioan Niculae ALECU, University of Agronomic Sciences and Veterinary Medicine of Bucharest, Romania
Prof. Ph.D. Manea DRĂGHICI, University of Agronomic Sciences and Veterinary Medicine of Bucharest, Romania
Prof. Ph.D. Mihai BERCA, University of Agronomic Sciences and Veterinary Medicine of Bucharest, Romania
Prof. Ph.D. Gina FÎNTÎNERU, University of Agronomic Sciences and Veterinary Medicine of Bucharest, Romania
Prof. Ph.D. Romeo Cătălin CREȚU, University of Agronomic Sciences and Veterinary Medicine of Bucharest, Romania
Prof. Ph.D. Cristiana TINDECHE, University of Agronomic Sciences and Veterinary Medicine of Bucharest, Romania
Prof. Ph.D. Elena TOMA, University of Agronomic Sciences and Veterinary Medicine of Bucharest, Romania
Prof. Ph.D. Ion DONA, University of Agronomic Sciences and Veterinary Medicine of Bucharest, Romania
Prof. Ph.D. Elena STOIAN, University of Agricultural Sciences and Veterinary Medicine of Bucharest, Romania
Prof. Ph.D. Adelaida Cristina HONȚUȘ, University of Agronomic Sciences and Veterinary Medicine of Bucharest, Romania
Prof. Ph.D. Daniela CREȚU, University of Agronomic Sciences and Veterinary Medicine of Bucharest, Romania
Prof. Ph.D. Adrian TUREK-RAHOVEANU, University of Agronomic Sciences and Veterinary Medicine of Bucharest, Romania
Prof. Ph.D. Alina MĂRCUȚĂ, University of Agronomic Sciences and Veterinary Medicine of Bucharest, Romania
Prof. Ph.D. Liviu MĂRCUȚĂ, University of Agronomic Sciences and Veterinary Medicine of Bucharest, Romania
Prof. Ph.D. Silviu BECIU, University of Agronomic Sciences and Veterinary Medicine of Bucharest, Romania
Assoc. Prof. Ph. D. Dragoș SMEDESCU, University of Agronomic Sciences and Veterinary Medicine of Bucharest, Romania

Publishing Committee:

Prof. Ph.D. Silviu BECIU, Lecturer Eng. Teodora POPESCU, Lecturer Ph.D. Mariana BURCEA,
Assoc. Prof. Ph.D. Ionela VLAD, Lecturer Ph.D. Eugenia ALECU, Assistant Prof. Ph.D. Student Eng. Valentin ȘERBAN

The papers belong to the following research fields: economic engineering in agriculture, management, marketing and agri-food trade, rural economy, agricultural policies, accounting, financial analysis, finance, agrarian legislation, durable development, environment protection, tourism, agricultural extension and other connected areas.

C O N T E N T

1.FACTORS INFLUENCING CLIMATE CHANGE ADAPTATION STRATEGIES AMONG ARABLE CROP FARMERS IN OSUN STATE, NIGERIA

Afusat Adunni ALABI, Munir Karounwi Adegoke WAHAB, Ahmed Olugbenga BUSARI, Kaothar Modupe IDRIS-ADENIYI, Victor Olabisi AKINDURO, Ronke Abeni AKINTAIWO..... 15

2.NATURAL HONEY: A STUDY ABOUT ROMANIAN POTENTIAL TO DEVELOP ITS PRODUCTION AND EXPORTS ON INTERNATIONAL MARKETS

Georgiana Armenița ARGHIROIU, Silviu BECIU..... 23

3.THE RELATIONSHIP BETWEEN DOMESTIC AGRICULTURAL INVESTMENTS AND ECONOMIC GROWTH IN GHANA

Sonny Gad ATTIPOE..... 31

4.STUDY ABOUT EVOLUTION OF THE ROMANIAN RAPESEED MARKET AND ROMANIA'S POSITION IN THE INTERNATIONAL TRADE WITH RAPESEED

Silviu BECIU, Georgiana Armenița ARGHIROIU..... 41

5.DETERMINANTS OF TECHNICAL EFFICIENCY AMONG DAIRY FARMS IN TUNISIA

Samir BEN ALI 47

6.VALUATION OF TECHNOLOGICAL FEATURES OF TOBACCO SEED CULTIVATION IN UKRAINE AND ITS ECONOMIC EFFICIENCY

Hanna BIALKOVSKA, Anatoliy YURECHKO, Volodymyr PASHCHENKO..... 53

7.CLASTOGENIC POTENTIAL OF SOME CHEMICALS USED IN AGRICULTURE MONITORED THROUGH THE ALLIUM ASSAY

Elena BONCIU..... 63

8.SOME SUSTAINABLE DEPOLLUTION STRATEGIES APPLIED IN INTEGRATED ENVIRONMENTAL PROTECTION MANAGEMENT IN AGRICULTURE

Elena BONCIU..... 69

9.ROMANIA'S AGRICULTURAL LAND FUND AND THE DYNAMICS OF THE LAND OWNERSHIP DURING THE PERIOD 1990 – 2020

Mariana BURCEA, Ionela Mituko VLAD, Nicoleta OLTENACU..... 77

10.STUDY ON THE INFLUENCE OF THE COVID-19 PANDEMIC ON TOURIST CIRCULATION IN THE MARAMURES COUNTY, ROMANIA

Jenica CĂLINA, Aurel CĂLINA..... 85

11.FISCALIZATION REFORM IN ALBANIA: AN ECONOMETRIC APPROACH TO STATE BUDGET REVENUES FROM FISCALIZED ENTERPRISES

Denisa CANI, Rezear KOLAJ, Petar BORISOV..... 97

12.MODELING THE EFFECTIVENESS OF THE COCONUT DEVELOPMENT OFFICER (CDO) IN THE PARTICIPATORY COCONUT PLANTING PROJECT(PCPP)

Leomarich F. CASINILLO..... 111

13.ASSESSMENT OF THE IMPLEMENTATION OF THE STRATEGIC SUPPORT GRANTED TO BENEFICIARY COMPANIES UNDER PROJECT POCU/227/3/8/117618 THROUGH THE ANALYSIS OF THE MAIN ECONOMIC AND FINANCIAL INDICATORS

Anișoara CHIHAIA, Georgiana-Melania COSTAICHE..... 117

14.SOCIO-ECONOMIC EFFECTS ON THE RURAL DEVELOPMENT IN ROMANIA IN THE FIRST YEAR OF THE COVID-19 PANDEMIC

Lorena CHIȚEA..... 121

15.ROMANIA'S POSITION IN THE WORLDWIDE TRADE WITH SUNFLOWER AND RAPE SEEDS

Irina-Adriana CHIURCIU, Elena SOARE, Ionela Mituko VLAD, Cristiana BUZATU, Denisa FULGEANU, Cosmina SMEDESCU, Marius Mihai MICU..... 129

16.THE INVOLVEMENT OF THE COMMON AGRICULTURAL POLICY IN THE LIVESTOCK SECTOR AND THE CONTRIBUTION TO THE DEVELOPMENT OF MOUNTAIN RURAL AREAS

Irina-Adriana CHIURCIU, Ion CERTAN, Marius Mihai MICU, Alexandru FÎNTÎNERU, Valentina TUDOR, Dragoș SMEDESCU..... 137

17.DUAL EDUCATION – A VIABLE SOLUTION IN THE TRANSITION TO THE LABOUR MARKET

Florin Cristian CIOBĂNICĂ..... 147

18.MODELING THE FACTORS OF IMPLEMENTATION AND ADOPTION OF RICE TECHNOLOGY AMONG 4-H CLUB YOUTH

Cristita A. CLAVA, Milagros C. BALES, Leomarich F. CASINILLO, Karen Luz P. YAP, Jemboy M. CADENAS..... 157

19.MANAGEMENT OF PERSONAL DATA PROCESSING AND PROTECTION

Elena COFAS..... 165

20.STATISTICAL ANALYSIS MODEL FOR IDENTIFYING THE DYNAMICS OF HOTEL TOURISM

Elena COFAS, Florin Cristian CIOBĂNICĂ..... 175

21.THE ROLE OF BIG DATA IN DIGITALIZING INFORMATION

Elena COFAS..... 185

22.STRATEGIC ASSESSMENT MODEL OF THE RURAL SPACE IN THE COUNTY OF VALCEA, ROMANIA

Nicolae CONCIOIU, Rareș IAGĂRU..... 197

23.AGRICULTURAL COOPERATIVE – VIABLE ALTERNATIVE FOR THE ECONOMIC-SOCIAL DEVELOPMENT OF SMALL AND MEDIUM FARMERS. CASE STUDY CĂLĂRAȘI COUNTY, ROMANIA

Oana Roberta CREȚU, Valentina Constanța TUDOR, Elena LASCĂR..... 211

24.COMPARATIVE ANALYSIS OF BLACK TOURISM IN ROMANIA AND WORLDWIDE

Romeo Cătălin CREȚU, Silviu Ionuț BEIA, Ioan Iulian ALECU, Petrică ȘTEFAN..... 221

25.LEADER FUNDING IN ROMANIA – COMPARATIVE ANALYSIS OF TWO PROGRAMMING PERIODS

Monica Elena CRUNȚEANU, Daniel-Eugeniu CRUNȚEANU, Gina FÎNTÎNERU..... 227

26.INCREASING THE EFFICIENCY OF INSTITUTIONAL INTERACTION DURING THE TRANSFER OF INNOVATIONS IN THE AGRO-INDUSTRIAL COMPLEX

Elena DERUNOVA..... 239

27.STIMULATION OF DEMAND FOR INNOVATION IN AGRICULTURE BASED ON NEW MODELS OF COLLABORATION OF VALUES

Elena DERUNOVA, Marianna VASILCHENKO..... 245

28.STATISTICAL ANALYSIS APPLIED TO THE DATA ON CONSUMER MONETARY EXPENDITURE IN BULGARIA

Delyana DIMOVA..... 253

29.SUSTAINABLE DEVELOPMENT AND TRANDISCIPLINARITY IN KNOWLEDGE SOCIETY – AIMING TO INCREASE THE QUALITY OF LIFE IN RURAL AREAS

Lucica DOBRE, Dorina Nicoleta MOCUŢA 259

30.USING IMAGE PROCESSING TO EVALUATE THE QUALITY OF ORANGE FRUITS IN A NON-DESTRUCTIVE MANNER

Mahmoud ELHOSARY, Adel ELMETWALLI, Asaad DERBALA, Salah ELSAYED 267

31.ECOTOURISM AND SUSTAINABLE RURAL DEVELOPMENT: THE CASE OF YOZGAT, TURKEY

Nizamettin ERBAS..... 277

32.CONSEQUENCES OF LAND DEGRADATION ON LIVELIHOOD AND FOOD SECURITY OF RURAL FARMERS IN SOUTH-EAST, NIGERIA: A COMPARATIVE ANALYSIS

Chima Innocent EZEH, Onwuchekwa OJIMGBA, Justin Kelechi NMERENGWA..... 289

33.WHEAT QUALITY INDICES IN RELATION TO NITROGEN FERTILIZATION

Cosmin GHERBAN, Florin SALA..... 299

34.PRELIMINARY RESULTS OF INTEGRATED FERTILIZATION WITH GREEN MANURE AND MINERAL FERTILIZERS ON MAIZE YIELD

Ionel Alin GHIORGHE, Adrian TUREK-RAHOVEANU 307

35.TRENDS ON THE TOMATO MARKET IN ROMANIA IN THE PERIOD 2010-2021

Andreea Daniela GIUCĂ..... 313

36.STUDY ON THE ROLE OF FACTORING IN BUSINESS FINANCING

Elena GORGON (POPESCU), Alina MARCUTA..... 323

37.INVESTIGATION OF THE COST AND PROFITABILITY OF APRICOT PRODUCTION IN ISPARTA

Mevlüt GÜL, Sultan POYRAZ..... 335

38.THE CURRENT SITUATION OF AGRICULTURAL INNOVATION-DERIVED INVESTMENTS AND ACCESS TO FUNDING IN AZERBAIJAN

Maharram HUSEYNOV, Elchin SALAHOV, Niyaz MAMMADOV, Jafar JAFAROV, Vusal ALIFOV, Khanim HASANOVA..... 345

39.USE OF AGRICULTURAL POTENTIAL FOR ECONOMIC RECOVERY/GROWTH

Ana-Maria IFRIM, Marius-Mihai MICU, Oana-Raluca RUSU, Catalin Ionut SILVESTRU, Cristina Vasilica ICOCIU 353

40.DIGITALIZATION AND AGRICULTURE - IMPACT ON HUMAN RESOURCES IN THE EUROPEAN UNION AND ROMANIA

Sorin IONITESCU, Agatha POPESCU, Nicoleta-Luminita GUDANESCU, Anca CRISTEA..... 361

41.MODELS FOR AGRICULTURAL PRODUCTION OPTIMIZATION

Sorin IONITESCU, Agatha POPESCU, Elena IONITESCU, Ene DUMITRU, Nicoleta-Luminita GUDANESCU..... 373

42.EMPLOYEES PERCEPTION ON ORGANIZATIONAL COMMUNICATION – CASE STUDY

Radu Andrei IOVA, Daniela CREȚU, Oana Roberta CREȚU..... 387

43.DEVELOPMENT OF RURAL AREA BY NGOs PARTICIPATION. CASE STUDY CĂLĂRAȘI COUNTY, ROMANIA

Radu Andrei IOVA, Daniela CREȚU, Oana Roberta CREȚU..... 397

44.RECENT DEVELOPMENTS IN VEGETABLE PRODUCTION IN THE WORLD AND TÜRKİYE

Bektaş KADAKOĞLU, Mevlüt GÜL..... 409

45.FOREIGN TRADE STRUCTURE OF VEGETABLE SECTOR: DEVELOPMENT PROCESS IN THE WORLD AND TÜRKİYE

Bektaş KADAKOĞLU, Mevlüt GÜL 419

46.ANALYSIS OF INHIBITING FACTORS OF THE TENDENCY OF RURAL YOUTH TO SELF-EMPLOYMENT IN RURAL AREAS OF IRAN- CASE STUDY OF SARAVAN

Majid KARIMZADEH, Mohammad Reza SASOULI, Parisa ZAKIAN 431

47.EFFECTS OF PRODUCTION PARAMETERS ON RICE OUTPUT IN THE KETU NORTH DISTRICT OF THE VOLTA REGION, GHANA

Francis Kastro KAVI, Sonny Gad ATTIPOE, Kwabena KYERE, Worlanyo Kwabena AGBOSU, Mark Kwame OFFEI..... 439

48.THE IMPACT OF INFORMATION POLLUTION IN THE POULTRY SECTOR ON CONSUMERS: THE CASE OF TURKEY

Berkay KESKIN, Erdoğan GUNES..... 449

49.LAND RENTS IN THE MEDITERRANEAN REGION: A SAMPLE STUDY FROM TÜRKİYE

Gülşen KESKİN, Osman Orkan ÖZER 463

50.DEVELOPMENT OF INNOVATIVE TECHNOLOGIES IN ENVIRONMENTAL AND GENETIC RESEARCH FOR AN EFFICIENT CEREALS PRODUCTION UNDER THE CONDITIONS OF CLIMATE CHANGE IN UKRAINE

Nataliia KOVALENKO, Svitlana YEHOROVA..... 475

51.APPLICATION OF MODERN BIOTECHNOLOGICAL AND GENETIC METHODS IN THE SYSTEM OF PRESERVING THE GENE POOL OF THE UKRAINIAN BROWN DAIRY BREED

Volodymyr LADYKA, Oksana SHCHERBAK, Paul TROTSKYI, Yurii SKLIARENKO, Yuliia PAVLENKO, Viktoriia VECHORKA..... 485

52.SUSTAINABLE FOOD AS A THREE-DIMENSIONAL SYSTEM

Stefan MANN, Georgiana Armenița ARGHIROIU..... 491

53.SORGHUM, AN ALTERNATIVE IN COMPLEMENTARITY WITH CORN, ADAPTED TO CLIMATE CHANGES. AMZACEA VILLAGE, CONSTANTA COUNTY, ROMANIA

Dumitru MANOLE, Ana Maria GIUMBA, Laurentiu GANEA..... 501

54.RESEARCHERS REGARDING THE SITUATION OF THE PIG HERDS IN ROMANIA, THE PRODUCTION OBTAINED AND THE CONSUMPTION OF PORK MEAT IN THE PERIOD 2016-2021

Alina MARCUTA, Agatha POPESCU, Cristiana TINDECHE, Georgiana GURBAN, Silviu Ionut BEIA, Liviu MARCUTA..... 513

55.STUDY ON THE ROLE OF GLOBALIZATION IN GROWING THE MOBILITY OF INTERNATIONAL STUDENTS IN THE LAST DECADE

Alina MARCUTA, Ramona Elena ANGHEL, Cristiana TINDECHE, Mihaela ROSU, Liviu MARCUTA..... 521

56.METAVERSE AND THE GLOBAL ECONOMY. METAVERSE AND AGRICULTURE - A BIBLIOMETRIC ANALYSIS

Alina MARCUTA, Cristiana TINDECHE, Elena TONEA, Cosmina SMEDESCU, Dragos SMEDESCU, Liviu MARCUTA..... 529

57.STUDY ON THE SITUATION OF THE BOVINES HERDS IN ROMANIA, THE PRODUCTIONS OBTAINED AND THE CONSUMPTION OF MEAT AND DAIRY IN THE PERIOD 2016-2021

Liviu MARCUTA, Cristiana TINDECHE, Georgiana GURBAN, Silviu Ionut BEIA, Alina MARCUTA..... 549

58.ANALYSIS OF THE RELATIONSHIP BETWEEN TOURISM AND THE CIRCULAR ECONOMY: A CRITICAL REVIEW OF THE LITERATURE

Liviu MARCUTA, Mihaela Gratiela ONEA (STANCIU), Alina MARCUTA..... 555

59.STUDY ON THE DEVELOPMENT OF THE BIOFUEL MARKET AND THEIR FUTURE IN SUSTAINABLE PRODUCTION

Liviu MARCUTA, Maricel CAZACU, Alina MARCUTA..... 565

60.STUDY ON THE IMPORTANCE OF USING AGRIVOLTAIC SYSTEMS TO REDUCE THE EFFECTS OF CLIMATE CHANGE

Liviu MARCUTA, Cristiana TINDECHE, Alina Cristina NUTA, Florian Marcel NUTA, Alina MARCUTA..... 573

61.THE INFLUENCE OF INNOVATIVE TECHNOLOGIES ON THE DYNAMICS OF LAND USE INDICATORS OF UKRAINIAN AGRICULTURAL ENTERPRISES

Iryna MATVIEIEVA, Valentyna GROZA, Nataliia ISCHCHENKO, Nataliia KOMAROVA, Liliia SKRYPNYK, Tatyana PRIADKA..... 581

62.TACKLING LABOUR SHORTAGES AND BOLSTERING PERFORMANCE: A COMPREHENSIVE ANALYSIS OF AGRICULTURAL HIGH SCHOOLS IN ROMANIA

Marius Mihai MICU, Răzvan PANAIT, Ionela Monica PANDELEA, Dumitru Tudor JIJIE..... 589

63.ANALYSIS OF THE FACTORS AND BARRIERS INFLUENCING THE CONSUMPTION OF ORGANIC PRODUCTS. CASE OF BIHOR COUNTY, ROMANIA

Anamaria Aurelia MORNA, Anca Monica BRATA, Olivia Paula TIRPE, Iulia C. MURESAN, Felix H. ARION, Andreea Florina FORA, Dorin POPA, Aurelia Ioana CHEREJI, Ioana Anda MILIN, Ramona Vasilica BACTER..... 605

64.DEVELOPING AN INTEGRATED MODEL ON FOOD WASTE CONSUMER BEHAVIOUR IN ROMANIA

Daniel NIJLOVEANU, Victor TIȚA, Nicolae BOLD, Toma Adrian DINU, Adrian George PETICILĂ, Cosmina Andreea SMEDESCU, Costel MIHALAȘCU, Marian STOIAN..... 617

65.HUMAN RESOURCES AS A FACTOR FOR THE SUSTAINABILITY IN BULGARIAN AGRICULTURAL HOLDINGS

Marina NIKOLOVA, Elena YORDANOVA..... 625

66.ANALYSIS OF PROFITABILITY OF VEGETABLE PRODUCTION DURING AND AFTER COVID-19 LOCKDOWN IN SOUTHWEST NIGERIA

Olutope Stephen OJO, Temidayo Gabriel APATA..... 635

67.DETERMINANTS OF CASSAVA FARMERS PRODUCTIVITY IN OYO STATE, NIGERIA

Isaac Oyekunle OYEWO, Job Olatunji OLADEEBO..... 649

68.CONSUMER ATTITUDES, PERCEPTIONS AND MOTIVATIONS TOWARDS BUYING OPEN MILK IN TURKEY

Gulay OZKAN, Ismail Bulent GURBUZ..... 655

69.KEY DRIVERS IN SECURING THE LONG-TERM SUSTAINABILITY OF A PAN-EUROPEAN DISTRIBUTED RESEARCH INFRASTRUCTURE

Maria Luiza PASCAL, Adrian TUREK-RAHOVEANU..... 667

70.STRATEGIC TOOLS IN ASSESSING THE BUSINESS ENVIRONMENT OF A PAN-EUROPEAN DISTRIBUTED RESEARCH INFRASTRUCTURE

Maria Luiza PASCAL, Adrian TUREK-RAHOVEANU..... 675

71.COMPARATIVE ANALYSIS OF THE GDP OF EUROPEAN COUNTRIES IN THE PERIOD 2017-2022

Ruxandra-Eugenia POP, Ancuta MARIN..... 683

72.COMPARATIVE ADVANTAGE IN HONEY TRADE AMONG THE TOP EXPORTING COUNTRIES IN THE WORLD

Agatha POPESCU, Toma Adrian DINU, Elena STOIAN, Valentin ŞERBAN 691

73.COMPARATIVE ADVANTAGE IN HONEY TRADE AMONG THE EUROPEAN UNION'S TOP EXPORTING COUNTRIES

Agatha POPESCU, Valentin ŞERBAN..... 705

74.OVERTOURISM IN THE MOST VISITED EUROPEAN CITY AND VILLAGE DESTINATIONS

Agatha POPESCU, Cristina TINDECHE, Alina MARCUTA, Liviu MARCUTA, Adelaida HONTUS, Mirela STANCIU..... 719

75.TECHNICAL EXAMINATION AND FUTURE OF APRICOT PRODUCTION IN ISPARTA, TURKIYE

Sultan POYRAZ, Mevlüt GÜL..... 739

76.THE STUDY OF EROSION PROCESSES IN THE HILLY AREA OF BUZĂU COUNTY (ROMANIA) IN THE SPECIFIC CLIMATIC CONDITIONS OF YEAR 2022

Alexandra Teodora RADU, Mariana BURCEA..... 757

77.THE ECONOMIC IMPORTANCE OF THE SPONTANEOUS FLORA IN THE AREA OF THE PIEDMONT AND SUBCARPATHIAN HILLS OF OLTENIA, ROMANIA

Daniel RĂDUȚOIU..... 769

78.STUDY ON THE PERCEPTION OF THE PRODUCERS ON ORGANIC PRODUCTS FROM THE TULCEA AND CONSTANTA COUNTIES, ROMANIA, REGARDING THE POSSIBILITIES OF THEIR VALUATION

Indira Deniz RESIT (ALIM), Razvan PANAIT, Rares IAGARU, Cosmina SMEDESCU..... 777

79.THE INFLUENCE OF FOLIAR FERTILIZER APPLICATION ON THE MACRO AND MICRO NUTRIENT CONTENT AND YIELD OF WHEAT PLANTS (*TRITICUM AESTIVUM*)

Catalin Aurelian ROȘCULETE, Ramona Aida PĂUNESCU, Elena ROȘCULETE, Gabriela PĂUNESCU, Denisa FLOREA, Elena BONCIU..... 787

80.ECONOMIC IMPORTANCE AND PHYTOSANITARY MONITORING OF FIRE BLIGHT

Călin SĂLCEANU, Mirela PARASCHIVU, Otilia COTUNA, Veronica SĂRĂȚEANU, Aurel Liviu OLARU, Ramona Aida PĂUNESCU..... 797

81.NEOINDUSTRIALIZATION OF THE AGRICULTURAL SECTOR OF THE ECONOMY AS A NECESSARY CONDITION FOR INNOVATIVE TRANSFORMATION OF PRODUCTIVE FORCES AND ACHIEVING TECHNOLOGICAL SOVEREIGNTY

Ivan SANDU, Vasily NECHAEV..... 803

82.ANALYSIS OF THE LABOUR RESOURCES USAGE IN AGRICULTURAL ENTERPRISES OF UKRAINE: A CASE STUDY OF THE VOLYN REGION

Oleksandr SHUBALYI, Nadia RUD, Iryna SHUBALA, Antonina GORDIICHUK, Oksana KIIILUKHA, Natalia VASILIK..... 813

83.FROM SOIL TO TABLE: EVALUATING CONVENTIONAL AND ECOLOGICAL CULTIVATION SYSTEMS IN SOUTH-WEST OLTENIA, ROMANIA

Cosmina SMEDESCU, Dragoș SMEDESCU, Alina MĂRCUȚĂ, Liviu MĂRCUȚĂ, Valentina Constanța TUDOR..... 823

84.BIBLIOMETRIC ANALYSIS OF SUSTAINABILITY AND PROFITABILITY IN CONVENTIONAL AND ECOLOGICAL AGRICULTURE

Cosmina SMEDESCU, Alina MĂRCUȚĂ, Liviu MĂRCUȚĂ, Marius Mihai MICU, Valentina Constanța TUDOR..... 833

85.WINTER WHEAT CROP YIELD AND ITS INFLUENCE ON PROFITABILITY

Paula STOICEA, Elena SOARE, Valentina Constanta TUDOR, Marius Mihai MICU, Mirela DUȘĂ, Andreea FIRĂȚOIU, Mihnea-Iulian VASILIU 845

86.THE INFLUENCE OF THE YIELD OF THE MAIZE HARVEST ON THE PROFITABILITY OF FARMS

Paula STOICEA, Toma Adrian DINU, Gina FINTINERU, Adrian Gheorghe BASA, Adina Magdalena IORGA 855

87.POTENTIAL FOR EARLY DETECTION OF POWDERY MILDEW IN OKRA UNDER FIELD CONDITIONS USING THERMAL IMAGING

Yavuz Selim ŞAHİN, Alperen Kaan BÜTÜNER, Hilal ERDOĞAN..... 865

88.IS TOURISM DEVELOPMENT A BENEFICIAL ASPECT IN THE EYES OF THE LOCAL COMMUNITY?

Valentin ȘERBAN, Adrian TUREK-RAHOVEANU..... 873

89.RURAL DEVELOPMENT ANALYZED FROM A BIBLIOMETRIC PERSPECTIVE

Valentin ȘERBAN, Adrian TUREK-RAHOVEANU..... 883

90.IMPACT OF MALARIA DISEASE ON SWAMP RICE FARM LABOUR SUPPLY AND COPING STRATEGIES UNDER INCAPACITATION BY RURAL FARMERS IN SOUTH EAST, NIGERIA

Solomon Chinyere UDAH, Innocent Chidiebere MBANASO, Charles Kelechi OSONDU..... 895

91.CHOICE BETWEEN TRADITIONAL AND MODERN MILK SUPPLY CHANNELS BY FARMERS IN PUNJAB, PAKISTAN: A LOGIT REGRESSION APPROACH

Sami ULLAH, Bernhard BRUMMER, Choudary Ihtasham ALI..... 905

92.PROBLEM ISSUES IN THE IMPLEMENTATION OF INNOVATIONS AND DIGITAL TECHNOLOGIES IN AGRICULTURAL PRODUCTION IN THE CONDITIONS OF NBIC CONVERGENCE

Marianna VASILCHENKO, Elena DERUNOVA, Anton VORONOV, Maria RGEVSKAYA..... 917

93.THE RESPONSE OF THE MEDIUM FIBER COTTON VARIETY PIDOZERSKY 4 TO THE SEEDING RATE AND ROW WIDTH UNDER DIFFERENT CONDITIONS OF SOIL MOISTURE IN THE SOUTHERN STEPPE OF UKRAINE

Raisa VOZHEHOVA, Vira BOROVYK*, Yuriy STEPANOV, Iryna BIDNYNA, Liubov BOIARKINA, Olena PILIARSKA, Viktor SHARII, Tetyana KHOMENKO, Olesia DROBIT..... 925

94.ANALYSIS OF THE SOCIO-ECONOMIC DETERMINANTS OF GOVERNMENT-SUBSIDIZED CERTIFIED SEED USE: A CROSS-SECTIONAL STUDY ON TURKISH POTATO FARMING

Hasan YILMAZ, Bektaş KADAKOĞLU, Merve Mürüvvet DAĞ, Mehmet YÜZER, Haziret ÜLKÜMEN..... 941

Scientific Papers Series Management, Economic Engineering in Agriculture and Rural Development
Vol. 23, Issue 3, 2023
PRINT ISSN 2284-7995, E-ISSN 2285-3952

CONSUMER ATTITUDES, PERCEPTIONS AND MOTIVATIONS TOWARDS BUYING OPEN MILK IN TURKEY

Gulay OZKAN, Ismail Bulent GURBUZ

Bursa Uludag University, Agricultural Faculty, Department of Agricultural Economics, 16059 Bursa, Turkey, E-mails: bulent@uludag.edu.tr, gulayozkan@uludag.edu.tr

Corresponding author: gulayozkan@uludag.edu.tr

Abstract

Open milk is subject to adulteration and threatens public health. Despite the health experts' warnings, many consumers in Turkey still prefer milk sold by street vendors. This study investigated families' open milk (street milk) and packaged milk consumption habits and the reasons for consuming open or packaged milk in Bursa, Turkey. The data were obtained through a face-to-face survey of 478 families. Research revealed that 34.6% of adults and 66% of children regularly consume milk. Participants who consumed milk consumed it for bone development (38.1%) and a rich protein source (22.7%). Half of those (45%) who did not drink milk were not accustomed to drinking milk. %13.8 did not like the taste, and %13.5 is allergic to dairy products. People primarily bought milk from markets (41.1%) and street vendors (21.1%). They preferred whole milk (29.7%) and semi-skimmed milk (29.%). Reasons for purchasing open milk were freshness (31.1%) and no additives (24.0%). Reasons for not buying open milk were unhygienic (40.7%) and not being subject to quality control (41.7%). Although its sales are decreasing, open milk purchases continue. Open milk sales should be restricted, and packaged milk options offered to consumers should be increased.

Key words**:** *consumer choice, milk drinking habits. open milk, packaged milk, street milk, street vendors*

INTRODUCTION

Milk is an essential food item that humans should consume for a healthy life. Milk is the primary protein, vitamin, and mineral source; it is precious and indispensable for babies, children, and individuals. Recent clinical and biochemical studies have shown that milk consumption, especially low-fat milk, effectively reduces hypertension, dental diseases, colon cancer and heart diseases [8, 45]. According to the FAO, the consumption of dairy products differs significantly from region to region and between countries in the same region, depending on dietary habits, available milk processing technologies, market demand and social and cultural development. The per capita consumption of milk and dairy products is higher in developed countries, and demand for milk and dairy products in developing countries is experiencing an increase due to increased income, population growth and urbanisation. This upward trend is evident in East and Southeast Asia, China, Indonesia and Vietnam. The most consumed dairy product in the world is raw milk. In Europe and North America, the total per capita demand for fresh dairy products is declining. However, the demand composition has shifted towards low-fat cow's milk over the past few years [36].

Turkey's milk and dairy product consumption has shown an unwelcome change in recent years, which is pretty low compared to European and other developed countries. Milk consumption in Turkey is mainly concentrated on cheese and yoghurt. The per capita consumption of drinking milk is over 100L in Northern European countries; it is 92.7L in the European Union, 79L in Canada and 74.7L in the USA, 132.0L in Russia and 23.9L in China [36]. This rate is estimated to be 40.7L in Turkey [26].

Reliable data on the amount and value of milk and dairy products supplied by marketing methods other than industrial products in Turkey is unavailable. However, it is estimated that in the calculations made using the amount of milk received and processed by the milk industry, approximately 20% of the milk produced is not recorded. The raw milk distribution figures reveal that most milk is

not processed technologically. About 25% of the raw milk produced is consumed in the production unit, 10% is breastfed to animals, and 5% is wasted, so only 60% of the total milk is available for marketing purposes. Approximately 40% of this available milk is delivered to the consumer as raw milk (street milk/open milk). The rate of milk processed in modern enterprises is approximately 20%, and the rate of milk processed in dairy farms with low hygienic conditions is another 40%. In developed countries, the milk consumed, breastfed or lost in the enterprise is 2-3%, and the rate of raw milk marketed is 97-98%. The portion of this 97-98% reaches the consumer unprocessed is 5-6%. In Denmark, Holland, and Ireland, the milk processed in modern enterprises is 99.5% [1].

Numerous consumer research also determined that up to 80% of families in Turkey use open milk (street/raw milk). However, it is known by many consumers that water and other additives that threaten human health are mixed into street milk. Turkey's per capita processed and packaged milk consumption is also far behind other European countries. For example, while packaged milk consumed per capita is approximately 6L per year in Turkey, this amount is 139L in Finland, 108L in Spain, 100L in England and 65L in Greece [1].

Many consumers throughout Turkey consider packaged long-life milk dead milk due to the heat treatment applied. Again, some consumers believe that antibiotics and antiseptic substances are added to the packaged, long-lasting milk to provide durability during processing and that the packaging materials used are carcinogenic [4]. On the other hand, street milk is seen as the "purest", "most natural", and "freshest milk" by the vast majority of consumers. Despite the prohibition of street milk, the most important reasons it is still consumed are economic factors such as consumer habits, price and income [44]. However, another study emphasised that the consumption of both open milk and packaged milk is very closely related to the prejudices and thoughts of consumers and that consumer prejudices are more effective in milk consumption than socio-economic and demographic factors [1].

The COVID-19 outbreak has increased demand for milk and dairy products in Turkey, as in the rest of the world. The demand for dairy products, especially UHT (Ultra High Temperature) milk and cheddar cheese, has increased. In this process, the importance of packaged food was indisputably understood, and there was a significant increase in the demand for packaged dairy products [36].

Despite the importance of milk, studies examining the milk consumption habits of consumers have been scarce. A limited number of studies have only revealed per capita milk consumption amounts and the consumed open and packaged milk rates. However, current studies have not addressed why consumers prefer or avoid open milk or packaged milk.

This study was designed to determine the milk consumption patterns of households in Bursa, the largest city in the Southern Marmara Region, and the reasons for using open and packaged milk. Regarding population size, economic development and immigration potential, Bursa is one of the major cities in Turkey. The result of the research will provide valuable insight into determining the factors that shape the preference for open and packaged milk and products and information on consumer awareness. The study will also benefit dairy enterprises and their marketers operating in the sector, making significant contributions to sectoral stakeholders.

MATERIALS AND METHODS

The primary data in the study consists of face-to-face surveys with households living in the Bursa province of Turkey. Bursa is the fourth most populous city in Turkey, with 3,147,818. The population comprises 35% young, 51% middle-aged and 14% older adults. The average household size in Turkey is 3.30 people, and the total number of households is 25,329,833. The average household size of a Bursa is 3.24 people, and the total number of households is 966,765 [40]. The survey was conducted with the person responsible for

food shopping in the family. If the person who does the shopping in the family does not consume milk, the family members were asked to answer the questionnaire considering the people who consume poultry. Semi-structured questionnaires were used in the study. The 2021 population of Bursa province and the number of households were taken into account to determine the sample size. A probabilistic simple sampling method was used in sampling. Interviews were conducted with 480 people. The participants' consent was obtained before implementing the survey, and they were ensured that the information provided would only be used for academic purposes. Two questionnaires were disabled due to missing data, and 478 questionnaires were processed. The survey consists of 22 questions. The first ten questions in the survey are aimed at determining the demographic characteristics of the participants. Twelve questions are about determining the milk consumption of the participants. The data were analysed using the SPSS 23.0 Package Program.

RESULTS AND DISCUSSIONS

Demographic results

The research aimed to interview people who did more than half of household essential food shopping. Half of the participants were women (50.9%), and half (49.1%) were men. Contrary to small settlements, food shopping in metropolises is not left to women but is also done by men. A quarter of the participants (26.2%) were families of two people, while half (52.6%) were families of 3 or 4. This meant families had 1 or 2 children. In short, a significant portion of the participants (78.8%) had a nuclear family. In the study by Erdal and Tokgöz [12], which examined the factors affecting the consumption preferences of packaged and open milk, 77% of the participants were nuclear families. A significant part of the participants (68.8%) was married. Ages were fairly proportionally distributed among the groups studied. While the participants under the age of 40 are 43.9%, the participants over 40 are 56.1%. About half (46.8%) of the people interviewed in the study are university graduates. In the present study, a small portion of the participants were housewives (11.9%) and retired (16.6). Most participants work for the state or private sector or own businesses (13.6%). 32.1% of the participants earn 6,000TL or more. Demographic findings of the families examined are given in Table 1.

Table 1. Sociodemographic profile of the participants.

Variable		N	%
Gender	Male	234	49.0
	Female	43	50.8
Marital Status	Single	149	31.2
	Married	329	68.8
Age	20-30	110	23.0
	31-40	100	20.9
	41-50	93	19.5
	51-60	89	18.6
	61≥	86	18.0
Income*	>2 ,825 TL	108	22.6
	2,826 -4,000	48	10.0
	4,001-6,000	168	35.1
	6,001-8,000	52	10.9
	8,001+	102	21.2
Education level	Literate	13	2.7
	Primary	164	34.3
	Secondary	115	24.1
	University	224	46.9
Household Size	1	46	9.6
	2	125	26.2
	3	120	25.1
	4	132	27.6
	5+	55	11.5
Professional activity	Housewife	57	11.9
	Retired	79	16.5
	State worker	118	24.7
	Blue collar	75	15.7
	Self-employed	65	13.6
	Student	12	2.5
	Unemployed	31	6.5
	Other	41	8,6

Turkey's minimum Legal Basic Salary was Gross 2,943 Turkish Lira (TL) and Net 2 324 TL in 2020. N=478
Source: Author's calculation.

Milk consumption

Every member of the family should consume milk. However, studies conducted in Turkey and health experts often emphasise that individuals do not consume enough milk. Consumers buy milk for both individual and family consumption. Many factors, such as the presence of a child in the family, elderly individuals in the family and health problems, can affect milk consumption. For this reason, the participants were asked whether they or their family members drank milk regularly. The findings are given in Table 2.

Alarmingly, only 34.6% of the participants regularly consume milk. 34.7% of the participants stated that their spouses consume

milk. 37% of other family members, such as elderly parents, consume milk. Studies conducted in Turkey show that milk consumption as drinking milk is deficient. In the survey conducted by Şimsek et al. [34] with 1,000 people in Istanbul, 33% of the participants consumed milk. Onurlubaş and Çakırlar's [29] research revealed that 47.3% of women and 52.7% of men did not consume milk in the three largest cities of Turkey (Istanbul, Ankara, Izmir). Whereas in Chile, 84% of respondents consume milk [43].

Table 2. Regular milk consumption in a family

Do you consume milk regularly?				
	Yourself	Your spouse/partner	Children	Other family member
Yes	165	130	179	68
No	313	216	103	130
No children	-	-	196	-
No spouse	-	132	-	-
No other family member	-	-	-	279
Weekly milk consumption	0.78	0,69	1.18	0.44
Total	478	478	478	478

Source: Author's calculation.

Milk and milk products play an essential role in the healthy development of bones and teeth, especially in children and adolescents, in the prevention of cardiovascular diseases, stroke, high blood pressure, Type 2 diabetes, osteoporosis, colon cancer, and in the management of body weight in adults, due to having calcium content [18]. Turkish Nutrition Guide [38], prepared by the Ministry of Health, recommends taking three servings of milk and dairy products daily. (1 serving of milk: 240 mL, one serving of yoghurt: 200 mL, one serving of feta cheese: 60 g). However, 66% of the participants who had children in our study consumed milk regularly. Nahcivan's [25] study also confirmed that 45.2% of children aged 6-14 drank a glass of milk daily, and 31.8% drank milk occasionally. Toptaş Bıyıklı and Akman's [37] study also reported low-level milk drinking by children: the rate of primary school students aged between 10-15 who consume milk every day was 55.7%. In the current study, child milk consumption rates are higher than in other studies in Turkey, but they are far behind developed countries. A study conducted on individuals aged 60 and over in the USA reported that 30.8% of adolescents (12-19 years) consumed three glasses of milk or more per day [10].

Milk consumption levels

Average monthly milk consumption *per capita* is around 3.1L *per month* and around 37.2L per year. *Households* in Bursa consume 3L of milk *per week*, 12L *per month* and 156L *per year*. Although these figures are meagre, they align with the TurkStat data. According to TurkStat [40] data, Turkey's average annual milk consumption *per capita* was 39.5±7L.

Existing studies have reported similar results. In a recent Engindeniz et al. [11] survey, annual milk consumption *per capita* was 37.43L. Karakaya and Akbay [19] calculated that the average consumption of drinking milk *in the families* studied was 12.19L, and *per capita* consumption was 36.75L. This study and other available research findings also confirm the low milk-drinking rates in Turkey [1, 7, 9,12,14].

In recent years, the mass media has encountered contradictory statements in Turkey about milk consumption. Many health experts claim that consuming milk in adulthood is neither beneficial nor harmful. Besides the studies confirming the health benefits of milk, Michaëlsson et al. [24] showed that hip fractures were 60% more common in those who drank more than three cups of milk a day compared to those who drank less than a glass of milk a day and in their research in Sweden. The same study also revealed that cow's milk increased the risk of dying from a heart attack by 15% and cancer by 7% in women. According to this study, those who drank more than three glasses of milk a day had a 93% greater risk of dying from cancer than those who drank less than one glass. Several available studies argue that the risk of prostate cancer in men [23, 35] and ovarian cancer in women [16, 22] who drink plenty of milk is significantly increased compared to the non-drinking group. According to Campbell and Campbell [4], milk is one of the most harmful foods. In their research, Campbell and Campbell [4]

emphasised that *casein*, the primary protein substance of milk, is a severe carcinogen. The substance called *casomorphin* is released from the breakdown of casein and affects the brain. This is a kind of "morphine" derivative and increases the dependence on milk and dairy products. In addition to all these, it is reported that milk intolerance causes skin problems such as acne, rash and redness or irritation.

These and similar studies adversely affect the already low milk consumption, adding to expert opinions.

In the current study, adult participants and their spouses consume around 0.6-0.7L of milk per week, while children's milk consumption is 1.2L. Older parents consumed less than 0.5L of milk per week. According to the Ministry of Health Turkey Health and Nutrition Survey [39], milk consumption per capita is 34.5 mL per day and 12.5L per year for people over 15 in Turkey. Current research findings coincide with the upper limits for adults and the lower limits for the elderly.

Frequency of milk consumption

Children pattern themselves on their parents in nutrition and milk-drinking habits. Research has shown that only 12% of family adults regularly drink milk daily.

Children whose parents did not have the habit of drinking milk did not drink milk either. 32% of the children of the participants drank milk every day.

One-third of adult participants drank milk several times a week, while 20-25% drank milk several times a month. 15.6% of individuals of older ages did not drink milk at all, whereas the necessity of milk for bone health is often emphasised (Table 3).

Current research shows that individuals in Bursa province drank less milk than stated in the literature. Participants generally consumed milk once every 2-3 days (33.6%) and once a week (33.4%) in Karakaya and Kızıloğlu's [20] research. The rate of those who consumed daily was 19.9. Niyaz and İnan [27] found that 16.3% of the consumers drank milk daily, 28.3% several times a week, 11.4% every two weeks, 21% once a month and 22.9% rarely consumed milk.

However, 44% of the individuals interviewed in Chile drank milk daily, while 30% drank milk three times a week and 19% once a week [43].

Table 3. Frequency of drinking milk

	Yourself		**Spouse**		**Children**		**Elderly**	
	N	%	N	%	N	%	N	%
Several times a day	17	3.6	6	1.7	32	11.3	4	2.0
Once a day	58	12.1	35	10.1	90	31.9	20	10.1
Several times a week	160	33.5	108	31.2	75	26.6	60	30.3
Several times a month	115	24.1	74	21.4	35	12.4	40	20.2
Seldom	102	21.3	84	24.3	22	7.8	43	21.7
Do not drink milk	26	5.4	39	11.3	28	9.9	31	15.7
No spouse			132	28.2				
No kids					196	41.0		
No elderly							280	58.6
Total	478		478		478		478	

Source: Author's calculation.

Reasons for consuming and not consuming milk

Individuals drink milk because they believe it is healthy, giving it to their children. A significant portion of the 273 participants who have the habit of consuming milk consumes it because they believe that milk is beneficial for bone development (38.1%) and health and is a rich source of protein (22.7%) (Table 4).

Table 4. The reason for consuming milk regularly.

	N	**%**
A rich source of protein	62	22.7
Necessary for bone health	104	38.1
Necessary for child development	47	17.2
No particular reason, just habit.	44	16,1
Other	12	4.4
Health	2	0.7
Helps with weight loss	2	0.7
Total	273	100%

Source: Author's calculation.

Demircan et al. [9] stated that 65.3% of consumers drink milk because it is healthy. About half of the participating families in the current research did not have children. For this reason, the rate of those who said they consumed milk because it was essential for child development remained at 17.2%. It is evident in the research that habits affect consumption. Very few of the participants (16.1%) consume milk by habit. Consumers in Australia [4] and Chile [43] give more importance to sensory characteristics such as taste, odour and colour in milk consumption,

while consumers in Turkey give more importance to its health benefits [3].

The most important reason for *not* consuming milk was not having the habit of drinking milk. About half (45%) of those who did not drink milk regularly did not have the habit of it. Experts emphasise that parents should encourage their children to get into the milk-drinking habit for healthy development. When asked individuals who did not consume milk the reason for not drinking it, 51.5% of consumers stated that they were not in the habit of drinking it, 31.8% said they did not like it, and 10.6% for health problems.

Milk has a unique taste and distinct smell. Some people find this taste and smell particularly appealing, while others dislike it. In the study, those who did not like the smell of milk were relatively few (7.6%), but it is noteworthy that those who were allergic to milk and felt stomach discomfort after drinking milk made up a quarter of all participants (25.1%) (Table 5). Milk consumption in Turkey is still deficient, so children develop lactose intolerance and digestion problems early. Studies show that a quarter of children between the ages of 5 and 11 refuse to drink milk.

Table 5. The reason for not consuming milk regularly.

	N	%
Don't like the taste	45	13,8
Don't like the smell	25	7,6
Upsets my stomach	38	11,6
I am allergic to dairy products	44	13,5
It is expensive	16	4,9
No particular reason, it's just not in my habits	147	45,0
Can't find fresh milk	1	0,3
Other	11	3,4
Total	327	100.00

Source: Author's calculation.

Open milk vs packaged milk

The debate on open milk and packaged milk consumption in Turkey has been ongoing for many years. Some health experts state that processed milk loses its nutritional value; therefore, unprocessed (open milk) should be consumed. Another group states that open milk is ideal for bacteria growth and cheating, and processed milk should be consumed. Resultantly, consumers, especially those with children, are exceedingly confused about how to consume milk. Families with children prefer street milk to provide their children with milk without additives, while those with allergic children prefer processed/packaged milk. Many consumers have chosen to purchase open milk, believing that all vitamin values are lost when pasteurised milk undergoes heat treatment. Packaged milk contains preservatives and is less healthy. They even believed their elders were fed with open milk and lived healthier than they were.

Individuals in the high-income group prefer to buy milk packaged from markets and supermarkets. In contrast, low- and middle-income individuals get their milk primarily raw from milkmen [31]. In a study conducted in Kenya and Tanzania, where household incomes were low, consumers only bought packaged milk without raw milk [13]. Van Rossum et al. [42] also stated that high-income individuals prefer low-fat milk and dairy products sold in packages. Another study expressed that high-income families especially found it costly to cook and store open milk in their homes, so packaged milk is more economical for them [12].

The rate of consumption of raw milk (i.e. buying from street vendors) starts from 40% in Turkey. It can go up to 70%, especially in the eastern and central Anatolian regions [1, 12, 30]. Cities are smaller in these regions. Many family farms produce and sell open milk in the region, or consumers have acquaintances who live in the village and can order milk directly. Chain markets in these cities are yet widespread. Dairies, corner shops and bakeries also sell open milk.

Consumers in metropolitan areas use more processed packaged milk [18, 28, 33]. Processed milk is usually sold in small (1L, 0.5L) packages. Families being smaller in big cities, having more markets around, and having fewer milk producers in the neighbourhood increase the consumption of packaged milk compared to rural areas.

In addition to the frequency and quantities of open or processed milk consumed, ease of shopping, getting all needs from one place, cheapness, promotion, delivery, social

facilities, and so on may affect where we purchase the milk [30]. While open milk is generally obtained from the street seller (milkman), dairy and bazaars, processed (pasteurised and sterilised) milk is obtained from local and national markets and corner shops [2]. Street selling is a significant problem in Turkey's dairy sector and holds a non-negligible place in the current research. 21.1% of the participants buy their milk from street vendors, and 6.3% from a local dairy. In other words, one-third of the participants consume unprocessed milk (34.3%). About half of the participants bought processed milk (41.4%) from national markets. Those who bought from local markets and corner shops made up one-third (31.2%) of the participants (Table 6).

Table 6. Where do you buy milk the most?

	N	%
Street vendor	101	21.1
Grocery /corner shop	63	13.2
Local dairy	30	6.3
Local market	86	18.0
National market	198	41.4
Total	478	100.0

Source: Author's calculation.

Small cities and towns commonly have local dairy. From here, consumers can buy milk and essential dairy products (yoghurt, cheese and curd) daily. However, finding such dairy in big cities is getting harder because these small businesses cannot compete with chain stores [32]. Today's consumers mostly use chain stores for food shopping. Milk consumed daily and regularly should be purchased frequently from local markets and grocery stores. Consumers in Turkey generally shop for vegetables and fruits at the local markets, while they do their durable food and other shopping at national markets once a week. Consumers typically consume milk in processed form and buying approximately half of it from national markets confirms the low frequency of milk purchases [20, 29].

Parallel to the findings in Table 6, only 22.2% of the participants consumed open milk. Half bought the milk in a carton box (UHT) (50.4%). Consumers who prefer pasteurised milk can buy it in glass bottles or plastic bags. Consumers were more sensitive about the use of plastic and preferred daily (4.4%) or processed milk (3.8%) relatively less in plastic packaging. The rate of consumers who preferred packaged products is around 75% (Table 7). SETBIR (Turkish Dairy, Meat and Food Industrialists and Producers Association) confirms that consumers prefer packaged products, which they rightly think are cleaner and hygienic, due to the coronavirus epidemic in 2020 and beyond.

Studies conducted in Turkey, both in metropolitan and rural areas, stated that open milk purchased from street vendors is still widely sold and preferred. This study confirmed that open milk consumption in Bursa province was much lower than in the current studies [34].

Table 7. What is the main type of milk you usually buy?

	N	%
Raw milk (milkman/dairy)	106	22.2
Semi-skimmed milk	142	29.7
Whole milk	141	29.5
Skimmed milk	15	3.1
Lactose-free milk	21	4.4
Raw + semi-skimmed	14	2.9
Raw + whole milk	13	2.7
semi-skimmed + Whole milk	14	2.9
semi-skimmed + lactose-free	6	1.3
Other buying combinations	6	1.3
Total	478	100

Source: Author's calculation.

Because access to open milk is more difficult in metropolitan areas, participants had higher educational levels, and fewer children led to this outcome. However, pasteurised milk consumption was also lower than in the current research. Participants generally preferred long-lasting UHT milk. This finding is consistent with existing studies [18, 19]. Consumers take the milk raw in the open, use it for drinking, making yoghurt and food, or prefer it as a long-lasting product in a cardboard box. It is seen that the use of pasteurised milk has not become widespread in Turkey yet.

The fat ratio in milk is a decisive factor in choosing low-fat milk types [16, 43]. Vargas-Bello-Pérez [43] states that 75% of consumers in Chile prefer low-fat milk. In a study

examining the consumption of dairy products by adults in Switzerland, 53% of the participants prefer low-fat products to reduce their daily fat and calorie intake [6]. Another dairy consumption study by Cashel et al. [5] showed that older women prefer to skim or low-fat milk more than younger women. Bus and Worsley [4] and Johansen et al. [17] stated that women's full-fat milk consumption rate is lower than men's and emphasised that women attach more importance to fat ratios and weight control than men. Hammarlund [15] showed that most dairy consumers prefer skimmed milk. Then they prefer 2% fat milk, 1% fat milk, and finally whole milk. A study examining the consumption of milk and dairy products by participants over the age of 60 in the USA reported that the majority of the elderly pay great attention to their fat intake and cholesterol-rich foods, and most of the elderly prefer 2% fat milk consumption [10].

However, the opposite is the case in Turkey. Open milk is full-fat. One-third of the consumers who preferred packaged milk chose whole milk, and half of the participants consumed whole milk. While the other third preferred semi-skimmed milk, skimmed milk consumption was deficient (3.1%). This finding was confirmed by Engindeniz et al. [11] study that households consumed whole milk (44.3%) more. Twentify [41] reports that the rate of those who prefer lactose-free milk in milk consumption besides open and packaged milk preferences is 17%, but the use of lactose-free milk in this study remained at 4.4%. Lactose-free milk is a type with a sweeter taste produced for people who do not like milk and cannot drink it. Dieters also prefer lactose-free milk. The high use of whole milk and the low use of lactose-free and diet milk indicate that consumers in Turkey did not count calories in milk.

Reasons for consuming open milk

Even though expert warnings and widespread concerns regarding open milk use, consumers do not give up on open milk. Open milk sales are more common in small cities close to rural areas; they gradually decrease in big cities. Nevertheless, sales continue. Freshness (31.3%) and unprocessed, having no additives (24%) were among the most prominent public preferences for buying open milk (Table 8).

Street vendors usually live in nearby villages and typically sell their milk. Alternatively, they buy the milk directly from the farm and sell it.

Table 8. If you are using loose milk, what is the reason?

	N	%
Freshness	82	31.3
No additives	63	24.0
Taste	46	17.6
Low price	32	12.2
Home delivery	18	6.9
Ease of payment	16	6.1
Weighed by the buyer	5	1.9
Total	262	100

Source: Author's calculation.

Thus, the buyer knows which farmer produced milk on which farm. There are concerns about bacterial reproduction in milk in countries with hot climates, such as Turkey. However, there are also concerns about enterprises' processing, storage, and packaging conditions. Negative news in the media on those matters prevents people from switching from open milk to packaged milk. Open milk is cheaper than packaged processed milk, but one of its most substantial advantages is being bought in desired quantities. The milk comes to the door and is poured and weighed in front of the consumer. In the current research, participants belonged to the relatively high-income group, generally working people. So above mentioned convenience that open milk offers were irrelevant to them.

The most important reasons consumers prefer street milk are habits and misleading and incomplete information about packaged milk. In addition, the majority of consumers see street milk as "the purest", "most natural", and "freshest milk". On the contrary, many consumers consider packaged long-life milk dead milk due to the heat treatment. Consumers commonly believe that antibiotic and antiseptic substances are added to the packaged, long-lasting milk to ensure longevity and that the packaging materials used are carcinogenic [13]. Remarkably,

families give priority to the factors of being healthy and reliable when they prefer both open and packaged milk.

In the study, the most critical factor that led consumers to buy open milk was the freshness of the milk (31.3%). As emphasised in the literature, the absence of additives is the second most important reason for consumption (24%).

Milk sold in the open may not be completely additive-free, and there may be some adulteration. The most common of these are extracting fat from the milk, adding water, and adding neutralising agents to prevent the development of acidity or to mask the developing acidity. It is forbidden to add preservatives to milk to make it last longer. Nevertheless, hydrogen peroxide, potassium dichromate, formaldehyde, sodium carbonate, salicylic acid, and boric acid are the leading preservatives that are widely used. Despite all these possibilities, literature findings confirm that milk sold in the open is perceived as healthier, additive-free and reliable by consumers [2, 20]. Twentify [41] conducted a study with 1,010 participants, and 60% of consumers think that open milk is more natural and has higher nutritional value than packaged milk. On the other hand, 44% of the participants perceived that their milk was natural and additive-free. Although the literature often emphasises that open milk is preferred over packaged milk because of its lower price, the price was less important in this study and similar studies [2]. As stated before, there is a possibility of adulteration of open milk. Further, its rapid spoilage and bacteria-producing properties, and therefore the possibility of causing disease, are among the reasons that hinder the preference for open milk. In addition, it is not possible to control the milk content sold open and the conditions of sale and distribution. Mass media often broadcast major adulterants added to open milk. Moreover, the summer season in Turkey is generally hot and long, which further accelerates the deterioration of milk in the distribution process. For these reasons, being unhygienic (40.7%) and not being able to carry out health inspections of the milk sold (41.7) were the main reasons for not using open milk (Table 9). Kibar et al. [21] stated that participants prefer packaged milk more. In this preference, the ease of access and labelling of the products, especially hygiene, emerged as important reasons for preference.

Table 9. If you are NOT using open/street milk, what is the reason?

	N	%
Can't access fresh milk	32	14.8
Not hygienic	88	40.7
No quality/health control	90	41.7
Don't like the taste	2	.9
Loose milk is expensive	4	1.9
Total	216	100.0

Source: Author's calculation.

Reasons for not using packaged milk

Milk is packaged by going through a series of processes in enterprises. Consumers believe that there are chemicals in processed milk and therefore avoid using processed milk. In the current study, the presence of additives in milk (28%) is the most critical factor preventing the use of packaged milk. Although daily milk is sold in glass bottles and plastic packaging, the belief that packaged milk (especially cardboard and plastic boxes) is not fresh is quite common (19.7%). Yoghurt is more common than milk, and families in Turkey can make their yoghurt. Research findings also showed that not being able to make yoghurt is an inherent factor in not buying packaged milk. Similarly, Gözener and Sayılı [14] found that 53.14% of the families surveyed did not prefer packaged milk because they found the price high (59.03%), and no one in the family liked it (42.36%) (Table 10).

Table 10. If you are NOT using packaged milk, what is the reason?

	N	%
Contains additives	61	28.0
More expensive	23	10.6
Not natural	29	13.3
Not fresh/daily	43	19.7
Unable to purchase as much as needed	11	5.0
Not good for children	12	5.5
Cannot make yoghurt	39	17.9
Total	218	100.0

Source: Author's calculation.

CONCLUSIONS

Milk and dairy products are indispensable in human development for their nutritional values. Milk consumption has many benefits and Turkey is an agricultural country with a high milk production amount. Still, when the per capita milk consumption statistics are examined, Turkey is far behind the developed countries. It is necessary to undertake studies to increase milk consumption and raise society's awareness of this issue. The research aimed to determine the factors affecting the consumption of milk and dairy products by consumers living in Bursa, one of the largest provinces of Turkey.

The research region's milk and milk processing industry is more developed than in other provinces. The milk consumption in the Southern Marmara Region, where the province is located, remains above the country average. Despite this, the level of milk consumption in the research area has not reached the developed countries' consumption levels. Consumers who regularly drank milk every day were only 16%. Most consumers, including children, did not have milk-drinking habits. The school milk program is a good instrument that helps children to gain this habit. This programme has been successfully implemented in many countries, especially European Union countries. It was also implemented by the Ministry of Health in Turkey between 2011 and 2018. However, this programme was quietly abandoned in 2018 and needs to be implemented again with the cooperation of dairy enterprises and pupils' families. In this way, starting from a young age, all segments of society can gradually gain the habit of drinking milk-drinking habit.

Some experts' conflicting statements about whether to buy raw or packaged milk, whether or not to consume milk in adulthood and consume milk as a dairy product (buttermilk, kefir, yoghurt) instead of drinking milk lead to confusion. Therefore, health professionals and those who publish such news should be more prudent.

It is vital to carry out studies in Bursa province on the dairy industry's development and closely follow the technological developments because there is a developed food processing industry. At the same time, agriculture and animal husbandry are intensively carried out on the city's fertile plains. However, local and central governments must support the dairy industry to control the sale of unregistered street milk. The advantages of selling unregistered street milk must be eliminated. In addition, it is necessary to undertake an inspection mechanism to ensure the hygienic milk supply. Many companies have entered the packaged milk market under various brands. The presence of brands brings in competition, but it is evident that consumers do not have enough information about both these brands and packaged milk options on offer. Firms with a high or low market share should offer a price advantage and a wider variety of packaging options to satisfy consumers' preferences.

REFERENCES

[1]Akbay, C., Tiryaki, G.Y., 2007, Consumers' packed and unpacked milk consumption behavior: A case study in Kahramanmaras. Karamanoglu Mehmetbey University Journal of Social and Economic Research 10(1), 89-96.

[2]Arslan, Ö., Sevim, A., Güler, D., Saner, G., 2020, Analysis of factors affecting consumers' purchasing decision of raw milk in Izmir, Atatürk University Journal of Agricultural Faculty 51(3), 279-287. https://doi.org/10.17097/ataunizfd.694829

[3]Asioli, D., Varela, P., Hersleth, M., Almli, V.L., Olsen, V.L., Tormod Næs, 2017, A discussion of recent methodologies for combining sensory and extrinsic product properties in consumer studies, Food Quality and Preference 56, 266-273. http://dx.doi.org/10.1016/j.foodqual.2016.03.015

[4]Bus, A., Worsley, A., 2003, Consumers' sensory and nutritional perceptions of three types of milk, Public Health Nutrition 6(2), 201-208. https://doi.org/10.1079/PHN2002417

[4]Campbell, C.T., Campbell, T.M., 2006, The China study: The most comprehensive study of nutrition ever conducted and the startling implications for diet, weight loss and long-term health, Two reviews Journal of Alternative and Complementary Medicine 11(6), 1117-1119. https://doi.org/10.1089/acm.2005.11.1117

[5]Cashel, K.M., Crawford, D., Deakin, V., 2000, Milk choices made by women: What influences them, and does it impact on calcium intake? Public Health Nutrition 3(4), 403-410.

https://doi.org/10.1017/S136898000000046X
[6]Chollet, M., Gille, D., Piccinali. P., 2014, Short communication: dairy consumption among middle-aged and elderly adults in Switzerland, Journal of Dairy Science 97(9), 5387-5392.
https://doi.org/10.3168/jds.2014-8193
[7]Çelik, Y., Karlı, B., Bilgiç, A., Çelik. Ş., 2005, The Level of milk consumption and consumption pattern of consumers in Sanliurfa urban areas, Turkish Journal of Agricultural Economics 11(1), 5-12.
[8]Davoodi, H., Esmaeili, S., Mortazavian, A.M., 2013, Effects of milk and milk products consumption on cancer: A review, Comprehensive Reviews in Food Science and Food Safety 12(3), 249-264.
https://doi.org/10.1111/1541-4337.12011
[9]Demircan, V., Örmeci, M.Ç., Kızılyar, G., 2011, Comparative analysis of the packed and unpacked milk consumption behavior of the families in Isparta province of Turkey, Süleyman Demirel University Journal of the Faculty of Agriculture 6(2), 39-47.
[10]Elbon, S.M., Johnson, M.A., Fischeri J.G., 1998, Milk consumption in older Americans, American Journal of Public Health 88(8), 1221-1224.
https://doi.org/10.2105/ajph.88.8.1221
[11]Engindeniz, S., Taşkın, T., Gbadamoni, A.A., Ahmed, A.S., Cısse, A.S., Seioudy, A., Kandemir, Ç, Koşum, N., 2021, Analysis of preferences for milk and milk products of consumers, Journal of Tekirdag Agricultural Faculty 18(3), 470-481.
https://doi.org/10.33462/jotaf.841924
[12]Erdal, G., Tokgöz. K., 2011, Factors affecting preferences of packed and unpacked milk consumption of consumers: A case study of Erzincan, KMU Journal of Social and Economic Research 13(20), 111-115.
[13]Galiè, A., Farnworth, C.R., Njiru, N., Alonsoi, S., 2021, Intra-household handling and consumption dynamics of milk in peri-urban informal markets in Tanzania and Kenya: A gender lens, Sustainability 13, 3449. https://doi.org/10.3390/su13063449
[14]Gözener, B., Sayılı, M., 2013, Analysis of consumer preferences fresh milk and dairy products: The case of Tokat Turhal district, The Journal of Social Sciences Research 8(1), 160-175.
[15]Hammarlund, R., 2002, A study of marketing issues with organic milk. Unpublished Master Thesis, Kansas State University, Manhattan.
[16]Jiang, L., Gong, T.T., Gao, S., Li, X.Q., Liu, F.H., Wen, Z.Y., Wei, Y.F. Yan, S. Hou, R., Wu, Q.J., 2021, Pre-diagnosis dairy product intake and ovarian cancer mortality: Results from the ovarian cancer follow-up study (OOPS), Frontiers in Nutrition 8, 750801. https://doi.org/10.3389/fnut.2021.750801
[17]Johansen, S.B., Naes, T., Hersleth, M., 2011, Motivation for choice and healthiness perception of calorie-reduced dairy products. A cross-cultural study, Appetite 56(1), 15-24.
https://doi.org/10.1016/j.appet.2010.11.137
[18]Kalkwarf, H.J., 2007, Childhood and adolescent milk intake and adult bone health, International Congress Series 1297: 39-49
[19]Karakaya, E., Akbay, C., 2013, Consumer consumption habits of milk and milk products in Istanbul province, Journal of Agricultural Faculty of Uludag University, 27(1), 65-77.
[20]Karakaya, E., Kızıloğlu, S., 2018, Consumer consumption habits of milk and milk products in Bingol province, KSU Journal of Agriculture and Nature 21(Special Issue), 12-21.
https://doi.org/10.18016/ksutarimdoga.vi.504487
[21]Kibar, M., Yılmaz, A., Mikail, N., 2020, Milk and milk products consumption habits and affecting factors in Siirt province in central district, Batman University Journal of Life Sciences 10(1), 99-113.
[22]Liao, M., Gao, X.P., Yu, X.X., Zeng, Y.F., Li, S.N., Naicker, N., Joseph, T., et al. 2020, Effects of dairy products, calcium and vitamin D on ovarian cancer risk: A meta-analysis of twenty-nine epidemiological studies, British Journal of Nutrition 124(10), 1001-1012.
https://doi.org/10.1017/S0007114520001075
[23]Mandair, D., Rossi, R.E., Pericleous, M., Whyand, T., Caplin, M.E., 2014. Prostate cancer and the influence of dietary factors and supplements: a systematic review, Nutrition and Metabolism 16, 11-30. https://doi.org/10.1186/1743-7075-11-30
[24]Michaëlsson, K, Wolk, A., Langenskiöld, S., Basu, S., Lemming, E.W., Melhus, H., Byberg, L., 2014, Milk intake and risk of mortality and fractures in women and men: cohort studies, BMJ 28:349, g6015. https://doi.org/10.1136/bmj.g6015
[25]Nahcivan, N., 2006, Milk consumption status in the students of a primary school, Journal of Continuous Medical Education STED, 15(3), 38-44.
[25]National Dairy Council, 2020, Turkey Milk Sector Statistics Summary Report.
https://ulusalsutkonseyi.org.tr/wp-content/uploads/Turkiye-S%C3%BCt-Sekt%C3%B6r%C3%BC-%C4%B0statistikleri-2017.pdf, Accessed on Jan. 28, 2023.
[27]Niyaz, Ö.C., İnan, İ.H., 2016, Determination of milk and dairy products consumption quantity of consumers in TR22 South Marmara Region, COMU Journal of Agricultural Faculty 4(2), 7–13.
[28]Ocak, S., Önder, H., 2014, Factors affecting consumer preferences of dairy products and food safety knowledge, Journal of Animal Production 55(2), 9-15. https://doi.org/10.29185/hayuretim.363920
[29]Onurlubaş, E., Çakırlar, H., 2016, A research about determination factors that affect consumption of milk and milk products of consumers, Cankiri Karatekin University Journal of Institute of Social Sciences 7(1), 217-242.
[30]Öncül, M., Sekman, Y., Kınıklı, F., Artukoğlu, M.M., 2019, An investigation of the consumers purchasng choıces for food products: The case of Izmir province, Turkish Journal of Agricultural Economics 25(2), 207-217.
https://doi.org/10.24181/tarekoder.630755
[31]Say D.Ş., Saraç, Z.F., 2020, Milk and milk products consumption patterns of elderly consumers in

Burdur Province, Journal of Agricultural Faculty of Bursa Uludag University 34(1), 119-133.
[32]Sevim, A., Arslan, Ö., Güler, D., Saner, G., 2021, Determination of consumers' purchasing intentions of raw milk: The case of Izmir, Mediterranean Agricultural Sciences 34(1), 41-46. https://doi.org/10.29136/mediterranean.655574
[33]Şeker, İ., Şeker, P., Şahin, M., Özen, V.S., Akdeniz, A., Erkmen, O., Kışlalıoğlu, İ., Sargın, G., Doğu, G.B., 2012, Determination of consumer habits milk consumption in Elazığ and the factors affecting these habits, Fırat University Journal of Veterinary Health Sciences 26(3), 131-143.
[34]Şimşek, O., Çetin, C. Bilgin. B., 2005, A research on determination of the drinking milk consuming habits and the factors affecting these habits in Istanbul province, Journal of Tekirdag Agricultural Faculty, 2(1), 12-18.
[35]Tat, D., Kenfield, S.A., Cowan, J.E., Broering, J.M., Carroll, P.R., Van Blarigan, E.L., Chan, J.M., 2018, Milk and other dairy foods in relation to prostate cancer recurrence: Data from the cancer of the prostate strategic urologic research endeavor (CaPSURE™), The Prostate 78(1): 32–39. https://doi.org/10.1002/pros.23441
[36]TEPGE, 2020, Status and Forecast: Milk and Dairy Products. Ministry of Agriculture and Forestry Institute of Agricultural Economics and Policy Development (TEPGE). Publication no: 321 Ankara.
[37]Toptaş Bıyıklı, E., Akman, M., 2013, Milk and milk products consumption habits of primary school students aged 10-15 years. Journal of Nutrition and Dietetics 41(1), 3-9.
[38]Turkish Nutrition Guide, 2016, Ministry of Health Publication No: 1031 Ankara.
[39]Turkey Health and Nutrition Survey, 2019, Ministry of Health Publication No: 1132, Ankara.
[40]TurkStat. 16 July 2020, Household consumption expenditure, 2019. Newsletter. Number: 33593. https://data.tuik.gov.tr/Bulten/Index?p=Hanehalki-Tuketim-Harcamasi-2019-33593, Accessed on Jan. 28, 2023.
[41]Twentify, 2022, Product Consumption Habits Research. https://www.twentify.com/tr/blog/2021-sut-urunleri-arastirmasi, Accessed on Jan. 28, 2023.
[42]Van Rossum, C.T., Van De Mheen, H., Witteman, J.C., Grobbee, E., Mackenbach, J.P., 2000, Education and nutrient intake in Dutch elderly people: The Rotterdam Study. European Journal of Clinical Nutrition 54(2), 159-165. https://doi.org/10.1038/sj.ejcn.1600914
[43]Vargas-Bello-Pérez, E., Enríquez-Hidalgo, D., Toro-Mujica, P., Fellenberg, M.A., Ibáñez, R.A., Schnettler, B., 2018, Factors affecting consumption of retail milk in Chile. Mljekarstvo 68(4), 310-319. https://doi.org/10.15567/mljekarstvo.2018.0406
[44]Voorbergen, M., 2004, The Turkish dairy sector. Gearing up for EU entry? Amsterdam: Rabobank International.
[45]Zhang, X., Chen, X., Xu, Y., Yang, J.. Du, L., Li, K., Zhou, Y 2021, Milk consumption and multiple health outcomes: umbrella review of systematic reviews and meta-analyses in humans, Nutrition and Metabolism 18(1), 7. https://doi.org/10.1186/s12986-020-00527-y