SAFOSO

Animal Health Matters.
For Safe Food Solutions.

Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra

Swiss Confederation

Federal Department of Economic Affairs,
Education and Research EAER
State Secretariat for Economic Affairs SECO

Establishment of a risk-based food safety control system in the dairy value chain in Ukraine

Activity 3.1.1.2

Training of Trainers (ToT), focus: transporters and MCP

Equipment cleaning and disinfection, disinsection and deratization

20-22.02.2017

Legislative aspects of national requirements

Market operators involved in primary production of livestock products:

- keep the equipment, utensils and transport clean through cleaning, washing and disinfection;
- take effective pest control measures.

Requirements of the Law of Ukraine “On the main principles and requirements to food safety and quality”

Legislative aspects of national requirements

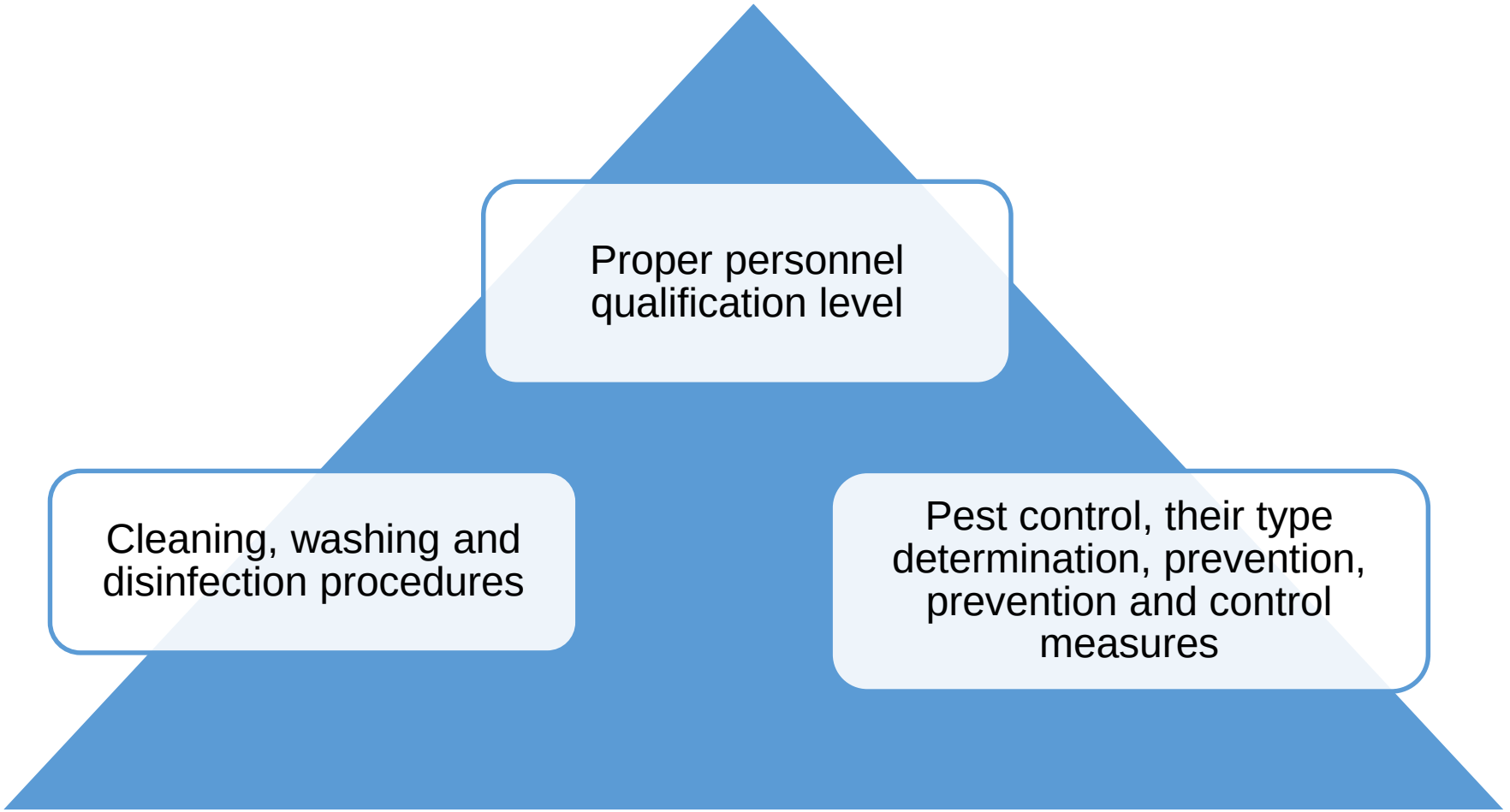
Hygienic requirements to equipment and utensils:

- clean and disinfected, if necessary. They are cleaned and disinfected in the way to protect from the risk of contamination;

- made of materials and kept in the appropriate state and conditions that reduce the risk of contamination and allow its cleaning and disinfection.

If chemical substances are used to prevent equipment and container corrosion, they must be used according to the Good Manufacturing Practice.

Prerequisite programs for HACCP



Legislative aspects of European requirements

Requirements to premises and equipment

- Milking equipment, and premises where milk is stored, handled or cooled must be located and constructed so as to limit the risk of contamination of milk
- Premises for the storage of milk must be protected against vermin, have adequate separation from premises where animals are housed and, where necessary to meet the requirements laid down in Part B, have suitable refrigeration equipment
- Surfaces of equipment that are intended to come into contact with milk (utensils, containers, tanks, etc. intended for milking, collection or transport) must be easy to clean and, where necessary, disinfect and be maintained in a sound condition.
- After use, such surfaces must be cleaned and, where necessary, disinfected. After each journey, or after each series of journeys when the period of time between unloading and the following loading is very short, but in all cases at least once a day, containers and tanks used for the transport of raw milk must be cleaned and disinfected in an appropriate manner before re-use

REGULATION (EC) No 853/2004 laying down specific hygiene rules on the hygiene of foodstuffs

Why are equipment cleaning and disinfecting an important aspect in obtaining quality milk?

Dirt	encourages pathogenic microorganism development
Chemical residues	influence milk quality and properties
Unsatisfactory sanitary state of premises and equipment	attracts pests (insects, rodents)

Equipment cleaning and disinfection

Cleaning and washing mean the process of removing dirt from equipment surfaces, usually with the help of brushes or water (under pressure)

Disinfection **(surface disinfection)** is a process of removing pathogenic microorganisms from the equipment surfaces.

Stages:

- ❑ mechanical cleaning (cleaning);
- ❑ washing (running water, hot water, detergents);
- ❑ disinfection (thermal or chemical process).

Factors that influence the quality of washing and disinfecting equipment, utensils and vessels

1. State of treated surface	*Physical state of surface (polished, smooth, porous, etc.), i.e. its ability to retain contamination on the surface*
2. Water quality, in particular its hardness	*Quantity of accumulated mineral substances, including insoluble salts, on the surface of equipment, utensils and vessels*
3. Type and concentration of the detergent	*Ability of detergent and its concentration to destroy accumulated dirt.* *Also economic factor*
3. Working solution temperature	*Effectiveness and time for the process improve if the proper temperature regime is selected.* *Choice of temperature regime of sanitary treatment depends on the type of detergent, way of washing and physical state of equipment surface.*

Factors that influence disinfection quality

1. Solution concentration and temperature	*Directly depends on the chosen disinfectant*
2. Antibacterial properties of the disinfectant	*Disinfectant's ability to influence viability of microorganisms and biological properties of microorganisms*
3. Exposal – time during which the solution comes in contact with microorganisms	*Depends on concentration and temperature of the solution – the higher are these indicators, the less time is necessary for destruction of microorganisms;*
4. Costs (price)	*Economic factors*

General requirement to equipment cleaning and disinfection

- mechanical cleaning of equipment surfaces;
- rinsing;
- external surfaces are cleaned first;
- before cleaning internal surfaces all dismountable parts and separate parts that come in contact with milk - rings, hatches, caps, etc.;
- proper treatment time must be observed during washing and disinfection;
- after all the processes are finished, the surface should be dried.

Before the beginning of operation all parts and dismountable parts must be stored disassembled and in proper state of cleanliness. They are assembled immediately before operation.

Disinfection

- After cleaning and washing there are still microorganisms on the equipment and utensils.

First cleaning, then disinfection!

- Two methods:
  1. Disinfection with high temperature.
  2. Chemical disinfection.

Disinfection with high temperature

Hot water

- Effective, affordable, inexpensive and nontoxic method;
- Spores may survive even after 1-hour boiling;
- High energy consumption

Steam:

- Good method of equipment disinfection;
- Limited scope of use;
- Hard to control exposure.

Chemical disinfection

Detergent with disinfectant effect

Acid-based products

Alkaline products

The products must be allowed for use in food industry

Strict observance of instructions and guidelines.

Intended application

Criteria for selecting disinfectants

- ✓spectrum of action for different microorganisms
- ✓ dependence on water hardness, water quality in general
- ✓ duration and persistence of antibacterial properties
- ✓ method of preparation and use
- ✓ shelf life
- ✓ impact on equipment surface
- ✓ exposure
- ✓ control of effectiveness
- ✓ economic indicator (cost)

Frequency of equipment cleaning and disinfection

All milk equipment (milking machines, coolers, storage vessels, pumps, milk lines, including small utilities (buckets, milk buckets, filters) must be cleaned and disinfected after the production process is over.

During sanitary treatment of milking machines the collectors must be disassembled and manually washed once a day. Between milking, milking machines and vacuum tubes are connected directly to a washing device or a special rack. Milking machines and milk utensils must not be stored in cow barns.

Reservoirs for milk collection, cooling and storage shall be washed immediately after emptying.

Milk equipment treatment includes the following subsequent measures:

- ✓ mechanical cleaning and preliminary rinsing with warm water - the remaining milk is removed
- ✓ washing with detergent solution - protein-fatty film is removed
- ✓ disinfection for destroying pathogenic microflora and reducing TBC;
- ✓ acid treatment for removing milk stone, if necessary;
- ✓ Final rinsing of detergent and disinfectant residues with running water.

<u>After final rinsing detergent, disinfectant or acid solution residues are detected using indicator papers. If necessary, rinsing is repeated.</u>

Documents

The following documents and records are required:

Procedures and instructions for washing and disinfection with a detailed step-by-step description;

Instructions and guidelines on solution preparation;

Schedule of washing and disinfection of equipment and utensils with indication the frequency; (defining the frequency of an type of cleaning, washing and disinfection based on risk assessment);

Periodic control of cleaning quality and frequency (test kits, laboratory tests of wipe samples from surfaces).

Effectiveness monitoring

Regular checks before operation and in its process.

Recording observations

Checks may include visual inspection, use of analytical methods, for example, express methods or laboratory test of wipes from surfaces to assess the level of microbial contamination

Revising procedures if the monitoring shows potential problems

Pest control

What is pest control?

Pest control is a number of measures aimed at controlling development and spread of different types of insects/animals. It includes disinsection and deratization.

The pest control plan is elaborated individually with the account of local peculiarities, climate, flora and fauna of pests!!!

The list of pest types, risk assessment and pest population control measures shall be established for each structural unit and the farm in general.

What is disinsection?

Disinsection is a set of measures for extermination and population control of insects (cockroaches, ants, mosquitos, flies, etc.) which have epidemiologic and sanitary and hygienic importance.

There are 3 main methods of disinsection:

1. Physical method: uses mechanical means as well as high temperatures.

Mechanical method: conventional methods of collection – vacuum cleaner and shaking out, using various traps, fly strips, window meshes.

Thermal method: flame, dry and wet hot air, steam and hot water.

2. Biological method: use of natural enemies.

3. Chemical method is based on using insecticides or poison.

What is deratization?

Deratization is a set of measures aimed at rodent control based on the data on ecology and animal behaviour with the account of a certain situation at facility or in the community.

Deratization measures are of two types:

1. Preventive measures which are aimed at creating the conditions which complicate or prevent rodents penetration and colonization in different buildings and near them as well as prevent their access to food products. This control method changes environment conditions into those unfavourable for rodents.

2. Extermination measures include constant extermination of rodents which pose epidemiological threat.

Extermination methods include:

Biological: use of rodents' natural enemies - birds and animals as well as biological species safe for people but fatal for rodents.

Physical: catching rodents using various mechanical devices.

Chemical: use of various poisonous substances.

Pest control plan

Visual or instrumental examination during which pest type, its expansion level and threat of its appearance are established as well as possible penetration and movement channels, places of habitat, feeding and breeding.

Elaborating special recommendations for the given territory and buildings on pest protection measures with indication of the scope and time frames.

Pest monitoring in the place of its penetration and possible habitat using special detection devices, keeping the detection network ready and assessment of pest population, ecological phase of its development and movements.

Pest control plan

The plan includes:

territory and premises layout where the location of control and extermination devices is marked;

state of territory and premises, assessment of possible pest penetration channels;

documents, instructions and guidelines with regard to control measures;

control of the effectiveness of protective measures in operating state;

observance (monitoring) of the population and location of pest varieties, improving and developing prevention and extermination measures;

objective data on the state and results of accounting and checks with analytical conclusions and proposals on the perspectives of organizing and taking further measures;

data analysis and corrective measures.

Pest control

What?

- *Checking the enterprise for the traces of pests, attractive places for pests, preventive measures (protecting open places, windows, etc.), traps for rodents*

How?

- *Visually*

When?

- *Daily*

Who?

- Responsible personnel

Pest control plan

The plan includes:

territory and premises layout where the location of control and extermination devices is marked;

state of territory and premises, assessment of possible pest penetration channels;

documents, instructions and guidelines with regard to control measures;

control of the effectiveness of protective measures in operating state;

observance (monitoring) of the population and location of pest varieties, improving and developing prevention and extermination measures;

objective data on the state and results of accounting and checks with analytical conclusions and proposals on the perspectives of organizing and taking further measures;

data analysis and corrective measures.

Pest control plan

Corrective measures:

urgent repair of protective equipment and liquidation of places which can attract pests; rodent extermination.

Records:

- All actions and observations
- Scheme of location of poisonous baits and traps for rodents.
- agreement with a licensed company
- Disinsection and deratization control card

Verification

- Review of control plan

SAFOSO

Animal Health Matters.
For Safe Food Solutions.

Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra

Swiss Confederation

Federal Department of Economic Affairs,
Education and Research EAER
State Secretariat for Economic Affairs SECO

Thank you for attention