



Co-ordination, support and promotion of needs-driven research & development in the South African dairy industry.

(PRJ-0287-2021)

Dr Heinz Meissner, Milk SA

Quarter 2 2021 (April 2021 till June 2021)

Project goals

Goal 1 - To promote R & D, limit research fragmentation and initiate cooperation between R&D capacities towards achieving the strategic direction of the industry

Achievements

Although the TIA indicated that they want to support the Programmes: Animal health and welfare, Milk quality and safety, and Innovative dairy products of the Dairy R & D project, they as yet have not come with a proposal of how and when to fund. The delay may be due to the Covid-19 pandemic problems.

The contracts of the following projects have been signed or are in the process of being signed:

- 1) The practical implementation of requirements of the South African National Standard SANS 1694: The welfare of dairy cattle validation by using the dairy Standard Agency (DSA) audit - the welfare of dairy cattle. Project leader: Jompie Burger, DSA.
- 2) Strategies to reduce N excretion and emissions from dairy farming. Project leader: Dr Pieter Swanepoel, University of Stellenbosch.
- 3) Impact of fertilizer application rates on soil health and pasture yield. Project leader: Dr Pieter Swanepoel, University of Stellenbosch.
- 4) Buffer zones for wetland structures for wetland and river protection on dairy farms: Project leader, Ian Bredin, Institute of Natural Resources
- 5) Investigation of alternative precision recording systems for collection of novel pheromones in the dairy industry. Project leader, Prof Este van Marle-Koster, University of Pretoria.
- 6) An assessment of cow welfare traits in South African Holstein herds. Project leader: Prof Este van Marle-Koster, University of Pretoria.
- 7) Development of probiotic yoghurt with potential anti-candidal and anti-bacterial activity. Project leader: Prof Elna Buys, University of Pretoria,
- 8) Identification of *Streptococcus uberis* strains and biofilm expression isolated from milk samples of SA dairy herds. Project leader, Prof Inge-Marie Petzer, University of Pretoria.
- 9) The influence of CA-P ratio on milk flocculation of Jersey cows on pasture. Project leader: Prof Robin Meeske, WCDA.
- 10) Seasonal effect on trace mineral status on dairy pastures in the Tsitsikamma area of the Eastern Cape. Project Leader: Elizabeth van Papendorp, Chemuniqué.
- 11) Evaluation and validation of methods for the detection of psychrotolerant bacteria and proteolytic enzymes in milk. Project leader: Prof Celia Hugo, University of the Free State.
- 12) Systems dynamic approach on environmental indicators on dairy farms. Project leader: Prof James Bignaut, Asset Research.

In addition, for the problem of facial eczema of cows in the south-eastern Cape, a desktop/literature study by Dr Anthony Davis will be funded

No Non-achievements / underperformance has been reported

Goal 2 - To guide the R&D program by means of effective structural arrangements, administration and fund sourcing

Achievements

A MANCOM Meeting was held on 11 June and the DRDC Meeting in the morning of 23 June, followed by a DRF Meeting in the afternoon. The progress on the milk flocculation programme was again discussed at the MANCOM and DRDC Meetings. Whereas a lot has been learned, the number of influencing variables appear to be more than anticipated, one being MUN which will be considered. Further, whereas tick infestation is more a problem in beef cattle, the progress with genomic evaluations on tick resistance and the possibility for vaccine development have bearing on typical African diseases which should be investigated. The author will continue with discussions to that effect. In addition, there was concern that antibiotic residues may accumulate in pasture soils because of manure fertilization, which may lead to AMR. The preliminary decision was that the author should investigate the usage of antibiotics by dairy farmers; the concern may be unnecessary if antibiotic usage is on the decline.

An important decision was to hold the budgeted funds of running projects which will carry over to 2022 and maybe 2023 in a separate account at Milk SA, since the levy cycle ends at the end of 2021, which means a new application. The argument was that the funds have already been committed to the relevant projects and should be available for the completion of the projects.

The primary discussion at the DRF meeting was ideas for new projects. R & D field coordinators summarized proposals by the key opinion leaders of a particular field beforehand and present these at the Meeting. Those that evoked positive reaction will now be pursued further and possibly recommended for dedicated project proposals for evaluation.

No Non-achievements / underperformance has been reported

Goal 3 - To accumulate and publish existing domestic and international scientific knowledge of applicable and practical value to enhance the industry

Achievements

THE RESEARCH COLUMN: The target of scientific articles sourced from the international literature to be entered on the website is two per month, meaning six for the quarter. The target was met. Some of the articles were also published in The Dairy Mail under the regular research column of the author. The topics covered as reflected in the titles of the papers are:

- 1) *Increasing temperature and pH can facilitate reductions of cephalosporin and antibiotic resistance genes in dairy manure slurries.*
- 2) ***Impacts of Climate Change: Perception and reality.*** Report 46, The Global Warming Policy Foundation.
- 3) *Effect of partial exchange of lactose with fat in milk replacer on ad libitum feed intake and performance in dairy calves.*
- 4) *Effect of source and level of forage in the diet on in vitro ammonia emission from manure of Holstein and Jersey dairy cows*
- 5) *Meta-analysis of effects of inoculation with *Lactobacillus buchneri*, with or without other bacteria, on silage fermentation, aerobic stability, and performance of dairy cows.*
- 6) *Effect of protein level and methionine supplementation on dairy cows during the transition*

period.

DAIRY R & D IN SA: The target of South African scientific articles sourced to be entered on the website is also two per month, i.e. six per quarter. The target was met. The following themes were covered:

- a) INCLUDING FERTILITY IN SELECTION INDICES.
- b) PROBIOTIC AND TECHNOLOGICAL PROPERTIES OF LACTIC ACID BACTERIA.
- c) INFLUENCE OF N FERTILISATION ON SOIL HEALTH AND PASTURE PRODUCTION
- d) BIOLOGICAL CONTROL OF LIVER FLUKE.
- e) AN INTEGRATED APPROACH TO ANALYSE DAIRY PRODUCTION SYSTEMS IN SA.
- f) ANTI-CATTLE CAMPAIGN – ARGUMENTS TO REFUTE CLAIMS.

No Non-achievements / underperformance has been reported

Goal 4 - To advise and assist with national and international managerial, strategic and position publications on any matters which may support the strategic direction of the industry. Advice may also imply representing the industry on government and non-government bodies

Achievements

The strategic document: "Sustainability in the SA Dairy Industry: A status and progress report", is updated every six months. This was done in June 2021.

No Non-achievements / underperformance has been reported

Goal 5 - To support the dairy sector with R & D and advice on matters affecting sustainability. These include: Environmental – greenhouse gas reduction, carbon sequestration & storage, water and pasture fertilization efficiencies, waste and effluent reduction and treatment, and ecosystem and biodiversity protection ; Animal welfare – the internationally acknowledged five freedoms (freedom from: a. thirst, hunger & malnutrition; b. discomfort; c. pain, injury & disease; d. to express normal behaviour, and e. fear & distress) are the point of departure

Achievements

Due to an unusual period of inactivity brought about by the Covid pandemic, there is little to report. A document on Environmental issues of importance to the industry has been attached. It includes R & D proposals which address possible slurry contamination on pasture, valorisation of dairy waste and the effect of heat stress on udder health.

No Non-achievements / underperformance has been reported

Income and expenditure statement

Unnecessary spending during period	No
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Popular Report

[MSA Meissner_PRJ-0287_Q2 Report_2021_Popular Report.docx](#)

Additional documentation

[Environmental Sustainability Update - Colin Ohlhoff - July 2021 \(2\).docx](#)

Statement

Levy funds were applied only for the purposes stated in the contract	Yes
Levy funds were applied in an appropriate and accountable manner	Yes
Sufficient management and internal control systems were in place to adequately control the project and accurately account for the project expenditure	Yes
The information provided in the report is correct	Yes