



Clean milk production for Pakistani consumers

Introduction

Buyers and consumers of raw milk expect to receive a product which is fresh and with a natural composition. Thus all stakeholders involved in milk production, collection and marketing must try their utmost to achieve these goals.

Composition of milk

The main components of milk are water, milk sugar, also called lactose, fat, protein, and minerals. Since milk is a natural product, its composition varies and is never 100%. The average composition of cow milk is:

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|--------------|-----|
| • Water | 87% |
| • Fat | 4% |
| • Protein | 3% |
| • Milk sugar | 5% |
| • Minerals | 1% |

What may influence the composition of milk?

- Breed and individuality of cows

Both milk yield and composition vary considerably among breeds of dairy cattle. Milk from Jersey has about 5% fat while Friesians contain 3-4% of fat. Zebu cows can give milk of up to 7% fat. Fat content in crossbreds milk falls in-between local and exotic. Buffalo milk contains around 8% fat.

Milk of individual cows within a breed varies over a wide range both in yield and contents of the various constituents.

- Interval between milking

Fat content varies considerably between the morning and evening milking because there is usually a much shorter interval between morning-evening milking than between evening-morning milking.

If cows were milked at 12-hours intervals, the variation in

fat content between milking would be negligible, but this is not practicable on most farms. Normally, the solid-nonfat (SNF) content does not vary with the length of time between the milking.

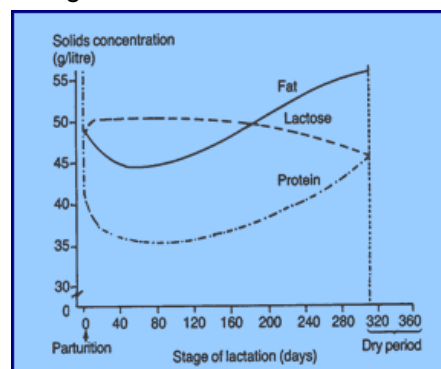
- Completeness of milking

The first milk drawn from the udder contains about 1-1.5% fat while the last milk contains 5-8% fat. Thus, it is essential to milk the cow completely and thoroughly mix all the milk before taking a sample for testing. The fat left in the udder at the end of milking is usually picked up during subsequent milking, so there is no net loss of fat.

Fat content is high immediately after calving but soon begins to fall, and continues to do so for 10-12 weeks, after which it tends to rise again until the end of the lactation period. The high protein content of early lactation milk is due to high globulin content found in colostrum (globulins are proteins that protect calves from infection).

- Stage of lactation

The fat, lactose and protein contents of milk vary according to stage of lactation. SNF contents are usually highest during the first 2-3 weeks, after which it decreases slightly.



Quality of milk

Milk from the udder of a healthy cow contains very few bacteria. Poor hygiene introduces additional bacteria that cause the milk to spoil. To ensure that raw milk remains fresh for a longer time, good hygiene is necessary during milking and when handling the milk.

Important factors that influence milk quality:

- Feeding

Do not feed the cow with silage during milking or shortly before milking, as this will produce off-flavours in the milk.

It is recommended that silage feed to be provided two hours before milking!!

Certain feeds or feed ingredients may contain above safe levels of aflatoxins, which will end up in the milk, and cause harmful effects. Both farmers and consumers need to be made aware of this problem.

- Health of the cow

An unhealthy cow will feed less and produce less milk of poor quality. Cows should always be kept healthy and clean because sick animals can transmit diseases like tuberculosis and brucellosis to milk consumers. If a cow is sick, contact a qualified veterinary practitioner immediately. When the cow is being treated with antibiotics, do not sell or consume its milk until the withdrawal period is over. Both fat and SNF contents can decrease because of diseases, particularly mastitis.

- Zoonoses

Zoonotic diseases like tuberculosis and brucellosis can be spread to humans through milk. Cows suffering from such diseases should be referred to a qualified veterinary practitioner who will decide on the fate of the animal. Farmers are encouraged to vaccinate their animals against brucellosis. Animals should also be checked periodically for all types of contagious diseases and treated promptly in case of infections.

- Mastitis

Mastitis is an inflammation of the mammary glands in the udder caused by infection with disease-causing bacteria. These bacteria can also end up in the milk and result in illness if the milk is consumed. For this reason, milk from cows suffering from mastitis should not be sold or drunk. Control mastitis by observing general hygiene and proper milking procedures. Hair at the udder should be kept short by trimming. Cows suffering from mastitis should be treated by a qualified veterinary practitioner. Milk from animals that are undergoing antibiotic treatment should

not be consumed or sold until the withdrawal period has elapsed because antibiotic residues may cause allergies and drug resistance in consumers.

The milk producer and collector has a great responsibility to produce and keep milk clean and safe. Follow these guidelines:

Cows: This is the most important component of clean milk production. The animal should be clean (free from dust and dirt) and healthy (disease free: TB, brucellosis and mastitis).

- Clean milking equipment: Milking equipment as well as milking and storage areas should be kept clean and free from bacteria.
- Milk handling: Anyone involved in milk handling must be disease free and clean. Milkers should be clean and wear clean clothes.
- Storage and cooling of milk: Proper facilities are required for storage, cooling and handling the milk until it is collected.
- Feeding routines: Some feeds have flavours that lead to taste defects in milk. Such feeds should be fed to animals after milking and it is important to bring animals from grazing 1 hour prior to milking time.
- Flies: Large fly numbers irritate cows and spread disease.
- Water: Adequate and clean water supplies contribute to clean milk production.
- Good milking: Make sure that milking is at regular intervals, and fast.
- Knowledge: Farmers, collectors, processors and consumers should be made aware of the importance of clean and safe milk.

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