Milk South Africa
Melk Suid-Afrika

Milk Essay

Vol 13 no 3 • August 2022

Tel 012 460 7312 • www.milksa.co.za

CONTENTS

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.

CHAIRMAN'S REPORT

at the AGM of 15 June 2022

It is my pleasure to welcome you all to Milk SA's Annual General Meeting, which takes place at a time in history where the macro-environment has become increasingly uncertain, which emphasizes the relevance and purpose of a unified South Africa with a strong economic foundation. The South African economy and society were shaken quite severely by the following recent events:

Dr Bonile Jack-Pama
Chairman of the Milk SA Board

- The social protests and economic devastation in KwaZulu-Natal during July 2021;
- The invisible COVID-19 enemy which continued fearlessly on its path of destruction;
- Outbreaks of foot-and-mouth disease (FMD) during 2021 and 2022 in previous FMD-free zone areas;
- The devastation of veld, grazing land and crops by swarms of brown locusts in parts of the Northern Cape, Western Cape and Eastern Cape Karoo during March and April 2022 - which was by far the worst outbreak in the past 25 years;

Milk SA AGM well attended by MPO and SAMPRO members and guests

The Annual General Meeting was held in Pretoria on 15 June and was well attended by Member Representatives from MPO and SAMPRO, project managers and other industry guests. Project reports were highlighted and the audited financial statements for 2021 presented. Milk SA is pleased to report that it obtained a clean audit report once again. The members were happy to note the high standard of the project reports and the sound administration of Milk SA's affairs.

Nico Fouché
Milk SA Chief Executive Officer

- Disruptive rainfall and storms during April and May 2022 in KwaZulu-Natal which caused extreme damage to land, buildings and infrastructure; and
- World-wide economic disruption, risks and uncertainties stemming from the Russian invasion of Ukraine.

Dealing with the consequences of the above is not easy for South Africans who have already been crippled by poor service delivery by the public sector for many years. Economic failure leads to unemployment, for which the rate is currently highest among youths aged between 15 and 24, at around 66.5%.

Whereas **consumption** remained fairly positive during the coronavirus-stricken 2020 for many food products including dairy, the picture changed drastically in 2021. All the dairy product categories, except flavoured milk, experienced negative demand (a quantitative decline) from 2020 to 2021 (calendar years). Fresh milk and UHT milk reflected a serious decline in sales.

After the pandemic-induced contraction of 6.4% in 2020, **South Africa's economy** started to recover in 2021, with GDP growth reaching 4.9%. Despite longstanding structural constraints such as electricity shortages, the recovery was expected to continue in 2022 and the medium term. With the key goal of accelerating an infrastructure-led economic recovery plan, President Ramaphosa announced the ***Sustainable Infrastructure Development Symposium*** (SIDSSA) in 2020 with a view to significant investment in energy, water and sanitation, agriculture & agro-processing and other economic sectors.

This led to (amongst others) the introduction of the **Agriculture and Agro-processing Master Plan** (AAMP) in 2021 which was concluded and signed by Minister Didiza on 12 May 2022. Milk SA, MPO and SAMPRO participated in AAMP which was aimed at improving food security, providing farmer support, investing and maintaining critical infrastructure, reducing imports, improving localized food production, supporting market expansion and promoting trade. Although insights and input by the SAMPRO CEO added value in respect of the agro-processing section, it unfortunately lacked clear definition and scope and therefore, further attention is required. On the contrary, the key challenges for the livestock section feature prominently and fairly sufficiently in the AAMP.

The Advisory Committee: Industry Information produced two detailed reports in reaction to the Competition Commission's reports on "Essential Food Price Monitoring" which were presented to and adopted by the Board of Directors. These reports of Milk SA clarify important principles of the SA dairy market in relation to competitiveness and competition.

Milk SA accomplished a myriad of goals through its projects and served the dairy industry of South Africa in various ways during the four-yearly **statutory measures** (2018 to 2021) which lapsed on 31 December 2021. Our levy, financial and other administration was solid and sound, as again underscored by the internal and external audit reports. Levy income during the four years was

R231 million, which exceeded the budget by 1,2%. The work of the Milk SA Office and ministerially designated inspector and his professional approach is highly commended, as it not only resulted in improved levy income and more reliable industry information, but also fostered good relationships with our industry role-players.

All the **projects** of Milk SA maintained high standards and delivered excellent reports which were all adopted by the Board of Directors. I would like to highlight some of the more salient points:

- The amended statutory measures for 2018 to 2021 enabled Milk SA to present the dairy industry with reliable information on a wider range of dairy products manufactured from unprocessed milk.
- The SA dairy industry, through its SA National Committee (SANCIDF) remained an active member of the International Dairy Federation through its Standing Committees. Sustainability in all respects featured high on the agenda, with the UN Food Systems Summit being the supreme event where stakeholders presented their commitments in respect of school meals, food waste, healthy diets and agro-ecology.
- Nineteen ongoing and new projects were facilitated and co-ordinated by the R&D structures. The **R&D Programme** is also responsible for overseeing the subprojects for animal welfare, animal health and environmental sustainability. The following aspects deserve special reference here:
  - The R&D Programme Manager (Dr Meissner) and the Manager: Environmental Sustainability (Dr Ohlhoff) compiled and updated the "***Sustainability in the SA dairy industry: A status and progress report***" with the most recent principles and practices pertaining to the organized dairy industry's endeavours to support and promote a viable, competitive and ethically sound SA dairy industry. Dr Meissner also wrote a document "***What is really important to ensure sustainability in the dairy industry***?".
  - The document: "***Anti-cattle campaign: Arguments to refute claims***", written by Dr Meissner, empowers industry participants with facts when confronted with anti-cattle campaigns.
  - A remarkable R&D achievement was the development of a web- and phone-based tool for producers of unprocessed milk, to calculate and monitor the impact of environmental indicators on the economic outcome of their operations.
- The **Customs Duties and Market Access Project** contributes to a trade dispensation that supports the growth and development of the dairy industry in South Africa.

This includes representing Milk SA (as a member) on:

- The National Animal Health Forum (NAHF); and
- The Agricultural Trade Forum (ATF).

The goal of NAHF is to improve veterinary services and the compliance with animal health standards through public private partnerships. In 2021, the project liaised actively with the Directorate Animal Health and Directorate Veterinary Services of DALRRD and NAHF to share information on animal diseases including the foot-and-mouth disease outbreaks.

The Agricultural Trade Forum is a platform where agricultural industries together with Government can compile trade protocols and strategies for negotiations with numerous trading partners / countries to the benefit of all agricultural industries. The international trade dispensation covers issues such as:

- *Ordinary customs duties;*
- *Action against dumping and subsidized imports;*
- *Provision for rebate of custom duties;*
- *Government policy in respect of the issues already mentioned;*
- *Trade agreements that influence or determine the issues already mentioned as well as rules of origin and access by South Africa's dairy industry to foreign markets; and technical requirements in respect of imports and exports*

- The role of the Dairy Standard Agency (DSA) increased immensely in terms of scope, intensity and purpose. Food quality and safety involves a network of affected parties and institutions - both nationally and internationally - and therefore, DSA's Managing Director secured a strong presence and active participation therein. For the year under review, the following can be highlighted:
  - Expansion of DSA's role and activities in respect of participation in the harmonization of standards on the African continent through the African Organisation for Standardisation.
  - Ongoing engagements with a view to co-operate constructively with DALLRD and its designated assignee, subject to the High Court judgment rulings of 22 February 2021.
  - Engagements with DALRRD, Milk SA, the assignee and the Executive Officer of the APS Act to counter the latter two parties' claims which were aimed at removing Milk SA's dairy quality objectives from the statutory measures.
  - Initiation of the review of the Veterinary Procedural Notices (VPN) 20 to ensure

that the updated Code of Practice for Milk Producers is aligned with statutory regulations and to support export certification.
  - Industry consultation led to revised draft regulations for Dairy Products and Imitation Dairy Products (R1510 of 2019) as well as the micro-criteria required for the revision of R1555 of 1997 which are the Regulations Relating to Milk and Dairy Products.
  - Farm audits assisted milk producers to implement sustainable and effective food safety systems, based on the prerequisite programmes as provided for in Regulation 908 of 27 June 2003, issued in terms of the Foodstuffs, Cosmetics and Disinfectant Act (Act 54 of 1972) as well as the DSA Code of Practice for the Secondary Industry.
  - Updating of the DSA Code of Practice for Milk Producers in respect of biosecurity and animal welfare.
  - Expanding audit services to include animal welfare audits, aligned with South African National Standards 1694 of 2018: The Welfare of Dairy Cattle.
  - As reference laboratory for the SA dairy industry, the DSA Laboratory supplied reference samples for calibration of laboratory equipment and also analyzed routine samples in terms of the **Milk SA Quality & Safety Programme**, while it supported special investigations as well as the R&D Programme of Milk SA.
- Under the **Primary Industry Skills & Knowledge Project**, MPO initiated an online learning platform and bookstore. An "e-reader" application can be downloaded onto the student's laptop, tablet or cellphone. The student may opt to complete any of the 13 modules (ranging from animal healthcare to farm business management) or the entire MPO Dairy Qualification.
- The **Secondary Industry Skills & Knowledge Project** was instrumental in establishing closer contact between the FoodBev SETA Board and the Dairy Chamber, which resulted in a far better understanding by the Board of the dairy vocational needs. For that reason, the Dairy Chamber is acknowledged as the best functioning chamber within FoodBev SETA. The first private training provider has recently been accredited by the SETA.
- Although substantial challenges have been encountered, the black dairy entrepreneurs continued to be supported (under the **Enterprise Development programme**) with equipment, infrastructure, pregnant heifers, fodder flow, skills and knowledge. A system of partial payment by the beneficiaries for the afore-mentioned goods and services, has been introduced. A number of new potential beneficiaries have been identified for assessment.
- The **Consumer Education Project's** task to understand and influence consumer behaviour is a never- ending challenge which requires continuous study of the relevant sciences and creative action. Their 2021 programme is loaded with ingenuity, such as:
  - The new television advertisement "Dairy Gives You Whatever Go You Need";
  - The dairy matrix video, explaining to consumers the unique benefits of dairy in the diet;
  - Recipes shown in the DairyDoneEasy campaign on Facebook and Instagram; and
  - A new sport portal on the website.

Every industry role-player is encouraged to study the project reports attentively to appreciate the work that underpins **a competitive SA dairy industry in the free market space**. Milk SA takes pride in presenting this annual report to its members, namely MPO and SAMPRO, while Milk SA also feels honoured to have been nominated by them as designated Administrator of the statutory measures, for another four years.

I would like to thank MPO, SAMPRO, DSA, SANCIDF and every project manager for their selfless dedication; every director who helped shape the projects and direct the activities of Milk SA strategically and tactically; all the industry role-players for their continued support for and trust in Milk SA; the professional business partners of Milk SA; and lastly, the Milk SA staff who ensured that the clock never missed a tick.

– Dr Bonile Jack-Pama

Milk SA's Dairy Research Forum considers potential R&D projects

The Dairy Research Forum meets annually to discuss research ideas and make recommendations to the Dairy R&D Committee. Its most recent meeting was held on 25 May 2022 in Pretoria.

The Forum, which includes academic experts, officials from provincial departments of agriculture, milk producers and milk processors, looked at promising research ideas, such as pasture diversity as a management tool for facial eczema control and the development of a Brucellosis vaccine.

The status of the current projects was also noted with great appreciation. One of the great advantages of this forum, is the multi-disciplinary expertise around the table.

Front, left to right: Dr. Bobbie van der Westhuizen, Dr. Heinz Meissner, Mr. Zola Gebeda, Dr Bernice Mostert, Prof. Esté van Marlé-Koster, Mr. Kenneth Botha and Prof. Wayne Truter
Back, left to right: Mr. Jompie Burger, Mrs. Andrea Rademan, Mr. Fanie Ferreira, Mr. Edu Roux, Mr. Nico Fouché, Mr. Bertus van Heerden, Prof. Theuns Erasmus, Mr. Alwyn Kraamwinkel and Mr. Hannes Neethling

Milk SA Task Team report
on front-of-pack nutritional labelling

Front-of-pack nutritional labelling (FOPNL) refers to a nutrition labelling system that is presented on the front of food packages with the aim of supporting consumers to make healthier food choices at the point of purchase, by delivering simplified and at-a-glance nutritional information.

To explain the policy-making process, the figure below shows the pathway by which FOPNL policies influence consumption of unhealthy products and subsequently population health outcomes.

The Department of Health (DoH) is currently addressing the issue of the mandatory use of front-of-pack (FOP) labelling, which was initially published as voluntary

guidelines to the draft regulations relating to the labelling and advertising of foods (No R.429).

The FOP labelling criteria according to the draft R.429, includes a traffic-light labelling system of nutrients, where red, yellow and green are used to indicate the levels of key nutrients: energy, total sugar, fat, saturated fat, and total sodium. The criteria were based on the cut-off values for 'free of' and 'low in' claims for these nutrients.

Previously falling under the Directorate Food Control of the Department of Health, FOP labelling is now administrated under the Directorate Nutrition of the same department, which proposes a warning sign on the front of processed food packaging, that warns the consumer if the product is high in fat, salt and / or sugar. These are the nutrients that are associated with increased health risks.

On 15 April 2021, the food industry and stakeholders attended a front-of-pack label research presentation, which was also attended by the Consumer Education Project of Milk SA and dairy industry members.

In principle the organized dairy industry has no reason not to support the overarching goal of improving the health of South Africans, subject to an objective scientifically based approach on FOPNL and provided that any developed FOPNL warning system by DoH will not harm the undisputable contribution of the nutritional value of milk and other dairy products as part of an overall healthy lifestyle.

From information received from the Consumer Goods Council of South Africa (CGCSA) regarding the proposed thresholds for added sugar and saturated fats in food, it is clear that certain dairy products will be negatively impacted if intrinsic sugars are calculated as part of total sugars and are not recognized as a beneficial nutrient contributing to the overall nutrient and health benefits of dairy products.

In the participation process, the Regulations and Standards Project and Consumer Education Project of Milk SA collaborate with CGCSA, with the aim of supporting a unified approach on FOPNL to assist companies to provide consumers with accurate, transparent, and holistic nutrition information, based on sound science. The collaboration by the Regulations and Standards Project and Consumer Education Project of Milk SA takes place through a working group referred to as the Milk SA Task Team, which aims to strengthen the position of the dairy industry, with specific reference to the unique nutritional composition of dairy.

The Milk SA Task Team is supported by two representatives from industry and Dr. Friede Wenhold (Department of Human Nutrition: University of Pretoria) to formulate the requirements for a submission to DoH under the umbrella of the Regulations and Standards Project of Milk SA. The intention of the Task Team is to develop an evidence-based submission so that DoH would:

// to page **10** //

// from page 9 //

- consider excluding lactose as intrinsic sugar in dairy products in the calculation of total sugars for the purpose of FOPNL;
- consider an argument for dairy fats in FOPNL, taking into account emerging research results on the health benefits of dairy towards cardiovascular disease and the overall lowering of risks of non-communicable diseases; and
- propose reasonable cut-off values for intrinsic sugars and saturated fats for consideration by DoH.

PROGRESS

- Framework for the development of the submission to DoH is complete. The Milk SA Task Team accepted this framework.
- An independent action team was established and tasked with developing an independent scientific document required for the submission. The action team consists of:
  - Prof. Mieke Faber: nutrition landscape in South Africa with specific reference to the role of dairy;
  - Prof. Corinna Walsh: dairy sugars;
  - Prof. Renée Blaauw: fats in dairy with special emphasis on saturated fatty acids; and
  - Prof. Friede Wenhold: management of the development of scientific reviews and liaison with the Milk SA Task Team. Prof. Wenhold will also assist the Milk SA Task Team in drafting the final submission to DoH.

The work of the Milk SA Task Team and action team is scheduled to continue in the third and fourth quarter of 2022.

This initiative is facilitated by Jompie Burger (Project Manager: Dairy Regulations & Standards) and Christine Leighton (Project Manager: Milk SA Consumer Education Project).

Jompie Burger
Project Manager: Dairy Regulations & Standards

Christine Leighton
Project Manager: Milk SA Consumer Education

CHEESE AS COLLATERAL

"The making of Parmigiano-Reggiano is a long and involved process, from collecting the ingredients, to forming the giant wheels of cheese, and then maintaining the specific environment needed for storing and age-ing. In the northern Italian region of Emilia-Romagna, they take the production of the cheese so seriously that even the local bank is invested in it. Literally.

When local cheese producers apply for a loan, the bank holds the cheeses themselves as collateral. It's mutually beneficial as the bank houses the Parmesan wheels in special cheese warehouses so the producers avoid paying for storage. The bank, meanwhile, has very tangible assets in reserve, while their investment matures, and they are able to learn more about the business.

Swiss banks have never favoured the system, as it's all too tempting to liquify the assets for fondue."

Source: Six unbelievable uses for cheese - BBC Food

REDISCOVER DAIRY SNIPPETS

In their June 2022 newsletter, the RediscoverDAIRY team of Milk SA shares some of the highlights from the first quarter in 2022. The project reaches the diverse population of South Africa through focused activities and messages that resonate with each segment of the population.

Find out more about the Consumer Education Project (CEP) of Milk SA at www.rediscoverdairy.co.za and follow them on their RediscoverDAIRY Facebook and Instagram pages.

www.rediscoverdairy.co.za/Latest-News-2/Newsletter/

The top affordable snacks and light meals for athletes are:

1. **Eat Enough:**

A **baked potato** topped with grated cheese gives the body carbohydrates and good-quality protein

2. **Rehydrate properly:**

A **glass of milk** is an excellent recovery drink, whether you like plain milk or flavoured milk

3. **Take in enough protein to repair muscle tissue**

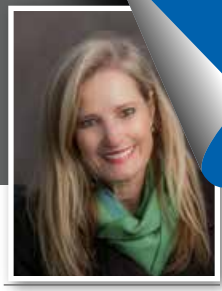
Take in enough protein to repair muscle tissue – a **cheese sandwich** is an excellent choice

CELEBRATING WORLD MILK DAY 2022

World Milk Day, as the name suggests, is a day dedicated to milk and has been celebrated every year on 1 June for the past 21 years. It was established by the United Nations' Food and Agricultural Organization (FAO) in 2001 and every year a theme is selected to celebrate this day.

The theme of World Milk Day for 2022 was to draw attention to the climate change crisis and how the dairy sector can reduce its impact on the planet. The aim is to achieve 'Dairy Net Zero' by reducing greenhouse gas emissions over the next 30 years and improving waste management in order to make the dairy sector sustainable.

Milk SA's staff joined in the festivities by celebrating World Milk Day with milkshakes.



Promotion of learning by the Primary Skills & Knowledge Development project through a web-based platform

Helene Pheiffer
Project Manager: Skills & Knowledge Development, Primary sector

The new online learning platform for the dairy supervisor and dairy manager was launched by the MPO Training Institute on 1 April 2022. The focus is on training of farm personnel of commercial producers of raw milk and programmes aimed at achieving transformation objectives of emerging producers of raw milk.

The new training platform provides an opportunity for individual self-study or employee group training, facilitated by the producer or farm manager. The online training provides access to learning material, formative and summative assessments, practical and work experience logbooks, as well as PowerPoint presentations. Students can access the learning platform via an application which also makes provision for off-line use.

Further information can be found on MPO's website at **https://www.mpo.co.za/training/**

WHAT IS REALLY IMPORTANT FOR SUSTAINABLE DAIRY FARMING?

The world has changed as the evidence and perceptions about climate change have surfaced and progressively become centre in the media and people's minds. This has led to questions of what the reasons are for the change which primarily pointed fingers to man-introduced carbon emissions and over-use of resources and waste accumulation.

By Dr Heinz Meissner
R&D Programme Manager of Milk SA

All sectors, including agriculture (therefore dairying), have come under scrutiny. In addition the public, often influenced by activists, has become more critical of how food is produced – is it safe, do the practices follow acceptable standards, does it minimize the carbon footprint and limit resource use, should we have animal foods at all, etc.

The International Dairy Federation (IDF) as the custodian of global dairying, has been proactive in dealing with these issues in a scientific and amicable way, but at the same time providing information to the public on progress and guidance to countries with respect to what should be done and put in place to limit public accusations and ensure the long term sustainability of the sector. I will deal with these, but first I need to provide a perspective on day-to-day management factors which farmers deal with in their quest to stay profitable.

Important on-farm management factors:

In a study done in 2014, the relative importance of different variables was investigated. The principle was to change one variable by one unit while keeping the others constant, and then to see what the effect on profitability was. The results, which I have averaged to limit the effect of milk buyers who differ in their payment schemes, are presented in the table below for TMR and pasture-based systems.

Economic values (R per unit) for TMR and pasture-based production systems

Trait	TMR	Pasture-based
Fat (kg)	3.42	8.44
Protein (kg)	17.4	20.2
Milk (ℓ)	-0.42	0.06
Longevity (days)	3.63	3.63
Liveweight (kg)	-3.31	-4.21
Calving interval (days)	-5.75	-3.23
Somatic cell score	-1 372.45	-714.74

The results show differences between production systems which could be due to yield differences and the proportion of breeds used and the payment schemes in the areas. The difference between protein and fat yield depicts that protein was more important

than fat, but the relative difference will be influenced by payment schemes and their changes over time. Milk volume was less important at the time, because payment schemes primarily did not pay a premium for volume. An increased longevity was positive to profitability, but surprisingly calving interval was not, and also not cow weight. Larger cows tend to have a higher feed intake and maintenance requirement which are not offset by their milk production. By far the most important factor is SCC from bulk tank samples, which overwhelms all other milk price related and other factors, and demonstrated where farmer emphasis should be.

In a recent study funded by Milk SA which relates to the SCC results, the cost per cow in revenue loss and treatment of mastitis was on average R1 982. Overall, the health of the herd and input costs are the major determinants of on-farm profitability.

Longer term sustainability:

The SA dairy Industry is a signatory to the FAO-IDF Dairy Declaration of Rotterdam which endorses the UN 2030 Agenda for Sustainable Development in so far as it guides sustainable development from a social, environmental, economic and health perspective. These are the important elements which will determine future sustainability and which we need to take cognisance of and I will comment where applicable:

- ***Greenhouse gas emissions (GHG): GHG emissions across the full value chain are quantified and reduced through all economically viable mechanisms.*** Comments: GHG in agriculture primarily refer to methane and nitrous oxide. Methane is from rumen fermentation and manure, and nitrous oxide from chemical nitrogen fertilization. Methane emissions in the cow can be reduced by diet manipulation but mostly by increased and more efficient milk production. As an example: Milk production in the US increased by 24.9% between 2007 and 2017. This was achieved by 25.2% less cows resulting in a reduction in methane emissions of 19.1% and 18.5% in nitrous oxide. On the negative side, politicians in the Netherlands push for a reduction of 30% in livestock numbers because of methane emissions and nitrogen pollution of the soil. Such threats are expected to escalate due to media and activist pressure.
- ***Soil nutrients: Nutrient application is managed to minimize impacts on water and air, while maintaining and enhancing soil quality***. Comments: Soil nutrients are a function of soil health (quality); improved soil health is conducive to more nutrients and is achieved by conservation agriculture (CA) and / or regenerative agriculture (RA). Soils in SA in general are degraded and lack nutrients in the right quantities and ratios. This needs to be addressed by our farmers whether crop mixed farming or pasture-based, to ensure sustained productivity of the vegetation.

- ***Waste: Waste generation is minimized and, where unavoidable, waste is re-used and recycled.*** Comments: This is certainly something which everyone, especially our secondary industry, needs to address as waste can accumulate over time to the detriment of health and production. Our record in this regard is comparatively good.
- ***Water: Water availability, as well as water quality, is managed responsibly throughout the dairy value chain.*** Comments: This cannot be emphasized enough as SA is a water-scarce country and water quality is declining daily due to poor management from authorities. The implication is that the industry will have to do it themselves where applicable to ensure sustainable quality supplies, amongst others by cleaning and recirculation. The water stewardship programme of the Nedbank-MPO/WWF is a good example of the emphasis we place on that, so is the R&D programme of the INR/WWF/Confluent which is funded by Milk SA. Several processing companies are also excellent examples of our dedication.
- ***Soil: Soil quality and retention is proactively managed and enhanced to ensure optimal productivity***. Comments: See 'Soil Nutrients' above.
- ***Biodiversity: Direct and indirect biodiversity risks and opportunities are understood, and strategies to maintain or enhance it are established.*** Comments: Although many judge biodiversity as a "nice to have" and not directly of importance to profitability, the longer term sustainability depends on having a diverse plant species composition and soil microbial and fauna population on the farm. Diverse combinations ensure resilience against climate change, fire, pollution etc. and enhance productivity. Mostly, biodiversity is enhanced by CA / RA practices which should be seriously considered by farmers where applicable.
- ***Market development: Participants along the dairy value chain are able to build economically viable businesses through the development of transparent and effective markets.*** Comments: Consumers increasingly demand transparency and markets will depend on how effectively we address and communicate the issues they are concerned with. An example is pressure being put on Australian exporters by EU markets to report their progress with carbon emission reduction before they will buy their produce. Furthermore, potential and new markets should continuously be explored to broaden the market for existing dairy products and developing new and niche products. This should apply to both exports and importantly also to shift competitor products from the current market.
- ***Rural economies: The dairy sector contributes to the resilience and economic viability of farmers and rural communities.*** Comment: This is such an obvious responsibility of us contributing to upliftment, training, mentorship and enabling community peace and resilience, that it does not warrant further comment.

- ***Working conditions: Across the dairy value chain, workers operate in a safe environment, and their rights are respected and promoted.*** Comment: This is well covered in legislation and is mostly adhered to.
- ***Product safety & quality: The integrity and transparency of the dairy supply chain is safeguarded, so as to ensure the optimal nutrition, quality and safety of products.*** Comments: This is arguably the most important factor in ensuring sustainable markets – integrity, quality and safety cannot be compromised.
- ***Animal care: Dairy animals are treated with care and are free from hunger and thirst, discomfort, pain, injury and disease, fear and distress, and are able to engage in relatively normal patterns of animal behaviour.*** Comments: Although animal welfare is a focus point of activists and the media with potentially very negative consequences, we should not address the wrongdoings just to please them. Farmers need to care for their animals as they would for their pets, also because well-cared for animals are healthy and productive animals. In support the industry, together with SABS, has developed the official SA National Standard: The welfare of Dairy Cattle guideline document (SANS 1694) and is in the process of testing a farm audit procedure developed and funded by a Milk SA project.

In summary:

On-farm effective management of critical control and potentially hazardous variables, control of input costs, healthy and efficiently producing animals are essential for contemporary profitability. Only once these are optimized, does milk price become the next item to take the enterprise even further. Having said that, the success of the industry depends on a healthy value chain with trust and transparency backwards and forwards, and therefore in particular, between producers of unprocessed milk, producers of processed milk and the manufacturers of the other dairy products in bridging difficult times. It is acknowledged that every dairy business in the primary and secondary dairy industry has its own measures to address sustainability, but everyone should understand and accept that there are issues of common responsibility which need to be addressed by the organized dairy industry through their executive arms of Milk SA, MPO, SAMPRO and the Dairy Standards Agency. Also, it should be realized that sustainability for the industry as a whole, will be tested increasingly by the way we address the elements listed by the UN 2030 Agenda for Sustainable Development.

References:

1. C.B. Banga, F.W.C. Neser & D.J. Garrick, 2014. Breeding objectives for Holstein cattle in South Africa. South African Journal of Animal Science 44, 199 – 214.
2. J.L. Capper & R.A. Cady, 2020. The effects of improved performance in the U.S. dairy cattle industry on environmental impacts between 2007 and 2017. Journal of Animal Science, 98 (1), 1 - 14.
3. S. Boztas, 2021. Netherlands proposes radical plans to cut livestock numbers by almost a third. Open Philanthropic Project. The Guardian 9 Sept 2021.

TESTS AND METHODOLOGIES TO SUPPORT CONTROL OF MASTITIS

Laboratory diagnosis of mastitis can be costly and time consuming, therefore cow-side tests such as the California Milk Cell Test (CMCT) and Milk Electrical Resistance (MER) need to be utilized to full potential.

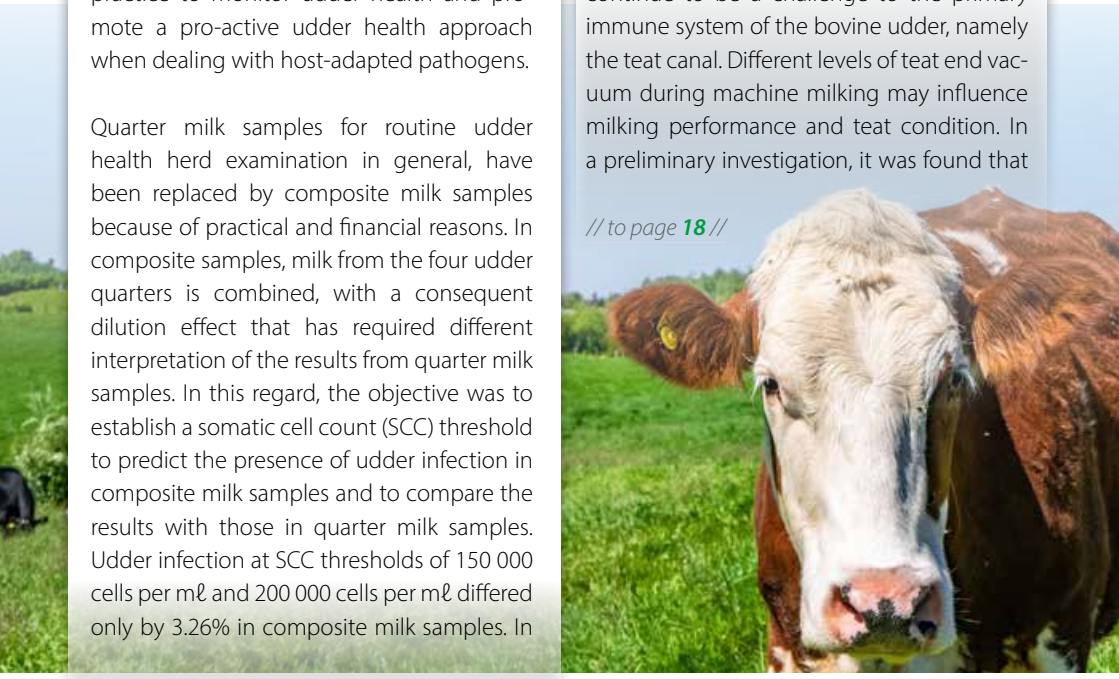
By Dr Heinz Meissner
R&D Programme Manager of Milk SA

It has been estimated that the financial benefit of correct diagnosis of mastitis per cow for the CMCT, MER and the tests done in parallel was R899, R519 and R1 065 respectively. The CMCT was shown to be 11% more beneficial than the MER test, whilst using the tests in parallel were the most beneficial method for evaluating the mastitis-control programme. It is therefore recommended that the combined tests should be used strategically in practice to monitor udder health and promote a pro-active udder health approach when dealing with host-adapted pathogens.

Quarter milk samples for routine udder health herd examination in general, have been replaced by composite milk samples because of practical and financial reasons. In composite samples, milk from the four udder quarters is combined, with a consequent dilution effect that has required different interpretation of the results from quarter milk samples. In this regard, the objective was to establish a somatic cell count (SCC) threshold to predict the presence of udder infection in composite milk samples and to compare the results with those in quarter milk samples. Udder infection at SCC thresholds of 150 000 cells per mℓ and 200 000 cells per mℓ differed only by 3.26% in composite milk samples. In a statistical model, the optimum SCC thresholds for composite and quarter milk samples were subsequently estimated to be 150 000 cells per mℓ and 200 000 cells per mℓ, respectively.

The preservation of the teat canal is crucial for udder health, as the main route for bacterial infection is via the teat canal. Milking machines differ in layout and settings and continue to be a challenge to the primary immune system of the bovine udder, namely the teat canal. Different levels of teat end vacuum during machine milking may influence milking performance and teat condition. In a preliminary investigation, it was found that

*// to page **18** //*



// from page 17 //

even in a milking system where the automated cluster removal settings have a short reactive time (short milk tube and a flow meter lower than the level of the udder), the take-off time overall could be improved.

Routine bulk tank milk testing is an adjunct to monitoring milk quality and udder health, as total bacterial counts and enumerating psychrotropic and thermoduric bacteria counts may provide useful information on the cleanliness of milking procedures and equipment, the effectiveness of milk cooling and the system sanitation. Also, differential bacterial counts may provide information on the occurrence of and changes in mastitis pathogens. In a study on several herds, vast differences in overall milk quality were evident between herds with bulk tank SCC, ranging from 145 000 cells per mℓ to 730 000 cells per mℓ and total bacterial counts from 5 240 CFUs per mℓ to 55 460 CFUs per mℓ. High psychrophile counts in bulk tank samples were common in all herds. In one herd, this was largely attributable to the high incidence of sub-clinical mastitis caused by environmental streptococci. In other herds, the problem seemed multi-factorial, influenced by inadequate pre-milking practices in two herds, problems with cleaning of equipment in one and inadequate cooling of milk in another. The results are clearly cause for concern. However, in the context of the purpose of the study, the use of bulk tank milk analysis as an adjunct to existing udder health monitoring tools, should be valuable in the quest to produce milk of the highest quality.

By Dr Heinz Meissner
R&D Programme Manager of Milk SA

To prevent or control antimicrobial resistance (AMR), one must know the antibiotics to which specific mastitis pathogens such as ***Str. uberis*** are resistant, or to which new antibiotics they are sensitive. A complicating factor is biofilm formation which is a resistance strategy followed by many pathogens and which is more difficult to control than non-biofilm forming species. A further complicating issue is that virulence factors of ***Str. uberis*** have been discovered that can transfer resistance genes among members of the biofilm micro-community. To investigate further, the researchers determined the in vitro susceptibility of ***Str. uberis*** to several antibiotics used in the control of udder infections. In addition, the study was also designed to investigate the implications of biofilm formation.

A total of 185 ***Str. uberis*** isolates were tested. They were grouped according to SCC levels: Group A were isolates from clinical mastitis cases; Group B from subclinical mastitis cases (SCC ≥ 300,000 cells/mL milk) and Group C from cases with intra-udder infections (SCC < 300 000 cells/mL milk). Biofilm production was categorized as respectively negative, weak positive, moderate positive and strong positive. Secondly, the isolates were subjected to antimicrobial susceptibility against commonly used antibiotics, following the respective prescription doses. The antibiotics were clindamycin, ampicillin, penicillin, oxacillin, cefoxitin, novobiocin, tetracycline, cephalothin, imipenem, vancomycin, ertapenem,

AMR and biofilm formation by the mastitis pathogen *Streptococcus uberis*

Outcomes of a Milk SA supported study by the Milk Laboratory at UP, Onderstepoort

chloramphenicol, ciprofloxacin, streptomycin, erythromycin and trimethoprim.

The results showed that the least number of strong biofilm producers was in the group isolated from clinical mastitis cases and the most from the high SCC group. Most isolates from the group with clinical mastitis had moderate biofilm production. Those isolated from the high SCC group had mostly strong and those from the low SCC group, mostly low biofilm production. The percentage resistance to all antibiotics was below 5% except for clindamycin (5.7%), daptomycin (5.7%), linezolid (8.0%), rifampin (8.0%) and tetracycline (6.9%). Of these, clindamycin and tetracycline are used for treatment of dairy cattle. Biofilm formation in the isolates tested for antibiotic susceptibility was 47.3% for weak positive, 34.9% for moderate positive and 17.8% for strong positive. Overall, little resistance was detected in the ***Str. uberis*** isolates. The highest susceptibility was detected in the group with moderate biofilm production (97.6%) and the least (92.2%) in the isolates that had strong biofilm production.

It can thus be concluded that at this stage, biofilm formation by ***Str. uberis*** is of concern, but not AMR.

The legal dispensation in South Africa regarding the use of dairy terms in respect of dairy products and non-dairy products

Alwyn Kraamwinkel
Chairman:
Dairy Standards Agency

The use of dairy terms in the descriptions of non-dairy products is a high profile issue in South Africa, the European Union and elsewhere. Many involved in the dairy industry share the ambition that dairy terms, namely milk, cream, yoghurt, milk powder, condensed milk, butter and cheese, should not be used in respect of non-dairy products.

While the motivation for the above ambition is obvious and the idea behind it is to the benefit of the dairy industry, the execution of this ambition faces a fairly complex reality.

Part of the complex reality is that it is well established that products totally unrelated to dairy products and which are not promoted and offered to the consumer as substitutes for dairy products, are also using dairy terms as descriptions and in brand names. Examples are peanut butter, butter beans, cream crackers, cream wafer, cream soda, cocoa butter, coconut milk, coconut cream, milk tart, milk chocolate, milk of magnesium, milk weed, milk bush and the use of the terms butter and cream, in respect of cosmetic and pharmaceutical products.

Other elements of the complex reality include the South African legal dispensation regarding the classification of dairy products as captured in Regulation 1510 published on 22 November 2019, as well as in the regulations which preceded this regulation; South African regulations regarding other food products and labelling; the guidance of Codex; and the views of the International Dairy Federation about the use of dairy terms in respect of non-dairy products. R1510 is the regulation on the classification, packing and marking of dairy products and imitation dairy products intended for sale in the Republic of South Africa.

At present, the process to review Regulation 1510, is underway. A Technical Workgroup, of which the Chairperson is Jompie Burger, was established by the Regulations and Standards Project of Milk SA. The purpose of the Technical Workgroup is to prepare motivated proposals for consideration by the dairy industry regarding the revision of Regulation 1510, following amongst others, particular amendments to Regulation 1510 as proposed by the Department of Agriculture, Land Reform and Rural Development.

During this review, the use of the dairy terms in respect of non-dairy products, is relevant. A key issue is that irrespective of the views of the International Dairy Federation (IDF) and the guidance of Codex, the legal dispensation of South Africa in respect of dairy terms, created particular legal rights and such rights cannot be taken away only because the rights are not in harmony with the views of IDF and the guidance of Codex. Obviously, established rights can only be taken away if strong motivation for such action can be put forward. Motivations should consist of compelling legally sound rational arguments, which are based on objective, verified factual information about the relevant variables.

A full report, compiled by the writer of this article, is available which sheds light on the legal dispensation in South Africa in terms of Regulation 1510 and regulations which preceded Regulation 1510, in respect of the use of dairy terms.

MILK SA APPROACH TO "PATHWAYS TO DAIRY NET ZERO"

An initiative of the Dairy Sustainability Framework

By Dr Heinz Meissner
R&D Programme Manager of Milk SA

Sustainability of the SA Dairy Industry has been a focus point of Milk SA for some time. This is supported in a dynamic strategic and commitment report, entitled: "Sustainability in the SA dairy Industry: A Status and Progress Report". The report is structured according to the FAO-IDF Dairy Declaration of Rotterdam (DDoR) and the Dairy Sustainability Framework (DSF), which endorses the UN 2030 Agenda for Sustainable Development and provides guidelines for sustainable development. One of the central topics is carbon dioxide (CO_2) emission reduction in the dairy sector, with commitment intentions towards achieving 'net zero' sooner rather than later.

In the dairy industry, apart from private initiatives, CO_2 emission reduction is primarily driven by the research and development (R&D) programme of Milk SA. As with other international initiatives, much focus is given to methane reduction as a primary atmospheric polluter. However, in contrast to many global approaches where carbon sequestration is not taken into account, sequestration is included since it contributes significantly to mitigating CO_2 equivalent atmospheric warming levels; so too is nitrous oxide (N_2O). The approach is justified as it is well documented that carbon sequestration has two to

// to page 22 //

Dairy Declaration signed symbolically in Rotterdam by Nico Fouché

// from page **21** //

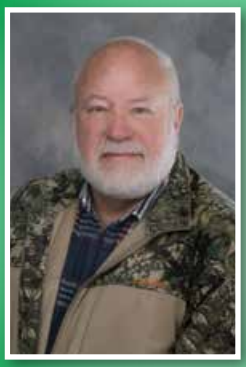
three times the potential to reduce CO_2 levels than methane emission reduction and the reduction in atmospheric N_2O is crucial since its warming potential may be 300 times that of CO_2, in addition to the pollutant being a significant ozone depleting gas.

In one of Milk SA's R&D projects, carbon balances are being calculated by making use of a purpose-built systems dynamic model using Vensim®. This model plans to incorporate plant, soil and cow (metabolic) variables which capture all emission, sequestration and sink- based carbon, including that of electricity and transport. Provision will be made for calculations according to GWP100 or GWP (Global Warming Potential) and differences in production systems utilizing conventional (chemical-based) or regenerative methodologies, resources (e.g. monoculture vs multispecies), soil carbon levels and product output. The model in testing has proved to be robust and accurate, while it also provides the opportunity to link the outcomes with the finances of the farm, which eventually will be consolidated in an app allowing every farmer to apply his / her own data. Calculations including all these variables from actual farm data of pasture-based production systems suggest that a number of farms are already at carbon net zero level, although the use of GWP100 or GWP does have an influence on that outcome.

For more information the reader may wish to consult https://assetresearch.org.za/environmental-indicators-dairy-production-systems

PROGRESS

in the Secondary Industry Skills & Knowledge Dispensation Commendable



Gerhard Venter
Project Manager: Skills & Knowledge Development, Secondary sector

The accreditation of providers of learning in the dairy-orientated registered qualifications has been long in arrears due to a lack of direct communication between industry and QCTO (Quality Council for Trades and Occupations). Such contact was recently established by the project, which resulted in meetings and visits to explain the modus operandi for vocational training in the SA dairy industry.

The success of this is manifesting in the first accredited private provider and a better knowledge of how the system should function, which again is resulting in multiple applications. This was required for a revision of the grant funding policies of the SETA, which will be coming to fruition during this year.

Due to an appreciable turnover of personnel at the SETA, interaction between the industry representatives serving on the Board and Dairy Chamber of the SETA was lacking. This contact has now been established and many inputs have been made to new personnel to establish a firm footing on which to build future relations. For that reason, the Dairy Chamber is acknowledged as the best functioning chamber within the FoodBev SETA.

The endeavours of the dairy industry in respect of our vocational training needs are currently perhaps better understood by the SETA than ever before. The project has been intimately involved in this progress.

Milk SA congratulates Gerhard Venter (Project Manager) and Richard Hutton (Chairman of the Dairy Manufacturing Chamber of FoodBev SETA) with these achievements and for ensuring that the dairy training dispensation remains relevant.

MR FRIK GROBLER HONOURED FOR HIS SERVICE TO THE DAIRY INDUSTRY OF SOUTH AFRICA

Left to Right: Frik Grobler, Nico Fouché (CEO: Milk SA), Dr Bonile Jack-Pama (Chairman: Milk SA) and Mrs Esmay Grobler

Frik Grobler, who until the end of December 2021 had been a Milk SA Board member, was acknowledged for his service to the dairy industry of South Africa, at the Milk SA General Meeting held on 15 June 2022.

He was presented with a certificate in grateful appreciation and recognition of his exemplary leadership role in the structures of the organized dairy industry of South Africa over more than four decades, with special reference to his key role in the establishment of Milk SA in 2002, as the overarching industry organization and his directorship of that company until 2021.

Melt Loubser, one of the longest serving directors who spent many years with Mr Grobler in the industry, said that Mr Grobler had also been involved in the Dairy Board and understood the principles of the free market system. Mr Loubser mentioned further that Mr Grobler had been involved in various other organizations which had eventually culminated in the founding of Milk SA, an organization which was acknowledged to deal extremely efficiently with the common challenges of the dairy industry. He said the instrumental role played by persons such as Mr Grobler must be acknowledged, adding that he was someone who understood the greater cause and the bigger picture.