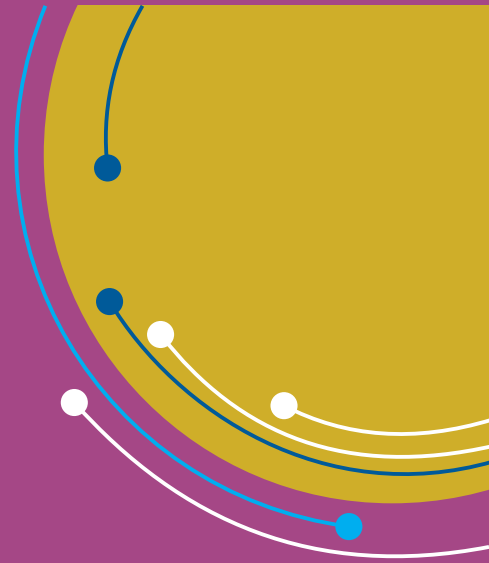


# Mastitis Diagnostic Kit and Mastitis Vaccine



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At least 20% cows and buffaloes in Pakistan produce unwholesome milk because of mastitis (inflammation or swelling of udder). Most of the diseased animals are affected by sub-clinical or hidden form of mastitis.

Milk of mastitis affected animals contains higher than normal number (200,000/ml) of white blood cells (pus cells).

Increased number of white blood cells in milk can be detected by mixing milk with 3% solution of Surf Excel (Muhammad et al., 2010. Tropical Animal Health and Production, 42:457-464) in equal proportions (Surf Field Mastitis Test; SFMT).

### Adoption of Innovative Surf Field Mastitis Test in Pakistan and other Countries

Because of ease of execution, sensitivity of detection, inexpensive and user-friendly nature of the SFMT, thus far it has found applications/recognition with the organizations indicated hereunder:

- i. Military dairy farms throughout Pakistan conduct this test on routine basis under instructions from GHQ (GHQ Notification No. 5865/166/RVF/O&T, dated 11.6.1999).
- ii. SAIC (SAARC Agricultural Information Centre, Dhaka, Bangladesh) has developed a video on SFMT for demonstration of the test to farmers and extension agencies operating in SAARC countries. This video can be had from SAIC ([www.saic-dhaka.org](http://www.saic-dhaka.org)). SAIC has also recognized Surf Field Mastitis Test as a success story in the book entitled "**SUCCESS STORIES ON TRANSFER OF FARM TECHNOLOGY IN SAARC COUNTRIES**" compiled and edited by Muhammad Abdullah and published in 1998 by

SAARC Agricultural Information Centre (SAIC) BARC Campus, Farmgate, Dhaka 1215, Bangladesh, pages: 71-75. The title of the success story described in these pages is **Surf Field Mastitis Test (SFMT): an inexpensive tool for evaluation of wholesomeness of fresh milk.**

- iii. In order to improve the quality of raw milk procured for processing and to increase the profitability of dairying in Punjab, Nestlé Milkpak and Engro Foods are currently training their field staff on the test procedure and its uses in early spotting of hidden mastitis. **Nestlé Milk Pak is paying milk quality bonus @ 20 paisa per litre of milk to those farmers who adopt Surf Field Mastitis Test on regular basis.** Other dairy companies (Chaudhry Dairies, Olpers, Nurpure milk etc.) are likely to follow suit of Nestlé Milkpak Ltd.
  - iv. Surf Field Mastitis Test was adopted by 10 district Livestock Extension Project in Punjab (an Asian Dev. Bank Project).
  - v. The test has become a part of the training curricula of Remount Veterinary School, Sargodha, Livestock Production Research Institute, Bahadur Nagar, Okara, Livestock Extension Training Centre, Bahadur Nagar, Okara, In Service Animal Husbandry Training Institute (IAHTI) Peshawar, Buffalo Research Institute Bhunikey etc.
  - vi. It is a routine test at veterinary hospitals in Punjab and other provinces. Farmers advisory service of Livestock and Dairy Development Department, Punjab have published a brochure on surf test and advocate the use of this test to farmers who contact this service on phone.
  - vii. Pakistan Dairy Development Company has registered nearly 1000 dairy farmers from all over Pakistan. Through its network of Farm Production Advisors, Pakistan Dairy Development Company is promoting the use of Surf Field Mastitis Test among the registered farmers for the purpose of mastitis treatment and control and improvement in milk quality.
  - viii. Directorate of Animal Disease Surveillance and Reporting, Livestock & Dairy Development Department (Punjab) through its field staff is training the dairy farmers in Punjab on the use of Surf Field Mastitis Test in diagnosis, treatment and control of mastitis.
  - ix. The test is being used in other countries like UAE, China, Nepal etc.
- Several NGOs (e.g. SUNGI, Carritas International, Bunyad) have disseminated information on this innovative test to end-users (farmers).



Surf Field Mastitis Test kit





Positive surf test reaction (sub-clinical mastitis) in the 2 lower milk samples. Notice that the milk from the 2 lower quarters became thick (like the white of egg) on addition of surf test solution to milk



Milk from a buffalo suffering from clinical mastitis in 3 of the 4 quarters, there is no need to execute Surf Field Mastitis Test.



Farmers being trained in the execution of Surf Field Mastitis Test for diagnosis of sub-clinical (hidden) mastitis



A youth being trained in the execution of Surf Field Mastitis Test for diagnosis of sub-clinical (hidden) mastitis

## Development and Commercialization of Mastitis Vaccine

To control the scourge of mastitis, several candidate mastitis vaccines were investigated at the University Agriculture, Faisalabad.

The most promising results in mastitis control were obtained with vaccine incorporating a biofilm producing local isolate of *Staphylococcus aureus*.

Both SFMT kit and mastitis vaccine available as an output of an agreement inked between Business Incubation Center, University of Agriculture, Faisalabad and Um Enterprises, Karachi.

