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

MILK TRANSPORTATION. Best practices

Kyiv, 20-22.02.2017

National transportation rules

INDUSTRY STANDARD OF UKRAINE. COW WHOLE MILK. PRIMARY TREATMENT, STORAGE AND TRANSPORATION. MAIN REQUIREMENTS DSTU 46.069-2003

5.5.2 Milk shall be transported in tank trucks pursuant to GOST 9218 or in churns pursuant to GOST 5037. Milk tank trucks and churns must be tightly closed with side-sealed caps with seals made of food grade rubber and sealed.

5.5.3 Tank trucks aimed at milk transportation must have sanitary passports.

5.5.4 Before loading in tanks milk must be thoroughly mixed.

5.5.5 In addition to a waybill, each milk lot sent by the producer to the dairy processing plant or in free distribution must be accompanied with a quality certificate.

5.5.6 During transportation in churns truck bodies must be clean and free of any foreign smells. The churns must be covered with the protective material to protect milk from freezing in cold weather and heating in hot weather.

5.5.7 While leaving the enterprise the milk temperature shall not exceed 6 ºC, and after arrival at the processing plant it shall not exceed 8 ºC. The time of acceptance at the dairy processing plant shall not exceed 45 minutes.

National rules

Order No 363 "On approving road transportation rules in Ukraine" dated 14.10.97

5.6.2. Milk shall be transported **in bulk** in special tank trucks or **non-bulk** in refrigerated vehicles, panel trucks or drop-side trucks covering the cargo with a canvas cover.

All the vehicles must have sanitary passports issued by the territory sanitary and epidemiology service for the period of not exceeding 6 months and the driver must have a personal health book.

25.6.11. While transporting milk from dairy processing plants in bulk the consignor must:

- **remove seals;**
- **connect and disconnect loading chutes to tanks;**
- **fill the tanks;**
- **seal lids and drain pipes of tanks.**

CANCELLED

National rules

25.6.12. **The consignee (dairy processing plant) must:**

- check the availability and intactness of consignor's seals on tank lids and drain pipes;

- remove seals;

- wash and disinfect tanks inside and outside after emptying them;

- seal tank lids;

- indicate the time of sanitary treatment in sanitary treatment passport;

- warm up drain taps and pipes with hot water and steam.

CANCELLED

New requirements to food transportation hygiene

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

Article 43. Hygienic requirements to movable and/or temporary facilities

1. Movable and/or temporary facilities(trade tents, kiosks, stalls, moving vehicles) have to comply with the following requirements:

1) they must be kept clean and in proper state;
2) they must provide protection from any contamination, in particular, pests;
3) they must be equipped with personal hygiene means;
4) the surfaces (including equipment surfaces) that come in contact with food products must be kept undamaged, easily cleaned and disinfected, made of smooth, stainless, nontoxic and washable materials;
5) they must have hot and/or cold drinking water supply in necessary quantities;
6) they must have proper means for hygienic storage of hazardous and/or inedible substances and wastes (liquid or solid) as well as means for their storage and further handling and/or they must have an agreement with a third company for their utilization (destruction);
7) they must have proper means for temperature regulation and control which is necessary for food storing;
8) they must ensure such placement of food products as to minimize the risk of their contamination.

New requirements to food transportation hygiene

Article 44. Hygienic requirements to vehicles

1. Market operators shall use only the vehicles which comply with the following requirements:

1) vehicles and/or containers used for food transportation **shall be clean, kept in proper state which ensures protection of food from contamination and have the structure which allows their proper cleaning and/or disinfection;**

2) if use of vehicles and/or containers for transportation of non-food products can lead to contamination of food products for transportation of which they can be used afterwards, they must be used for food transportation only;

3) if vehicles and/or containers are used for simultaneous transportation of food and non-food products or if different food products are transported simultaneously in the said vehicles, the said products must be separated in such a way as to prevent their contamination. To avoid the risk of contamination the said vehicles and/or containers must be properly cleaned before each loading;

4) **liquid,** granular and powder food products must be transported in the vessels and/or containers/tankers **designed exclusively for food product transportation.** The said vessels and/or containers/tankers **must be clearly labelled in the state language that they are used exclusively for food product transportation or with the inscription “only for food products";**

5) **food products shall be placed in the vehicles and/or containers in the way as to minimize the risk of their contamination.**

EU RULES

Regulation EU 853/2004

2. Immediately after milking, milk or colostrum must be held in a clean place designed and equipped to avoid contamination.

a) Milk must be cooled immediately **to not more than 8 °C** in the case of daily **collection, or not more than 6 °C if collection is not daily.**

b) Colostrum must be held separately and cooled immediately to not more than 8 °C in the case of daily collection, or not more than 6 °C if collection is not daily, or **frozen.**

3. **During transport the cold chain must be maintained and, on arrival at the establishment of destination, the temperature of the milk must not be more than 10 °C**.

EU RULES

Regulation EU 853/2004

4. Food business operators **need not comply with the temperature requirements laid down in points 2 and 3** if the milk meets the criteria provided for in Part III and either:

a) **the milk is processed within two hours of milking**, or

b) **a higher temperature is necessary for technological reasons** related to the manufacture of certain dairy products and **the competent authority so authorizes.**

EU RULES

Regulation EU 853/2004

3. Surfaces of equipment that come into contact with milk and colostrum (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. This requires the use of smooth, washable and non-toxic materials.

4. 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.

Better and/or best practices

- **Better practices are always an extension of the existing legislation established for everyone.**
- **Better practices are an achievement and know-how of market operators the effectiveness of which is officially recognized by the state (competent authority).**
- **Better practices are a goal which is strived for and not an obligatory requirement of a competent authority.**
- **Best practices are an achievement which decreases state control load.**

Basic practices of dairy product transportation

Dairy products are classified as perishable products. Their transportation is not an easy task and it can be performed only by professional carriers. They must ensure intactness of the products transported.

Dairy products*: raw milk, drinking milk, raw cream, drinking cream, liquid fermented milk products, cheese products, cheese, butter paste, butter, sour cream and other sour cream based products. They also include cheese products, tinned milk, ice cream mixtures, ice cream, by-products received as a result of milk processing, milk-based baby food, butter and vegetable oil mixture, butter and vegetable oil spreads, etc.*

Basic practices of milk transportation

- **Milk can be transported in bulk and non-bulk.**
- **The second option envisages special trucks – tank trucks. Dairy products are delivered only in a non-bulk way. Milk from auxiliary dairy plants can be transported in tank trucks if its acidity is not more than 19ºT.**
- **From April to September the milk temperature shall not exceed +6ºC, in other months it must be up to +2 ºC. The milk delivered from municipal dairy plants to retail chains and public catering facilities can have the temperature of +8 ºC. Milk acidity and temperature must be indicated by the supplier in the waybill.**

Basic practices of fermented product transportation

- **The recommended temperature for fermented product transportation shall not exceed +2-4ºC. To avoid heating during loading the special vehicle temperature shall not exceed +4ºC. Dairy products shall be located in the truck bed in such a way as to exclude possible movement of pallets along the truck bed during journey.**

Basic practices of raw milk transportation

- **Raw milk or colostrum is loaded in special tanks, containers, reservoirs or other vessels (hereinafter referred to as vessels) if there is no contamination. The vessels used for milk and colostrum transportation cannot be used for transportation of other products or substances.**
- **During transportation the cold chain must be maintained and, on arrival at the establishment of destination, the temperature of the milk and colostrum must not be more than 10 °C**

Basic requirements to vehicles that transport raw milk

- **Internal surfaces of vessels must be made of non-toxic materials allowed to contact milk, they must be easy to clean, wash and disinfect.**
- **The vessel structure must allow tight closing of openings which prevents leaking, foreign object or smell ingression and unauthorized penetration (locks, seals, etc.).**
- **External surface of the vehicle must be easy to wash, smooth and resistant to moisture accumulation and leaking.**

Basic requirements to vehicles that transport raw milk

Source: http://mazsz.ru, http://gazelnekst.ru/molokovoz.html

Basic requirements to vehicles that transport raw milk

- **The vehicles must be constructed in such a way as to avoid milk and colostrum contamination, they shall not absorb smells and have ventilation system for milk sections.**
- **During transportation milk and colostrum must be protected from the environment and dust pollution.**

Basic requirements to vehicles that transport raw milk

- **The vehicles must be equipped with cooling and temperature control systems, including when the vehicle is fully loaded. During transportation to the distances that allow maintaining the temperature within the required limits, thermally insulated vessels without cooling systems can be used.**
- **The vessels aimed at raw milk and colostrum transportation must be washed and disinfected after each complete unloading.**

Basic requirements to market operators that transport raw milk

- **Market operators that only transport milk and colostrum must be registered according to the Law of Ukraine "On the main principles and requirements to food safety and quality" and meet the national requirements.**
- ***Market operators, including those that only transport milk, must initiate the procedures to prevent raw milk or colostrum placing at the market, if:***

- it contains residues of antibiotics and/or other substances in the amounts exceeding the legislatively permitted levels with regard to content and/or concentration of which legislative restrictions exist;

- total content of antibiotic residues exceeds the maximum permissible value for the detected substances.

Best practices

Best practices that are achievements and know-how of market operators, except for qualitative and safety objectives, aim at creating certain conditions and barriers for shaping a trend among suppliers and consumers.

As a rule, those who use the highest industry standards – best manufacturing practices get higher prices for their products selling them to processing plants or final consumers (except for raw milk).

Best practices of receiving milk in EU

...Automatic milking parlours.

Annex III, Section IX, Chapter I, Part II, Cl. B, Sub-Cl. 1 (b) of Regulation (EU) № 853/2004 establishes that milk from each animal must be “checked for organoleptic or physico-chemical properties by the market operator or a method achieving similar results".

Traditionally a market operator checks milk from each cow through visual inspection. Other methods of achieving similar results may be used.

Best practices of receiving milk in EU

... Automatic milking parlours.

Other methods are necessary if milking is performed using a fully automated milking parlour. In particular, it would be a good practice, if the automatic milking parlor could have a possibility to automatically detect the milk with deviation of properties from the standard and separate it from the milk aimed at human consumption. Internationally recognized ISO standard on the requirements to milking parlours has been elaborated and includes the methods used for checking organoleptic or physico-chemical abnormalities in milk (ISO 20966:2007).

Best international practices of milk transportation

The best practice for milk transportation nowadays is use of satellite radio-navigational systems. They ensure centralized monitoring and control of a number of truck systems (t°C, pressure, speed, time of arrival at the enterprise, etc.)

The best practice is also use of milk tank trucks with the automatic cooling and temperature control system.

The best practice of production control is use of automatic sampling systems which take samples from the milk flow.

Best practices of receiving milk in large-scale holdings

The best practices include:

Special equipment with automatic recording system for recording milk deviations from the standard.

Compliance with the highest standards of animal protection against cruelty and animal welfare.

Keeping records and proving the transparency of traceability.

Ensuring the compete set of measures with regard to veterinary residues and other contaminants in milk.

The highest hygiene level when receiving milk.

Source: http://www.sacmilking.ru/blogs/blog/elochka_SAC115_modernisatsya_bryansk

Best practices of receiving milk in small-scale holdings

Source: http://www.topixagro.com/news/vybor-doilnogo-oborudovaniya-sem-raz-otmer-odin-raz-otrezh

The best practices include:

Special equipment with automatic recording system for recording milk deviations from the standard.

Compliance with the highest standards of animal protection against cruelty and animal welfare.

Keeping records and proving the transparency of traceability.

Ensuring the compete set of measures with regard to veterinary residues and other contaminants in milk.

The highest hygiene level when receiving milk.

Best practices of receiving milk in small-scale holdings

Source: https://damilk.com.ua/doilnye-aparaty.html

.

The best practices include:

Special equipment with automatic recording system for recording milk deviations from the standard.

Compliance with the highest standards of animal protection against cruelty and animal welfare.

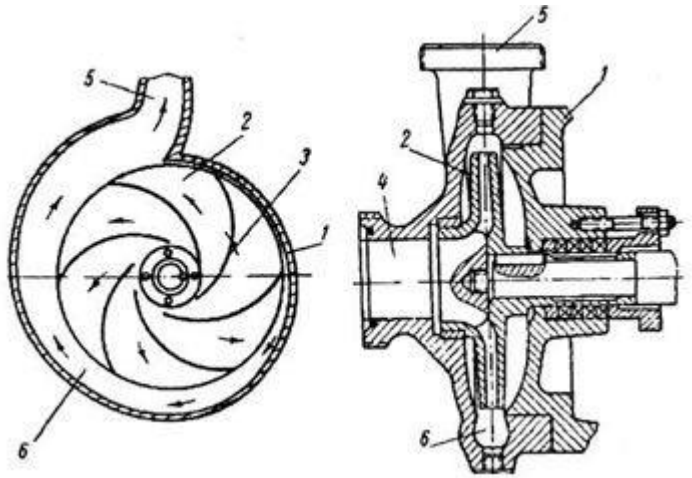
Keeping records and proving the transparency of traceability.

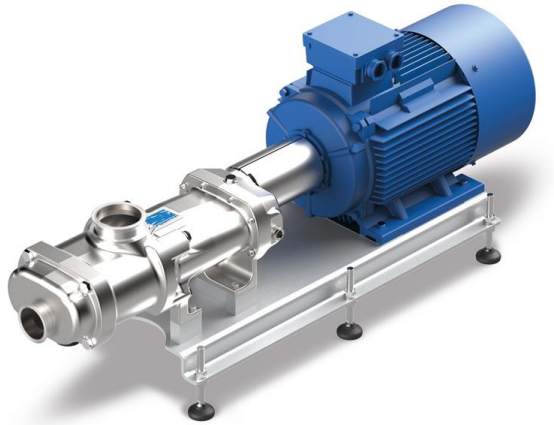
Ensuring the compete set of measures with regard to veterinary residues and other contaminants in milk.

The highest hygiene level when receiving milk.

Best practices of milk pumping

Use of milk pumps according to the holding's needs, milk pumps of required power, use of innovations, use of self-cleaning milk pumps and those that pose minimum risk of contamination. Use of devices that ensure required pressure.





Source: http://tovar.dt-kt.net/books/book-8/chapter-759/

http://www.wft.com.ua

Best international practices of milk transportation

Milk can be transported to dairy processing plants in various ways and from suppliers with different capacities and possibilities.

The best practice is immediate milk cooling.

The supplier's capacity is defined based on its ability to cool milk to 3-4 ºC.

Source: http://www.delaval.ru/ImageVaultFiles/id_2143/cf_5/Efficient_Cooling.pdf

Best international practices of milk collection and cooling at small-scale holdings

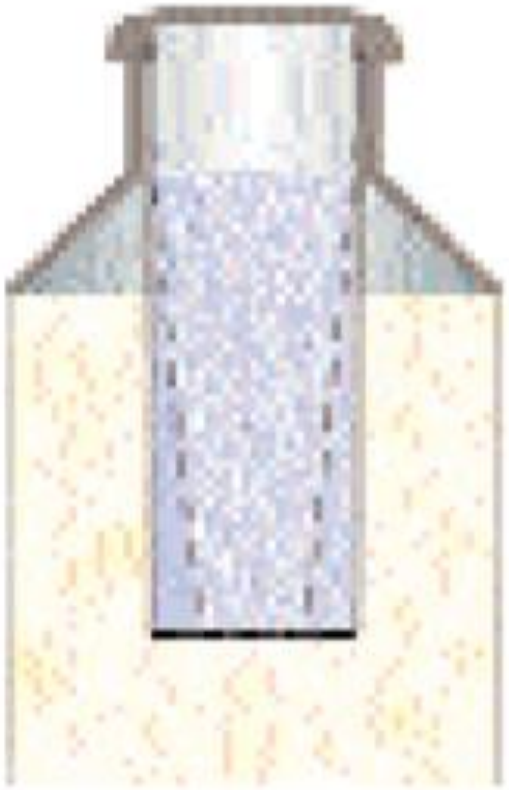
Transporting milk without primary cooling is not the best practice. However, if the small-scale holding has low capacities the processor can establish best practices of transportation and storage of milk received from small-scale holdings.

The best practice of collecting milk from small-scale holding include:

- **Providing primary producers with uniform vessels.**
- **Centralized washing and disinfection of small milk vessels, changing vessels during milk collection.**
- **Cooling in the simplest ways (ice, household cooling devices). The best practices are providing producers with cooling equipment on behalf of the processor.**
- **Centralized milk collection, cooling during transportation (ice chambers).**

Source: http://www.delaval.ru/ImageVaultFiles/id_2143/cf_5/Efficient_Cooling.pdf

Best international practices of milk collection and cooling at small-scale holdings

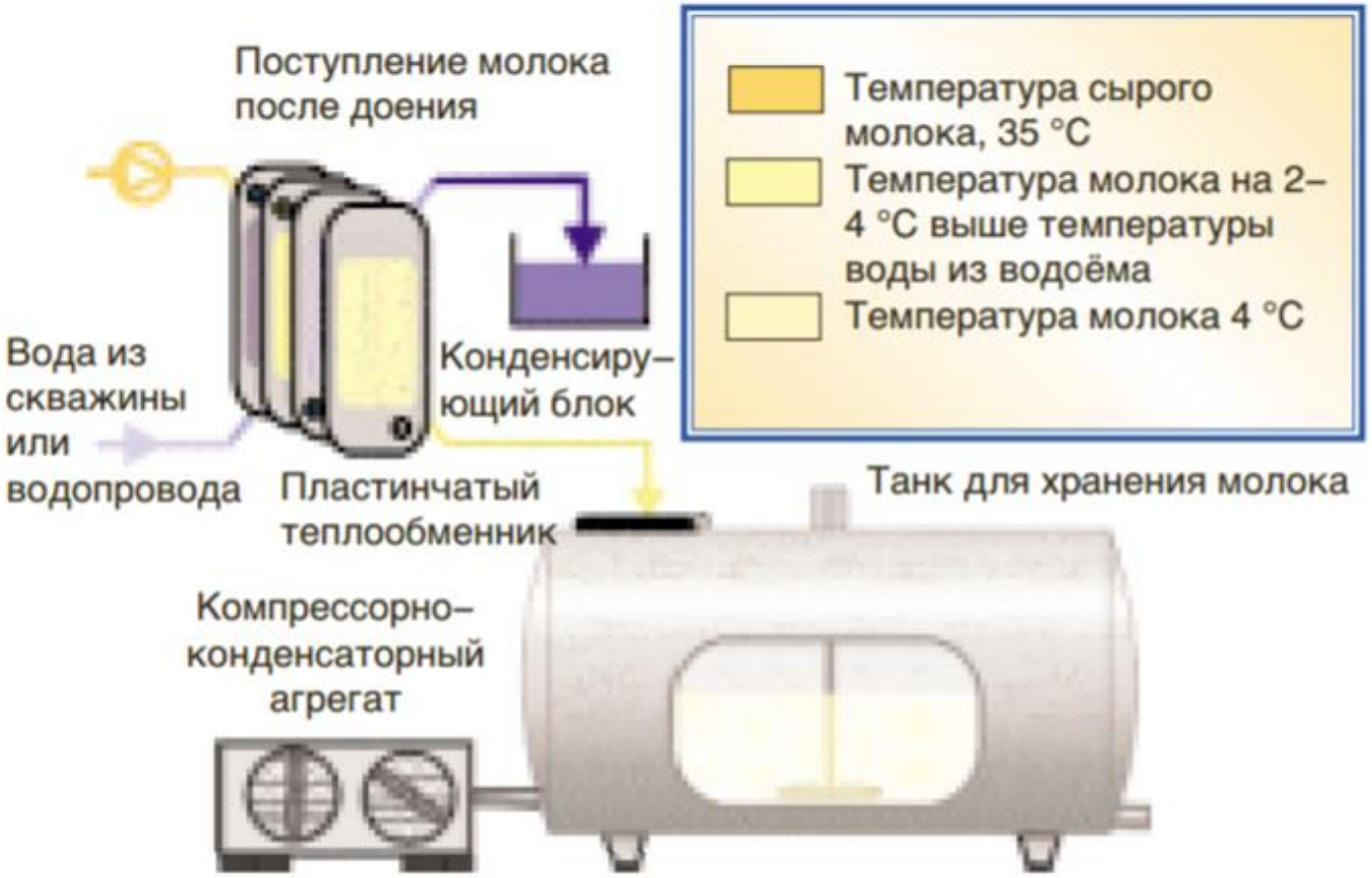


Colling milk with ice cones.
Special vessels with ice cones which are dipped in milk are used.

Colling milk with ice baths.
For this vessels with ice cold water are used in which vessels with fresh milk are put.

Джерело: http://www.delaval.ru/ImageVaultFiles/id_2143/cf_5/Efficient_Cooling.pdf

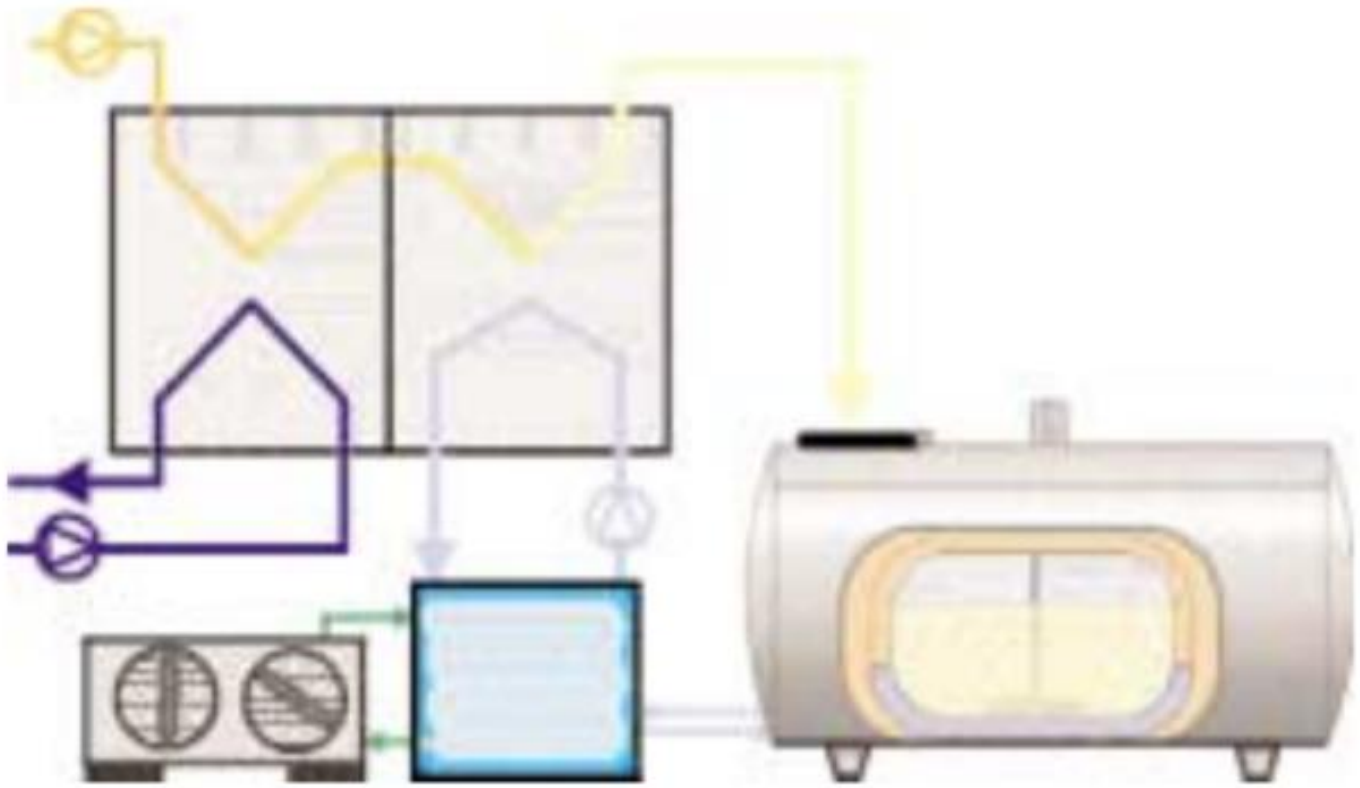
Best international practices of milk collection and cooling at small-scale holdings



Source: http://www.delaval.ru/ImageVaultFiles/id_2143/cf_5/Efficient_Cooling.pdf

Some small farming enterprises prove effectiveness of milk cooling using wellbore water. And after warming up, this water is used for household purposes, which is the best practice!
After primary cooling the best practice is cooling milk with a condensing unit (chiller).

Best international practices of milk collection and cooling at small-scale holdings



The best practice is use of unified cooling systems.
In this case milk warmth is used for warming up water which is used for household purposes instrumentally.
Cooling is combined with additional cooling equipment which instantly cools milk to +4ºC.
Such units are small and energy efficient.

Source: http://www.delaval.ru/ImageVaultFiles/id_2143/cf_5/Efficient_Cooling.pdf

Best international practices of milk collection and cooling at small-scale holdings

The best practice is use of unified cooling systems.
These units are small and energy efficient.

Source: http://www.milktechno.com

Best international practices of milk collection and cooling at small-scale holdings through milk collection points

Условные обозначения

1. Фермер, доставляющий канистры для молока
2. Забор проб
3. Анализ молока
4. Взвешивание
5. Сливной танк
6. Предварительное охлаждение
7. Установка, регенерирующая теплоту
8. Конденсирующая установка
9. Танк для хранения/охлаждения молока
10. Место транспортировки молока на завод и ввоза продукции
11. Установка для мойки бидонов
12. Рамка для сушки бидонов
13. Магазин
14. Информационная доска
15. Офис управляющего ЦСМ
16. Склад
17. Туалет

Source: http://www.delaval.ru/ImageVaultFiles/id_2143/cf_5/Efficient_Cooling.pdf

International practices prove that the best practice is establishing milk collection points by primary producers (raw milk producers) through uniting small-scale producers.

Another option is establishing milk collection points by a dairy processing plant. However, this is not the best practice as it destroys real competitiveness in the field of milk purchase and leads to dividing the territory among the processing plants and noncompetitive relationships with primary producers.

Best international practices of milk collection and cooling at small-scale holdings

The best practices used in transition periods (before small-scale producers are united) are establishing milk collection points at the premises of the biggest producers or separately located milk collection points.

Equipping best producers with cooling equipment, except for a quality effect, has also a stimulating effect.

In these cases milk collection can turn from non-bulk into bulk collection which significantly improves milk quality.

Delivery of uncooled milk is not the best practice!

However, the legislation allows delivering uncooled milk to the processing plants within two hours after milking. In this case the best practice is cooling milk during transportation.

Source: http://www.delaval.ru/ImageVaultFiles/id_2143/cf_5/Efficient_Cooling.pdf

Best international practices of milk collection and cooling at small-scale holdings

When collecting milk from several milk collection points it must not be mixed! So the tank truck must be divided into sections and during loading belonging of each section to a certain milk collection point shall be recorded.

The best practice in this case is keeping a register of all suppliers and daily sampling from each of them. The samples are analyzed randomly and at the time set by the processor. The competent authority sometimes joins this procedure. Sampling is done at the cost of the processor and is its responsibility.

The primary milk producer is financially liable for the full volume of milk which their milk is mixed with. The processor undertakes training and creating the best practices of primary production control.

Source: http://www.delaval.ru/ImageVaultFiles/id_2143/cf_5/Efficient_Cooling.pdf

Best international practices of milk collection and cooling at small-scale holdings

Compliance with the rules is not a basis for the best practices.
The best practices are always a higher level.

The best practice is a cooling tank equipped with a flow meter and pumping with automatic volume metering.
In other cases to measure a valid depth the vessel is calibrated.

Source:molokovozgaz.agroserver.ru/

The best practice is constant and quality staff (farmer) training

Constant training and awareness improvement among farmers and individual peasant farm owners, training professional farmers which specialize at raw milk production are an effective element of the best practice of organizing agriculture in a separate area.

Training may be an initiative of a farmers association, local authority or a result of a state program.

Source: http://agroanimal.com.ua/operatsii-vyipolnyaemyie-pri-zagotovke-sena/

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