



THAI AGRICULTURAL STANDARD

TAS 6402-2009

**GOOD AGRICULTURAL PRACTICES FOR
DAIRY CATTLE FARM**

National Bureau of Agricultural Commodity and Food Standards

Ministry of Agriculture and Cooperatives

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National Bureau of Agricultural Commodity and Food Standards

Ministry of Agriculture and Cooperatives

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Good Agricultural Practices for Dairy Cattle Farm**

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Milk products are largely consumed by all, especially children, pregnant women and elderly. Farm management is an essential factor for milk production to control production processes in order to keep healthy dairy cattle and avoid any contamination of hazardous substances. The Agricultural Standards Committee deems it necessary to establish Thai Agricultural Standard on Good Agricultural Practices for Dairy Cattle Farm as a guidance for operators of dairy cattle farm on how to practice efficiently and hygienically in order to produce raw milk that are safe for further processing of products for consumption.

This standard is based on the information of the following documents:

Department of Livestock Development. (1999). Standard on Dairy Cattle Farm and Raw Milk Production of Thailand.

Department of Livestock Development. (2003). Regulation on Dairy Cattle Farm and Raw Milk Production of Thailand.

OIE Animal Production Food Safety Working Group. (2006). Guide to Good Farming Practices for Animal Production Food Safety. Rev.sci.tech.off.int.epiz. 25(2):823-836.



NOTIFICATION OF MINISTRY OF AGRICULTURE AND COOPERATIVES
SUBJECT: THAI AGRICULTURAL STANDARD:
GOOD AGRICULTURAL PRACTICES FOR DAIRY CATTLE FARM
UNDER THE AGRICULTURAL STANDARDS ACT B.E. 2551 (2008)

Whereas the Agricultural Standards Committee deemed necessary to establish an agricultural standard on Good Agricultural Practices for Dairy Cattle Farm as voluntary standard in accordance with the Agricultural Standards Act B.E. 2551 (2008) to promote such agricultural commodity standard to meet its quality standard and safety.

By virtue of Section 5, Section 15 and 16 of the Agricultural Standards Act B.E. 2551 (2008), the Minister of Agriculture and Cooperatives hereby issued this Notification of Thai Agricultural Standards: Good Agricultural Practices for Dairy Cattle Farm (TAS 6402-2009) to be a voluntary standard, details of which are attached herewith.

Notified onB.E. 2552 (2009)

(Mr. Theera Wongsamut)
Minister of Agriculture and Cooperatives

THAI AGRICULTURAL STANDARD

GOOD AGRICULTURAL PRACTICES FOR DAIRY CATTLE FARM

1. SCOPE

This agricultural standard establishes the criteria for good agricultural practices of dairy cattle farm which covers dairy cattle rearing at farm to transportation of raw milk to a collecting center or to a processing plant. The objective is to produce healthy dairy cow for the production of milk that is safe and fit for human consumption or for further processing without environmental impact.

2. DEFINITIONS

For the purpose of this standard:

2.1 Dairy cow means female animal in Genus *Bos* reared for producing milk for consumption.

2.2 Dairy cattle farm means the premise where dairy cattle are reared with the main objectives of producing dairy cow and raw milk, covering areas of feed storage, dairy cattle rearing, milking, carcass destruction, garbage and waste collecting, office and accommodation etc.

2.3 Milk collecting center means a place where raw milk are collected from farm members prior to transporting to processing plant. The milk collecting center shall be equipped with adequate containers and equipment for storage and the effective control system of raw milk temperature and quality.

3. REQUIREMENTS AND INSPECTION METHODS

Requirements and inspection methods shall be as Table 1.

Table 1 Requirements and Inspection Methods

(Section 3)

Items	Requirements	Inspection Methods
1. Components of farm 1.1 Location	1.1.1 Farm shall be located in a minimal risk environment of any contamination of physical, chemical and biological hazards.	1.1.1 Visual inspection
1.2 Layout	1.2.1 Farm shall have sufficient and suitable size for dairy cattle rearing and not pose any problem to environment. 1.2.2 Farm layout shall be set up in a manner that facilitate hygienic operation, and separated according to the farm activities such as dairy cattle rearing, feed storage, carcass destruction, and worker accommodation.	1.2.1 Visual inspection of farm size and environment 1.2.2 Examination of farm layout and visual inspection of operating area
1.3 Housing	1.3.1 Space for dairy cattle shall be adequate for hygienic cattle rearing. 1.3.2 Housing shall be strong, hygienic, and easily cleaned and maintained. Floor of milking area shall be slightly tilted with good drainage. Raised roof for good ventilation with no construction or object obstructing the air flow shall be provided. 1.3.3 There shall be sufficient light for operation. 1.3.4 There shall be adequate equipment and tools appropriate for operation which shall be stored in a separate area, especially the equipment used for milking shall be hygienic.	1.3.1 Visual inspection 1.3.2 Visual inspection 1.3.3 Visual inspection of light intensity within housing 1.3.4 Visual inspection of equipment and tools storage

Items	Requirements	Inspection Methods
2. Feed	<p>2.1 Feed shall meet the quality and standard according to the Feed Quality Control Act.</p> <p>2.2 In case of using self mixed feed, banned substances shall not be used according to the Feed Quality Control Act.</p> <p>2.3 Feed containers shall be clean, not harm cattle or cause contamination to raw milk. Truck used for feed delivery shall be clean and dry.</p> <p>2.4 Feed shall be preliminarily physical checked.</p> <p>2.5 There shall be separate places for feed storage; and feed shall be protected from contamination and deterioration.</p> <p>2.6 All cows shall be able to access to sufficient feed with nutrients according to age and breed.</p>	<p>2.1 Check record of feed source or analytical results</p> <p>2.2 Check farm record</p> <p>2.3 Visual inspection of feed containers and feed transport truck. If there is evidence or suspicion that feed may be contaminated, feed shall be sampled for residue analysis.</p> <p>2.4 Check feed receiving record</p> <p>2.5 Visual inspection of feed storage place, such as cleanliness, dryness, good ventilation, insects and pests free, pallets for placing feed bags.</p> <p>2.6 Visual inspection of dairy cattle feeding; and check feeding record, compared with the manual, along with the raw milk quality test results.</p>
3. Water supply	<p>3.1 Water source used on farm shall be located in an area safe from contamination of hazardous substances.</p> <p>3.2 There shall be sufficient supply of clean water for dairy cattle and suitable for intended farm use.</p>	<p>3.1 Visual inspection of water source</p> <p>3.2 Visual inspection. If there is doubt of contamination, sample shall be tested in a laboratory.</p>

Items	Specific Criteria	Inspection Procedures
<p>4. Farm management</p> <p>4.1 Farm manual</p>	<p>4.1.1 The farm management manual shall be provided, illustrating the details of the important farm operations, i.e. cattle rearing system, feeding and watering, farm and animal health management, milking, and raw milk storage.</p>	<p>4.1.1 Inspection of manual and related documents</p>
<p>4.2 Personnel</p>	<p>4.2.1 Provision of sufficient personnel corresponding to the number of cattle.</p> <p>4.2.2 Person responsible for cattle rearing shall acquire knowledge and be trained to manage the dairy cattle farm.</p> <p>4.2.3 Provision of licensed veterinarian to supervise dairy cattle farm and animal health.</p> <p>4.2.4 Personnel shall have good personal hygiene to prevent contamination and spread of disease.</p>	<p>4.2.1 Visual inspection</p> <p>4.2.2 Check training records on dairy cattle rearing course organized by the recognized institution or agency</p> <p>4.2.3 Check licenses of veterinarian and dairy cattle farm supervisor</p> <p>4.2.4 Visual inspection of personal hygiene, and check record of personnel health including annual health checkup.</p>
<p>4.3 Cleaning and maintenance</p>	<p>4.3.1 Housing and equipment shall be cleaned and maintained in a good and hygienic condition.</p> <p>4.3.2 Milking house and equipment shall be cleaned and disinfected.</p>	<p>4.3.1 Visual inspection and check cleaning record of housing and equipment in accordance with the cleaning and maintenance program</p> <p>4.3.2 Visual inspection and check cleaning and disinfection record of milking house and equipment in accordance with the cleaning and maintenance program</p>

Items	Specific Criteria	Inspection Procedures
<p>5. Animal health</p> <p>5.1 Prevention and control of diseases</p>	<p>5.1.1 Provision of effective disease surveillance, prevention and control as well as measures to prevent disease introduction to the farm via persons and vehicles.</p> <p>5.1.2 Source of dairy cattle shall be identified. New purchased dairy cattle shall be quarantined and health certified.</p> <p>5.1.3 Dairy cattle health shall be monitored daily.</p> <p>5.1.4 If there is an outbreak or suspicion of epidemic disease, the requirements under the Animal Epidemic Act shall be complied.</p>	<p>5.1.1 Visual inspection of pre-entry farm disease prevention system and check record of farm entry and exit and animal health examination e.g. the test results of tuberculosis and brucellosis and the vaccination</p> <p>5.1.2 Check record of dairy cattle source</p> <p>5.1.3 Check cattle health report and indication of sick animal</p> <p>5.1.4 Check record on the operation according to the law.</p>
<p>5.2 Treatment</p>	<p>5.2 Treatment shall follow the recommendations of the farm veterinary supervisor.</p>	<p>5.2 Check record of treatment and veterinary drug use</p>
<p>6. Animal welfare</p>	<p>6. Care shall be taken for the welfare of dairy cattle. In case of injury, sickness or deformity, cattle shall be appropriately treated to avoid suffering.</p>	<p>6. Visual inspection and check treatment document</p>
<p>7. Environment</p>	<p>7.1 Appropriate disposal of refuse and waste such as manure, discarded carcasses to prevent odour and pathogens to affect residents, neighborhoods or environment.</p> <p>7.2 Waste water shall be treated prior to discharge to public water resources.</p>	<p>7.1 Visual inspection</p> <p>7.2 Visual inspection</p>

Items	Specific Criteria	Inspection Procedures
<p>8. Raw milk production</p> <p>8.1 Milkers</p>	<p>8.1.1 Milkers shall have good health, no infectious diseases that are able to transmit to dairy cattle or milk.</p> <p>8.1.2 Milkers shall follow good personal hygiene principles.</p>	<p>8.1.1 Visual inspection of milkers' health and check health records</p> <p>8.1.2 Visual inspection of milkers' personal hygiene</p>
<p>8.2 Preparation of dairy cows before milking</p>	<p>8.2.1 Before milking, dairy cows shall be cleaned and free of stress. Raw milk shall be tested for abnormality before milking.</p> <p>8.2.2 If dairy cow is treated with veterinary drug, withdrawal period of such drug shall be observed and sample shall be tested for antibiotic residue before selling. .</p>	<p>8.2.1 Inspection of operation during preparing for milking</p> <p>8.2.2 check record on animal sickness, drug use and animal treatment including the test result of antibiotic residue in milk</p>
<p>8.3 Milking</p>	<p>8.3.1 Good milking techniques shall be practiced. After each milking, teats shall be treated in teat dipping solution.</p> <p>8.3.2 Equipment and containers used for raw milk shall be clean, without musty smell, and have smooth, seamless surface and no reaction with milk. They shall be cleaned and disinfected before and after use.</p> <p>8.3.3 After each milking, equipment used for milking shall be cleaned and if milking machine is used, the machine components shall be disassembled, cleaned and dried every time.</p>	<p>8.3.1 Visual inspection of milking practice</p> <p>8.3.2 Visual inspection of operation and inspection of equipment and containers</p> <p>8.3.3 Visual inspection of operation after milking is completed</p>

Items	Specific Criteria	Inspection Procedures
8.4 Raw milk delivery	<p>8.4.1 Raw milk collected in a container shall be delivered immediately to milk collecting center or dairy processing plant.</p> <p>8.4.2 Raw milk containers shall be cleaned immediately after delivery.</p>	<p>8.4.1 Visual inspection of raw milk delivery</p> <p>8.4.2 Inspection of operation after delivery</p>
8.5 Raw milk quality	8.5 Raw milk shall have minimum quality as specified in Appendix B.	8.5 Inspection of raw milk quality test results
9. Record keeping	<p>9.1 Important operations on farm management that affect animal health and disease control shall be recorded.</p> <p>9.2 Records shall be kept for at least 3 years, except for the cow history record shall be kept throughout the animal life.</p>	<p>9.1 Check record</p> <p>9.2 Check record</p>

4. GUIDANCE FOR GOOD AGRICULTURAL PRACTICES FOR DAIRY CATTLE FARM

Recommendations for good agricultural practices for dairy cattle farms are aimed to provide animal rearing operators, farmers and personnel working in dairy cattle farms to use as the guidance for effective, hygienic and safe management and operation of dairy cattle farms. This will result in good health and hygiene of cow to produce raw milk as its full potential for further processing of safe and good quality milk and milk products for consumption, including the responsibility for social and environment. The details of such recommendations are explained in Appendix A, and in the regulations of the Department of Livestock Development and the relevant agencies.

APPENDIX A

GUIDANCE FOR GOOD AGRICULTURAL PRACTICES

FOR DAIRY CATTLE FARMS

(Section 4)

A.1 COMPONENTS OF FARM

A.1.1 LOCATION

A.1.1.1 Farm shall be located in an appropriate area for good dairy cow rearing management, such as the area with convenient transportation, good drainage; and permitted by the Local Administrative Office.

A.1.1.2 Farm shall be located in an environment with minimal risk from any contamination of physical, chemical and biological hazards which may adversely affect the sanitary of dairy cattle and raw milk, such as not being in vicinity of industrial area or waste disposal site. The history of farm land shall be investigated before establishing the farm.

A.1.1.3 Farm shall be located at least 5 km from community, slaughterhouse and live animal market and able to prevent animal disease spreading from outside into the farm.

A.1.1.4 Farm shall be located close to milk collecting center in order to conveniently deliver raw milk with good quality and receive proper services from milk collecting center. The distance between dairy cattle farm and milk collecting center shall not be more than 20 km.

A.1.2 LAYOUT

A.1.2.1 Farm shall have sufficient and suitable size for dairy cattle rearing and not pose any problem to environment and animal health. Farm shall have surrounding fences and one entrance and exit.

A.1.2.2 Farm shall have a good layout with area separation in accordance with the operations. The housing area for dairy cows, calves, young cattle and heifers, and the storage area for feed and veterinary drugs shall be separated and protected from pets, such as dog and cat that may be disease carriers.

A.1.2.3 Farm shall be an open area with good air flow; and have appropriate pasture area and adequate shades.

A.1.2.4 The owner shall legally own the farm or have the land use right.

A.1.2.5 Accommodation and office shall be located only in the residential area, where they are distinctly segregated from dairy cattle rearing area. No dwelling shall be in area of dairy cattle houses. Accommodation shall be well constructed, clean and tidy.

A.1.3 HOUSING

A.1.3.1 Stall of a dairy cow shall have a minimum area of 4 m² (square meter) per head.

A.1.3.2 Housing shall be well constructed using durable materials that are easy to be cleaned and maintained. It shall not cause any harm to animals and workers. Housing can prevent animals from sunlight and rain.

A.1.3.3 Floor of milking area shall be made from non-slippery concrete, slightly tilted with good drainage to prevent waste accumulation within the house. It shall be lifted up from the ground as same as the dairy cattle house floor and installed with an effective waste drains to prevent waste accumulation which may be the source of pathogens.

A.1.3.4 Roof of housing shall be elevated with the eaves above the ground of at least 3 m (meter) for good ventilation with no construction or object obstructing the air flow.

A.1.3.5 Appropriate and adequate feed and water troughs shall be designed to facilitate cleaning in each house.

A.1.3.6 The floor area connecting to the feeding trough, where dairy cattle stand during feeding, shall be made of concrete with the width of not less than 1.5 m to facilitate cleaning.

A.1.3.7 There shall be adequate light for operation. If natural light is not enough, electric light shall be provided to facilitate animal caring and health check at all times. Emergency light shall be provided in case of power failure.

A.1.3.8 Equipment and tools for farm operation shall be in good condition, adequate, and cause no harm to dairy cattle.

A.1.3.9 Separate storage shall be provided for equipment and tools that are easily cleaned, operated, and cause no contamination to milk.

A.2 FEED

A.2.1 Quality and standard of dairy cattle feed shall be complied with the Feed Quality Control Act.

A.2.2 Feed shall be purchased from licensed suppliers according to the Feed Quality Control Act.

A.2.3 In case of self mixed feed, feed ingredients and additives used shall be of good quality. The prohibited substances according to the Feed Quality Control Act and all veterinary drugs shall not be used.

A.2.4 Feed containers shall be clean, dry, in good condition with moisture proof. They shall never have contained hazardous substances, fertilizers, or other harmful materials to animals. The containers shall be free from any contaminant. If coated with other substances, such substance shall not be harmful to animals and shall have proper label.

A.2.5 Truck used for feed delivery, particularly loaded section shall be cleaned and dried without any leftover materials .

A.2.6 Physical properties of feed shall be preliminary checked such as no rupture of container, correct label. Feed contaminated with fungus shall be rejected and properly eliminated. Feed shall be sampled for further laboratory test in case of any problem found.

A.2.7 Feed quality shall be randomly sampled and examined for feed quality and residues by the Department of Livestock Development, according to the Feed Quality Control Act. The test results shall be kept and ready for further inspection.

A.2.8 Separate storage shall be provided for feed that is clean, dry, and free from insects and animals. The feed storage can maintain the quality from deterioration. If feed is contained in bags, they shall be placed on pallets for good ventilation.

A.2.9 Good quality roughage shall be sufficiently provided to meet the need of dairy cattle and in an appropriate ratio to the concentrate feed corresponding to the age and breed of the animals.

A.2.10 Feeding containers or tools shall be clean and adequate.

A.3 WATER SUPPLY

A.3.1 Water source used on farm shall be distance away from an area contaminated by animal manure or waste water from cattle house or residential areas. Furthermore, water source shall be away from slaughterhouses or industrial factories. If water is supplied from underground, the artesian well shall be completely covered.

A.3.2 Adequate drinking water shall be provided to dairy cattle. Water used for animal and farm shall be clear, clean and free from suspended matters.

A.3.3 Water used for cleaning teats and udders of dairy cows and for equipment and tools used in direct contact with milk shall be clean with appropriate hardness. Water quality shall comply with the potable water standard under the Notification of the Ministry of Natural Resources and Environment entitled the Criteria and Technical Measures for Public Health Protection and Environmental Pollution Prevention B.E. 2551 (2008).

A.3.4 Watering containers or tools shall be clean and adequate.

A.4 FARM MANAGEMENT

A.4.1 Farm manual

Farm management manual shall be provided to illustrate details of animal rearing, farm management, animal feeding, animal disease prevention and control, animal health care, farm sanitary, documentation and record system and the precautions of dairy cows on each stage of operation in order to evaluate the effectiveness of dairy cattle farm as follows:

- (1) newborn calves to weaning;
- (2) young cattle and heifers (from weaning to breeding);
- (3) pregnant cows;
- (4) milking cows;
- (5) dry cows.

A.4.2 Personnel

A.4.2.1 Farm shall have enough personnel according to the number of dairy cattle. The number of personnel may depend on many factors such as type of housing, animal rearing system, equipment and other facilities available on farm.

A.4.2.2 Persons responsible for dairy cattle shall be trained on dairy cattle rearing from recognised institute or agency. They shall acquire good knowledge and skill in taking care of dairy cattle and shall be continuously trained and developed. Training shall be recorded in each individual file.

A.4.2.3 There is a farm veterinarian supervising animal health and farm hygiene and giving proper advice on disease prevention, treatment, and drug use within the farm. The farm veterinarian is the one who possesses the veterinary license of Veterinary Council and the dairy cattle farm veterinary supervisor license issued by the Department of Livestock Development (DLD).

A.4.2.4 Every person working in dairy farm shall have annual health checkup and have no tuberculosis infection.

A.4.2.5 Persons who work in the farm shall follow good personal hygiene practices, i.e. dressing with clean clothes, washing and drying hands every time prior to the operation, keeping hands and nails clean, no smoking, no spitting, coughing, sneezing or chewing and eating during operation.

A.4.3 Cleaning and maintenance

A.4.3.1 Housing, equipment and feed and water troughs shall be cleaned regularly to remove leftover feed, fungi or accumulated manure.

A.4.3.2 The immediate areas of housing shall be cleaned and mowed to prevent harbouring of pathogens or disease-carrier insects.

A.4.3.3 Milking house and surrounding area as well as the equipment and tools shall be regularly cleaned. Housing and equipment shall be hygienic for the convenience and safe operation. Automatic milking tools and equipment shall be daily cleaned and checked. If there are malfunctions or expiry of use, corrective action shall be taken immediately.

A.5 ANIMAL HEALTH

A.5.1 Prevention and control of diseases

A.5.1.1 Effective disease surveillance, prevention and control shall be carried out as follows:

- (1) A system of pathogen elimination before entering and leaving farm shall be strictly enforced. There shall be disinfectant spraying facilities or wheel dips. Keep record of visitors and vehicles in and out of the farm for inspection
- (2) Limit non-essential visitors to the farm, for example there shall be fences around the rearing area or a warning sign “no trespassing” on site for unauthorized persons and vehicles.
- (3) Dairy cattle shall be routinely tested for tuberculosis and brucellosis at least once a year by the Department of Livestock Development.

(4) Program for vaccination against Foot and Mouth Disease and Hemorrhagic Septicemia and program for elimination of internal and external parasites by the Department of Livestock Development shall be provided. Hoof trimming shall be provided for lame cattle to walk normally without suffering.

(5) Prevention and control of pests shall be in place to avoid the harbouring source of pathogens that affect health and hygienic conditions i.e. no water logging or sewage around the cattle house, which can harbour various insects. In addition, programs for prevention and control shall be continuously and regularly implemented.

(6) There shall be a proper management procedure on sick animal, dead animal and destruction of carcass in order to quickly control the disease and its spread out from the farm. If the farm veterinarian advises to dispose the carcass, it shall be buried at the depth of not less than 50 cm . Proper disinfectants shall be poured or scattered over every part of the carcass, then the pit shall be filled and piled up above the ground of at least 50 cm.

A.5.1.2 Source of dairy cattle shall be identified. Newly purchased dairy cattle shall be quarantined and health certified by the farm veterinarian. The acquisition of dairy cattle shall be investigated before introduction into the herd and ensured that such cattle shall be free from infectious diseases. The details of dairy cattle history shall be known for the benefits of further farm management.

A.5.1.3 Health of dairy cattle shall be daily monitored and checked for any abnormalities e.g. disease symptom, animal performance.

A.5.1.4 If epidemic disease occurs, local veterinary official shall be notified; and the procedures under the Animal Epidemic Act shall be implemented.

A.5.2 Treatment

A.5.2.1 The farm veterinarian shall practice according to the Veterinary Profession Act B.E. 2545 (2002) and its amendments including the requirements of TAS 9023 of the Thai Agricultural Standard on Good Practices for Control of the Use of Veterinary Drugs.

A.5.2.2 Disease treatment and use of veterinary drugs, and hazardous substances shall be under the supervision of the farm veterinarian or the authorised person. For the use of veterinary drug, the farm veterinarian shall recommend with a written prescription and ensure that the use of veterinary drug is recorded. The farm veterinarian shall also take into consideration of the residues in milk especially antibiotics, anthelmintics and others.

A.6 ANIMAL WELFARE

A.6.1 Dairy cattle shall be moved freely and live in comfort and safe conditions.

A.6.2 Dairy cattle health shall be regularly checked at appropriate interval. Immediate action for sick, injured or deformed animals shall be properly handled to avoid suffering.

A.6.3 Animal welfare management shall be complied with the Department of Livestock Development regulations on the Protection and Welfare of Dairy Cattle at Farm B.E. 2544 (2001).

A.7 ENVIRONMENT

A.7.1 Garbage containers shall be tightly closed. Garbage shall be collected and disposed of at the designated area provided by the municipal or Local Administration Office or destroyed in the specified waste disposal area located separately from the rearing area.

A.7.2 Animal manure shall be removed from housing to avoid accumulation to be a source of bad odour and pathogens.

A.7.3 In case where effluent discharged to public water, appropriate waste water treatment device shall be provided and the quality of the discharged water shall be complied with the official standards.

A.8 RAW MILK PRODUCTION

A.8.1 Milkers

A.8.1.1 In case of being sick or suspicious of being sick or disease carrier to milk e.g. jaundice, diarrhea, vomit, sore throat, fever, skin infection, nasal discharge, otorrhea or sore eye, such milker shall not be allowed to enter the area where milking or milk handling is taken place. If the milker has symptom of sickness or epidemic disease, the milker shall have health checked before milking or handling of milk.

A.8.1.2 The milker shall follow good personal hygiene practices, those include clean clothes, washing both hands and arms to elbows and drying before milking, keeping hands and nails clean and hygienic, no smoking, no spitting, coughing or sneezing or chewing and eating during working.

A.8.2 Preparation of dairy cows before milking

A.8.2.1 Before milking, dairy cow udders, teats, medial sides of hind legs, shanks and abdomen shall be cleaned with clean water. Disinfection of udders with disinfectant shall be done every time before milking.

A.8.2.2 Before a dairy cow is milked, the foremilk shall be extracted two to three times and dropping into milk test container to check for abnormalities and to reduce germs at teat tips.

A.8.2.3 Routine check for mastitis using CMT (California Mastitis Test) shall be carried out before milking every time, every cow and every udder. Dairy cow with CMT positive, such cow shall be milked at the last order and milked completely, and the milk shall not be used for consumption and sale.

A.8.2.4 After milking, milk from individual cow shall be weighed and recorded each time of the day.

A.8.2.5 If dairy cow is treated with the veterinary drug, withdrawal period of such drug shall be observed and sample shall be tested for antibiotic residues before sale.

A.8.3 Milking

A.8.3.1 Good milking techniques shall be practiced either milking by hand or machine. It is necessary to treat the teats in teat dipping solution every time after each milking and avoid injury to teats and udders. During milking, milk shall be prevented from environmental contamination, manure or dust from feeding or bedding.

A.8.3.2 Tools and containers used for raw milk shall be clean, without musty smell, and have smooth surface, seamless and no reaction with milk.

A.8.3.3 After each milking, equipment, tools and containers shall be thoroughly cleaned and disinfected, and dried as appropriate. If detergent and disinfectant is applied, the equipment, tools and containers shall be rinsed again with clean water, except rinsing is not required according to the label instruction. If milking machine is used, the components of machine shall be disassembled for cleaning e.g. air control valve in milk collecting cup, liner rubber, to prevent accumulation of microorganisms.

A.8.3.4 Milking equipment and air pipes shall be cleaned to prevent milk remained inside and become a source of microorganisms.

A.8.3.5 The components of milking machine shall be regularly checked for its appropriate working condition to ensure that it will not cause injury to teats and udders during milking. Parts shall be changed when their expiry are due.

A.8.4 Raw milk delivery

A.8.4.1 After milking is complete, if it is not possible to cool down raw milk to 4°C (degree Celsius) at farm, it shall be immediately collected and transported to milk collecting center or dairy processing plant within one hour or processed as fast as possible. Raw milk containers shall not be left stand under sunlight but placed under shade.

A.8.4.2 Raw milk deliverer shall follow good personal hygienic practices, wear clean clothes, and regularly clean milk delivering vehicle.

A.8.4.3 After delivery of raw milk, containers shall be cleaned, disinfected, dried and kept in dry and clean place that can prevent insects, rodents and dust for next use.

A.8.5 Raw milk quality

Raw milk shall have minimum quality as specified in Appendix B.

A.9 RECORD KEEPING

There shall be a system of documentation. The records of important information shall be kept for at least three years for the purpose of tracibility. They shall cover the following items:

A.9.1 The information on farm management i.e. personnel information, training, health status

A.9.2 The information on production management i.e. history of each dairy cow (keeping cow history record throughout the animal life), feed and water, farm management, animal heath, production records and test results of raw milk quality (report of such raw milk quality test shall be obtained from milk collecting center or the Department of Livestock Development).

B.2.7 Antibiotic test by Delvo test or equivalent or higher than the Delvo test negative

APPENDIX C**SAMPLE FORMS OF FARM DATA RECORDS**

(A. 9)

C.1 Example of dairy cow registration record

Name of farm owner/farmer.....Name of farm.....Farm registration No.....

Farm symbol/logo.....Farm address No.....Road.....Sub-district.....District.....

Province.....Telephone No.....Type of rearing.....

No.	I.D. of cattle	Name of cattle	Sex	Breed	Birth date	Birth weight (kg)	I.D. of sire	I.D. of dam	Weaning date	Weaning weight (kg)	Remarks

Recorder.....

C.2 Example of milk production record (individual cow)

Cow I.D. milking cycle number.....

Type of rearing.....

Date	Quantity of milk (kg)			Remarks
	Morning	Afternoon	Total	

Recorder.....

C.3 Example of milk production record (individual farm)

Name of farm owner/farmer..... Name of farm.....

Farm registration No..... Farm symbol/logo.....

Farm address No..... Road..... Sub-district..... District.....

Province..... Telephone No.....

Type of rearing.....

No.	I.D. of cattle	No. of milking cycle	Production periods (days)	Quantity of milk (kg)	Remarks

Recorder.....

C.4 Example of breeding record of female breeder

Female breeder I.D.Breed..... Sire I.D.Dam I.D.....

Type of rearing.....

Breeding number	Date of breeding	Male breeder I.D.	Age at breeding	Weight at breeding	Date of parturition	Calves at birth			Remarks
						Date	I.D.	Sex	

Recorder.....

C.5 Example of record on dairy cattle feeding

Name of farm..... Farm registration No..... Farm symbol/logo..... Name of farm owner.....

Type of rearing.....

Item.	Type of feed	Source of feed (brand/manufacturing date)	Preliminary physical properties					Sample No.	Remarks
			Colour	Odour	Dry/moist	Container appearance normal/abnormal	Adulteration		

Recorder.....

C.6 Example of record on purchasing and use of veterinary drugs and chemicals

Name of farm..... Farm registration No..... Farm symbol/logo.....

Name of farm owner.....

Type of rearing.....

Item.	Veterinary drugs/chemicals	Date and quantity purchased	Date and quantity used	Quantity remained	Recorder	Remarks

C.7 Example of record on vaccination and deworming

Name of farm..... Farm registration No..... Farm symbol/logo..... Name of farm owner.....

Type of rearing.....

Date	Stall/herd	Vaccination		Deworming		Operator	Supervisor
		Type/name of vaccine	No. of cattle (head)	Name of deworming drug	No. of cattle (head)		

C.8 Example of record on disease treatment and veterinary drug use

Name of farm..... Farm registration No..... Farm symbol/logo.....

Name of farm owner.....

Type of rearing.....

[illegible]

Name (Mr./Mrs./Miss).....Family nameAge.....
Education level.....Duty on farm.....
Employment date.....

[illegible]

Name of farm..... Farm registration No.....
Farm symbol/logo..... Name of farm owner.....
Type of rearing.....

[illegible]

C.11 Example of record on raw milk quality analysis

Name of farm..... Farm registration No.....Farm symbol/logo.....

Name of farm owner..... Type of rearing.....

Date	Milk delivering time	Temp (... °C)	Specific gravity at (... °C)	MB (hours)	Rz at 1 hour	pH	Antibiotics (+/-)	Alcohol test (pass/not pass)	TS (%)	SCC (cell/ml)	SPC (cell/ml)	Freezing point (°C)

Recorder.....

Name of farm owner..... Type of rearing.....

[illegible]

Name of farm owner..... Type of rearing.....

[illegible]

APPENDIX D

UNITS

Units and symbols used in this standard and the SI unit (International System of Units or *Le Système International d' Unitiès*) approved to be used are:

Items	Unit	Unit Symbol
length	kilometer	km
	meter	m
	centimeter	cm
area	square meter	m ²
temperature	degree Celcius	°C
volume	milliliter	ml
mass	kilogram	kg