



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

(PRJ-0094-2016)

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Quarter 1 2016 (January 2016 till March 2016)

Project goals

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

Achievements

A. THE LIVER FLUKE PROGRAMME: The programme consists of two projects: (1) *Fasciola hepatica*: Impact on Dairy Production and Sustainable Management on Selected farms in South Africa, with Dr Jan van Wyk of OP as Project Leader, and (2) Integrated Control of Liver Flukes of Cattle using Botanical Extracts and Bio-control Agents, with Prof Mark Laing of UKZN as Project Leader and post-doctoral student Dr Mawahib Ahmed as the responsible researcher. It appeared logical to promote co-operation since the sampling and surveillance activities of (1) are important for (2) as well. In addition, the outcomes of (1) will provide seasonal information, distribution and sensitivity criteria of the Linnaeus intermediate host (snail) of *Fasciola*, which would be of value in strategizing the approach to finding and implementing bio-agents which would kill or control Linnaeus. At this stage it appears that the first phase of (2) should be to focus on Linnaeus since *Fasciola* cannot complete its life cycle without the intermediate host and therefore the parasite cannot damage the cattle liver. A Meeting, strategizing session and the March 2016 sampling visit of Dr van Wyk and team to the Tsitsikamma farms were facilitated to make Dr Ahmed familiar with the operating procedures of (1). Prof Laing was also present at the Meeting and strategizing session with Dr van Wyk at OP. It is anticipated that the co-operation should streamline operating procedures, timelines and costs.

B. THE MASTITIS PROGRAMME: This programme also consists of two projects: (1) Resistance to available antibiotics in lactating cows with mastitis, with Project Leader Dr Martin van der Leek of OP, and (2) Investigating alternative methods such as bacteriophages and Bacteriocins to control mastitis organisms, also with Prof Mark Laing of UKZN as Project Leader and Post-

Non-achievements / underperformance

DAIRY GENOMICS SELECTION PROJECT: This project was also considered a priority in the five year plan by the RPEC and the Board. The Technology Innovation Agency (TIA) was prepared to fund the project and Milk SA proposed a structure to manage and allocate the funds to service providers to the project. The RPEC did not approve the proposal on account of internal structural and staff limitations.

Reasons for non-achievements / underperformance

See above

Planned remedies for non-achievements / underperformance

The Genomics Project will be conducted with UP as the driver in terms of managing the TIA allocated funds and will contract other service providers where necessary. The MPO will support the management in terms of assisting with commitment by the participating breed societies and other members with milk recording data to ensure a viable

doctoral student Dr Iona Basdew as the responsible researcher. Identification and characterisation of the important mastitis organisms as affected by season, locality and possible resistance to antibiotics in the market are priority activities of both projects and therefore co-operation in sending critical organisms to both laboratories are critical. A MoA between UP and UKZN to that effect was facilitated, especially also as to the format it will affect the mastitis laboratory of Dr Inge--Marie Petzer at Onderstepoort. One of the conditions is that they will publish collectively on co-operation outcomes. Again, this network should be positive to the outcome and sustainability of the programme.

C. CO-OPERATION WITH OTHER LIVESTOCK

SECTORS: (1) The problem of resistance to antimicrobials and anthelmintics identified in the dairy research programme as being of primary priority is also a major problem in the Red Meat, Wool and Mohair sectors. Thus, it made sense to facilitate co-operation between the sectors in addressing the problem of resistance. In a Meeting on 11 March 2016 with the relevant CEO's the principle of working together (possible joint projects which should positively influence efficacy, sustainability and resources) was established. Associated with this topic is the concern that expertise and capacity at OP to that effect is dwindling. The proposal of establishing a Research Chair in

Antimicrobial/Anthelmintic Resistance at the Veterinary Faculty to address both the resistance issue and capacity building was also supported by the CEO's of the other livestock sectors and since followed up with the Dean of the Veterinary Faculty at OP. The Research Chair appears to be the logical way to take the issue forward.

This will again be referred to under Goal 2. (2) The Project: National Disease Monitoring and Extension System of Dr Danie Odendaal of V-Net overlaps with a similar activity which he runs with the Red Meat Sector, and the Wool sector also regards this as priority. At the Meeting of 11 March it was accordingly proposed that we explore ways towards a joint initiative which could probably entail working through RuVASA as the driving vehicle. (3) Brucellosis is a major concern of all ruminant livestock sectors. In the five year research plan of Milk SA inroads into the problem of brucellosis was supported by the Board. Discussions were initiated in 2015 with the CSIR where research is done to develop a rapid on-site diagnostic tool to diagnose brucellosis and other diseases. The CEO's of the other sectors supported the initiative and discussions will soon be held with the Animal Health Forum and DAFF, together with the CSIR to take this initiative forward.

reference population which is required to facilitate GEBV values.

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

Achievements

A. MEETINGS: The RPEC met on 18 February 2016 and the National Producers' R & D Work Group on 17/18

Non-achievements / underperformance

(1) The MoA's which are not yet

March. The author chairs the RPEC Meetings as a rule; he also chaired the Meeting of the Work Group in the absence of Mr Nigel Lok who couldn't attend. The Minutes of both Meetings are attached as Annexures 1 and 2 respectively.

One of the outcomes resulting from the RPEC Meeting was to explore the implications of the change in research funding policy and procedures of DTI funds which until 2015 was managed by the NRF in the so-called THRIP application. This fund as from 2016 is administered by the DTI itself and whereas the applicant in the past was the tertiary institution or other service provider, the applicant according to the new policy is the industry/sector itself. This appears to provide the security to the DTI that the relevant sector does indeed want the particular research applied for to be done as the sector is prepared to guarantee a particular amount to fund the project. A requirement in the policy is that the applying sector should establish a company without profit to administer the project and funds. Since Milk SA is such a company which deals with R & D, it offered the opportunity to apply for funding in the THRIP call which closed on 31 March 2016. It was decided to put the Liver Fluke and Mastitis programme together under a general theme of antimicrobial/anthelmintic resistance which would fit in with the objectives of the Research Chair at OP discussed under Goal 1. The resulting project title is: Integrated management of drug-resistant parasites and pathogens affecting dairy cattle, and the associated budget R13.5 million over three years.

An important resolution taken at the RPEC Meeting was to withhold funds to a particular project until the quarterly report is submitted. This was necessary since some project leaders do not submit by the deadline date. Another resolution related to funding is that no RPEC member or any other person with any involvement in Milk SA may advise on project budgeting. For the Integrated Dairy Animal Performance Improvement Programme (IDAPIP) which as part of the five year plan was previously approved by the RPEC and the Board with several resolutions at the RPEC Meeting (see Annexure 1), there was very little enthusiasm by the National Producers' Work Group at their Meeting (see Annexure 2). This emphasizes the importance of a re-look at the dates of Meetings and effective communication as at the time when the Board approves an activity/project/programme, everybody should be in agreement of what should be done. The resolution that the RPEC should review its name, role, functions and reporting structures (see Annexure 1) is therefore both necessary and timely.

At the Meeting of the National Producers' Work Group, resolutions 10.2 and 10.4 (see Annexure 2) are worth mentioning. Resolution 10.2 reads: "That provincial departments of agriculture be strongly encouraged to interact with producers; and that the MPO be requested to actively inform producers during their regional meetings, over and above the written reports, of the work carried out within Milk SA's R & D programme". In association, resolution 10.4 reads: "To convey to the MPO the need to establish unique structures - each with a responsible person - in the different regions as a matter of urgency". These resolutions imply that effective structures and

finalized.

(2) The representative of the secondary industry on the RPEC has still not been appointed.

(3) MPO producer representatives/work groups in some provinces to liaise and determine R & D needs have still not been established. This in particular is a concern in the Western Cape as effective communication with the WCDA is lacking.

Reasons for non-achievements / underperformance

(1) In the Eastern Cape officials have changed and there may be a lack of interest in co-operation. The MoA's with the ARC and SA Studbook have been delayed on purpose as discussions and decisions on IDAPIP have to be revisited.

(2) Mr Kraamwinkel has the responsibility to nominate a suitable candidate

(3) The MPO is still in the process of reviewing its structures

Planned remedies for non-achievements / underperformance

Issues (1) to (3) will be attended to in the second quarter

communication between producers and the R & D structures to facilitate and give guidance to their needs are still not effective.

B. MoA's: The MoA with the KZN Department of Agriculture after several months of delay has been signed. The MoA with the Eastern Cape needs to be revisited as responsible officials have changed. The MoA's with the ARC and SA Studbook have been delayed on purpose as the contents will depend on outcomes related to IDAPIP.

C. RESEARCH CHAIR AT OP: The discussions of the envisaged research chair as highlighted under Goal 1 have resulted in a position document attached as Annexure 3. What is noteworthy to Goal 2 is that the DST/NRF and HWSETA may support a Research Chair. Further funding, in addition to the industries/sectors themselves, is envisaged from DTI, NRCS, DoH and possibly drug companies that may benefit from products developed through the Research Chair.

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

Achievements

A. 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. Seven articles were entered on the website; therefore the target was met. Some of these 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 include:

- * *Spore populations among bulk tank raw milk and dairy powders are significantly different.*
- * *Effect of a second treatment with prostaglandin F_{2α} during the Ovsynch protocol on luteolysis and pregnancy in dairy cows **and** Modifications to Ovsynch improve fertility during resynchronization: Evaluation of presynchronization with gonadotropin-releasing hormone 6 d before initiation of Ovsynch and addition of a second prostaglandin F_{2α} treatment.*
- * *Use of cheese whey for biomass production and spray drying of probiotic lactobacilli.*
- * *The effect of pulsation ratio on teat condition, milk somatic cell count and productivity in dairy cows in automatic milking.*
- * *Effect of injectable vitamin E on incidence of retained fetal membranes and reproductive performance of dairy cows.*
- * *Saturated fat supplementation interacts with dietary forage neutral detergent fiber content during the immediate postpartum and carryover periods in Holstein cows: Production responses and digestibility of nutrients **and** Saturated fat supplementation interacts with dietary forage neutral detergent fiber content during the immediate postpartum period in Holstein cows: Energy balance and metabolism.*
- * *Development of an index to rank dairy females on expected lifetime profit.*

B. 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. Six articles were sourced which met the target. The following themes were covered:

- * DAIRY PRODUCTION EXPERIMENTS FOR FARMERS IN THE DEVELOPING SECTOR.
- * THE RUMEN ORGANISM *MEGASPHAERA ELSDENII* CAN ASSIST DEVELOPMENT AND GROWTH OF PRE-WEANED CALVES.

* WITHIN UDDER INFECTIONS IN PREGNANT HEIFERS WHICH WERE HOUSED TOGETHER AND REARED ON FRESH MILK AS CALVES.

* A SYSTEMS APPROACH FOR DAIRYING IN SOUTH AFRICA.

* HERD STRUCTURE AND LONGEVITY IN HOLSTEIN AND JERSEY HERDS.

* IMPLICATIONS AND PRACTICALITIES OF GHG MITIGATION.

C. OTHER ARTICLES OF PRACTICAL VALUE: Three contributions were made to the MILK ESSAY, one of which was also published in the MPO MILK BULLETIN. These are:

* Towards sustainable and eco-friendly dairying: Are you one of South Africa's producers engaged in best farming practices?

* The other two were updates on the progress thus far with R & D: (1) Fighting liver fluke; (2) Results of a pilot trial to establish whether isolated bacteriophages will kill Staphylococcus aureus.

D. BACKGROUND INFORMATION TO THE NATIONAL PRODUCER'S WORK GROUP: For the Meeting of 17/18 March discussed under Goal 1, two documents were prepared to facilitate discussion. These should also be valuable to the constituencies of the representatives on the Work Group:

* Genetic and performance improvement of the national dairy herd:

- Background and problem statement

- Pressing questions and possibilities of making progress

- Milk recording and automated dairy production systems resolution

- residual feed intake to enhance feed efficiency

- Crossbreeding

- Genomic selection

* Environmental challenges and responsibilities of the dairy industry

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, but not the IDF which is administered by SANCIDF

Achievements

The author represents the Dairy Industry on a Committee advising the DEA on climate change and GHG reductions. He is also on an advisory group of Agri SA in this regard to formulate their approach and strategy. The DEA developed in draft format their "Strategic Plan: Measurement, Reporting and Verification for the AFOLU Sector 2016 to 2020" (AFOLU is the acronym for Agriculture, Forestry and other Land Use), which addresses targets and time lines for mitigation for the Sector, as well as measures such as taxation if the targets and time lines are not met. The advisory group will guide the approach of Agri SA to the Strategic Plan of the DEA.

No Non-achievements / underperformance has been reported

Income and expenditure statement

Income and expenditure statement	MSA Expenditure of Programme Manager R & D 2016.docx
Unnecessary spending during period	No

Popular Report

No file has been uploaded

Additional documentation

[Annexure 1_MSA MINRES004 Minutes RPEC 18 Feb 2016.docx](#)

[Annexure 2_MSA MINRES006 Minutes Produsente-RD WG - 2016 02 17-18.docx](#)

[Annexure 3_MSA Research Chair in Veterinary Chemotherapeutics_v2.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