Milk South Africa
Melk Suid-Afrika

Milk Essay

Vol 11 • no 4 • October • November 2019 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.

REDISCOVER
DAIRY-BASED NUTRITION

'DAIRY-BASED NUTRITION' is a product of the Consumer Education Project (CEP) of Milk SA. This compilation of 26 evidence-based nutrition reviews aims to help readers rediscover the health-promoting benefits of milk and other dairy products. This is the third update of the compilation since 2014.

The Consumer Education Project tasked nutrition science experts from various academic institutions in South Africa to examine the latest science behind the nutrition and health benefits of dairy. The result is a compilation of evidence-based reviews that cover a range of dairy health topics and can be downloaded from **www.rediscoverdairy.co.za**. The reviews are aimed at health professionals and are intended to be a convenient, accessible reference source to assist them in informing their clients of the role of milk and dairy in healthy eating patterns.

The Project also developed a hand-out to give readers a quick overview of the 26 reviews. It provides a brief summary of each review and serves as a road map for navigating the compilation of full reviews, grouped under four categories: dairy basics, dairy components, options with dairy and health benefits.

With 'Dairy-based nutrition', the CEP again affirms its commitment to staying abreast of current research in dairy health and nutrition and publishing information that is scientifically correct and based on credible research.

An Initiative by the Consumer Education Project of Milk SA

www.rediscoverdairy.co.za

Have **Milk, Maas** *or* **Yoghurt** *everyday*

Dairy, ***as part of the South African food based dietary guidelines***

The contribution of MILK to the constituents in some DAIRY PRODUCTS

Cow's milk contributes in varying degrees to the final composition of different dairy products. Based solely technically on the average composition of cow's milk, it is quite interesting to see what the yield of different dairy products is, when made from milk in ways that do not utilize all components in milk, also taking into account 'normal' wastage during manufacturing. Best practices maintain just about 0.5% wastage whilst less refined practices may lead to as much as 2% wastage. The information below is just a peek into this world of production control and good manufacturing practices.

Gerhard Venter, Project Manager: Skills Development, Secondary Industry

On average, 1kg of:

- Full cream powder represents 8.73kg milk;
- Skim milk powder represents 11.76kg milk;
- Butter represents 22.68kg milk;
- Semi-hard cheese (Cheddar, Gouda) represents 9.52kg milk

The following table indicates (based on an assumed average milk composition) the contribution of milk constituents to selected products (shaded columns are theoretical values):

Composition of milk (g/100g)		Milk to cheese (kg/100kg)	Milk to whey (kg/100kg)	Contribution to cheese yield (%)	Milk to full cream powder (kg/100kg	Contribution to full cream powder yield (%)	Milk to skim milk powder (kg/100kg)	Contribution to skim milk powder yield (%)
Water	87.5	3.80	83.7	36.19	0.30	3.00	0.40	4.00
Lactose	4.8	0.66	4.14	6.28	4.37	38.00	4.44	52.30
Milk fat	3.8	3.29	0.51	31.33	3.10	27.00	0.06	0.80
Casein	2.5	2.40	0.1	22.85	2.33	20.30	2.43	28.36
Whey protein	0.7	0.05	0.65	0.47	0.66	5.70	0.60	7.54
Minerals	0.7	0.30	0.4	2.85	0.69	6.00	0.60	7.00
Total	100	10.5	89.5	±100	11.45**	±100	8.53**	±100

**Typical SA yield percentage. Literature reports yields up to 12.5%*

***Typical SA yield percentage. Literature reports yield up to 9.5%*

An earth without livestock ...

Dr Heinz Meissner

Background: I recently read a report that the Irish 'Climate Change Advisory Council' had advised the government to decrease the breeding stock to the point where - by 2030, with 53% fewer cattle - the greenhouse gas emissions could be kept at the level recorded in 2018. The report just emphasized once again that almost everywhere in the world, literature and debate focus exclusively on the negative aspects of the future of livestock farming. The influence of livestock on greenhouse emissions, the over use of resources and soil, the undesirable intensification of production regimes, deforestation etc. are concentrated on. There may well be justified criticism as far as animal welfare and ethics are concerned, but there are also activist views on slaughtering and exploitation of all farm animals. These activists even campaign in favour of doing away with stock farming for a better planet and environment friendly agriculture. An obvious question would therefore be whether the planet would be better off without stock farming? In order to answer this question as objectively as possible, I will look at it from different perspectives.

Food supply perspective: By 2050, more than 9 billion people will have to be fed. Can this be done without animal products? Excluding the poles and surrounding areas, surveys indicate that approximately 40% of the ground's surface is covered with forests and a further third with natural pastures (veld) (steppes of Mongolia, tundra regions, pampas in South America and grasslands in mountainous areas and semi deserts), which naturally cannot be used for crop cultivation. This leaves only about one third for grain, fruit and vegetable cultivation. Consequently, in a world without livestock, one third of the surface area (veld) - which would otherwise have been used for the production of meat and milk - would not be used. According to the FAO, this third currently produces 25% of the world's meat. In some of these areas, as also in South Africa and most of the SADC countries, more than 70% of the agriculturally viable areas are only suitable for livestock production (including game farming). These areas contribute to food production in the form of meat and milk, clothing, tourism and in certain cases, also to cultural and eating habits of the indigenous populations. This poses

the question, what about the future of the millions of people in these regions?

Humanitarian perspective: According to the FAO, 800 million poor people across the world can survive only as a result of stock farming. What will become of them if there is no stock farming? Will they be able to migrate to countries where they will be able to produce grains, but what about the resulting humanitarian crisis which would ensue, as we are currently seeing with the influx from countries such as Libya and Syria? In many developing countries, stock farming contributes substantially to the empowerment of women (for example, according to the FAO, 25% of dairy farms are managed by women). Furthermore, the European livestock industry provides approximately 5 million job opportunities both directly (in agriculture) and indirectly (in food processing). What will become of these job opportunities and others that are related? In South Africa, as in Europe and elsewhere, these job opportunities are mostly in the rural areas where stock farming is one of the main contributors to the sustenance of smaller towns and communities.

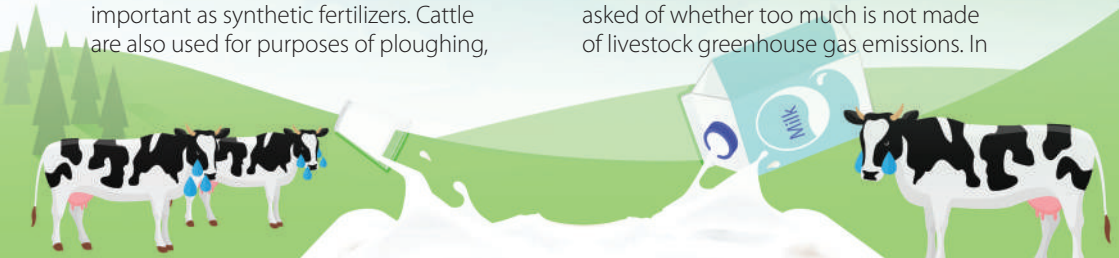
Ecological and climate perspective: Stock farming contributes to the maintenance of ecological systems and soil fertility. For small and poor farmers, livestock provide organic fertilizing (according to the FAO organic fertilization fertilizes 40% of arable ground worldwide), as they cannot afford synthetic fertilizers. For these farmers, manure and urine as a source of N and P are almost as important as synthetic fertilizers. Cattle are also used for purposes of ploughing, because they can also not afford tractors and implements.

Through the building up of organic material by manure and grass residue, stock farming also contributes to the storage of carbon in the soil and in this way to atmospheric greenhouse gas reduction.

Replacing animal products with plant products in the diet does not always have a positive influence on the environment. If stock farming disappears, it will inevitably lead to the gradual disappearance of all pastures, as pastures will then serve no purpose. Furthermore, ploughing the soil notwithstanding - even if it is not suitable – so as to cultivate crops annually, will inevitably lead to an increase in greenhouse gases (fertilizer, the release of bonded carbon from the soil etc.). In certain areas, crop field replacing natural veld, will lead to a loss of biodiversity.

Soil erosion and desertification are a great threat to agriculture's production capacity. The displacement of stock farming will also lead to erosion and desertification, especially in dry areas. Through their texture and ground cover, veld areas contribute to limiting erosion, water filtration and water flow, while promoting water supplementation. Should crops be produced in these areas, irrigation would have to be made use of, which would mean pressure and competition of scarce water resources and an increase in energy consumption.

Perhaps the question should also be asked of whether too much is not made of livestock greenhouse gas emissions. In



the USA, the contribution of greenhouse gases from agriculture is approximately 8% of the total, of which livestock contribute approximately 60%, i.e. 4.8% of the total. In South Africa it is more or less the same. With such a low percentage, it is clear that greater focus should be placed on the large sectors such as electricity, transport and manufacturing. Where agriculture, and therefore livestock production can play a significant role in countering the burden of the build-up of greenhouse gases and global warming, is to put carbon back into the soil which can be done through methods such as regenerative agriculture and soil and pasture condition improvement, of which a great deal work is already being done in South Africa.

Agricultural practice perspective: Livestock farming contributes to more efficient agricultural practices. Livestock recycle products such as by-products of the plant-human food chain (for example wheat bran, pulp, protein cake residue) and crop residue which cannot be used as food by man. Livestock also use marginal soils which are not suitable for fruit and vegetable cultivation. They convert these products into higher-value proteins which contribute to the optimization of food production of man per unit area. This means that in the absence of animal foods, far more land surfaces will be required to feed a population with a balanced diet. This was confirmed recently by a study in the USA which showed that notwithstanding the USA's great potential to produce alternatives, their total agricultural areas are insufficient to feed the USA's population without livestock by 2050.

Furthermore, agriculture without livestock farming will use far more fertilizers and pesticides, the production of which requires a great deal of fossil fuel. Natural pastures, of course, do not require fertilizers and pesticides.

Nutrition perspective: This is a controversial and sensitive topic because health is involved. Perhaps it is important to emphasize that man is an omnivore (eats everything) and thus there should not be a limitation in terms of any food type. The omnivore background is perhaps also a precautionary principle, as it is still not known which molecules control health and aging in humans. On the positive side, several studies have pointed to the risk of micro nutrient and vitamin deficiencies if few or no animal products are consumed, especially in poor communities. It is also known that animal products are necessary in the first 1000 days of life and for skeletal and brain development in infants. On the negative side, the harmful effects of animal products on typical Western diseases are often referred to, but even here recent review articles indicate little or no connection. The most important cause of obesity is quantitative consumption, regardless of the type of diet.

In conclusion: A world without livestock farming is clearly neither justified nor feasible. This does however not mean that all measures should not be implemented to address what is not right, such as animal welfare, biodiversity, carbon storage, soil erosion, veld condition, water consumption etc. Research, innovation and improved management measures should be pursued to counter the negative environmental impact of livestock farming and to expand the services rendered to the community by it.

LATEST VERSION OF THE DAIRY STANDARD AGENCY (DSA) GUIDE TO DAIRY PRODUCT LABELLING IN SOUTH AFRICA

The primary objective of DSA is the promotion of the compliance of milk and other dairy products with product composition, food safety and metrology standards.

One of the Milk SA statutorily funded activities of DSA is the development of supportive dairy technical guideline documentation (in conjunction with the organized industry) which is user friendly and serves as a valuable tool throughout the dairy value chain to ensure compliance with legal standards.

DSA has now embarked on a different approach in the design and functionality of its current Guide to Dairy Product Labelling in South Africa by making it electronically available in a downloadable format which will be regularly updated as legislation is amended.

This interactive guide provides for a more logical step-by-step approach which makes assessment or constructing labels much easier. It also allows the user the ability to ensure that all applicable requirements are taken into account. Users are now able to access label information regarding the following products:

- Milk
- Cream
- Amasi
- Yoghurt
- Butter
- Cheese
- Feta Cheese
- Cottage Cheese
- Cream Cheese

The new labelling guide includes product images, interactive checklists as well as regulatory information which each user can access freely. To experience the full functionality of the site, users need to register. In addition to having access to all relevant regulations and dispensations, all registered users are now also able to fill in checklists and save the progress of the assessment of their labels.

This latest interactive dynamic guide is considered unique, as the design allows it to be used by industry, the regulatory authorities and other stakeholders in the dairy industry, as a label assessment tool for compliance with current product composition, food safety and metrology labelling standards and during design and changes of labels.

Continued on page 9

Looking at the Foreign Market for South African Dairy Products

The South African dairy industry has for many years focused mainly on supplying the domestic market with various dairy products, and dairy products were chiefly exported to the neighbouring countries.

The mass of South Africa's total sales to its fellow member states of the Southern African Customs Union (SACU)[1], namely Botswana, Lesotho, Namibia and Swaziland (BLNS countries), in the period January to December 2018, is set out in *Table 1*. *Sales by South Africa to its fellow SACU members are not classified by SARS as export.*

Table 1: **Mass of sales by South Africa to the BLNS countries compared to exports by South Africa outside of SACU in the period January to December 2018**

Heading	Description	(A) Sales to BLNS	(B) Exports to Countries excluding SACU	(A+B)=(C) Sales to BLNS plus exports excluding SACU	A as % of C
		Kilogram			%
04.01	Milk and cream, unsweetened	58 874 379	17 009 995	75 884 374	77.6
04.02	Milk, concentrated	36 936 552	9 336 954	46 273 506	79.8
04.03	Buttermilk powder, yogurt	25 039 920	12 785 725	37 825 645	66.2
04.04	Whey, whey powder etc	3 205 843	691 890	3 897 733	82.2
04.05	Butter, butter spreads and butter oil	1 349 904	1 232 997	2 582 901	52.3
04.06	Cheese and curd	6 100 206	4 199 938	10 300 144	59.2
		131 506 803	**45 257 499**	**176 764 303**	**74.4**

SACU[1]= BLNS + South Africa.

Table 1 indicates that:

- Sales to the BLNS countries account for more than 74.4 percent of the total sales to foreign markets. The mass of the total sales of dairy products by South Africa to the BLNS countries exceeded the mass of export. (Exports are sales to designations outside SACU);
- The mass of the sales by South Africa to fellow members of SACU, in respect of each of the six categories of dairy products, exceeded the mass of export by South Africa;
- Fluid products classified under heading 04.01 contributed 42.9 percent (75.9 thousand tons) of the total mass of product that was sold and exported to foreign countries. This is followed by concentrated products (04.02) and buttermilk and yoghurt (04.03,) with respectively 46.3 thousand and 37.8 thousand tons. Cheese sales are the fourth largest contributor to foreign sales and exports with 10.3 thousand tons.

The total revenue earned in 2018 for sales in and exports to foreign markets, amounts to R 2 888.1 million.

International markets are known for their distorted nature and factors such as:

- Past and present government assistance in the same major countries;
- High import duties and especially non-tariff barriers;
- The outbreak of communicable diseases and the inability of provincial and national governments to contain and control the diseases; and
- The inability of South Africa to comply with the standards of first world countries such as the European Union, constrains and hinders South African trade in dairy products.

De Wet Jonker

LATEST VERSION OF THE DAIRY STANDARD AGENCY (DSA) GUIDE TO DAIRY PRODUCT LABELLING IN SOUTH AFRICA (continued)

Note: The latest circulation of the draft Regulations relating to the classification, packing and marking of dairy products and imitation dairy products intended for sale in RSA (R260 of 15 March 2015) under the Agricultural Product Standards Act of 1990 is well noted by DSA. This electronic guide will automatically be updated once the above or any other legal standard come into effect.

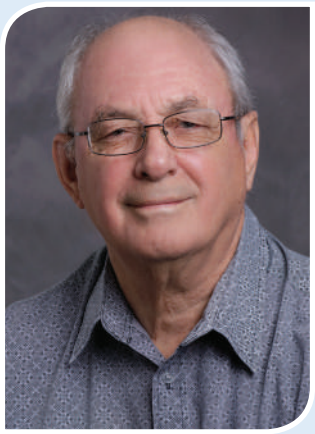
As responsible industry member you are hereby encouraged to visit and register on the website **labels.dairystandard.co.za** and participate in the process of label compliance.

For any assistance with the labelling guide please contact Jodie Treu at **Jodie@dairystandard.co.za**

ON THE INTERNATIONAL SCENE...

Organising the 2020 World Dairy Summit

It is fairly well known in the dairy industry that the International Dairy Federation's World Dairy Summit will be held in Cape Town next year but what has happened since the event was awarded to South Africa in 2017, may not be so well known. Here is a peek behind the scenes.



Edu Roux, National Secretary of SANCIDF.

The organizing committee for WDS 2020 (called OC2020) was established in May last year and consists of representatives from the three members of the SA National Committee of IDF namely Sampro, MPO and the Dept. of Agriculture. These representatives are Melt Loubser and Alwyn Kraamwinkel from Sampro, Drs Chris van Dijk and Koos Coetzee from MPO and Niel Erasmus from Dept. of Agriculture. Other members of OC 2020 are Nico Fouche from Milk SA, Dr Jan Floor (technical secretary of SANCIDF), De Wet Jonker (treasurer), Edu Roux (national secretary) and Dr Nico Schutte, appointed coordinator of WDS 2020. OC2020 has met four times, during which the venue was finalized, a budget was drawn up, a programme committee was appointed, a logo and theme were adopted (see both below) and most of the important arrangements were finalized. Milk SA's offer to become the main sponsor of WDS 2020 was also gratefully accepted by OC2020.

The programme committee (PC2020) under the chairmanship of Dr Chris van Dijk met twice and was able to put together a conference programme which was largely acceptable to IDF director general, Dr Caroline Emonds. This programme will be considered by the standing committees of IDF's nine working areas at this year's Summit in Istanbul. What still needs to be done is to finalize the programme by selecting the right topics and then to find the right speakers.

Other sponsors and exhibitors must also be found to make ends meet of the R15 million budget and nearer the time, the promotional plan will kick off to attract as many local and international delegates to this most important event on the international dairy calendar.

Anyone interested in taking up a sponsorship (and there are many) or an exhibition stand can use the contact details below. Special packages will also be available to get as many local delegates at WDS 2020 as possible. The dates to reserve in the meantime are 28 September till 1 October 2020.

SOUTH AFRICA **2020**

IDF World Dairy Summit & Exhibition

Dairy - Wholesome and Sustainable

Contact details:
Nico at **doknico@tiscali.co.za** or
Edu at **edu.roux@agriconnect.co.za**

Dairy - Wholesome and Sustainable

PRIMARY INDUSTRY SKILLS AND KNOWLEDGE DEVELOPMENT

The dedication of Milk SA and MPO to the development of a Dairy occupational qualification for primary producers are finally reaping rewards in the registration of the qualification by the South African Qualifications Authority (SAQA). MPO is in the process of registering as Skills Development Provider (SDP) and Assessment Quality Partner (AQP) for the presentation and final assessment of this qualification. The tireless efforts of Helene Pheiffer (Milk SA Project Manager) is greatly appreciated.

As part of the Milk SA project, MPO presented skills development courses to black dairy producers of the Amadlelo Group and Little Barnet farm. Jeff Every, Chief Executive Director of Amadlelo, declares training as critical for the group because a workforce should complement the manager's abilities. According to one of the Amadlelo managers, the training made a dramatic difference to their dairy operation and day-to-day milking practices, which resulted in a lower somatic cell count.

The farmer Tshilidzi Matshidzula of Little Barnet farm said his farm employees never had any formal training before and the training received from the project resulted in their coming out on top during an audit that was conducted on his farm by an independent body. "The pride that the workers get from receiving a certificate is humbling to see", says Tshilidzi.

Amadlelo Agri workers attending the Dairy Code of Practice training at Seven Star Trust.

Farmworkers at Little Barnet Farm receiving training.

Helene Pheiffer