



Clean milk production

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India is the world's largest milk producer and its total milk production during 2016-17 is 165.4 million tonnes (Basic Animal Husbandry and Fisheries Statistics 2017). Out of this, total production; 81.3 million tonnes come from buffaloes, 78.1 million tonnes from cows and 5.7 million tonnes from Goats. Many domestic and foreign dairy processing companies are showing interest in the dairy industry of the country now a days and focus on the hygienic milk production is on the rise. Some companies also give credit in the form of bonus or incentives to the milk producers on the basis of milk quality. To make dairy farming more profitable and sustainable, the farmers' awareness about clean milk production should increase so that they can produce good quality milk and also prevent diseases such as mastitis which cause huge economic losses.

Clean milk: Clean milk means that milk which has been extracted from a healthy animal, in clean pots and which does not contain any kind of dirt, straw, dung or any type of foreign material. The taste of this milk should be fine and it should be free of the disease-causing germs. Contaminated milk deteriorates quickly and produces diseases if consumed. The germs which gain entry in the milk can shed many toxins in milk and can be harmful to the consumers. The efforts should be made to ensure that there is no external substance in milk. This prevents the spoilage of milk for a longer time and keeping quality of milk also increases.

Important measures for clean milk production: Clean milk production can be achieved if milk producers follow all round approach which covers different aspects such as health of milch animals and milkers, adequate milking management and clean environment. All these measures are explained below in detail:

Healthy milch animals: A basic requirement of clean milk production is healthy and disease free animals. If the animal is suffering from zoonotic diseases such as Tuberculosis, Brucellosis, Rabies etc., it won't be able to

produce healthy disease free milk. So it is necessary for the dairy farmers to keep their animals clean, dry and disease free. Following things should be kept in mind to maintain health of dairy animals:

- Make sure to regularly immunize or vaccinate dairy animals against infectious diseases such as foot and mouth disease (FMD), hemorrhagic septicemia (HS) and black quarter (BQ) etc.

- Regular deworming of animals will ensure control on endo-parasites in animals and which will lead to proper utilization of nutrients to the animals and also prevent disorders like anemia, impaction etc.

- It is also important that dairy animals should be given balanced ration so as not only quantity but milk quality also maintained.

- Clean and fresh water plays an important role in maintaining the health of animals. So provide fresh water to animals round the clock.

- Clean animals can only produce clean milk, so clean milch cattle daily and remove cow's dung from animal standing area early so that it cannot be pasted on the animals.

- Animals should regularly be monitored for the mastitis so that disease can be detected early and losses be prevented.

Clean and healthy milkers/workers:

The worker who carries out all the dairy farm activities has a very significant part in clean milk production. He should be aware about the hygiene and communicable diseases which can be transmitted through milk. The worker should not have any communicable illness such as TB, typhoid etc. Proper trimming of nails should be achieved so that during milking longer nails of hands of milker should not cause trauma to the skin of the teats. Milker should avoid speaking and coughing during milking process. He/she should wear clean cloths and must not

spit while handling the milk.

Milking management :

Milking management has been divided into the following sections:

– Animal preparations: Never use any medicine like Oxytocin to the dairy animals for the letdown of milk. However, manual massage on the udder should be done to promote milk letdown. Animals should not be beaten or frightened for milking, it decrease milk yield of the animals. Avoid any kind of clamor or loud noises in the milking area.

– Cleaning at the time of milking: Hygiene is very important during milking. Milk is completely sterilized when it is inside the udder of a lactating animal but it gets easily contaminated when it comes out of the udder. Therefore, animal should be cleaned and particularly udder should be thoroughly washed before milking. Also disinfected by using potassium permanganate solution (1:1000).

– Measures during milking process: Milking should be done with the full hand method of milking and knuckling should be avoided. Look for the signs of mastitis such as redness, swelling or pain in the udder and clots or blood in milk. If it happens then immediately treat the affected animal. Milk the animal completely within 6 to 8 minutes. In case of machine milking, take utmost care in cleaning of the milking machine. Keep a fix time of milking in morning and evening.

– Post-milking procedures: Teat orifices keep open for about 30 minutes after milking so keep the animals

standing for at least half an hour after milking and use teat dips for prevention of mastitis.

– Handling of milk: Milk is naturally the medium in which the germs are spread very rapidly. So, every effort should be made to ensure that it is handled properly. Keep the milk covered in clean utensils. Protect it from flies as diseases like cholera, typhoid etc spread with these. Milk should be chilled to 4°C temperature as soon as possible, So that the germs may not replicate in the milk and the quality is maintained.

– Care of utensils: The goal of clean milk can be fulfilled only if the milk utensils will be efficiently cleaned and disinfected. Milking utensils should be washed thoroughly with water and a detergent after each milking. They may be kept under the sun for drying. This makes them safe from germs. Milking utensils should be of aluminum or steel and have minimum joints so that proper cleaning can be done and milk residues be avoided.

Environment: The surrounding environment also has a great significance in producing clean milk. If the animals' premises or sheds are clean, the disease causing organisms don't come in contact with the animals and their entry in the milk is denied, and on the contrary, if the animals have microbes in the vicinity, chances of spread of infections increase. The floor in the milking area should be hard and not muddy. Water should not stagnate and there should be proper drainage facility available. There should be good ventilation and provision of sunlight on the site of milking.

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