



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

(PRJ-0242-2019)

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Quarter 2 2019 (April 2019 till June 2019)

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

The Programme: CLIMATE AND ECO-RESILIENCE OF DAIRY PRODUCTION, would have concentrated on combating climate change, but also includes a broad perspective on the 'sustainability' theme. A number of institutions would have participated as is the case with the projects mentioned below, in support of the goal to stimulate cooperation between R & D capacities. Unfortunately, we in March have received notice that our application was not successful. With reference to our Genetic and Performance Improvement R & D programme, we await the outcome of the proposal submitted to the Research and Technology Fund (RTF) of DAFF, which is administered by the NRF. The title of the proposal is: A GENOMIC APPROACH FOR IMPROVEMENT OF WELFARE TRAITS IN DAIRY CATTLE. The intended project will focus on functional traits not well recorded to date. They relate to mastitis (udder health), claw health and lameness, and feed efficiency and will be studied using a genomic approach to provide insight into genetic mechanisms, with the end goal of providing practical solutions for genetic selection and improvement of cow welfare. With reference to our Bio-control programme, the UKZN together with the author also submitted a proposal to the RTF fund of the DAFF. The title of the application is: BIOCONTROL OF TWO DISEASES AFFECTING DAIRY COWS. The diseases are liver fluke and mastitis. The project aims to develop biocontrol agents to control liver fluke and mastitic bacteria, and develop a new method to detect and quantify mastitis. Since the RTF administrators have in eight months not responded, we are pursuing another possibility which is discussed below.

Phase 1 of the Dairy Genomics Programme (DGP) was completed at the end of March 2019. The DGP was funded by the Technology Innovation Agency (TIA) in a joint (co-funding) arrangement with the industry. In a discussion with the TIA on 6 May intended to design Phase 2 of the DGP, the TIA delegates defined their role in a much larger context by indicating that they aim to take industries forward in a sustainable manner, which then culminated in the author presenting a diagram which illustrates the linkage between the various programs according to the umbrella principle of People, Planet and Profitability, the title being SUSTAINABILITY OF THE SA DAIRY INDUSTRY, shown in Figure1 (attached). The TIA delegates were positive by this approach and it was decided that we will submit the entire program as shown in Figure 1 for possible funding.

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

In terms of fund sourcing the budget of the RTF Programme, A GENOMIC APPROACH FOR IMPROVEMENT OF WELFARE TRAITS IN DAIRY CATTLE, mentioned under Goal 1 amounts to R570 000 for 2019 and the RTF Programme, BIOCONTROL OF TWO DISEASES AFFECTING DAIRY COWS, R424 000 for 2019. To access additional funds, we will follow up with the TIA as discussed above; the potential is for a very large program.

The author had meetings with the CEO-MPO on administrative and scientific matters on 2 May and 30 May, whereas the MANCOM met on 9 May. Because of the Large Herds Conference, there was no DRDC Meeting, but the Dairy Research Forum (DRF) met at the Conference. The DRF Meeting, attended by 30 delegates, was valuable in terms of general discussion about dairy R & D in the country, but especially also because some 20 new proposals for research were put forward. Those that were considered important in terms of the goals of the industry will now be developed into tentative project submissions which will be considered by the MANCOM to advise the DRDC.

At the annual Meeting of SANCIDF on 3 April, the author reported the linkage between our environmental sustainability program and that of the IDF's DSF and SCENV. He also attended the WCARF Meeting at Elsenburg on 16 May where opportunities for collaboration and possible funding were considered, did a presentation at the Milk SA General Meeting of 13 June on progress with the R & D Program, did a presentation at a special Meeting on 24 June to discuss the implications of the EAT Lancet Report and attended the Milk SA Coordinating Committee's Meeting of 27 June. Two issues which the author has to deal with at the latter Committee are rBST analysis and A1, A2 milk.

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, that is 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) *Colonization of the human gut by bovine bacteria present in Parmesan cheese.*
- 2) *Meta-analysis on carbon sequestration through Conservation Agriculture in Africa.*
- 3) *Effect of energy source in calf milk replacer on performance, digestibility, and gut permeability in rearing calves.*
- 4) *Effects of supplementing a Saccharomyces cerevisiae fermentation product during the periparturient period on performance of dairy cows fed fresh diets differing in starch content.*
- 5) *A systematic review of the effects of prolonged cow-calf contact on behaviour, welfare, and productivity and A systematic review of the effects of early separation on dairy cow and calf health.*
- 6) *The economic impact of drying off cows with a dry-off facilitator (cabergoline) compared with 2 methods of gradual cessation of lactation for European dairy farms.*

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) EFFECT OF MAIZE PARTICLE SIZE ON STARCH FERMENTABILITY AND LACTATION PERFORMANCE OF DAIRY COWS.
- b) CAN SOIL HEALTH BE REGARDED AS AN ASSET?
- c) ARE THREE ANNUAL LACTATIONS IN TERMS OF MILK PRODUCTION THE SAME AS TWO EXTENDED LACTATIONS?
- d) LIFETIME PERFORMANCE RATHER THAN DAILY PRODUCTION AS KEY PROFITABILITY INDICATOR.
- e) DOES RESTORATION PAY?
- f) DEVELOPING ANALYSIS SUPPORT FOR VALUE-ADDITION TO AUTOMATED SYSTEMS.

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 author participated in a discussion on sustainability in food production in response to the EAT_LANCET report on 24 June and gave a PP presentation with the title: CAN THE GLOBE FUNCTION WITHOUT LIVESTOCK? The presentation is attached.

The author as member of the Steering Committee of the Sustainable Integrated Management of Parasites in Livestock (SIMPL) Program of the NAHF-RuVASA has provided input to the structural arrangements on 10 June. A diagram of the structure is attached. The Program will be initiated in the Free State and KZN.

As mentioned in the first quarter report, the author together with a number of scientists (Prof James Blignaut being the driver), sustainability supporting companies and investment/financial institutions is pursuing the possibility of allocating a monetary value to conservation (regenerative) farming and soil health. In various meetings with environmental attorneys, bank financial authorities and economists who provided guidance, a company IntegraFood (e-Commerce trading platform), supported by IntegraTrust and IntegraLink (a non-profit company), will be formed to drive the initiative and attract investors in order to provide funds to farmers that want to participate. Farmers will be evaluated in terms of a scoring system and be awarded with bronze, silver, gold and platinum tokens as they progressed. One of the slogans of the initiative is: "Healthy soils provide healthy food". The initiative also complements the theme of sustainability of the Dairy Industry and the principles embedded in 'Planet, People and Profitability', whereas the scoring system of the MPO-WWF Water Stewardship Program may well prove effective for dairy farmers to latch onto the Integra system.

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

One of the actions is the research, extension and training programme which the author seeks to obtain funding from the TIA as discussed under Goal 1, the schematic presentation is attached as Figure 1, the title being SUSTAINABILITY OF THE SA DAIRY INDUSTRY. For the purpose of application to the TIA, we will introduce our philosophy and principles as:

"We recognize the responsibility to the umbrella principles of People, Planet and Profitability. In this context it means we strive to provide opportunities to everyone wishing to enter the Dairy Industry, support dependants of the production systems and care for the environment, while producing profitable and affordable products to the market/consumer.

We also adhere to the philosophy that safe and nutritious dairy foods result from healthy soils, plants and animals. Healthy soils and plants imply maintaining biodiversity and employing sustainable management and environment friendly procedures. Healthy animals imply striving for disease free and efficient animals that produce under clean and comfortable conditions while maintaining all other elements of animal welfare. Efficiency in the sustainable context means striving for optimum production with less input costs and resources and minimum waste to maintain water and ecosystem integrity"

The participation in both the SIMPL program and the Integra system as discussed under Goal 4 are further examples where the author are involved with matters affecting sustainability; the experience gained which may prove useful to the dairy industry. He furthermore assisted with the scientific program of the SASDT Symposium on Waste Management and Sustainability staged at OR Tambo on 16 July and 18 July in Cape Town..

No Non-achievements / underperformance has been reported

Income and expenditure statement

Income and expenditure statement	MSA Meissner PRJ-0242_Q2 Report Expenditure 2019.docx
Unnecessary spending during period	No

Popular Report

[MSA Meissner PRJ-0242_Q2 Report 2019 Popular Report.docx](#)

Additional documentation

[MSA Sustainability of Dairy Production_Figure 1_schematic presentation.docx](#)

[Meissner_Can the globe function without livestock.pptx](#)

[SIMPL ORGANOGRAM-SUSTAINABLE INTEGRATED MANAGEMENT OF PARASITES 2019-03-07.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