

Technology of milk and derivate products (year of study IV, semester VII)

Number of transferable credit 5

Discipline status

Specialized discipline (obligatory)

Titular of the discipline

Professor univ. PhD Marius Giorgi USTUROI

Objective of the discipline (course and applications)

At the course it is desired transfer to students knowledge on techniques of production and conditioning of milk, the quality of raw milk (the chemical composition, organoleptic characteristics and physical properties) as well as hygienic methods and conservation of milk and dairy products. Also will develop data relating the manufacturing technologies of consumption milk, acid-dietary products and sour cream.

At practical works will be acquired knowledge regarding methods of harvesting and preparing samples for analysis, techniques of qualitative evaluation of milk and milk products (sensory appreciation, physical and chemical determinations, microbiological analysis, including identification of possible forgery) and practice model calculations in milk production.

Content of discipline (analytical program)

Course (chapters / subchapters)
The importance of milk in human alimentation
Raw whole milk (Sources of milk production. Primary conditioning of milk)
Characteristics of milk (Organoleptic characteristics. Physical properties. Chemical composition of milk)
The microorganism of milk and dairy products (The origin of microorganisms. The growth of microorganisms in milk after milking. Classification of microorganisms in milk / dairy products. Harmful waste substances from milk. Abnormal physiological and pathological milk)
Techniques for hygienisation of milk (Physical processes. Chemical processes. Mechanical processes. Effects of heat treatment of milk.)
Methods of preserving for milk and milk products (By using cold conservation. Conservation by concentration. Conservation by using sugar. Conservation by drying)
Technology consuming milk (Technological stages of obtain consuming milk)
Technology of dietary acid-dairy (The value of acid food products. Preparation of cultures. Quality control and defects crops. The quality of feedstock. Specific technologies for manufacturing of acid)
Cream consumer technology (Sweet cream manufacturing stages. Fermented cream manufacturing stages. Assortment of cream)

Practical activities
Labour protection in dairies
Milk (The collection and conservation samples. Organoleptic examination. Determination of acidity, density, dry matter, fat, protein and casein. Microbiological assessment. Recognition falsification of milk. Identifying and neutralizing preservative substances. Calculations of the milk production. Normalizing milk)
Acid-dietary products (Collecting and preparation of samples for analysis. Organoleptic examination. Determination of acidity. Determination of fat content. Determination of dry matter)

Cream (Collecting and preparation of samples for analysis. Organoleptic examination. Determination of acidity. Determination of fat content. Identification of falsification. Calculations for the production of cream)

Bibliography

1. Georgescu Gh. și colab. 2000-*Lapte și produse lactate*. Editura Ceres, București
2. Țibulcă D. și Jiborean Anamaria, 2008-*Tehnologia de obținere a produselor lactate*. Editura Risoprint, Cluj Napoca
3. Usturoi M.G., 2007-*Tehnologia laptelui și a produselor derivate*. Editura Alfa Iași
4. Usturoi M.G., 2012-*Controlul laptelui și a produselor derivate*. Editura PIM, Iași.
5. Rațu Roxana Nicoleta și M.G. Usturoi, 2019 – *Aplicații practice în industria laptelui*, Editura PIM, Iași

Final evaluation

Evaluation form	Assessment methods	Percentage of the final grade
Exam	Oral evaluation	70%
Assessment activity during the semester	Verification tests, oral laboratory.	30%

Contact

Professor univ. PhD Marius Giorgi USTUROI

University of Agricultural Sciences and Veterinary Medicine „ Ion Ionescu de la Brad” from Iași

Animal Science Faculty

8 Mihail Sadoveanu Alley

700489 IASI - ROMANIA

Phone number: 0040 232 407 581, fax: 0040 232 260 650

E-mail: umg@uaiasi.ro

Technology of milk and derivate products (year of study IV, semester VIII)

Number of transferable credit 4

Discipline status

Specialized discipline (obligatory)

Titular of the discipline

Assitant PhD Roxana Nicoleta RAȚU

Objective of the discipline (course and applications)

The course will be detailed information on general and specific technologies for the main assortment groups belonging to three dairy products: butter, cheeses and ice cream.

The practical work will be focused on knowledge collecting techniques, preparation and qualitative analysis for butter, cheese and ice cream, and production calculations for them.

Content of discipline (analytical program)

Course (chapters / subchapters)
Butter technology (Theory of the formation of butter. Butter in batch manufacturing. Manufacturing butter continuous)
Cheese (Classification. Preparing milk. Curdling milk, curd processing. Forming and pressing. Salting. Maturation. Treatments applied. Storing cheese)
Specific manufacturing technologies cheese (Technology of fresh cheese. Technology of soft cheeses. Technology of mature cheese in brine. Technology of semi-hard cheese. Technology of hard paste cheeses. Technology of scalded cheese. Technology of mingled cheeses. Technology of melted cheese)
Ice-cream technology (Raw and auxiliary materials. The stages of producing ice-cream)

Practical activities
Butter (Collecting and preparation of samples for analysis. Organoleptic examination. Determination of acidity and water content, salt and fat. Assessment of the degree of rancidity. Calculations in the production of butter)
Cheese (Collecting and preparation of samples for analysis. Organoleptic examination. Determination of acidity and water content, salt and fat. Determination of clot strength. Calculations in cheese production)
Ice-cream (Collecting and preparation of samples for analysis. Organoleptic examination. Determination of water and fat)

Bibliography

1. Banu C. și colab. 1993 – *Totul despre înghețată*. Editura Tehnică, București
2. Banu C. și Vizireanu Camelia, 1998 – *Procesarea industrială a laptelui*. Editura Tehnică București.
3. Jiborean Anamaria și Țibulcă D, 2008-*Tehnologia de fabricare a brânzeturilor*. Editura Risoprint, Cluj Napoca
4. Usturoi M.G., 2007 – *Tehnologia laptelui și a produselor derivate*. Editura Alfa Iași
5. Usturoi, M.G., 2012-*Controlul laptelui și a produselor derivate*. Editura PIM, Iași.
6. Rațu Roxana Nicoleta și M.G. Usturoi, 2019 – *Aplicații practice în industria laptelui*, Editura PIM, Iași.

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University of Agricultural Sciences and Veterinary Medicine „Ion Ionescu de la Brad” from Iași
Animal Science Faculty

8 Mihail Sadoveanu Alley

700489 IASI - ROMANIA

Phone number: 0040 232 407 592

E-mail: roxana.ratu@uaiasi.ro