

Milk Essay

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A milking parlour in the Durban municipal area, 1949

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This is a publication of Milk SA. Milk SA was founded by the primary and secondary dairy industry sectors to promote a healthy South African dairy industry.

CHANGES IN THE BOARD OF DIRECTORS



Gerhard Kriel (1) was appointed as CEO of the MPO with effect from January 2022 and therefore, he is also an *ex officio* director of Milk SA.



Fanie Ferreira (2) who was Acting CEO of the MPO until the appointment of Gerhard Kriel, was appointed as Alternate Director for MPO nominated directors on the Milk SA Board. Fanie is also a MPO Board member and milk producer from Senekal. He replaces **Neels Neethling (3)** (a producer from Rayton) who served as Alternate Director for the past two years.



Lex Gutsche (4) held the position of Alternate Director for SAMPRO nominated directors on the Milk SA Board since 2012. He was appointed as Director with effect from January 2022. Lex is also Managing Director of Woodlands Dairy.



Drikus Lubbe (5) who resigned as Director in 2020, accepted the position of Alternate Director for the SAMPRO nominated directors on the Milk SA Board, with effect from January 2022. Drikus is also the CEO of Dairy Group South Africa.



Frik Grobler (6) served on the Board of Directors since the inception of Milk SA in 2002. He resigned as director due to ill health. Frik is also Managing Director of Grobler Dairies.

CHANGES AT THE MILK SA OFFICE SINCE 2020



Nicolette Teichmann laid down the harness in March 2021 after more than twelve years' service at Milk SA. She was Personal Assistant to the CEO, Nico Fouché. She played a large role in promoting Milk SA's external image and in maintaining healthy communication with all interested parties. Nicolette was also the soul of the office and with her sunshine personality, made sure that there was never a dull moment. We are privileged to continue to keep her involved on a freelance basis.

Andrea Rademan was appointed at Milk SA with effect from January 2022 as Operations Officer, with her primary responsibilities being Corporate Governance, Project Administration and Communication. Andrea is a non-practising attorney with a LLB and CIS. She has extensive corporate experience and her fresh approach promises to lead Milk SA to greater heights speedily!



Elekanyani Nekhavhambe was appointed as Transformation Officer in 2021. He graduated from the University of Venda with a MSc degree in Agriculture and was previously employed with the National Agricultural Marketing Council as Agricultural Economist. He gained vast experience in various agricultural industries, served on numerous industry bodies such as the SA Poultry Association Transformation Board and Potato SA Transformation Review Committee. His role at Milk SA is to implement the transformation programme of Milk SA under supervision of the Transformation Manager, Mr Godfrey Rathogwa.

Refilwe Lekola joined Milk SA in 2020 as General Office Assistant, responsible for reception and administrative support to the Office. With diplomas in Travel & Tourism and Executive Secretarial Services together with vast work experience in these fields, Refilwe adds enormous value to Milk SA.



Lisa van Esch is a qualified internal auditor, responsible for the administration of the statutory levies and financial administration. With a wealth of experience in accounting, payroll administration and VAT audits, Lisa was the perfect fit for the position of Senior Administration Officer. Since her appointment, Milk SA has experienced a remarkable improvement in all facets of levy administration and financial administration.

MEET THE MILK SA TEAM



Front, from left to right: June Mngadi, Nico Fouché, Refilwe Lekola, Andrea Rademan
Back, from left to right: Elekanyani Nekhavhambe, Matilda Wistebaar, Lisa van Esch, Priscilla Sinclair.

CONTINUATION OF STATUTORY MEASURES: 2022 TO 2025

Statutory measures are published for four-year periods by the Minister of Agriculture, Land Reform and Rural Development and may be extended by the Minister, subject to industry support and other factors such as sound administration of the measures.

The previous measures lapsed on 31 December 2021 and Milk SA was again designated as Administrator for the current four years, until 31 December 2025.

Persons who have registered under previous measures do not have to register again under the current measures. Some 320 role-players

are currently registered, who also submit monthly information and pay levies to Milk SA.

The objectives of the measures remain unchanged, namely industry information, promotion of a competitive international trade environment, research and development, dairy quality and safety, consumer education, enterprise development and skills & knowledge development.

The levy rate for local unprocessed (raw) milk – as defined in the regulations – is 1,71 cent/kg while the rates for imported products also increased as follows:

Customs Tariff Classification	Product Description	Levy (Vat exclusive)			
		2022 c/kg	2023 c/kg	2024 c/kg	2025 c/kg
04.01	Milk and cream, not concentrated nor containing added sugar or other sweetening matter.	1.71	1.77	1.84	1.92
04.02	Milk and cream, concentrated or containing added sugar or other sweetening matter.	16.38	17.04	17.72	18.43
04.03	Buttermilk, curdled milk and cream, yoghurt, kephir and other fermented or acidified milk and cream, whether or not concentrated or containing added sugar or other sweetening matter or flavoured or containing added fruits, nuts or cocoa.	6.17	6.41	6.67	6.94
04.04	Whey, whether or not concentrated or containing added sugar or other sweetening matter; Products consisting of natural milk constituents, whether or not containing added sugar or other sweetening matter, not elsewhere specified or included.	4.98	5.19	5.39	5.60
04.05	Butter and other fats and oils derived from milk, dairy spreads.	17.59	18.29	19.03	19.78
04.06	Cheese and Curd	24.54	25.53	26.55	27.61

The list of unprocessed (raw) milk used for the manufacturing / processing of products, was expanded to include skimmed and full cream milk powder as well as fresh and long-life milk. Below is the full list of products which must be declared by processors:

	RAW MILK USED IN THE MANUFACTURING OF PRODUCTS / ROUWELK AANGEWEND IN DIE VERVAARDIGING VAN PRODUKTE
6.1	MILK / MELK:
	6.1.1 Long-life (UHT) milk and Sterilised milk: Unsweetened and unflavoured Langlewe (UHT) melk en Gesteriliseerde melk: Onversoet en ongegeur
	6.1.2 Fresh milk: Pasteurized and ultra-pasteurized (ESL) Vars melk: Gepasteuriseer en ultra-gepasteuriseer (ESL)
6.2	Sweetened and/or flavoured and/or coloured milk / Versoete en/of gegeurde en/of gekleurde melk
6.3	Fermented products namely maas, yogurt, kefir and butter milk / Gefermenteerde produkte, naamlik maas, yoghurt, kephir en karringmelk
6.4	MILK POWDER / MELKPOEIER:
	6.4.1 Full cream milk powder / Volroom melkpoeier
	6.4.2 Skimmed milk powder / Afgeroomde melkpoeier
6.5	Cheese, excluding cottage cheese and cream cheese / Kaas, uitsluitend "cottage" kaas en roomkaas
6.6	Other products / Ander produkte Including: cream, ice cream, cottage cheese, cream cheese, condensed milk, evaporated milk, desserts. Ingesluit: room, roomys, maaskaas, roomkaas, kondensmelk, ingedamppte melk, nagereg. Excluding: whey powder and butter which must be declared under fields 7.1 and 7.2 / Uitgesluit: weipoeier en botter wat by velde 7.1 en 7.2 verklaar moet word

HIGHLIGHTS FROM THE CEO'S REPORT TO THE MEMBERS AT THEIR GENERAL MEETING IN NOVEMBER 2021

- The Court Order of 22/2/2021 determined that Nejahmogul's fees were irrational and arbitrary; and that the Executive Officer (of the APS Act) had failed to give directions to Nejahmogul on how to fulfil its mandate. There was ongoing interaction between Milk SA, Nejahmogul and DALRRD towards achieving an agreement in the above regard.
- The MPO, SAMPRO, DSA and Milk SA engaged in intense interaction with Nejahmogul and DALRRD to prevent any further misunderstandings about the roles of Milk SA and the DSA versus the role of Nejahmogul.
- Milk SA interacted with the relevant Cluster Chairpersons under the Agriculture and Agro-Processing Master Plan (AAMP) to ensure that dairy's requirements were sufficiently covered in the AAMP.
- As input to the Agricultural and Agro-Processing Master Plan (AAMP) initiative of the Government, all industry participants emphasized that harm had been inflicted on the industries over many years due to poor service delivery by the public sector on national, provincial and local authority levels as well as failure to maintain a safe environment; and that



Nico Fouché
CEO

such harm could not be rectified by any future policy or government measure.

- The dairy industry is increasingly challenged by political instability while there are continuous efforts by governmental institutions to interfere in the free market system. In 2017, the dairy industry was challenged in the sense that market mechanisms were not supportive of especially smaller milk producers. This was addressed in Nedlac and everyone accepted the outcome. The Competition Commission is now also voicing its concerns over market concentration, with suggestions that the highly industrialized structures should be transformed into smaller, localized structures.
- Since the publication of the SABS standards (SANS1694) on animal welfare, the DSA has formulated an audit format with

criteria. A work group benchmarked the DSA audit criteria against SANS1694 and the IDF Animal Welfare guideline, which were recently tested on-farm - which could lead to the amendment of SABS Standards.

- Milk SA further invested in the DSA Laboratory which was becoming much more relevant in terms of national calibration of instruments, monitoring of product quality and research support. This laboratory is highly regarded in the SA dairy community.
- The Consumer Education Project entered a TV commercial in the International Milk Promotion Trophy Awards Competition and won 3rd prize together with two other countries.



- Sustainability of dairy depends increasingly on how the industry participants behave in terms of issues such as GHG emissions, soil health, waste management, water management, working conditions, product safety and quality and animal care. A document written by Dr Meissner and Dr Ohlhoff, addressing many aspects, was recently updated. It is the organized industry's duty to promote the application of measures in this regard.
- The importance of dairy animal welfare and the impact of the dairy industry on the environment are increasingly under the spotlight internationally and in South Africa. It is therefore also high on Milk SA's agenda.
- Extreme plant-based diets and veganism seem to be gaining ground at the cost of animal-based diets, mostly on the back of emotion and misinformation. Consumer education becomes increasingly important and the International Dairy Federation (IDF) has been addressing this actively with messages such as:

“Animal and plant-foods should not be thought of as competing entities, but rather as synergistic food sources that provide different nutritional, social, economic, and environmental benefits.”

RESEARCH TO MANAGE LIVER FLUKE ON PASTURE-BASED DAIRY FARMS

Background

Dairy farmers in the pasture regions of the south-eastern coastal belt have experienced increased prevalence of liver fluke for some time, with some farms being heavily affected. Liver flukes or fasciola species that infect cattle can reduce productivity by 15-30%. The infection affects general health and feed intake which could result in morbidity, reduction in milk production and weight gains, and in isolated cases even death. A research project was therefore initiated in 2016 by Milk SA with study area the Tsitsikamma pasture-based dairy farms, to investigate the prevalence, seasonal occurrence and favourable or unfavourable environmental conditions of the intermediate snail host (*Lymnaea truncatula*) of the parasite. The principle is that if these factors are understood, farmers would be in a better position to control or manage the intermediate host, and as a result limit the development and infestation of the parasite which requires the snail to complete its life cycle.

Research findings

The results obtained have in the first instance confirmed farmers' observations of dramatic differences in the importance of fasciola prevalence between farms situated near, even bordering, each other. Mean totals of respectively zero and 42 of the intermediate hosts have been counted over three years

per sampling site on two adjacent farms and even greater differences between adjacent sampling spots per farm. In fact, the number of snail hosts present on one occasion in one of the most highly infested sites was estimated at more than three million! This, compared to mean totals of fewer than four snail hosts per sampling site in a survey of a large number of Belgian farms where liver fluke is highly prevalent. There is thus no doubt that the parasite would have seriously threaten milk production on three of the four farms tested, should the liver fluke develop resistance to the available anthelmintics (e.g. triclabendazole), as already shown elsewhere.

The results furthermore showed that the prevalence and distribution of the host snail over seasons are clearly water and temperature dependent, but rain versus irrigation often have different outcomes as it affects the texture of muddy patches and therefore the suitability of the habitat of the snail host to thrive. The seasonal cycling of the host snail followed much the same trends between farms, particularly as regards periods that are less conducive to the propagation of the snails. However, there was considerable variation between farms, such as in time and number of peaks and variation in the time span of general peaking in numbers of the snails recovered. This is to be expected, since open water is essential

for the parasite to be able to infect the snail host, whereas the snail can survive well in wet mud, in the absence of open water. Hence, it is to be expected that the peaking of the parasite will not necessarily follow the peaking of the snail closely. Another factor observed is that the parasite has a depressing effect on the health of the snail, since the snail is not well adapted to the higher temperatures in midsummer. This implies that relatively high proportions of the infected snails would not survive long enough under such conditions to allow for completion of the development of the parasite in them.

Apart from the dependence on open water, the parasite eggs need to have been deposited in the vicinity of the snails long enough before the open water is present, for the eggs to have “matured” by the time they are required in the open water, so that the eggs are ready to hatch soon after they have become submerged in the water. These events will be set in motion by periodic grazing of infected cattle on such marshy spots to allow the eggs to be disseminated to the spots and mature in depressions conducive to accumulation of open water.

Once mature, the eggs can hatch soon after they have entered the water, hatch and successfully infect the snails, in this way to lead to infection of the cattle. In other words, the young parasitic stage of fasciola, the so-called miracidium, needs to be fully developed to the level of being able to hatch soon after submersion, then swim in the water to find the snail intermediate host, penetrate, and develop to the next stage, the cercaria. Thereupon, once this next state has developed, it similarly requires open water to leave the snail, swim and encyst on herbage or other solid material in their surroundings to the metacercarial stage that is infective to their final hosts, namely cattle and sheep.

Conclusion

By managing their open water areas carefully, taking cognisance of the results discussed above, pasture-based dairy farmers can go a long way in controlling if not eliminating liver fluke infestation on their farms.

by Dr Heinz Meissner



STANCE OF THE ORGANISED DAIRY INDUSTRY (ODI) ON A1 VERSUS A2 MILK

What is A1 and A2 milk?

The difference is associated with variation in the protein composition of cow's milk. Both A1 and A2 variants are proteins in the casein group which makes up about 80 % of the proteins. The two variants are almost identical, apart from differing in one amino acid at position 67 of the polypeptide (amino acid chain): A1 has histidine whereas A2 has proline. Interestingly, dairy breeds differ in composition of A1 and A2 in their milk: the highest frequency of the A1 variant is observed in Holstein (0.31-0.66) and Ayrshire (0.43-0.72) and A2 in Guernsey (0.88 -0.97) and Jersey (0.49 -0.72).

The proposed negative effect of A1 milk:

This is associated with the histidine at position 67 of the polypeptide. When A1 milk is digested, the histidine results in a cut of the polypeptide into a shorter peptide with seven amino acids. This peptide is called BCM-7. In the case of A2 milk the proline prevents a split at this site, which prevents the BCM-7 from being released. BCM-7 is associated with opioid and cyto-modulatory properties that supposedly have inhibitory effects on the immune system. There are also indications that A1 milk does not digest and absorb as easily as A2 milk and some researchers claim that A1 or A1A2 milk may be associated with an increased risk of developing Type 1 Diabetes, autism and schizophrenia, as well as coronary heart disease. Other controlled research does not support the claim.

Reasons for ODI's position:

Bearing in mind (1) the unconvincing research evidence, (2) the fact that milk presented to the consumer has mostly been processed in bulk from various sources, and (3) that even dairy breeds with comparatively high frequencies of A1, do contain A2, the ODI cannot support any action to discredit A1 milk or promote A2 milk at the expense of A1 milk. From the regulatory environment the stance is supported by the DALRRD with the following pronouncement: "The Department is aware that there are local producers/manufacturers/retailers who are considering indicating the presence of the A2 protein or the absence of the A2 Protein (or both) in their milk/dairy products. However, in view of the current lack of South African based supporting scientific research around A2 type of beta-casein protein, the absence of a commercially available test and the legal status of the trade mark, the use of the above mentioned claims on dairy products regulated under regulation R 260 dated 27 March 2015, will not be allowed in terms of regulation 31(3) (a) and (5)".

More information can be obtained from the Milk SA R & D Project Manager at heinz@milksa.co.za

by Dr Heinz Meissner


RESISTANCE OF MASTITIS PATHOGENS TO AVAILABLE ANTIBIOTICS

It is well-established that antimicrobial (antibiotic) resistance (AMR), is increasing at an alarming rate. To study the overall prevalence and identify specific antibiotics which show resistance to mastitis strains, Milk SA supports a comprehensive research programme with several projects. Thereby, it is hoped that preferred drug(s) could be identified for specific pathogens or alternative management protocols recommended. Some progress is reported.

In a trial where the antibiotic susceptibility of *Staphylococcus aureus* was tested, 75-80% of isolates were multidrug resistant. The isolates were 100% resistant to amoxicillin, ampicillin and penicillin G, 95% resistant to cephalixin, 82% to streptomycin, 75% to oxacillin, 64% to erythromycin, 50% to tobramycin, 46% to tetracycline and 39% to vancomycin. Although of concern, at least none of the *Staph. aureus* isolates showed complete resistance to all antibiotics tested.

In a trial conducted to establish trends in provinces, it was shown that AMR differed between maltose-negative (MN) and maltose-positive (MP) *Staph. aureus* types. Resistance of MN indicated little difference between provinces and seasons for

ampicillin, penicillin G and cephalixin. In general though, there was more resistance by MN than MP *Staph. aureus* isolates to most of the antibiotics used. As a further concern, the results showed resistance of the MN strain isolated from milk samples to antibiotics that are only used in human medicine, which implies a possible transfer from humans to animals, i.e. a zoonotic effect. This should be carefully monitored in future. Overall, the difference in AMR profiles between MN and MP *Staph. aureus* is useful information to farmers and veterinarians, as it indicates to different management and treatment protocols for MN *Staph. aureus* which, although more resistant than the MP counterpart, does not seem to be a chronic intra-udder infector, therefore preventing unnecessary culling.



As a follow-up to the zoonotic evidence above, several CNS/NAS strains from mastitis cases and from humans that were in contact with infected dairy cows were isolated. The β -lactam encoding resistance gene was the most common resistance determinant detected and was identified in 29% of the cattle and 75% of the human *Staph. aureus* isolates. Human *Staph. aureus* isolates from three sampling sites clustered together with bovine isolates recovered from milk samples at these sites. The human isolates were indistinguishable from the cattle *Staph. aureus* isolates present at the respective sites. This is disturbing because it suggests bacterial transmission.

To move away from indiscriminate antibiotic use, specific management plans have

been introduced on farms that send in milk samples for regular testing. These include parlour hygiene, milker and supervisor education, routine microbiology and cytology examinations, and prudent treatment based on susceptibility testing. Although an overall trend of increased resistance to the nine antibiotics studied was seen for the farms screened randomly, in twenty well managed herds, a trend of decreasing on-farm resistance was recorded. This shows that AMR can be limited by meticulous hygiene management.

by Dr Heinz Meissner

MANAGING LIVER FLUKE ON PASTURE-BASED DAIRY FARMS

Pasture-based dairy farmers in the south-eastern coastal belt have experienced increased prevalence of liver fluke, with some farms being heavily affected. Infected cattle can lose productivity by 15-30% as the infection affects general health and feed intake, and in some cases animals may die.

A better way to address liver fluke infestation is to target the intermediate snail host of the parasite, rather than continue to treat infections with anthelmintics since the fluke may develop resistance. A research project was therefore initiated in 2016 by Milk SA on selected farms, to investigate the prevalence, seasonal occurrence and unfavourable environmental conditions of the snail host of the parasite. The argument was that if these factors are understood, farmers would be in a better position to control or manage the intermediate host, and as a result limit the development and infestation of the parasite which requires the snail to complete its life cycle.

The results obtained confirmed farmers' observations in the study area that large differences occur in fluke prevalence between farms situated near, even bordering, each other. Mean totals of respectively zero and 42 of the intermediate hosts have been counted over three years per sampling site on two adjacent farms and even greater differences between adjacent sampling spots per farm. The results furthermore showed that the

prevalence and distribution of the snail host over seasons are clearly water and temperature dependent, but rain versus irrigation often have different outcomes as it affects the texture of muddy patches and therefore the suitability of the snail's habitat. The seasonal cycling of the snail followed much the same trends between farms, particularly as regards periods that are less conducive to its propagation, but peaks differed vastly, so did the prevalence of infestation by the fluke. This is to be expected, since open water was shown to be essential for the parasite to infect the snail, whereas the snail can survive well in wet mud, in the absence of open water. Another factor observed was that the parasite depressed the health of the snail in unfavourable times such as in summer, since the snail is not well adapted to the higher temperatures in midsummer. This implies that relatively high proportions of the infected snails will not survive long enough under such conditions to allow for completion of the development of the parasite in them.

A crucial further factor identified was that the fluke's eggs need to be deposited in the vicinity of the snails long enough before the open water is present for the eggs to mature by the time they are required in the open water, and being ready to hatch soon after they have become submerged in the water.



**Dr Heinz
Meissner**

The mature eggs can then hatch and successfully infect the snails, in this way paving the way to infect cattle. To explain in more detail: the young parasitic stage of the fluke, called the miracidium, must be developed to the level of being able to hatch soon after submersion, then swim in the water to find the snail host, penetrate, and develop to the next stage, the cercaria. The cercaria, similarly requires open water to leave the snail, swim and encyst on herbage or other solid material in the metacercarial stage which can then infect their final hosts, namely cattle or sheep.

The results suggest that pasture-based dairy farmers should manage the open water areas carefully, such as by fencing-off when their animals graze nearby. This should assist substantially in controlling liver fluke infestation.

by Dr Heinz Meissner



MILK SA REPRESENTATIVES ON THE NATIONAL ANIMAL HEALTH FORUM

Milk SA is a co-founder of the National Animal Health Forum (NAHF) in 2006, with the objective to liaise with government regarding animal health issues.

Milk SA is a full member of the NAHF, with two members namely Dr Theo Kotzé, who is a veterinary consultant and Mr De Wet Jonker, who is a trade specialist.

Mr Jonker serves on this body since its inception while Dr Kotzé was appointed in 2021.



De Wet Jonker



Dr Theo Kotzé