THE SCIENCE WORLD
A Monthly e Magazine
ISSN:2583-2212

March, 2023; 3(03), 358-362

Popular Article

Milking Management at Dairy Farm

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https://doi.org/10.5281/zenodo.7721019

Abstract

Milking is the key operation at the dairy farm as it involves the harvesting of the milk from the cows which is the major produce at the dairy farm. The amount of milk harvested, milk quality as well as the health of the cow especially of udder health has a bearing on how the milking operation is being carried out. This article therefore discusses the essentials related to milk secretion, milk letdown mechanism, methods of milking and practices for milking and allied aspects for organization of effective milking operation at a dairy farm.

Introduction

Cow udder is a modified skin gland designed for milk production. The udder is known as an exocrine gland as milk is synthesized in specialized cells grouped in alveoli, and then is excreted outside the body through a duct system that functions like the river tributaries. It is supported by median suspensory ligament and the lateral suspensory ligament and is made up of four mammary glands or quarters. Each quarter is a functioning entity of its own which operates independently and delivers the milk through its own teat. The fore quarters produce less milk (40%) than the hind quarters (60%). In order to produce 1 kg of milk, 400 to 500 kg of blood must pass through the udder.

Preparations For Milking

Site/place of milking

Under loose system of housing, it is recommended that the milking should be done at a separate place than shed where generally they feed and rest. This place is known as milking parlour or the milking byre. The milking byre should be cleaned after each milking using fresh water and disinfected using any milk disinfecting solution after each smiling so that the parlor is dry before the start of successive milking. There should be provision of enough fresh and clean water for washing. The parlor should be well ventilated and should have the provision of good ventilation and lighting. When the herd size is small and the number of animals to be milked are limited as in the case with most of Indian dairy farmers, the construction of a separate milking parloour may not be economical.

Preparing the cow/buffalo

Clean cows especially the udder area before each milking using pressure hose. Allow the water to drain properly and the cows to dry before milking them. Water draining and dripping off the udder during milking transport bacteria into the milk supply and to the teat end where the risk of entry into the udder is increased. Disposable paper towels work best in this connection. Use clean water and a recommended sanitizer to wash teats prior to milking. A sanitizer, however, is not a substitute for clean udders as most sanitizers are quickly deactivated by organic matter, such as manure.

When cows are housed in large paddocks, external udder surfaces are usually grossly contaminated with bacteria even when they appear visibly clean, therefore routine udder preparation procedures should be followed. Whenever udders are washed, they should be dried. One or two streams of milk carefully drawn from each teat into a strip cup. The first milk drawn is always higher in leukocytes and bacteria and should be discarded. Also, this practice of removing 1 or 2 streams of milk is a quick screening test for abnormal milk. Milk containing flakes, strings, blood, or other signs of abnormality probably indicate mastitis and should be discarded.

Preparing the milking equipment's

The milking buckets, cans and drums, and the milking machine system shall be washed, cleaned and sanitized after every milking so that it is dry before the start of next milking. The standard

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Published 08.3.2023

procedures regarding the concentration, temperature, pH and exposure time of the detergents and sanitizers of these equipment's shall be followed as per the guidelines of the manufacturers. The milking system and utensils must be in clean and hygienic condition. In an apparent attempt to save water and cleaning chemicals some producers avoid running wash cycle every milking. Such practices contribute to erratic and elevated bacteria counts.

Preparation of the milker

Dirty clothes and dirty hands increase the risk of contamination of the cow and milking system. Milkers must wear clean clothes during milking. Wash hands prior to starting milking and frequently during milking. Be sure to wash hands after handling any cow known or suspected of being infected and after contacting any part of the cow or her environment.

Methods Of Milking

After let down of milk has taken place the milking has to be evacuated from the udder. There are two methods of removal of milk from the udder.

1. Hand milking

   Under traditional small scale dairying farming practices the milking is done predominantly with hands as the milking may not be economical when only a small number of cows/buffaloes to be milked daily. Moreover, it requires regular supply of power for operating the machine or power back up which may not be possible for many of our farmers under small scale production system. In hand milking, the hand grasps the whole length of the teat. The thumb and forefinger pinch off the upper end of the teat as the other fingers squeeze inward and downward. The increased pressure inside the teat relative to the atmospheric pressure outside the teat forces the milk out through the sphincter. Hand milking should always be done using clean, dry hands. Preferably, milk with the full hand and avoid end-of-milking stripping with the finger and thumb. Rear quarters should be milked first as they contain most milk.

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Published 08.3.2023

FULL HAND MILKING **STRIPPING** **KNUCKLING**

2. **Machine milking:**

Milking of cows by machine in the developed countries in dairying is the rule. The Indian farmers have also started the use of machine for milking of dairy animals. The dairy farmers maintaining 10 or more lactating cows should prefer milking their cows using machine. Milking with machine saves time, labour and improves the efficiency of milking and if done properly improved the quality of milk. The milking by machine is also a natural way of milk removal from the udder as it is based on the natural suckling mechanism of the calf. The milking machine uses vacuum to extract milk from the udder. If the vacuum applied to a teat is too high or lasts too long, blood and body fluid will accumulate and the resulting congestion of the tissue will stop milk flow. When a milking machine is used, the double chambered teat cup and the pulsator allow the teats to be subjected alternately to a vacuum (milking phase) and to atmospheric pressure (massage phase). When air is removed from the pulsation chamber (area between the shell and the liner or inflation), the liner opens because the pressure inside the chamber and the pressure inside the vacuum line are the same. The vacuum at the end of the teat forces the milk out of the teat cistern into the line. However, when air is admitted inside the pulsation chamber the liner collapses beneath the teat (because the pressure inside the liner is lower than inside the pulsation chamber). During this period of "rest," the teat canal closes (but not the teat cistern), milk flow stops, and the body fluids

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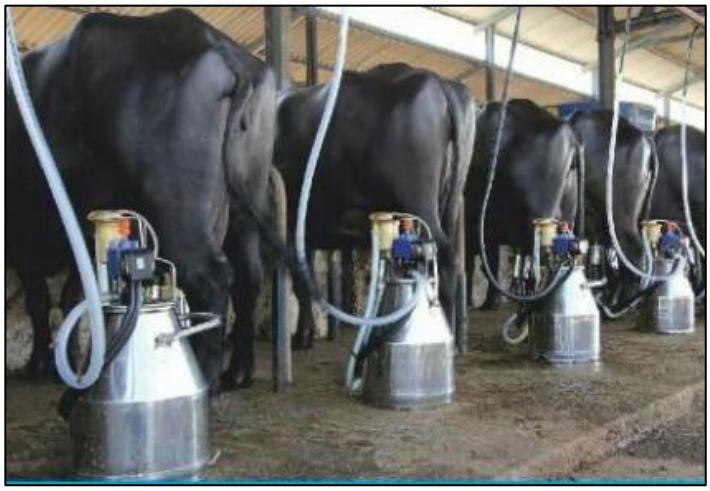
Published 08.3.2023

that were "aspirated" in the tissue of the teat may leave. This massaging action of the teat cup during a pulsation cycle prevents fluid congestion and edema of the teat.



Conclusion

Milking is a labor-intensive activity as about one half of the total labor employed at the dairy farm is utilized for carrying out all milking related activities. Thus, taking care at each and every step will improve efficiency of farm thereby enhancing farmer's economy.

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