

codex alimentarius commission

FOOD AND AGRICULTURE
ORGANIZATION
OF THE UNITED NATIONS

WORLD HEALTH
ORGANIZATION

JOINT OFFICE: Viale delle Terme di Caracalla 00100.ROME Tel: 390 6 57051 Telex: 625825-625853 FAO I Email codex@fao.org Fax: 39 06 5705.4593

Agenda Item 5

CX/FH 99/5
September, 1999

JOINT FAO/WHO FOOD STANDARDS PROGRAMME **CODEX COMMITTEE ON FOOD HYGIENE**

Thirty-second Session
Washington, D.C., USA, November 29 – December 4, 1999

PROPOSED DRAFT CODE OF HYGIENIC PRACTICE FOR MILK AND MILK PRODUCTS **(At Step 3 of the Procedure)**

Prepared by the United States of America with assistance of Argentina, Australia, Canada, France, Germany, India, Netherlands, New Zealand, United Kingdom, Uruguay, and International Dairy Federation (IDF)

Governments and interested international organizations are invited to submit comments or information on the attached Draft Code at Step 3 (see Appendix) and should do so in writing in conformity with the Uniform Procedure for the Elaboration of Codex Standards and Related Texts (see *Procedural Manual of the Codex Alimentarius Commission, Tenth Edition*, pages 20-21) **to:** Mr. Amjad Ali, Staff Officer, Food Safety and Inspection Service, U.S. Department of Agriculture, Room 4861, 1400 Independence Avenue, SW, Washington, D.C. 20250, USA, FAX +1-202-720-3157, or email uscodex@usda.gov with a copy **to:** Secretary, Codex Alimentarius Commission, Joint WHO/FAO Food Standards Programme, FAO, Viale delle Terme di Caracalla, 00100 Rome, Italy, by FAX +39-06-5705-4593 or email codex@fao.org **before 8 October, 1999.**

BACKGROUND

The Codex Committee on Food Hygiene (CCFH), at its Twenty-Ninth Session, decided to initiate work on a *Code of Hygienic Practice for Milk and Milk Products*¹. The Committee assigned the delegation of the United States of America to prepare a draft discussion paper and outline of the Code, with the assistance of India, France and the International Dairy Federation (IDF), for consideration at the Thirtieth Session of CCFH.

At its Thirtieth Session, the CCFH considered the discussion paper on the *Proposed Draft International Code of Hygienic Practice for Milk and Milk Products*² including an outline containing the recommended elements for the proposed Code. During the Session, the Committee agreed with the recommendation of the United States (which was supported by other delegations including France) to discontinue development of the *Proposed Draft Code of Hygienic Practice for the Manufacture of Uncured/Unripened and Ripened Soft Cheeses* as an independent Code with the

¹ ALINORM 97/13A, paragraphs 40-43.

² CX/FH 97/13.

understanding that the work would continue as a part of the elaboration of this Code³. Further, the Committee agreed to convert the outline into a proposed draft Code and confirmed that the drafting group would be led by the United States with the assistance of Argentina, Australia, France, India, the Netherlands, New Zealand, the United Kingdom, Uruguay, and the IDF

At the Thirty-first Session of CCFH, the United States, on behalf of its drafting partners, presented the *Proposed Draft International Code of Hygienic Practice for Milk and Milk Products* in which the previous outline had been converted in a draft code⁴. As a number of comments had arrived late on the proposed draft Code, the Committee was unable to consider these in detail, but instead the Delegation of the United States, at the request of the Committee, highlighted some of the essential issues which would need to be addressed in order to provide a basis for further development of the Code. Recognizing that the list is not exhaustive, these included:

- The expansion of the Scope beyond food safety
- The use of annexes for control measure details
- The lack of control measure evaluation methods
- The lack of definitions for Appropriate Level of Protection (ALOP)/Food Safety Objectives (FSO)/Food Safety Outcomes
- Primary production exceptions
- Increased HACCP emphasis
- The Code should be more outcome oriented and less prescriptive
- Excessive detail in the document

These issues were discussed, in part, during a Drafting Group meeting held during the 31st Session. The Committee agreed that the document and its Annexes should be redrafted by the Delegation of the United States and its drafting partners in light of comments made and circulated for further comment prior to the next session of the Committee.

During the Drafting Group meeting, all drafting partners agreed that best approach to furthering the revision of the Document was to hold a meeting of the Drafting Group during which the essential issues could be considered and hopefully resolved. At the kind invitation of the European Commission, a Drafting Group meeting was held in Brussels on March 22-25, 1999. The meeting was attended by 30 delegates from 11 member countries and the International Dairy Federation. All Drafting Group partners attended the meeting, which was fully interpreted and translated.

RESULTS OF THE DRAFTING GROUP MEETING

In order to enable the Code to progress, the Drafting Group focused on the following six major/key issues:

- The use of annexes to describe control measure details.
- The placement of provisions for raw milk products.
- The prescriptive nature of the primary production section.

³ ALINORM 99/13, paragraphs 66-67.

⁴ ALINORM 99/13A, paragraphs 42-45.

- Provisions for the validation of control measures.
- Expansion of scope to include suitability.
- Shelf life issues.

A summary of key results from the Drafting Group meeting deliberations and its recommendations is presented below.

The use of annexes to describe control measure details

It was recognized that annexes have an appropriate role in the Milk Code. It was also recognized that an additional important concept, that being that the use of principles for the hygienic production of milk and milk products, will be fundamental to the development of the Code and will provide the basis for the use of annexes. The Drafting Group discussed that the redrafting of the main body of the Code should preferably incorporate principles for the hygienic production of milk/milk products rather than being comprised of blocks of prescriptive material. These principles should expand, as appropriate for milk and milk products, on the general principles of food hygiene elaborated by CCFH. The Drafting Group recommended that, where principles are developed for a particular section of the Code, they should be presented with the following hierarchical format, as appropriate:

- Principles
- Objectives and/or explanatory narrative
- Guidelines on application by the Committee on Food Hygiene
- Prescriptive material if necessary
- Situations/scenarios as examples, if appropriate

It is recognized that a wide range of detailed material has to be presented in the Code and some of this will be much better presented in Annexes. However, annexes should not be a repository of principles relating to particular aspects of hygienic practice. It was agreed that some principles would have generic application throughout the Code (overarching principles) while others would apply only to a particular section of the Code. The overarching principles (e.g., a principle on control measure validation) should be presented prior to individual technical sections of the Code. Where annexes are needed, it was recommended that their function is clear and that they not be a “dumping ground” for controversial issues. The following functions are described for annexes:

- To describe specific processes and control measures.
- To present “horizontal” guidelines where a principle has multiple generic applications in various sections of the Code.
- To develop “horizontal” guidelines for control measures appropriate to a group of milk products that have a similar end-use/processing requirement.
- To present a specific situation for production of milk or milk products, for example, recommendations for hygienic practices for small holder dairies, for raw milk soft cheeses, etc.
- To present specific provisions for the processing of milk products, such as, for example, annexes for preventative measures, hurdle technologies and microbiocidal processing.

The placement of provisions for raw milk products

The annexes have a role in the Code with respect to raw milk products. This would be to provide detail to explain and illustrate how principles in the main body of the text may be met in practice. The Code and its annexes should be reviewed and reorganized so that principles concerning raw milk products and explanatory justifications are in the body, and details covering these raw milk products are in the annex.

The prescriptive nature of the primary production section

A three tier approach for the primary production section is considered to be appropriate. Tier 1 would be the provisions of the *Recommended International Code of Practice: General Principles of Food Hygiene* (GPFH). Tier 2 would be the technical sections of the Milk Code which would include necessary provisions not included in the in the GPFH; these sections would include introductory narratives that would encompass a set of principles related to raw milk production which would focus on food hygiene outcomes. Tier 3 would be a series of annexes containing additional recommendations and technical detail on how the principles could be applied to different situations including the regular production of milk as a raw material (section 3 as currently drafted), specific provisions for raw milk cheeses and specific provisions for small holder dairies.

The following considerations apply to the use of HACCP in the primary production sector:

- Currently there are practical limitations to the use of HACCP at the farm level and HACCP is not applied at the primary production sector in most cases.
- However, it is appropriate to consider conditions at primary production during a hazard analysis.
- Additionally, good hygienic practices programs do apply and should be practiced.

Provisions for the validation of control measures

Validation is an important principle that has general application for CCFH and has specific application throughout the Milk Code. It is important to recognize that validation is important at both the primary production and manufacturing level and applies both nationally and for foods in international trade. The application of validation concepts is appropriate at three levels: a specific control measures step or process; a combination of steps or control measures (e.g., a HACCP program); and, validation that national or international stated food safety requirements (i.e., the appropriate level of protection) have been met. However, it is recommended that including specific mechanisms for validating food safety measures in the Milk Code is not a practical proposition.

Additionally, the subject of the validation of control measures is a subject that has general applicability. The GPFH contains numerous references and explanatory text addressing the need for validation, but it is not developed as an overarching principle. It is recommended that this important issue be considered by the CCFH as a future work area.

Expansion of scope to include suitability

The concept of suitability is already included for the dairy sector by virtue of the definition of food hygiene in the GPFH and the *CAC Procedural Manual*; therefore it is appropriate to be within the scope of the Milk Code. However, it was difficult to define suitability and that parameters for judgement of this area should, at least for now, be determined at the local/regional/country levels as necessary.

It is noted that the discussion on “suitability” in the context of the Milk Code seemed to be the first substantive time that this area had been highlighted with CCFH. It is recommended that CCFH consider the issue of suitability horizontally, perhaps with a view to developing an annex to, or amending the GPFH to make the term operational.

Shelf life issues

It was recognized that the area of shelf life could be included in the Code under certain specified conditions. Reference to shelf life should only be included in the Code if it is considered to be an additional necessary provision not addressed by general requirements of the CCFH for the milk and milk product sector. If included, shelf life should be addressed only in general terms with reference to it being a part of the hazard analysis for a product(s), recognizing that any future decisions regarding suitability may modify this view. Additionally, shelf life provisions noted within the various dairy product commodity standards and provisions contained within the Codex General Standard for the Labeling of Pre-packaged Foods need to be kept in mind and cross-referenced as appropriate.

Revised Document

The revised document results in changes to the original construction of the Code. The document presents a modified Section 2 that presents information on how the document is to be used, that is, the need for utilizing the annexes in conjunction with the main body of the Code. Section 2 also presents the overarching principles for the hygienic production of milk and milk products. The balance of the document, sections 3-9, present only the principles involved, with full development of each section (i.e., explanatory narratives/objectives and guidelines for application as appropriate). The revised document is submitted to the Committee for its consideration.

The revised Proposed Draft Code of Hygienic Practice for Milk and Milk Products is attached as Appendix 1.

APPENDIX 1

PROPOSED DRAFT CODE OF HYGIENIC PRACTICE FOR MILK AND MILK PRODUCTS

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INTRODUCTION

International trade of milk based commodities is significant. The purpose of this Code is to provide guidance to ensure the safety of milk and milk products, with a view towards protecting consumers' health. The Code will also satisfy the food hygiene provisions in the Codex Alimentarius *Procedural Manual* under "Relations Between Commodity Committees and General Committees for use in the various dairy standards.

All foods have the potential to cause food borne illness, and milk and milk products are no exception. Milk and milk products are a rich and convenient source of nutrients for people in many countries, and implementing proper hygienic control is essential in ensuring the safety of these important foods. Dairy animals frequently carry human pathogens; the milking procedure and the subsequent pooling of milk provide an opportunity for contamination to occur while the composition of these foods makes them a good media for the outgrowth of pathogenic microorganisms. Therefore, implementing the proper hygienic control of milk and milk products is essential in ensuring the safety of these foods.

This document is formatted in accordance with the *Recommended International Code of Practice-General Principles of Food Hygiene*, CAC/RCP 1- 1969, Rev. 3, 1997. This Code presents both principles for the hygienic production of milk and milk products and combinations of validated control measures which, if properly applied from raw materials production through to points of consumption, allow an appropriate level of public health to be reached whatever the technology used. This Code takes into consideration, to the extent possible, the various production and processing procedures as well as the divergent characteristics of milk from various dairy animals used by member countries. It focuses on acceptable food safety outcomes achieved through the use of one or more food safety control measures, rather than mandating specific processes for individual products.

It is recognized that there are a variety of dairy production and manufacturing techniques worldwide and there are varying levels of risk with this variety of products. It is the purpose of this Code to provide guidance to countries so that their appropriate level of public health protection for milk and milk products may be achieved.

1 OBJECTIVES

The objective of this Code is to apply the recommendations of the *Recommended Code of Practice: General Principles of Food Hygiene* to the particular case of milk, milk products and composite milk products. It also provides guidance on how to achieve the general requirements contained in the hygiene sections of the Codex milk products standards.

2 SCOPE AND USE OF THE DOCUMENT

2.1 SCOPE

This Code applies to the production and processing of milk, milk products and composite milk products as defined in the *Draft General Standard for the Use of Dairy Terms*, ALINORM 99/11, Appendix II.

This Code applies to products in international trade. It can also serve as a basis for national legislation.

2.2 USE OF THE DOCUMENT

This document is to be used in combination with the *Recommended International Code of Practice-General Principles of Food Hygiene*, CAC/RCP 1- 1969, Rev. 3, 1997, since those general hygiene guidelines are prerequisite to the specific food hygiene guidelines given in this Code. The HACCP principles together with their Guidelines for Application annexed to the General Principles should also be used where appropriate. In accordance with the *Relations Between Commodity Committees, Food Hygiene* of the *Procedural Manual*, this Code will reference other Codex texts when they apply to the hygiene of milk and milk products.

This document consists of a series of principles and guidelines for the hygienic production of milk and milk products and guidelines on specific control measures. Principles of food hygiene applicable to all milk and milk products and to all phases of production and processing are given in Section 2.3. Principles and guidelines applicable to specific technical sections of the Code (e.g., primary production, control of operations) are given in the appropriate section.

Annexes, that are an integral part of this Code, are also employed. The Annexes include specific guidance on the areas of milk production for raw milk cheeses, milk production in small holder dairies and aspects relating to the processing of milk including preventative measures, hurdle technologies and microcidal treatments. These annexes provide technical detail and additional recommendations for different approaches to the production and processing of milk and milk products, explaining and illustrating how principles in the main body of the text may be met in practice. Thus, the *Recommended International Code of Practice-General Principles of Food Hygiene*, the main body of this Code and its annexes must be used together to obtain complete guidance on the hygienic production of milk and milk products.

2.3 PRINCIPLES APPLICABLE GENERALLY TO THE PRODUCTION OF MILK AND MILK PRODUCTS

This Code focuses on the use of acceptable practices for the hygienic production and processing of milk and milk products as achieved through the use of validated control measures.

Over-arching principles applicable to all milk and milk products are the following:

- Milk and milk products when presented to the consumer must be safe for human consumption.
- Different risks are associated with different products and their end uses and this should be considered when applying the provisions of this Code.
- From raw material production to the point of human consumption, the products covered by this Code should be subject to a combination of control measures, and these control measures should be shown to achieve the appropriate level of public health protection.
- Milk and milk products should be suitable for the intended purpose.
- Food hygiene control measures should be developed and used within the context of HACCP, as appropriate, as described in the Annex to the *Recommended International Code of Practice-General Principles of Food Hygiene*, CAC/RCP 1- 1969, Rev. 3, 1997.
- Food hygiene control measures and control measure combinations used in the production of milk and milk products should be validated to demonstrate that they are effective in achieving their intended purpose, including, as appropriate, the specified level of public health protection.
- All aspects of milk production and processing should be monitored to ensure that control measures have been effectively applied.

2.4 DEFINITIONS

[Aseptic Processing - Aseptic processing is a heating and direct fill packaging process which can be verified to assure that the product being aseptically processed is commercially sterile and will maintain commercial sterility under non-refrigerated conditions.]

Composite Milk Product - To be developed.

End Product - Food which is ready for sale.

Equivalent Sanitary Measure - Different sanitary measures which, when properly applied, result in end products which meet the same [Food Safety Objective] level of public health protection.

[Food Safety Objective] - To be developed.

Hurdle - Factor(s) that limit, retard or prevent microbial growth.

Hurdle Technology - The use of a combination of control factors to limit, retard or prevent microbial growth.

Milk - The normal mammary secretion of milking animals obtained from one or more milkings without either addition to it or extraction from it, intended for consumption as liquid milk or for further processing.

Milk Product - A product obtained from milk with the addition only of food additives, processing aids and other ingredients functionally necessary for the manufacturing process.

Pasteurization - To be developed.

Raw Milk - To be developed.

Stable - To be developed.]

[NOTE: As a framework document for consideration by the 32nd Session of CCFH, only key principles are given for Sections 3 – 10. Each section, including the reasons for principles, guidelines for their application and annexes will be further developed.]

3 PRIMARY PRODUCTION

These principles and guidelines are supplemental to those set forth in Section 3 of the *Recommended International Code of Practice-General Principles of Food Hygiene*, CAC/RCP 1 - 1969, Rev. 3, 1997 and to the general principles presented in Section 2.3 above. Details on specific approaches to the production of milk are given in Annexes [to be developed]; these annexes are an integral part of the Code and are intended to be used in conjunction with information presented in this Section.

PRINCIPLES APPLICABLE GENERALLY TO THE PRIMARY PRODUCTION OF MILK

- Control measures employed at the primary production level for the production of milk should result in a safe and suitable raw material for further processing.
- Good agricultural practices and good hygienic practices do apply and should be practiced.
- Recognizing that there are practical limitations to the use of HACCP in milk production, the controls necessary in milk production and their stringency should be determined by the manufacturers hazard analysis, where appropriate.

3.1 ENVIRONMENTAL HYGIENE

Appropriate surface and ground water controls should be in place to minimize the levels of pesticide residues and other chemical contaminants, pathogenic microorganisms and parasites in water used to wash the udders of milking animals prior to milking, as well as that used to rinse, clean or disinfect milking equipment, storage equipment and other product contact surfaces.

Precautions should be adopted to ensure that milking animals do not consume or have access to contaminated water or other environmental contaminants likely to cause disease or contaminate milk.

3.2 HYGIENIC PRODUCTION OF RAW MILK

3.2.1 Premises for milk production

With consideration given to the end use of the milk, premises for the production of milk used within the scope of this Code should be maintained in a manner that will minimize or prevent the contamination of raw materials.

3.2.1.1 *Animal holding areas*

Animal holding areas should not adversely affect the health of animals.

Diseased animals or herds should be isolated to prevent the transmission of disease to healthy animals.

Holding areas should be kept clean and maintained in a manner that does not result in an unacceptable health risk to the consumer.

3.2.1.2 *Milking areas and related facilities*

Premises where milking is performed should be situated and constructed in a manner that will minimize or prevent the contamination of milk.

Premises where milking is performed should be easy to clean and maintained in a manner that will minimize or prevent the contamination of milk.

3.2.2 Animal Health

With consideration given to the end use of the milk, the health of milking animals should be maintained in a manner that does not result in an unacceptable health risk to the consumer.

Milk from diseased animals should not be used for human consumption.

With consideration given to the end use of the milk, particularly for milk used in the production of raw milk products, it may be necessary to employ individual animal identification tags and to keep permanent records of specific treatments given to individual animals.

3.2.3 General Hygienic Practice

3.2.3.1 *Feeding*

Forage, feed and fodder for the milking of animals should not present a risk of transferring, directly or indirectly, residues of pesticides, toxins or any other agent used in the production of feedstuffs to the milk in amounts that present a health risk to the consumer.

With consideration given to the end use of the milk, particularly for milk used in the production of raw milk products, the ensilage treatment, if used, should be controlled to ensure that it does not result in an unacceptable health risk to the consumer.

3.2.3.2 *Vermin*

Vermin should be controlled and in a way that does not result in residues, such as pesticides, in the milk.

3.2.3.3 *Veterinary Drugs*

Milk from animals which have been treated with antibiotics or other veterinary drugs which can be transferred to the milk should not be used until the withdrawal period specified for the drug in question has been achieved.

3.2.4 Hygienic milking practice

3.2.4.1 *Hygienic milking*

With consideration given to the end use of milk, milking should be carried out in such a manner that will minimize the contamination of the milk being produced.

3.2.4.2 *Cleaning and disinfection of milking equipment*

Milking equipment, utensils and storage tanks should be thoroughly cleaned and disinfected following each milking.

Water used for cleaning of milking equipment should be appropriate for its purpose, such that it will not result in contamination of milk.

3.2.4.3 *Personal Hygiene of milking personnel*

Milking should not be performed, nor should milk be handled, by persons known to be a carrier of a disease or illness that may be transferred through the milk.

3.3 HANDLING, STORAGE AND TRANSPORT OF MILK

3.3.1 Milking equipment

Milking equipment should be installed and tested in accordance with manufacturer's instructions and in accord with appropriate technical standards.

There should be a periodic verification process to ensure that milking equipment is in good working condition.

Milking equipment and utensils which are intended to come into contact with milk (e.g., containers, tanks, etc.) should be easy to clean and disinfect, corrosion resistant and not capable of transferring substances to milk in such quantities as to present a health risk to the consumer.

3.3.2 Storage Equipment

Milk storage tanks and cans should be so designed to ensure complete drainage and constructed to avoid contamination of the milk.

Surfaces of milk storage tanks, cans and associated equipment intended to come into contact with milk should be easy to clean and disinfect, corrosion resistant and not capable of transferring substances to milk in quantities that will present a health risk to the consumer.

Milk tanks and cans should not be used to store any harmful substance. If milk storage tanks and cans are used to store foods other than milk, precautions should be taken to prevent any subsequent milk contamination.

Storage tanks and cans should be cleaned and disinfected as necessary to minimize or prevent contamination of milk.

3.3.3 Premises for, and storage of, raw milk and milking-related equipment

Premises for the storage of milk should be situated and constructed to avoid risk of contamination of milk or equipment.

Milk should be stored in properly designed and maintained tanks or cans.

Storage temperatures and times should be such that deterioration and spoilage of milk does not occur.

With consideration given to the end use of the milk, particularly for milk used in the production of raw milk products, special cooling requirements may be necessary to ensure that products do not present an unacceptable risk to the consumer.

3.3.4 Collection Procedures

Access to the place of collection should be adequate for the suitable hygienic handling of milk.

Individuals collecting milk should ensure, prior to collection, that individual producer milk does not present obvious indications of spoilage or deterioration.

Milk should be transferred under hygienic conditions to avoid contamination of milk.

Collection centers, if employed, should be designed and operated in such a manner that minimizes or prevents the contamination of milk.

3.3.5 Transport equipment

Milk transport tankers and cans should be designed and constructed to ensure complete drainage to avoid contamination of the milk.

Surfaces of milk transport tankers, cans and associated equipment intended to come into contact with milk should be easy to clean and disinfect, corrosion resistant and not capable of transferring substances to the milk in such quantities as to present a health risk to the consumer.

Milk transport tankers and cans should not be used to transport any harmful substance. If milk transport tanks and cans are used to transport foods other than milk, precautions should be taken to prevent any subsequent milk contamination.

For milk tankers used for the transport of whey (lactoserum), precautions should be taken to avoid contamination of subsequent loads of raw milk by bacteriophages.

3.3.6 Transport time and temperature

Transport temperature and time should be such that milk is transported to the dairy or to the collection center without unnecessary delay and under conditions that prevent deterioration or spoilage of the milk.

3.3.7 Cleaning and disinfection of shipping containers

Milk cans and transport tankers (including the raw milk discharge area, valves, etc.) should be cleaned and disinfected whenever necessary to minimize or prevent contamination of milk.

3.3.8 Milk hauler (tanker driver or individual responsible for transport)

The milk hauler should receive adequate training in the hygienic handling of raw milk.

3.3.8.1 Personal hygiene

Milk haulers should wear clean clothing and not have infectious or contagious diseases that would present a risk of contaminating milk.

3.3.8.2 Behavior at the farm

Milk haulers should perform their duties in a sanitary manner so that their activities will not result in contamination of milk.

3.3.8.3 Behavior when discharging the tanker

Milk haulers should not engage in practices which would lead to the contamination of milk or to the contamination of dairy processing areas.

3.4 REGULATORY CONTROLS

Appropriate regulatory controls should be employed to ensure the safe production of milk and milk products.

With consideration given to end use of the milk, particularly with regard to the production of raw milk products, specific enhanced regulatory controls may be necessary to ensure that products do not present an unacceptable health risk to the consumer.

4 ESTABLISHMENT: DESIGN AND FACILITIES

These principles and guidelines are supplemental to those set forth in Section 4 of the *Recommended International Code of Practice-General Principles of Food Hygiene*, CAC/RCP 1 - 1969, Rev. 3, 1997 and to the general principles presented in Section 2.3 above.

4.3 EQUIPMENT

Equipment should be designed and installed such that dead ends or dead spots in sanitary piping do not occur.

5 CONTROL OF OPERATION

These principles and guidelines are supplemental to those set forth in Section 5 of the *Recommended International Code of Practice-General Principles of Food Hygiene*, CAC/RCP 1 - 1969, Rev. 3, 1997 and to the general principles presented in Section 2.3 above. Details on specific approaches to the control of food hazards are given in Annexes [to be developed]. These annexes are an integral part of the Code and are intended to be used in conjunction with the information presented in this section.

5.1 CONTROL OF FOOD HAZARDS

Food safety hazards that can enter the processing facility by way of raw materials or those that can be introduced into the processing environment should be properly identified and controlled so that products will obtain an acceptable level of protection.

Control measures and control measure combinations used in the control of food hazards should be developed, validated, implemented and maintained within the context of HACCP principles, where appropriate.

5.2 KEY ASPECTS OF HYGIENE CONTROL SYSTEMS

5.2.1 Temperature Control

Raw milk, intermediate products and end products covered by this code should be stored at appropriate temperatures and for appropriate times that will prevent the development of a food safety hazard.

5.2.2 Food Safety Control Measures

Control measures should be implemented in the manufacturing of products covered by this code which will prevent, eliminate or reduce to acceptable levels, hazards that are reasonably likely to occur.

Microbiological as well as chemical and physical hazards should be considered during the hazard analysis including the impact that primary production conditions have on the potential for hazards to be present in raw milk.

Detailed information on these control measures, and how they can be effectively implemented in dairy product manufacturing, is provided in the Annexes of this Code.

5.2.3 Microbiological and Other Specifications

Microbiological criteria used to verify the effective application of control measures within the framework of HACCP principles should be developed in accordance with the *Draft Revised Principles for the Establishment and Application of Microbiological Criteria for Foods*, CAC/GL 21-1997, including the use of a risk assessment approach as specified in the *Principles and Guidelines for the Conduct of Microbiological Risk Assessment* (ALINORM 99/13A, Appendix II).

5.2.3.1 Raw milk

The raw milk used for the manufacture of products covered by this Code should be evaluated based on sampling of milk from individual farms or milk collection centers.

Upon receiving, the milk should be subject to olfactory and visual inspection, as well as other measurements (e.g., temperature) to detect unacceptable conditions.

Depending upon the end use of the milk, particularly for milk used in the production of raw milk products, certain specific microbiological criteria may be necessary to ensure the product does not present an unacceptable health risk to the consumer.

5.2.3.2 Microbiological end product specifications

Any necessary finished product microbiological criteria should be established in accordance with the *Revised Principles for the Establishment and Application of Microbiological Criteria for Foods*, CAC/GL 21-1997, including the use of a risk assessment approach as specified in the *Principles and Guidelines for the Conduct of Microbiological Risk Assessment* (ALINORM 99/13A, Appendix II).

Depending upon the treatment(s) given to the milk used in the product's manufacture, end product microbiological criteria may be necessary to ensure the product does not present an unacceptable health risk to the consumer.

5.2.4 Microbiological cross contamination

Effective measures should be taken to prevent contamination of products and intermediates from the processing environments or contact with materials from an earlier stage of the process.

The following basic principles should be used to assist in the prevention of microbiological cross contamination of milk and milk products:

- the flow forward in time and space principle: the flow of the product and of the ingredients should maintain a forward progression from raw material receipt to finished product packaging;
- the absence of crossing principle: the flow of contaminating materials should not cross the flow of materials that should not be contaminated. For example, the flow of the following elements: water, air, effluents, and raw milk, should be carefully evaluated for suitability. The same principle should be strictly applied to personnel flow;
- the partition principle: there should be adequate separation of areas with different levels of contamination risk; and
- returned milk products should be well segregated and stored in a clearly designated area.

Where there is a risk of cross-contamination between end products and raw materials or intermediate products, and from contaminated areas such as construction and rebuilding areas, consideration should be given to a physical separation, such as by the application of barrier hygiene and wet/dry area segregation.

5.2.5 Physical and chemical contamination

Raw milk should be excluded from processing if it contains residues of substances in amounts that may present a risk to human health.

5.3 INCOMING MATERIAL REQUIREMENTS

With consideration given to the end use of the incoming raw materials, raw materials should not present an unacceptable risk to the consumer.

5.4 PACKAGING

Operations involving packaging of milk and milk products should be done following sanitary practices and should not result in contamination of the product.

5.5 WATER

The reuse of water (including reclaimed and recycled water) should follow the recommendations presented in the *Guidelines for the Hygienic Reuse of Water (Including Reclaimed Water) in Food Manufacturing Plants*. [Provision included with the understanding that this document is currently under consideration by CCFH and will be adopted by the Commission.]

6 ESTABLISHMENT: MAINTENANCE AND SANITATION

These principles and guidelines are supplemental to those set forth in Section 6 of the *Recommended International Code of Practice-General Principles of Food Hygiene*, CAC/RCP 1 - 1969, Rev. 3, 1997.

6.1 MAINTENANCE AND CLEANING

Processing areas should be kept as dry as possible.

Whenever possible, wet cleaning should not be used during the processing of milk products in areas in which product is exposed and can be contaminated by aerosols.

Care should be taken to adequately clean all product contact surfaces in sanitary piping and equipment, including difficult to clean areas such as by-pass valves, sample cocks, and overflow siphons in fillers.

6.2 CLEANING PROGRAMES

All equipment and utensils used in processing should, as necessary, be cleaned and disinfected, rinsed with potable water unless it is shown that the disinfectants used in accordance with manufacturer's instructions do not present a health risk to the consumer, then drained and dried where appropriate.

A routine program to verify the adequacy of cleaning should be in place.

7 ESTABLISHMENT: PERSONAL HYGIENE

No specific requirements beyond those made in the *Recommended International Code of Practice-General Principles of Food Hygiene*, CAC/RCP 1 - 1969, Rev. 3, 1997 are needed.

8 TRANSPORTATION

These principles and guidelines are supplemental to those set forth in Section 8 of the *Recommended International Code of Practice-General Principles of Food Hygiene*, CAC/RCP 1 - 1969, Rev. 3, 1997 and , as appropriate, those set forth in *Code of Hygienic Practice for the Transport of Foodstuffs in Bulk and Semi-Packed Foodstuffs*. [The reference to the Bulk Transport Code is included with the understanding that this document is currently under consideration by CCFH and will be adopted by the Commission.]

8.2 REQUIREMENTS

Products covered under this Code should be transported at temperatures that will not adversely affect the safety of the product or result in product deterioration or spoilage.

8.3 USE AND MAINTENANCE

In the case of chilled products, the vehicle product compartment should be cooled prior to loading and the product compartment should be kept at an appropriate temperature at all times, including during unloading.

9 PRODUCT INFORMATION AND CONSUMER AWARENESS

These principles and guidelines are supplemental to those set forth in Section 9 of the *Recommended International Code of Practice-General Principles of Food Hygiene*, CAC/RCP 1 - 1969, Rev. 3, 1997.

9.3 LABELING

Labels should conform to relevant Codex texts and/or to the requirements of the official agency having jurisdiction.

Unless the product is shelf stable, a statement regarding the need for refrigeration or freezing should be included on the label of the product.

10 TRAINING

No specific requirements beyond those made in the *Recommended International Code of Practice-General Principles of Food Hygiene*, CAC/RCP 1 - 1969, Rev. 3, 1997 are needed.

ANNEXES

The following annexes are intended to be an integral part of this Code. These annexes provide technical detail and examples for different specific approaches to the production and processing of milk and milk products. When these annexes are used in conjunction with the principles appearing in the main body of this Code and the recommendations presented in the *Recommended International Code of Practice: General Principles for Food Hygiene*, CAC/RCP 1- 1969, Rev. 3, 1997, comprehensive guidance for the safe production and processing of milk and milk products is provided.

[Annexes to be developed.]