

Milk Hygiene

on the Dairy Farm

A Practical Guide for Milk Producers to
The Food Hygiene (Northern Ireland) Regulations 2006
Incorporating EC Regulations 852/853/854 -2004 (as amended)



Department of
**Agriculture and
Rural Development**

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Talmhaíochta agus
Forbartha Tuaithe

MÁNYSTRIE O
Fairms an
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Foreword

The legislation governing the production of milk for human consumption originates in Europe and clearly sets out the responsibility on food businesses - including dairy farmers - to produce food safely.

This straightforward and practical Dairy Hygiene guide has been revised to help your farm achieve the standards of hygiene required to conform with the legislation, as it applies to milk production. Each section clearly identifies the specific requirements of the Regulations and provides advice on good practice.

A copy is being sent to every registered dairy farmer in Northern Ireland. I hope that all of you who are involved in the production of milk find it a valuable tool in your day-to-day operations.

The guide is also available on the websites of the Food Standards Agency and DARD:

<http://food.gov.uk/business-industry/guidancenotes/hygguid/fhlguidance/milkfarmhygni>

<http://www.dardni.gov.uk/index/farming/livestock/dairy-farming/complying-with-hygiene-regulations/guidance-documents-for-milk-production.htm>



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Key Sources of Contamination

Milk can be contaminated at any point in the milk production process.

It is the responsibility of the food business operator (milk producer) to identify these points and implement control measures to protect milk from contamination. The key sources of contamination are:

- ◆ Faecal contamination from soiled animals, especially teats, udders and tails
- ◆ Bacterial contamination from poor milking practices, soiled hands, soiled equipment and failure to clean and disinfect teats prior to milking
- ◆ Contamination due to failure to detect abnormal milk (mastitis pathogens, blood and clots)
- ◆ Physical contamination, especially from perished components in milking plants and bulk tanks, dust, bedding materials, dung, insects and animal hair
- ◆ Bacterial contamination from inadequate cleaning and disinfection of milking equipment and bulk milk tanks
- ◆ Chemical contamination from veterinary product residues, cleaning chemicals and use of non-food grade equipment
- ◆ Farm chemicals containing phenols, cresols or other similar substances which can cause chlorophenol taints in stored milk

Reducing the Risk of Contamination



Animal Cleanliness

- ◆ All animals should be kept clean.
- ◆ All lying areas should be of sufficient size and should be kept clean and dry.
- ◆ Passageways and access routes should be free from accumulations of dung and slurry.
- ◆ Fields, tracks and gateways should be well maintained and kept free from accumulations of dung, slurry and mud.

Milking Practice

- ◆ The foremilk from each animal must be examined for physical/chemical/organoleptic abnormalities by the milker or a method achieving similar results eg. conductivity measurements for robotic units.
- ◆ Where abnormal milk is detected this milk must be rejected.
- ◆ Teats, udders and adjacent parts must be clean before milking.
- ◆ Hands, contact surfaces and milking equipment must be kept clean at all times.



Milking Equipment

- ◆ Milk contact surfaces must be effectively cleaned and where appropriate, disinfected immediately after each milking.
- ◆ All equipment must be kept clean and in good condition and rubber parts changed regularly. It is recommended that teat cup liners are changed after 2,500 milkings.
- ◆ The outside of clusters and milking equipment must be kept clean to prevent the spread of infection between cows by the milking operator.



Milk Storage and Cooling

- ◆ Milk must be protected from contamination during transfer and storage.
- ◆ Milk must be cooled as quickly as possible to minimise bacterial multiplication. The use of plate/tubular coolers is beneficial in this regard and can reduce cooling costs.
- ◆ Bulk tanks must be cleaned and disinfected after each milk collection and kept in good condition.



Animals and Housing

- ◆ Animals must have clean teats, udders and adjacent parts (flanks, hindquarters, tails and abdomen) before milking.
- ◆ Housing must be managed to avoid soiling of the animals.
- ◆ Milk from animals that have a positive reaction to a Tuberculosis (TB) or Brucellosis test must not be used for human consumption.
- ◆ Milk for human consumption must come from animals that are in good health with no udder wounds or lesions likely to contaminate the milk.

Good Cleanliness



Poor Cleanliness



Cleanliness Management

Besides good design and management of the housing, there are several measures which can be implemented to improve animal cleanliness:

- ◆ Trim or clip tails at housing and turn-out. Cows with a clean, trimmed tail will attract fewer flies.
- ◆ Remove hair from flanks, bellies and udders to help prevent soil or faeces clinging to these areas.
- ◆ Remove dirt manually and encourage grooming with cow brushes.
- ◆ Clean animals are more likely to remain disease-free and at milking time, are less likely to contaminate the milk with harmful bacteria.
- ◆ Consider altering diets to minimise loose dung.



General Health

Where there is evidence that an animal is not in good health and especially where there is a discharge from the genital tract, enteritis with diarrhoea, fever or an infection of the udder, the milk must not be used for human consumption. Milk from cows which are Brucellosis (BR) or Tuberculosis (TB) Reactors must be excluded from the Milk Storage Tank and must not be used for human consumption. You should notify your milk purchaser if you have a TB or BR breakdown as milk from the rest of a reactor herd may only be used for human consumption if it is to be pasteurised.

Cubicles

There should be at least one cubicle per cow, designed to encourage cows to lie down in them. Dimensions should be calculated to accommodate the largest cows in the herd.

Brisket boards and head rails should be adjusted so that the animals do not soil their beds. Cows that refuse to use cubicles and become heavily soiled must be cubicle trained, culled or accommodated where they can be kept clean (loose housed or at grass).



Good bedding helps to minimise soiling and improves animal comfort. This will help to reduce the risk of bacterial contamination of milk. Where mats or mattresses are fitted, absorbent bedding material should also be used. All passageways, loafing areas and cubicles should be kept free of accumulations of dung, slurry and stale feed.

Adequate ventilation is essential in cubicle houses and can be provided by ventilated tin, Yorkshire or tensar cladding. Poor ventilation may result in damp cubicle beds and multiplication of bacteria which can contribute to environmental mastitis.

Sufficient water troughs should be provided to allow 10% of the animals access to water at any one time. Water troughs should be kept clean.

Loose Yards

Loose yards should not be overcrowded. For average cows of 600 kg, a bedded area of 6.5m² and loafing area of 2.5m² per animal is recommended.

The recommended lying area per animal for goats and sheep is 1.8m² and 1.4m² respectively.

Water troughs should not be sited in the bedded area.

Good yard management includes at least daily bedding, with complete removal of the bedding recommended every 4 – 6 weeks.

All passageways and loafing areas should be kept free of accumulations of dung, slurry and stale feed.

Access Routes



Access between the milking area and the housing or pasture should be kept free from accumulations of dung and slurry, kept in good condition and be free draining.

This will not only help to reduce the risk of contaminating the milk, but will also help to prevent pathogens entering the teat canal which can lead to mastitis and costly high somatic cell counts.



Milking Area

- ◆ The milking area must be sited and constructed to ensure satisfactory hygienic conditions during milking.
- ◆ The milking area and immediate surroundings must be kept clean.
- ◆ During and after milking, sufficient potable or clean water must be available in the milking area for the cleaning of soiled teats and udders, equipment, hands, fittings and floors.

Structure

- ◆ Design features must minimise the risk of contamination from any source, including dust, flies, birds or other animals. Open parlours can be accepted in situations where hygiene risks are minimised and very high standards of management are maintained. They are not permitted if birds gain access or where there is excessive dust contamination from adjacent areas. A parlour that can be properly sealed off from other buildings is the best practice.
- ◆ Floors should be impervious to water and be free draining. Cow standings should be provided with a fall of not less than 1:100 and the operator's pit should be provided with a similar fall in the same direction.
- ◆ Doors and walls should be smooth, impervious and easy to keep clean. Good quality cement render, finished with a steel float is adequate for walls. Alternatives are available including sealed plastic cladding, smooth concrete panels or direct bonded fibreglass.
- ◆ Roof or loft floors should be made of dustproof sheet material and be easy to clean. Any false ceiling should be made of an impervious material and steps must be taken to prevent vermin infestation in the void.
- ◆ Sufficient ventilation is required to provide clean air and avoid condensation.
- ◆ Adequate lighting is essential to provide good visibility for all milking and cleaning operations. A sufficient number of strip lights with shatterproof and waterproof diffusers should be fitted. Natural lighting is recommended, using either windows or skylights.
- ◆ All drainage should discharge to a suitable drainage system and be piped via a gully trap to an external effluent tank.
- ◆ All feed hoppers must be lidded.



Management

Sufficient hoses should be provided with adequate volume and force to wash equipment and cow standings thoroughly during and after milking.

Warm running water - preferably containing a suitable disinfectant - should be made available. This is to rinse hands, protective clothing, udders and equipment whenever they become soiled. Paper towels should also be available.

A suitable bin should be available for the disposal of used towels and other waste and this should be emptied after each milking.

Within a milking area, all floors, walls, fittings and touch points should be cleaned thoroughly after every milking. The upper walls and ceiling should be kept free from accumulations of dust and cobwebs.

Animals may have access up to the entrance and exit of the milking area between milkings - but dung, slurry and other noxious materials must be prevented from accumulating in these areas.



Byres

Where cows are housed and/or milked in a byre, the area under the cow, the dung channels and any operator walkways should be cleaned immediately before milking and be managed to control the risk of contamination during milking. The equipment in a bucket milking plant should not be stored in the byre.

Robotic Milkers

For automatic or robotic milking systems, as with conventional systems, the milking area should be located and constructed so as to limit the risk from contamination.

The area surrounding the robotic unit, including the floors and all partitions and the unit itself should be kept in a clean condition. This will require an adequate cleaning routine to be established and adhered to.

Please contact your local Dairy Hygiene Inspector if you are considering the installation of a Robotic Milking System.



Milking Operations

A good milking technique is essential for the production of safe, raw milk.

- ◆ Teats, udder and adjacent parts must be clean before cluster attachment.
- ◆ Teat dips/sprays must be approved and used in accordance with the manufacturer's instructions.
- ◆ Foremilk from each animal must be examined at each milking.
- ◆ When identified, abnormal milk must be kept separate and not used for human consumption.
- ◆ Milk from animals showing clinical signs of udder disease must be kept separate and not used for human consumption.
- ◆ Animals producing milk that is unfit for human consumption must be clearly identified.
- ◆ Milking equipment must be kept clean at all times.
- ◆ Hands must be cleaned before milking and kept clean during milking and milk handling. Exposed skin wounds must be hygienically covered.
- ◆ All staff engaged in milk production should be trained in food hygiene, health risks and the use of equipment.

Operator Hygiene



During milking and milk handling, the operator must wear clean clothing.

The operator's hands and forearms must be thoroughly washed before milking. These parts, as well as gloves, if worn, must be kept clean during milking and milk handling. Damaged gloves must be replaced.

Anyone who is suffering from an illness or is a carrier of a disease which could contaminate the milk, e.g. food poisoning, must not carry out milking or handle milk.

Adequate handwashing facilities and a hygienic method of hand drying should be available close to the milking area.

A first aid kit containing waterproof dressings to cover sores, cuts and open wounds when working in the milking or milk storage areas should be readily available.

Smoking is not permitted in any areas used for milking, milk storage or washing up.

Teat Cleaning

Cleaning of teats before milking is important to remove both visible soiling (e.g. faeces, bedding, mud, residual post-milking disinfectants) and bacteria which could contaminate the milk.

If teats are clean, wipe using an individual paper towel. Where visibly soiled, teats should be cleaned by washing and then thoroughly dried.

Cleaning is enhanced by the use of individual disinfectant wipes or treatment with an approved pre-dip solution.



Fore-milking

Milk from each animal must be checked for physical/ chemical/ organoleptic abnormalities.

In most situations this is done most effectively by taking fore-milk from every cow. Fore-milking assists the early detection of mastitis, removes potentially contaminated milk from the teat canal and stimulates milk let-down.

In the case of Robotic Milkers, the foremilk is automatically measured using an in-line conductivity test.



Abnormal Milk

Animals producing abnormal milk or showing clinical signs of udder disease must be clearly identified. Milk from these animals must not be used for human consumption. The recommended means of excluding abnormal milk are:

- ◆ Milk affected animals last (with a full disinfectant cleaning routine after each milking).
- ◆ Milk into a dump bucket or dump line (with a clean, well maintained separate cluster and milk tube).

This helps to ensure that infections of the udder are not transferred to other animals via the clusters.

Pre & Post Milking Disinfectants

Pre and post milking disinfectants must be approved dairy chemicals, used in accordance with the manufacturer's instructions to maintain effectiveness. Dip cups and spray devices should be kept visually clean.



Equipment Cleaning

Any soiling of the milking equipment must be washed off before cluster re-attachment.

Excessive faecal matter should be cleaned from floors and stall work as soon as practicable, and before another animal or batch enters the milking area.

Milking Environment

The movement of dusty feeds or bedding materials should not be carried out close to the milking area immediately before or during milking. The level of dust on overhead pipes must be kept to a minimum.

The air should be as clean as practicable, as very large volumes are drawn in during cluster attachment and removal, through air bleeds and during milk transfer. The equivalent to the entire volume of air in the milking area may be drawn into the equipment during milking.

Milking Equipment

- ◆ Equipment must be made from appropriate food-grade material and must be kept clean and in good condition at all times.
- ◆ Equipment must be cleaned, disinfected and rinsed with potable or clean water immediately after milking.

Recommended Cleaning Systems

Equipment should be kept clean during milking by hosing. After each milking and prior to circulation cleaning, exterior surfaces should be scrubbed with warm sanitiser solution. Interior surfaces should be cleaned after each milking, using one of the following methods:

Hot circulation cleaning

- ◆ Pre-rinse at 40°C to remove milk residues.
- ◆ Circulate a hot wash using an alkaline detergent steriliser, circulated for a minimum of 5 minutes and a maximum of 10 minutes. Use 10-15 litres of water at 85°C per milking unit. Water temperature should be not less than 50°C at the end of circulation.
- ◆ Finally, rinse with clean cold water (ideally containing 25ml hypochlorite/40 litres of water).
- ◆ Use of a milk-stone remover is recommended where necessary to prevent scale build-up inside the equipment.

Cold circulation cleaning

- ◆ Pre-rinse with cold water to remove milk residues.
- ◆ Circulate with a cold caustic cleaning solution for 10 minutes. Use 10-15 litres of water per milking unit. Switch off pump and leave solution in contact with the plant until the next milking.
- ◆ Thoroughly rinse immediately prior to the next milking with cold water.
- ◆ A hot wash must be carried out at least once a week using hot caustic solution at a starting temperature of 85°C containing 200mls of sodium hypochlorite for every 50 litres of caustic solution.



Acidified boiling water cleaning

- ◆ Water at not less than 96°C should be drawn directly from a water heater and allowed to pass once through the plant. The flow of water should be restricted so that it takes 6-7 minutes to pass through the plant to waste. A dilute acid is slowly released into the wash line after 2-3 minutes.
- ◆ All milk contact parts of the equipment must reach 77°C for at least 2 minutes. Use 70 litres of hot solution for a four point plant.
- ◆ If there is a build-up of a protein bio-film, use a hypochlorite solution in place of acid.

In all cases:

- ◆ Clean the vacuum pipelines at least monthly. Check and clean “blind” areas daily. Clean claw-piece bungs, buttons, screw-threads and recorder jar reject taps, jettors/ jetter plates regularly.

Cleaning Efficiency and Maintenance

Even when hot water requirements are met, cleaning efficiency will still depend upon:

- ◆ Correct use and strength of chemicals
- ◆ Adequate flow rate of the cleaning solution
- ◆ Correct ‘circulation balance’ to ensure an even distribution of the cleaning solution
- ◆ Regular inspection and renewal of perishable items to keep them in a good physical condition. This will help control levels of bacteria in the plant and help prevent teat end damage

- ◆ Storage tanks must be sited and maintained so as to limit the risk of milk contamination.
- ◆ Milk contact materials must comply with REGULATION (EC) No 1935/2004 and be sufficiently inert to prevent substances being transferred to food.
- ◆ Contact surfaces must be kept clean and in good condition at **all** times.
- ◆ Milk must be cooled quickly after each milking.
- ◆ Storage tanks must be adequately sealed to prevent physical contamination of milk.

Protection of Milk

Keep bungs and covers in place at all times. During milking, there should be a closure around the delivery pipe into the milk tank. If bungs/covers are lost, they must be replaced as soon as possible.

In the case of milk silo storage, all controls must be located within the dairy/dairy store. All outlets must be adequately vermin-proofed



Siting

Allow at least 600 mm clear space around the tank to allow effective cleaning. If any part of the tank or silo is sited outside the milk storage area, the tank outlet, air vent and inspection hatch must be constructed and managed to prevent contamination of the milk.

Always ensure that any new bulk tanks are sited according to the manufacturer's instructions, as incorrect siting may affect the cooling and quality of the milk.

Cleaning

The interior surfaces of the tank must be cleaned each time the tank is emptied.

- ◆ Pre-rinse with potable or clean water
- ◆ Clean with approved bulk tank detergent solution
- ◆ Carry out a final rinse with potable or clean water

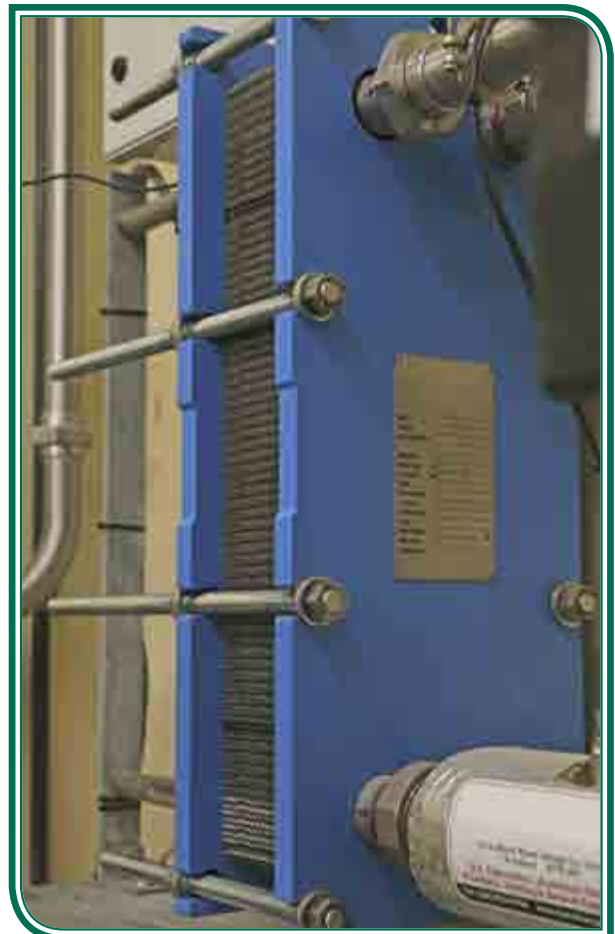
The exterior of the tank should be kept clean.

Acceptable cleaning methods include the following:

- ◆ **Manual cleaning** with an iodophor solution or chemical powder paste, allowing 10 minutes sanitiser contact time. Ensure less accessible areas are cleaned, such as under tank bridges, around tank bungs and inside the outlet pipes
- ◆ **Automatic cold cleaning** using an iodophor or acid-based cleaning solution. A weekly manual clean with hypochlorite cleaning solution or powder is needed to maintain cleanliness
- ◆ **Automatic hot cleaning** using a caustic based detergent at 80°C. Periodic treatment with milk-stone remover is required. Regularly check that the automatic cleaning system is working effectively. Manual cleaning of the outside surfaces of the tanks is necessary to maintain acceptable conditions to minimise the risk of contaminating the product

Milk Cooling

Immediately after milking, milk must be cooled to a temperature of not more than 8°C in the case of daily collection, or not more than 6°C if collection is not daily.



Milk Storage Area

As a food storage area, the milk storage room needs to be managed to minimise the risk of contamination at all times.

- ◆ The milk storage room, approach and surrounds must be kept clean at all times.
- ◆ Doors should be kept closed.
- ◆ The structure of the milk storage room must not expose milk to the risk of contamination.
- ◆ The milk storage room should not be used for purposes other than the cooling and storage of milk and the cleaning and storage of milking equipment.
- ◆ Vermin, birds and other animals must be excluded.

Siting & Structure

When designing a new milking unit, the dairy should be planned so that livestock do not cross in front of the dairy/dairy approaches to access housing or paddocks.

The milk storage room must be sited in a clean area, away from obvious sources of contamination. The structure of the milk storage room must protect the milk from contamination and be kept clean and free from vermin. Siting of compressors and vacuum pumps is not recommended in the milk storage area.

- ◆ **Access** - The access should have a hard standing, normally concrete. This needs to be large enough to allow clean access for the tanker driver from his cab to the milk storage area - to allow the collection hose to be positioned on a clean surface.
- ◆ This area should be free-draining so as to minimise the risk of contamination during milk transfer. It must be kept clean at all times.
- ◆ **Access to Other Areas** - Direct access between the milk storage room and livestock housing or handling areas, toilets or feed stores is not allowed.
- ◆ **Floor and Drainage** - Floors must be impervious to water and free-draining, with a good slope to a suitable trapped drain and piped to a dirty water tank or effluent tank. External drainage must not be allowed to enter the milk storage.
- ◆ **Walls and Doors** - All surfaces should be smooth, impervious and easy to clean. Concrete block walls should be finished with a steel floated cement render, direct bonding fibreglass, PVC wall cladding or other smooth coating material. Joints around and between cladding sheets need to be sealed. Doors may be hinged or sliding, but must be close-fitting and vermin-proof. Self-closing doors are recommended. All vents, drainage outlets, openings around pipelines and view spaces should be adequately screened to protect against vermin.





- ◆ **Roof/Ceiling** - This should be constructed so as to minimise the entry of dust and should be smooth, impervious and easy to clean. Suitable roofing materials include plastic-coated corrugated steel, corrugated fibre board cement sheeting, composite insulated panels and Breton slabs. Exposed roof timbers should be fully seasoned and planed. Where an under ceiling is fitted, suitable materials include PVC sheeting or flat fibre board cement. PVC ceilings are best fitted immediately below the outer cladding and above the roof timbers. Fibre board cement ceilings are more durable when fitted below metal purlins. However, it is important to ensure the void area is well sealed to avoid providing harbourage to vermin.
- ◆ **Windows and Lighting** - Where windows are fitted, they should be free from damage and kept closed, unless protected with fly-proof mesh. Artificial lighting is required and all areas should be well-lit. Light fittings should be free from rust or flaking paint and fitted with shatter-proof covers.
- ◆ **Ventilation** - Sufficient natural or fan-assisted ventilation must be provided. Inlet and outlet vents must be screened to vermin-proof the dairy. To avoid condensation, wash troughs should be covered and water heaters sited outside the milk storage area in a clean environment. It is recommended the condenser unit and vacuum pump are sited outside the dairy or in the dairy store. The condenser should have sufficient inlet and outlet ventilation to ensure it operates to its maximum efficiency. The opening for the vacuum pump exhaust exit should be adequately screened.



- ◆ **Fittings** - To ensure effective cleaning, all fittings within the milk storage area should be smooth and impervious. They should be free from flaking paint and rust. This includes electrical fittings, which will generally need to be waterproof. Electrical wiring should be protected within conduit sited below the dairy ceiling.
- ◆ **Separate Washrooms** - Where a separate washroom is provided for the washing of milking equipment, it must be constructed and managed to avoid contamination of the milk i.e. as per the milk storage area.

Management

The whole area must be managed to ensure satisfactory hygienic conditions. The approach and surrounds must be kept clean at all times. Doors should be kept closed. Walls and floors must be kept clean. Areas that become soiled must be washed after every milking. Upper areas and fittings should be cleaned regularly to prevent accumulations of dirt, dust and cobwebs.

The aim is to create a clean, dedicated food storage room. It should not be used as a thoroughfare, storeroom or general delivery point. It should be a restricted area for storing and cooling milk for human consumption and for the washing of milking and milk storage equipment. Only items immediately required for milking processes may be stored in the milk storage room.

Milk must be protected from contamination and steps must be taken to minimise the risk of contamination e.g. avoid using for the preparation of calf feed, feeding other animals, washing and storage of calving aids or calf buckets.

Poisons and phenolic compounds (liable to cause milk taints) must not be stored in the milk storage room; neither should it be used as a tearoom, office, for general boot washing or for use by veterinary or A.I. personnel.

If medicines are kept in the dairy or dairy store, they must be stored in a fully enclosed cabinet.

A small, covered bin may be provided but should only be used for the disposal of rubbish generated in the milk storage room. The bin should be emptied daily to prevent the accumulation of damp and dirty material.

Smoking is not permitted in any areas used for milking, milk storage or washing up.

General Considerations

- ◆ Adequate measures must be taken to control insects, rodents and birds on the premises to avoid contamination.
- ◆ Animals must be isolated if they are infected, or suspected of being infected with any disease that could be transmitted to humans through milk.
- ◆ All staff engaged in milk production must be trained in the milking operations. This should include food hygiene as well as health and safety guidance.
- ◆ Appropriate records must be kept on feed supplies, veterinary products, disease that may affect the safety of the milk and any results of samples and checks made on animals or their products.
- ◆ Sufficient potable or clean water must be available in the milking area for the cleaning of soiled teats and udders, equipment, hands, fittings and floors — during and after milking.

Water Supply

All water used in the parlour and milk storage room must be potable or clean water. A sufficient supply of water is required for handwashing, udder washing, teat washing, rinsing and cleaning equipment.

It is the responsibility of the milk producer to have the water supply tested to ensure an adequate bacteriological standard is achieved.

Header or storage tanks must be properly protected from contamination by rodents, birds, insects and dust.

Chemical composition of the supply will be important in choosing detergents. It will also determine the need for periodic treatments to prevent excessive scale in water heaters or deposits in milking equipment.



Pests, Vermin & Other Animals

Adequate measures must be taken to control insects, rodents and birds on the premises to prevent contamination.

Control measures include:

- ◆ Removal of rubbish and vegetation from around the milking and milk storage areas
- ◆ Keeping all feed in closed containers and removing waste feed from troughs after every milking
- ◆ Removal of waste milk from the milk storage area after every milking

- ◆ All baiting points for the control of rodents should be recorded. Replenishment dates for bait should be recorded

To protect drainage outlets and control vermin, it may be necessary to fit fly screens on any openings (e.g. windows), seal holes in walls — especially where pipes or wires pass through — and fit brush or rubber flaps to loosely fitting doors. If used, electronic fly killers must be sited to reduce the risk of contamination of the milk storage area and the bulb must be changed in accordance with the manufacturer's instructions.

All birds, including poultry, as well as cats and dogs should be excluded from the milk storage areas, milking parlour and animal housing areas.

Veterinary Supervision of Dairy Farms

Animals must be in a good state of health with no udder or uterine infection likely to infect the milk and no symptoms of infectious diseases communicable to humans through milk. Animals that have been treated with a veterinary product must be clearly identified and any specified milk or meat withdrawal periods must also be observed.

Records on the use of veterinary products must be retained and all veterinary products should be stored in a secure place. Records must include: *(see box to the right)*.

Minimum Acceptable Records of Veterinary Product Use:

- ◆ Date of administration
- ◆ Person or vet carrying out treatment
- ◆ Identification of animal(s)
- ◆ Product name
- ◆ Quantity used
- ◆ Milk withdrawal period
- ◆ Meat withdrawal period

Isolation Facilities

Milk from animals deemed to be showing positive reactions to the tests for Tuberculosis or Brucellosis must not be used for human consumption.

These animals must be kept in isolation and milked last, with the milking equipment subsequently cleaned with a full sanitising wash routine and the milk disposed of appropriately.

Where animals are suspected or confirmed as suffering from infectious diseases, they must be isolated.

The isolation facilities should have separate drainage and airspace; be secure with an anti-slip floor; have good ventilation; suitable lighting and be easy to clean and disinfect.

Consideration should also be given to the need to milk animals in isolation and the ability to remove carcasses.



Milking Personnel

People suffering from an illness likely to cause food poisoning or carrying a disease which could contaminate milk, must not carry out milking or handle milk.

All personnel should have clean hands, wear clean clothing and exercise hygienic practices. Adequate handwashing facilities and a hygienic method of hand drying must be made available close to the milking area.



A first aid kit containing waterproof dressings to cover sores, cuts and open wounds should be readily available close to the milking area.

Smoking is not permitted in any areas used for milking, milk storage or washing up.

Record Keeping

Appropriate records must be kept on feed supplies, the use of veterinary products, disease occurrences that may affect the safety of the milk and any results of samples and checks made on animals or their products. Temporary records such as a blackboard in the parlour are insufficient. Records may be kept on computer or paper but should be recorded at the time.

Record templates can be obtained from your local DARD Direct office or from your milk inspector on:

- ◆ Purchase and use of veterinary medicines
- ◆ Purchase of feeds
- ◆ Disease occurrence within the dairy herd
- ◆ Pesticide application

Glossary of Terms & Definitions

- ◆ **Food business operator** – means natural or legal persons responsible for ensuring that the requirements of food law are met
- ◆ **Contamination** – presence or introduction of a hazard i.e. soiling, bacteria, chemicals, antibiotics
- ◆ **Milk storage room** – dairy, tank room
- ◆ **Milking area** – Milking parlour, byre, milking bail
- ◆ **Potable** – drinking water satisfying the requirements of Council Directive 98/83/EC of 3 November 1998
- ◆ **Clean water** – water that does not contain micro-organisms, harmful substance or toxic plankton in quantities capable of directly or indirectly affecting the health quality of food
- ◆ **Sanitiser** – a chemical that both cleans and disinfects
- ◆ **Disinfection** - a process of reducing the number of bacteria to an acceptable level





Legislation

Regulation (EC) No 852/2004 of the European Parliament and of the Council of 29 April 2004 on the hygiene of foodstuffs

Article 6 - Official controls, registration and approval

1. Food business operators shall cooperate with the competent authorities in accordance with other applicable Community legislation or, if it does not exist, with national law.
2. In particular, every food business operator shall notify the appropriate competent authority, in the manner that the latter requires, of each establishment under its control that carries out any of the stages of production, processing and distribution of food, with a view to the registration of each such establishment.

Food business operators shall also ensure that the competent authority always has up-to-date information on establishments, including by notifying any significant change in activities and any closure of an existing establishment.

Annex I - Primary Production

Part A: General Hygiene Provisions for Primary Production and Associated Operations

I. Scope

1. This Annex applies to primary production and the following associated operations:
 - (a) the transport, storage and handling of primary products at the place of production, provided that this does not substantially alter their nature;

- (b) the transport of live animals, where this is necessary to achieve the objectives of this Regulation;

II. Hygiene provisions

2. As far as possible, food business operators are to ensure that primary products are protected against contamination, having regard to any processing that primary products will subsequently undergo.
3. Notwithstanding the general duty laid down in paragraph 2, food business operators are to comply with appropriate Community and national legislative provisions relating to the control of hazards in primary production and associated operations, including:
 - (a) measures to control contamination arising from the air, soil, water, feed, fertilisers, veterinary medicinal products, plant protection products and biocides and the storage, handling and disposal of waste; and
 - (b) measures relating to animal health and welfare and plant health that have implications for human health, including programmes for the monitoring and control of zoonoses and zoonotic agents.
4. Food business operators rearing, harvesting or hunting animals or producing primary products of animal origin are to take adequate measures, as appropriate:
 - (a) to keep any facilities used in connection with primary production and associated operations, including facilities used to

- store and handle feed, clean and, where necessary after cleaning, to disinfect them in an appropriate manner;
- (b) to keep clean and, where necessary after cleaning, to disinfect, in an appropriate manner, equipment, containers, crates, vehicles and vessels;
 - (c) as far as possible to ensure the cleanliness of production animals;
 - (d) to use potable water, or clean water, whenever necessary to prevent contamination;
 - (e) to ensure that staff handling foodstuffs are in good health and undergo training on health risks;
 - (f) as far as possible to prevent animals and pests from causing contamination;
 - (g) to store and handle waste and hazardous substances so as to prevent contamination;
 - (h) to prevent the introduction and spread of contagious diseases transmissible to humans through food, including by taking precautionary measures when introducing new animals and reporting suspected outbreaks of such diseases to the competent authority;
 - (i) to take account of the results of any relevant analyses carried out on samples taken from animals or other samples that have importance to human health;
 - (j) to use feed additives and veterinary medicinal products correctly, as required by the relevant legislation.
- 5. Food business operators producing or harvesting plant products are to take adequate measures, as appropriate:
 - (h) to use plant protection products and biocides correctly, as required by the relevant legislation.
 - 6. Food business operators are to take appropriate remedial action when informed of problems identified during official controls.
- ### III. Record-keeping
- 7. Food business operators are to keep and retain records relating to measures put in place to control hazards in an appropriate manner and for an appropriate period, commensurate with the nature and size of the food business. Food business operators are to make relevant information contained in these records available to the competent authority and receiving food business operators on request.
 - 8. Food business operators rearing animals or producing primary products of animal origin are, in particular, to keep records on:
 - (a) the nature and origin of feed fed to the animals;
 - (b) veterinary medicinal products or other treatments administered to the animals, dates of administration and withdrawal periods;
 - (c) the occurrence of diseases that may affect the safety of products of animal origin;
 - (d) the results of any analyses carried out on samples taken from animals or other samples taken for diagnostic purposes, that have importance for human health; and
 - (e) any relevant reports on checks carried out on animals or products of animal origin.

Regulation (EC) No 853/2004 of the European Parliament and of the Council of 29 April 2004 laying down specific hygiene rules for food of animal origin

Annex III - Section IX: Raw Milk, Dairy Products and Products

For the purpose of this section,

1. “Colostrum” means the fluid secreted by the mammary glands of milk-producing animals up to three to five days post parturition that is rich in antibodies and minerals, and precedes the production of raw milk
2. “Colostrum-based products” means processed products resulting from the processing of colostrum or from the further processing of such processed products

Chapter I: Raw Milk and Colostrum - Primary Production

Food business operators producing or, as appropriate, collecting raw milk and colostrum must ensure compliance with the requirements laid down in this Chapter.

I. Health Requirements for Raw Milk and Colostrum Production

1. Raw milk and colostrum must come from animals:
 - (a) that do not show any symptoms of infectious diseases communicable to humans through milk and colostrum;
 - (b) that are in a good general state of health, present no sign of disease that might result in the contamination of milk and colostrum and, in particular, are not suffering from any infection of the genital tract with discharge, enteritis with diarrhoea and fever, or a recognisable inflammation of the udder;
 2. (a) in particular, as regards brucellosis, raw milk and colostrum must come from:
 - (i) cows or buffaloes belonging to a herd which, within the meaning of Directive 64/432/EEC (1), is free or officially free of brucellosis;
 - (ii) sheep or goats belonging to a holding officially free or free of brucellosis within the meaning of Directive 91/68/EEC (1); or
 - (iii) females of other species belonging, for species susceptible to brucellosis, to herds regularly checked for that disease under a control plan that the competent authority has approved.
 - (b) as regards tuberculosis, raw milk and colostrum must come from:
 - (i) cows or buffaloes belonging to a herd which, within the meaning of Directive 64/432/EEC, is officially free of tuberculosis; or
 - (ii) females of other species belonging, for species susceptible to
- (c) that do not have any udder wound likely to affect the milk and colostrum;
 - (d) to which no unauthorised substances or products have been administered and that have not undergone illegal treatment within the meaning of Directive 96/23/EC; and
 - (e) in respect of which, where authorised products or substances have been administered, the withdrawal periods prescribed for these products or substances have been observed.

tuberculosis, to herds regularly checked for this disease under a control plan that the competent authority has approved.

- (c) if goats are kept together with cows, such goats must be inspected and tested for tuberculosis.
3. However, raw milk from animals that does not meet the requirements of point 2 may be used with the authorization of the competent authority:
 - (a) in the case of cows or buffaloes that do not show a positive reaction to tests for tuberculosis or brucellosis, nor any symptoms of these diseases, after having undergone a heat treatment such as to show a negative reaction to the alkaline phosphatase test;
 - (b) in the case of sheep or goats that do not show a positive reaction to tests for brucellosis, or which have been vaccinated against brucellosis as part of an approved eradication programme, and which do not show any symptom of that disease, either:
 - (i) for the manufacture of cheese with a maturation period of at least two months; or
 - (ii) after having undergone heat treatment such as to show a negative reaction to the alkaline phosphatase test; and
 - (c) in the case of females of other species that do not show a positive reaction to tests for tuberculosis or brucellosis, nor any symptoms of these diseases, but belong to a herd where brucellosis or tuberculosis has been detected after the checks referred to in point 2(a)(iii) or 2(b)(ii), if treated to ensure its safety.
4. Raw milk from any animal not complying with the requirements of points 1 to 3, in particular any animal showing individually a positive

reaction to the prophylactic tests vis-a-vis tuberculosis or brucellosis as laid down in Directive 64/432/EEC and Directive 91/68/EEC must not be used for human consumption.

5. The isolation of animals that are infected, or suspected of being infected, with any of the diseases referred to in point 1 or 2 must be effective to avoid any adverse effect on other animals' milk and colostrum.

II. Hygiene on Milk Production Holdings

A. Requirements for premises and equipment

1. Milking equipment, and premises where milk and colostrum is stored, handled or cooled must be located and constructed so as to limit the risk of contamination of milk and colostrum.
2. Premises for the storage of milk and colostrum 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.
3. Surfaces of equipment that are intended to 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 and colostrum must be cleaned and disinfected in an appropriate manner before re-use.

B. Hygiene During Milking, Collection and Transport

1. Milking must be carried out hygienically, ensuring in particular:
 - (a) that, before milking starts, the teats, udder and adjacent parts are clean;
 - (b) that milk from each animal is checked for organoleptic or physico-chemical abnormalities by the milker or a method achieving similar results and that milk and colostrum presenting such abnormalities is not used for human consumption;
 - (c) that milk and colostrum from animals showing clinical signs of udder disease is not used for human consumption otherwise than in accordance with the instructions of a veterinarian;
 - (d) the identification of animals undergoing medical treatment likely to transfer residues to the milk and colostrum, and that milk and colostrum obtained from such animals before the end of the prescribed withdrawal period is not used for human consumption; and
 - (e) that teat dips or sprays are used only after authorisation or registration in accordance with the procedures laid down in Directive 98/8/EC of the European Parliament and of the Council of 16 February 1998 concerning the placing of biocidal products on the market.
 - (f) that colostrum is milked separately and not mixed together with raw milk
2. Immediately after milking, milk and 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 stored separately and immediately cooled 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 and colostrum must not be more than 10°C.
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 authorises.

C. Staff Hygiene

1. Persons performing milking and/or handling raw milk and colostrum must wear suitable clean clothes.
2. Persons performing milking must maintain a high degree of personal cleanliness. Suitable facilities must be available near the place of milking to enable persons performing milking and handling raw milk and colostrum to wash their hands and arms.

III. Criteria for Raw Milk

1. The following criteria for raw milk apply pending the establishment of standards in the context of more specific legislation on the quality of milk and dairy products.
2. A representative number of samples of raw milk and colostrum collected from milk production holdings taken by random sampling must be checked for compliance with points 3 and 4.

The checks may be carried out by, or on behalf of:

- (a) the food business operator producing the milk;
 - (b) the food business operator collecting or processing the milk;
 - (c) a group of food business operators; or
 - (d) in the context of a national or regional control scheme.
3. (a) Food business operators must initiate procedures to ensure that raw milk meets the following criteria:
- (i) for raw **cows'** milk:
 - Plate count at 30°C (per ml) \leq 100 000*
 - Somatic cell count (per ml) \leq 400 000**
 - * Rolling geometric average over a two-month period, with at least two samples per month.
 - ** Rolling geometric average over a three-month period, with at least one sample per month, unless the competent authority specifies another methodology to take account of seasonal variations in production levels.
 - (ii) for raw milk from other species:
 - Plate count at 30°C (per ml) \leq 1 500 000*
 - * Rolling geometric average over a two-month period, with at least two samples per month.
- (b) However, if raw milk from species other than cows is intended for the manufacture of products made with raw milk by a process that does not involve any heat treatment, food business operators must take steps to ensure that the raw milk used meets the following criterion:
- Plate count at 30°C (per ml) $<$ 500 000*
- * Rolling geometric average over a two-month period, with at least two samples per month.
4. Without prejudice to Directive 96/23/EC, food business operators must initiate procedures to ensure that raw milk is not placed on the market if either:
- (a) it contains antibiotic residues in a quantity that, in respect of any one of the substances referred to in Annexes I and III to Regulation (EEC) No 2377/90 (1), exceeds the levels authorised under that Regulation; or
 - (b) the combined total of residues of antibiotic substances exceeds any maximum permitted value.
5. **When raw milk fails to comply with point 3 or 4, the food business operator must inform the competent authority and take measures to correct the situation.**
- Note:** The milk purchaser can inform the competent authority on the milk producer's behalf.

Regulation (EC) No 854/2004 of the European Parliament and of the Council of 29 April 2004 laying down specific rules for the organisation of official controls on products of animal origin intended for human consumption

Chapter II - Article 4

Member States shall ensure that food business operators offer all assistance needed to ensure the official controls carried out by the competent authority can be performed effectively

They shall in particular:

- ◆ give access to all buildings, premises, installations or other infrastructures;
- ◆ make available any documentation and record required under the present regulation or considered necessary by the competent authority for judging the situation.

Annex IV - Raw Milk and Dairy Products

Chapter I: Control of Milk Production Holdings

1. Animals on milk production holdings must be subject to official controls to verify that the health requirements for raw milk production, and in particular the health status of the animals and the use of veterinary medicinal products, are being complied with.

These controls may take place at the occasion of veterinary checks carried out pursuant to Community provisions on animal or public health or animal welfare and may be carried out by an approved veterinarian

2. If there are grounds for suspecting that the animal health requirements are not being complied with, the general health status of the animals is to be checked.

3. Milk production holdings are to undergo official controls to verify that the hygiene requirements are being complied with. These official controls may involve inspections and/or the monitoring of controls that professional organisations carry out. If it is shown that the hygiene is inadequate, the competent authority is to verify that appropriate steps are taken to correct the situation.

Chapter II: Control of Raw Milk Upon Collection

1. The competent authority is to monitor the checks carried out in accordance with Annex III, Section IX, Chapter I, Part III, to Regulation (EC) No 853/2004 (as amended)
2. If the food business operator has not corrected the situation within three months of first notifying the competent authority of non-compliance with the criteria with regard to plate count and somatic cell count, delivery of raw milk from the production holding is to be suspended or – in accordance with a specific authorisation of, or general instruction from, the competent authority – subjected to requirements concerning its treatment and use necessary to protect public health. This suspension or these requirements are to remain in place until the food business operator has proved that the raw milk again complies with the criteria.

The Food Hygiene Regulations (Northern Ireland) 2006

Part 3 Administration and Enforcement

Obstruction etc. of Officers

15. - (1) Any person who -
- (a) intentionally obstructs any person acting in the execution of the Hygiene Regulations; or
 - (b) without reasonable cause, fails to give any person acting in the execution of the Hygiene Regulations any assistance or information which that person may reasonably require of him for the performance of his functions under the Hygiene Regulations, shall be guilty of an offence.
- (2) Any person who, in purported compliance with any such requirement as is mentioned in sub-paragraph (b) of paragraph (1) -
- (a) furnishes information which he knows to be false or misleading in a material particular; or

- (b) recklessly furnishes information which is false or misleading in a material particular, shall be guilty of an offence.

Schedule 6 Regulation 29

Restrictions on The Sale Of Raw Milk Intended For Direct Human Consumption

1. Any person who sells raw milk intended for direct human consumption in contravention of.
 - (1) paragraph 5, or
 - (2) paragraph 7A (1) or (2), shall be guilty of an offence .
 - (3) If a distributor sells raw cows' milk intended for direct human consumption in contravention of paragraph 4 he shall be guilty of an offence.
3. The occupier of a production holding may only sell raw cows' milk intended for direct human consumption -
 - (a) at or from the farm premises where the animals from which the milk has been obtained are maintained; and



- (b) to -
- (i) the final consumer for consumption other than at those farm premises,
 - (ii) a temporary guest or visitor to those farm premises as or as part of a meal or refreshment, or
 - (iii) a distributor.
4. A distributor may only sell raw cows' milk intended for direct human consumption -
- (a) which he has bought pursuant to sub-paragraph (b)(iii) of paragraph 3;
 - (b) in the containers in which he receives the milk, with the fastenings of the containers unbroken;
 - (c) from a vehicle which is lawfully used as a shop premises; and
 - (d) direct to the final consumer.
5. The raw milk shall meet the following standards:
- Plate count at 30°C (cfu per ml) < 20,000
- Coliforms (cfu per ml) < 100
6. In the case where farm premises are being used for the sale of raw cows' milk intended for direct human consumption pursuant to sub-paragraph (a) of paragraph 3, the Agency shall carry out such sampling, analysis and examination of the milk as it considers necessary to ensure that it meets the standards specified in paragraph 5.
7. In any case where the Agency carries out sampling, analysis and examination of raw cows' milk in accordance with paragraph 6, there shall be due to the Agency from the occupier of the production holding who is selling the milk a fee of £63, which is payable by the occupier to the Agency on demand.
- 7A.—(1) Subject to paragraph (3) and except in cases to which paragraph (2) applies the container in which any raw milk is sold shall be marked or labelled "This milk has not been heat-treated and may therefore contain organisms harmful to health".
- (2) Subject to paragraph (3), in the case of any raw milk which is not prepacked and is sold at a catering establishment, the words "Milk supplied in this establishment has not been heat-treated and may therefore contain organisms harmful to health" must appear—
- (a) on a label attached to the container in which that milk is sold, or
 - (b) on a ticket or notice that is readily discernible by an intending purchaser at the place where the purchaser chooses that milk.
- (3) The provisions of paragraphs (1)–(3) do not apply to raw milk from buffaloes.
8. In this Schedule -
- ◆ "catering establishment" means a restaurant, canteen, club, public house, school, hospital or similar establishment (including a vehicle or a fixed or mobile stall) where, in the course of a business, food is prepared for delivery to the final consumer and is ready for consumption without further preparation;
 - ◆ "distributor" means a person who sells raw cows' milk that has been produced on a production holding of which he is not the occupier;
 - ◆ "farm premises" means a farm occupied by the occupier of a production holding as a single farm and includes the production holding and any other building situated on that farm and occupied by the same occupier;
 - ◆ "labelling", in relation to a food, includes any words, particulars, trade mark, brand name, pictorial matter or symbol relating to the food and appearing on the packaging of the food or on any document, notice, label, ring or collar accompanying the food;; and
- 7A.—(1) Subject to paragraph (3) and except in cases to which paragraph (2) applies the container in which any raw milk is sold shall be marked or labelled "This milk has not

- ◆ “occupier” means any person carrying on the business of producing or handling raw cows’ milk or his duly authorised representative;
- ◆ “prepacked”, in relation to a food, means put into packaging before being offered for sale in such a way that the food, whether wholly or only partly enclosed, cannot be altered without opening or changing the packaging and is ready for sale to the final consumer or to a catering establishment, and includes a food which is wholly enclosed in packaging before being offered for sale and which is intended to be cooked without opening the packaging and which is ready for sale to the final consumer or to a catering establishment;.
- ◆ “production holding” means premises at which milk-producing cows are kept; and
- ◆ “shop premises” means premises from which any food is sold to the final consumer.



Further Information

If you have any comments or questions concerning these guidelines or the Food Hygiene Regulations (Northern Ireland) 2006 or any proposed changes to your premises or practices please contact the FSA Dairy Hygiene Inspection Team at:

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