



The National Service for Udder Health and Milk Quality (NSUHMQ)

Summary of 2018 Activity

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Aims of the "National Service" in 2018

The NSUHMQ is a professional department of the Israel Dairy Board (IDB).

In accordance with the Milk Sector Planning Law, (5771-2011), the Israel Dairy Board is obliged to "ensure the quality of raw milk" by:

- a. Operating a national microbiological laboratory to diagnose pathogens in milk that could possibly impact on udder health as well as public health.
- b. Implementing yearly technical and management checks of dairy farms with milk quotas (cows, goats and sheep) by a team of veterinarians and milking management advisers, who are experts in udder health and milk quality.
- c. Professionally supporting all organizations involved in counseling, producing, transporting and storing raw milk.
- d. Writing and editing professional work procedures on topics such as: milking equipment, bio-security, udder health, animal welfare and milk quality.
- e. Actively participating in the various professional organizations, committees and institutions that deal with milk and its safety.
- f. Organizing seminars, workshops, field days and regional meetings, together with stakeholders and colleagues in the dairy industry.
- g. Participating in research studies and observations related to udder health and milk quality.

Summary of Udder Health and Milk Quality Statistics for 2018



In 2018, the number of dairy farms (cows and small ruminants) operating under milk quotas in Israel dropped from the previous year to a total of 866 (Table 1)

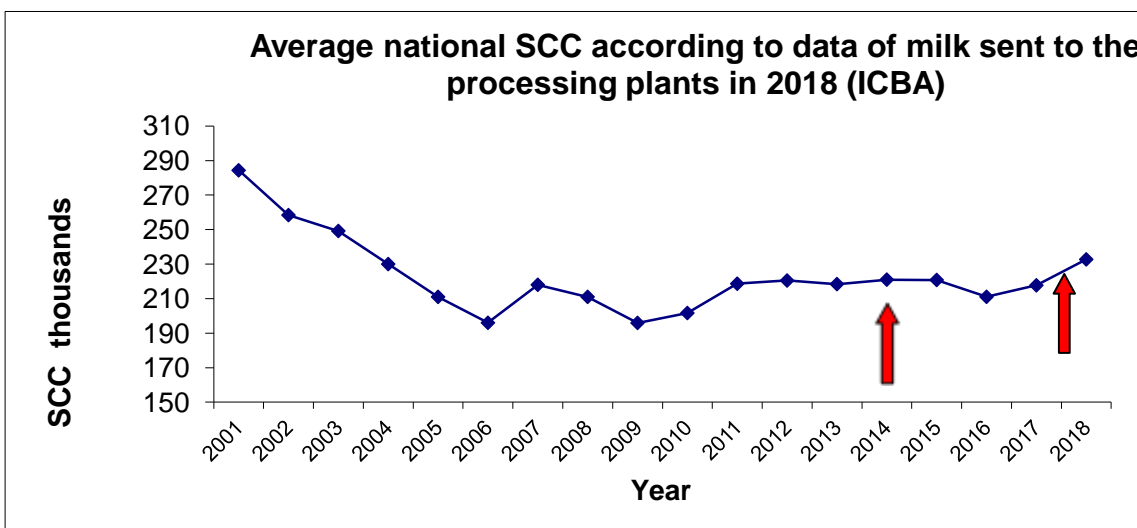
Table1. Number of Dairy Farms 2014 – 2018

Year	2014	2015	2016	2017	2018
Cows	837	801	774	760	748
Sheep	53	53	47	47	43
Goats	76	80	79	79	75
Total	996	934	900	886	866

Results of quality indices of raw milk : Somatic Cell Counts (SCC)

SCC in cow milk marketed to the processing plants – In 2018 the general SCC average in milk marketed to the processing plants was 233,000 per ml/milk. This result shows that the milk marketed to the processing plants is still of high quality despite a worsening in results compared with the last two years.

Diagram1. – SCC in milk marketed to the processing plant by years



After the average SCC stabilized at a level of 210,000 between the years 2011 – 2016, an increased SCC level was found in the milk marketed to milk processors in 2017-2018.



In 2018, as in previous years, we see two SCC peaks – one in summer and another in winter. During both seasons, there are changes in the cow's environment – increased density in the sheds due to increased calving (winter) and wetter sheds, mainly in the summer, as a result of intensive cooling of the cows.

In addition, heat stress (caused by a combination of high temperature and high humidity) results in suppression of the immune system, which in turn increases the risk of udder infections during this period, resulting in a higher SCC.

Activity of the Udder Health Laboratory

Summary of Activity:

- Our laboratory operates under international certification (ISO 17025).
- There is a significant increase in the number of tests performed by the laboratory.
- A total of 142,000 tests were performed in 2018.
- Samples were received from 776 farms (80% from dairy farms) - similar to the amount in 2017.

A. Results of individual tests on cow/quarter milk samples:

There has been a significant increase in the number of individual cow samples in recent years. During 2018, 65,000 tests were performed (an increase of 20% in comparison to 2016 and 4.3% in comparison to 2017).

Table 2 – Breakdown of tests conducted for pathogen identification in cowmilk

Type of Test	% of Tests
High Somatic Cell Counts	46.0
Clinical Mastitis	25.3
"Monitoring" – Pseudomonas, Staph. aureus, Strep. agalactia, Mycoplasma spp.	8.2
After Calving	5.5
Prior to "Drying Off"	6.1
High Electrical Conductivity of cow's milk	2.0
Follow-up after treatment	1.7



There has been a significant increase in the number of samples sent prior to "drying off" in comparison to previous years, since many farmers have shifted to selective Dry Cow Therapy (DCT).



B. Diagnostic results of individual tests in goat and sheep milk:

- We have also seen an increase in the number of goat and sheep milk tests. A total of 17,000 tests were performed (v. 15,000 in 2017) from 54 farms, similar to the number of farms in previous years.
- Non-aureus Staph (NAS) was isolated in 34.4% of all the individual goat milk samples. Staph. aureus was isolated in 3.2% of the samples, while Pseudomonas aeruginosa was isolated in 1.4%.
- Of the 500 antibiotic sensitivity tests carried out in goat milk in 2018, sensitivity patterns of Staphylococcus (aureus and non-aureus) was found in 100% of the samples. In contrast, there has been a decline in the sensitivity of these bacteria to penicillin over the years.
- The sensitivity to penicillin stands at 58% among 100 isolations of NAS and at 31% in isolations of Staph aureus.

Summary of Field Staff Activity:

The field staff managed by Dr. Adin Shwimmer, includes three milking management advisers and two veterinarians who specialize in udder health.

The milking management advisers were involved in the annual check of milking machine performance, preventative milking machine maintenance, checking the integrity of the milking systems, sampling of herds for antibodies of contagious bacteria, bulk tank sampling etc. and, as in previous years, provided immediate solutions to serious equipment malfunctions.

This year, **NSUHMQ** veterinarians mainly visited problematic farms with troublesome udder health and/or milk quality indices. They led communal meetings for analysis of annual results and risk assessment procedures, gave advice and conducted training, and issued recommendations for improving and preserving achievements, including economic considerations.

Overall, prompt and professional intervention improved udder health and milk quality as well as cow comfort, thus reducing harm to livestock health and financial losses to the producers.



Aims for 2019:

- To introduce additional laboratory procedures that match Israeli milk standards.
- To develop and implement new tests for diseases that can be diagnosed in bulk milk tanks and that are inexpensive, reliable and improve animal welfare. By using such milk tests, we can obtain earlier diagnosis of diseases before the onset of clinical symptoms or before symptoms are even observed by the farmer and/or veterinarian.
- To continue development work with the molecular system in order to diagnose pathogens in milk through advanced and independent methods.
- To actively participate in new research and improve the professional capability of the laboratory staff.
- To strengthen cooperation with other microbiological laboratories, locally and internationally in order to enhance our knowledge.
- To professionally support research groups, processing plants and governmental agencies.
- To gather and centralize information at a national level in all matters pertaining to udder health and milk quality.

Goals of the Field Staff

- To add new farms to the laboratory's molecular monitoring and control program.
- To deepen knowledge about environmental and animal welfare issues and their impact on udder health and milk quality.
- To continue yearly checking and certification of milking machines for all milk producers (cows, sheep and goats).



- To organize professional training days and farm visits for milk producers.
- To increase marketing activity and operation of the milking equipment laboratory (simulator) and provide services in the field of research and carry out testing for companies marketing detergents and disinfectants for cleaning milking systems.

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