

Course Specifications

Hygienic Control of Fluid Milk

Benha University

Faculty Veterinary Medicine

- **Program on which the course is given:** Bachelor of Veterinary Medicine
- **Department offering the course:** Department of Food Control
- **Academic year / Level:** 1st Semester, 3rd year level (2010/2011)
- **Date of specification approval:** Ministerial decree No. 921 on 15/09/1987
(approved in this template by the Department Council on 16/10/2005)

A- Basic Information

Title: Hygienic Control of Fluid Milk.

Code: Vet 00635a

Lecture: 3 hours/week

Practical: 2 hours/week

Total: 5 hours/week

B- Professional Information

1 – Overall aims of course:

Are to prepare the future leaders of the dairy industry and dairy research institutions in Egypt to assure dairy security, quality and safety. This will be achieved through:

- Provide students with basic information about milk characteristics composition, standards and microbiology.
- Enable students to understand the hygiene adopted in dairy farms to enhance clean milk production.
- Enable students to understand the factors that influencing milk excellence at farm level and ways to control them.
- Enhance the student educational experience about dairy farm organization, cleaning and sanitation, transportation, and reception of milk.

2 – Intended learning outcomes of course (ILOs):

a- Knowledge and understanding:

a1- Describe the public health of milk consumption as a food of animal origin and know the diseases that transmitted to human.

a2- List and understand the basic laws, legislatives and ethical codes relevant to milk hygiene.

b- Intellectual skills:

b1- Determine clean milk from spoiled one through appearance, flavor and consistency.

b2- Analyze the sources of milk contamination with spoilage and/or pathogenic microorganisms and develop preventive measures through effective control of their sources of contamination.

b3- Decide proper heat treatment method that suits milk processing.

b4- Modify and enhance sanitation programs for applying in dairy farms, and during transportation, and reception of milk.

c- Professional and practical skills:

c1- Practice the fat and protein contents of any milk sample.

c2- Perform methods to detect the adulterated milk and determine the foreign material added.

c3- Diagnose any unauthorized preservative added to milk.

C4- Manage how to distinguish raw milk from heat treated one.

C5- Train how to distinguish mastitis milk from normal one.

C6- Practice how to isolate any pathogenic microorganisms that may contaminate milk.

C7- Write reports about the elevation of the hygienic measures and standards in dairy farms and during transportation, and reception of milk.

d- General and transferable skills

Graduate must have the ability to:

d1- Conduct a scientific research group that help improving dairy sanitation.

- d2-** Communicate with quality control people regarding milk quality either verbally and non-verbally.
- d3-** Function in a multidisciplinary team.
- d4-** Work under pressure and/or contradictory conditions.
- d5-** Organise and control tasks and resources.
- d6-** Ss adopting self-learning ethics.
- d7-** Utilize computer and internet skills.

3- Contents:

Topic	Lecture	Practical	No. of hours
Introduction and physiology of milking	2	3	5
Sampling and physical properties of milk	2	3	5
Chemical composition of milk	2	3	5
Sources of contamination	2	3	5
Functional ingredients of milk	2	3	5
Sources of milk contamination	2	3	5
Keeping quality and Sanitary tests	2	3	5
Factors affecting microbial growth in milk	2	3	5
Subclinical mastitis	2	3	5
Cleaning and sanitation	2	3	5
Diseases transmitted through milk, abnormal fermentation and milk defects	2	3	5
Hygiene on Transportation & dairy plant Visit	2	3	5
Milk reception at dairy plant & heat treatment	2	3	5
Hygiene on dairy plants	2	3	5
Sanitation and HACCP on Dairy farms	2	3	5
Total	30	45	75

4– Teaching and learning methods:

- 4.1- Lectures and seminars.
- 4.2- workbooks, diaries, and laboratory notebooks.
- 4.3- CDs, slides, and video tapes.
- 4.4- Library searches and reporting (essay).
- 4.5- Computer based learning.
- 4.6- Posters.
- 4.7- Dairy farm and dairy plant visits

5- Student assessment methods:

- 5.1- Periodical MCQ sheets to assess student's communication with the instructor.
- 5.2- Reporting and discussion on field visits
- 5.3- Essay on clean milk production and other subjects.
- 5.4- Practical examination to assess professional and practical skills.
- 5.5- Written examination to assess intellectual skills.
- 5.6- Oral examination to assess how much percentage of the overall aims is achieved.

Assessment schedule:

Assessment 1- MSQ sheets week 5 and 11.

Assessment 2- Report preparation and discussion/ visit reporting and discussion.

Assessment 3- Practical examination at the last week of the semester.

Assessment 4- Written examination at the end of the semester.

Assessment 5- Oral examination at the end of the semester and at the same day of the written examination.

Weighting of assessments

Mid-term examination	10%
Final-term examination	50 %
Oral examination	15 %
Practical examination	15 %
Semester work (including visit & discussions)	5 %
<u>Other types of assessment (Essay and discussion)</u>	5 %
Total	100%

6- List of references:

6.1- Course notes:

Workbooks, diaries, and laboratory notebooks on milk hygiene and control

6.2- Essential books (text books):

- *Dairy Technology: Principles of Milk Properties and Processes* (1999). Walstra, Geurts, Noomen, Jellema & van Boekel. Marcel Dekker, New York
- *Dairy Processing Handbook* (1995). Tetra Pak, Lund, Sweden
- *Dairy Chemistry and Biochemistry* (1998). Fox. P. F. & McSweeney, P.L.H. Blackie Academic & Professional

6.3- Recommended books:

- Applied Dairy Microbiology, Second edition, Edited by Elmer H. Marth And James L. Steele
Marcel Dekker 2001.
- Food Plant Sanitation Edited by Y H Hui, Bernard L Bruinsma, J Richard Gorham, Wai-Kit Nip, Phillip, S. Tong and Phil Ventresca Marcel Decker 2002.
- International Handbook of Foodborne Pathogens Edited by M. D. Miliotis and J. W. Bier , Marcel Dekker 2003

6.4- Periodicals, Web sites, ... etc:

- Journal of dairy research
- Journal of dairy science
- Journal of food protection
- International journal of food microbiology
- University of Guelph, Dairy Technology Education Series website
<http://www.foodsci.uoguelph.ca/dairyedu/home.html>
- Dairy Management Inc. Website with a lot of dairy product and ingredients information.
<http://www.doitwithdairy.com/>
- Milk Ingredient Canada, Website with a lot of dairy product and ingredients information.
http://www.milkingredients.ca/DCP/index_e.asp
- Website developed by Dr. Kalab, entitled "Foods Under the Microscope", with many high-quality images of the structure of milk and dairy products
<http://anka.livstek.lth.se:2080/microscopy/intro.htm>

7- Facilities required for teaching and learning:

- Small scale educational dairy plant.
- Dairy microbiology laboratory.
- Chemicals and reagents used for milk examination.
- Media and glass ware used for chemical and microbiological examination of milk.

Course coordinator:

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Head of Department

Professor: Hamdy Abdel Samei Mohamed

Date: / /