CO-ORDINATION, SUPPORT AND PROMOTION OF NEEDS-DRIVEN RESEARCH & DEVELOPMENT IN THE SOUTH AFRICAN DAIRY INDUSTRY

(PRJ-0080-2015)

Dr Heinz Meissner

Quarter 2 2015/2015 (April 2015 till June 2015)

Project goals

Goal 1 - Objective 1: To accumulate and publish existing domestic and international scientific knowledge of applicable and practical value to enhance the industry. Task 1: Updating information on the website from the seven most relevant international scientific journals, as previously identified. Fifty research titles per month will be added.

Achievements

A total of 214 articles of the international journals: Journal of Dairy Science (116), Journal of Dairy Research (71) and the Journal of Animal Science (27) have been added to the website. The target is 50 per month. The total of 214 equates to 71 p

No Non-achievements / underperformance has been reported

Goal 2 - Objective 1: To accumulate and publish existing domestic and international scientific knowledge of applicable and practical value to enhance the industry. Task 2: Publications and articles of a popular-scientific nature which would be of functional value to the South African dairy industry will be listed, published on the website and made available for publication in publications such as The Dairy Mail and Milk Essay.

Achievements

These are published on the website under the Heading "Dairy R & D in SA". The target is one per month. During the reporting period a total of five were interpreted and put on the website, which means the target was met (see Attachments 1 to 5). In addition, a number of articles with relevance to the R & D Programme was sourced, sent through to the relevant researchers and RPEC members and debated where applicable. Examples are: (1) Journal of Dairy Science **June 2015**, Volume 98, Issue 6, Pages 3613–3621. **Biofilm-producing ability and efficiency of sanitizing agents against Prototheca zopfii isolate from bovine subclinical mastitis; (2) Journal of Dairy Science (2010), 93 :2792–2802. Biofilm in milking equipment on a dairy farm as a potential source of bulk tank milk contamination with *Listeria monocytogenes; (3)* Journal of Dairy Science (2015), 98 :517–531. The effect of dietary crude protein and phosphorus on grass-fed dairy cow production, nutrient status, and milk heat stability; (4)**

Journal of Dairy Science July 2015 Volume 98, Issue 7, Pages 4338–4351. Different management practices are associated with mesophilic and thermophilic spore levels in bulk tank raw milk; (5) Journal of Dairy Science **February 2015** Volume 98, Issue 2, Pages 1354–1361. Reduction of teat skin mastitis pathogen loads: Differences between strains, dips, and contact times; (6) Journal of Dairy Science **February 2015** Volume 98, Issue 2, Pages 918–926. The effect of citrus-derived oil on bovine blood neutrophil function and gene expression in vitro; (7) Proceedings of the RUVASA Congress 2015. **A field study investigating the effects of a mastitis vaccine in a Staphylococcus aureus positive dairy herd, using quarter milk microbiology and cytology; (8)** Journal of Animal Science 2012,90:1687–1694. **Opportunities for improving milk production efficiency in dairy cattle; (9)** Journal of Dairy Science J**uly 2015** Volume 98, Issue 7, Pages 4735–4747. Residual feed intake is repeatable for lactating Holstein dairy cows fed high and low starch diets

No Non-achievements / underperformance has been reported

Goal 3 - Objective 1: To accumulate and publish existing domestic and international scientific knowledge of applicable and practical value to enhance the industry. Task 3: Research results of importance to the industry will be sourced from local and international sources and interpreted and popularized on the website monthly under the heading "The Research Column". One (1) article per month will be added to The Research Column on the website and made available for publication in publications such as The Dairy Mail and Milk Essay.

Achievements

The target of one scientific article per month to be added to "The Research Column" on the website was met as five contributions were made (see Attachments 6 to 10). Some of these were also published in "The Dairy Mail"

No Non-achievements / underperformance has been reported

Goal 4 - Objective 1: To accumulate and publish existing domestic and international scientific knowledge of applicable and practical value to enhance the industry. Task 4: The R&D capacities in SA, titles and abstracts of their publications and the work that they are busy with will be updated biannually on the website. This will be done in July before the Forum meetings. (This task will be executed in 2015, as it was done in 2013).

Achievements

This task is in progress and expected to be completed on time. The report will be in the third quarter

No Non-achievements / underperformance has been reported

Goal 5 - Objective 2: To limit research fragmentation and encourage cooperation between R&D capacities towards achieving the strategic goals of the industry. Task 1: To communicate with R&D institutions in

South Africa to promote R&D in line with the strategic direction of Milk SA and to promote appropriate interaction and co-operation between the relevant institutions.

Achievements

Since the last report there has been no progress with the MoA's with KZN and the Eastern Cape. The process with the legal authorities unfortunately takes long and the management of the Eastern Cape requires major changes - the CEO is attending to it. Contact with the Western Cape is regularly and a Steering Committee will probably be established to facilitate effective functioning and drive joint R & D initiatives. The SESCORD initiative is a valuable vehicle for liaison, identifying possible projects and guiding/promoting co-operation between capacities serving the south-eastern seaboard dairy needs. A Meeting was held on 20 May 2015 at Outeniqua Research Institute, George. The items discussed at the Meeting are attached for readers to understand what are the issues at stake (see Attachment 11).

Further communications and/or visits were with those institutions that are responsible for the R & D programmes funded, i.e. UP, UKZN and VNet. An exploratory Meeting with the ARC was held and it is envisaged to revisit the existing MoA, as the current one does not meet the requirements for effective co-operation on Milk SA goals and objectives.

Non-achievements / underperformance

The MoA's with KZN and the Eastern Cape.

Reasons for non-achievements / underperformance

Time constraints and time taken by the legal authorities

Planned remedies for non-achievements / underperformance

The problem is attended to

Goal 6 - Objective 2: To limit research fragmentation and encourage cooperation between R&D capacities towards achieving the strategic goals of the industry. Task 2: Co-operative Research Networks (CRN's) and the development thereof will be encouraged to increase the chance of project funding and to ensure anticipated deliverables and outcomes - as well as to see how the transformation objectives can best be achieved in so far as R&D can support or add value. In this regard, SESCORD and interaction with National and Provincial Government structures will continue.

Achievements

The CRN's with respect to the R & D programmes are satisfactory. Nevertheless, negotiations are underway to further strengthen co-operation: (1) In the liver fluke programme with project leader Dr Jan van Wyk of OP, further support has been achieved from NW University (Prof de Kock) to involve snail classification expertise, from Prof Charlier of Ghent for advice and possible student participation at a later stage and from CapeCross Vets in the Eastern Cape to assist with liver analyses. Furthermore, with an initiative of Prof Laing of UKZN on biological control of the snail host (application sent to the NRF for funding - see below), it is envisaged to link the OP and UKZN projects on fluke and snail sampling to cut costs. The UKZN project will involve the University of Zululand with post-graduate students and link up with Plant Health Products (PHP) to commercialize a possible viable biocontrol product. (2) In the mastitis programme with project leader Dr Martin van der Leek of OP, linkage with Wageningen (Prof Hogeveen) has been achieved with a three-month training support at OP (MS student Leenaerts), Epidemiology at

Utrecht (Dr Nielen), CapeCross Vets that are part of the country-wide veterinarian support to obtain and analyse milk samples for mastitis organisms and strains and with UP, main campus (Prof Erasmus) to train a Masters student. Also, two of the Cape Cross veterinarians will follow a Masters Programme with Dr van der Leek. Further linkages were established with an epidemiologist (Dr Grewar) at WCDA,Studbook logix system (Dr van der Westhuizen) for supporting data and a metereologist (Mr Mkhwanazi) of SA Weather Service to link observations with weather data.

In terms of the transformation objectives two projects at Dohne, Eastern Cape have been initiated through SESCORD: Once-a-day milking, as alternative model for developing farmers, and a benchmark project for milk production for developing farmers. The latter is run by a Masters student of Fort Hare.

No Non-achievements / underperformance has been reported

Goal 7 - Objective 2: To limit research fragmentation and encourage cooperation between R&D capacities towards achieving the strategic goals of the industry. Task 3: The annual R&D Forum where the most prominent researchers and industry leaders will discuss strategic direction and relevant research results will be arranged in the second half of 2015.

Achievements

The Advisory Committee R & D decided at its Meeting of 29 April that a further Forum Meeting will serve no purpose because of excessive costs, but also since the priority R & D fields and subjects have been identified, the projects identified by the producers are up and running and supporting structures are in place. The Advisory Committee Meeting however requested the R & D Programme Manager to prepare a document to provide his view on what he considers important for the next five years. This is attached as Attachment 12. Also, the Producers Work Group at their Meeting of 26 March identified a need for an Experts Group to be formed to assist TMR-based dairy farmers and otherwise with similar objectives as SESCORD for pasture-based farmers. This will be attended to in the next quarter.

No Non-achievements / underperformance has been reported

Goal 8 - Objective 3: To guide the R&D programme by means of effective structural arrangements, administration and fund sourcing. Task 1: Chair the Research Project Evaluation Committee of Milk SA (RPEC).

Achievements

A Meeting of the RPEC was held at Outeniqua Research Institute on 19 May. The items discussed are provided (see Attachment 13). With regard to R & D, all the to be funded projects received the green light from the RPEC, contracts have been signed, are progressing well and progress reports thus far have been evaluated. Assistance was provided to Project Leaders that did not complete their progress reports according to specifications.

R & D Programmes (titles) which are currently running are:

1) Fasciola hepatica: Impact on dairy production and sustainable management on selected farms in South Africa

2) Resistance to available antibiotics in lactating cows with mastitis

3) Investigating alternative methods such as bacteriophages and bacteriocins to control mastitis organisms

4) A National Disease Monitiring and Extension System for the Dairy Industry

5) Characterization of coliform bacteria and Escherichia coli from fresh milk to determine the prevalence of possible pathogenic types

No Non-achievements / underperformance has been reported

Goal 9 - Objective 3: To guide the R&D programme by means of effective structural arrangements, administration and fund sourcing. Task 2: The administration of R&D requires guidance on structural arrangements, evaluation of project proposals and reports, negotiations on IP, contracts and publication of results.

Achievements

Response to Task 2 has been mainly covered in the previous sectors. Regarding the milk flocculation progarmme, it has proved difficult to make progress, the reason being rather limited literature which hampered formulation of suitable hypotheses. Using the available literature it appears that dietary composition of the cow may be involved, microbiological (spores, biofilms) contamination in the milk lines and enzymatic alterations during heat treatment of long-life milk.

Non-achievements / underperformance

Negotiations on the milk flocculation problem

Reasons for non-achievements / underperformance

Formulation of hypotheses proved difficult

Planned remedies for non-achievements / underperformance

An increased effort to develop protocols is envisaged. This should be facilitated by very recent publications found by the Programme Manager.

Goal 10 - Objective 3: To guide the R&D programme by means of effective structural arrangements, administration and fund sourcing. Task 3: Invitations for and administration of project proposals will be facilitated and administrated by the office of Milk SA; proposals will be evaluated and recommended by the RPEC to the Milk SA Board of Directors for consideration and possible financial support.

Achievements

Task 3 was mostly dealt with in previous sections. In addition, the Programme Manager assisted prof Laing of UKZN to apply for NRF funding for their envisaged project: Integrated control of Fasciolosis of Livestock

No Non-achievements / underperformance has been reported

Goal 11 - Objective 3: To guide the R&D programme by means of effective

structural arrangements, administration and fund sourcing. Task 4: R&D institutions will be guided through the required processes and contracts concluded with successful applicants.

Achievements

See Task 3. Nothing further to report.

No Non-achievements / underperformance has been reported

Goal 12 - Objective 3: To guide the R&D programme by means of effective structural arrangements, administration and fund sourcing. Task 5: Milk SA's funds for R&D are limited. Sourcing from other institutions is possible, but the process and procedures differ and therefore guidance to the researchers and Milk SA is required. This will be done for approved projects.

Achievements

Nothing to report

No Non-achievements / underperformance has been reported

Goal 13 - Objective 4: To participate in the Water Research Commission's study on water and wastewater management in the South African dairy industry in which the Programme Manager acts as evaluator on behalf of the SA dairy industry; and to support an MBA student with her dissertation on environmental studies. Task 1: Coach the MBA student in the approach to and execution of the dissertation.

Achievements

The MBA student decided not to continue on this topic.

No Non-achievements / underperformance has been reported

Goal 14 - Objective 4: To participate in the Water Research Commission's study on water and wastewater management in the South African dairy industry in which the Programme Manager acts as evaluator on behalf of the SA dairy industry; and to support an MBA student with her dissertation on environmental studies. Task 2: To provide input as required by the Water Research Commission and its contractor, the University of KwaZulu-Natal.

Achievements

Nothing further to report at this stage. The WRC report was attached with the report of the first quarter.

No Non-achievements / underperformance has been reported

Income and expenditure statement

Income and expenditure statement	MSA Meissner_Budget & Expenditure second quarter 2015.docx
Unnecessary spending during period	No

Popular Report

No file has been uploaded

Additional documentation

MSA DAIRY R & D IN SA_2015-04-16.docx
MSA DAIRY R & D IN SA_2015-05-18.docx
MSA DAIRY R & D IN SA_2015-05-28.docx
MSA DAIRY R & D IN SA_2015-06-18.docx
MSA DAIRY R & D IN SA_2015-06-22.docx
MSA THE RESEARCH COLUMN April 2015.docx
MSA THE RESEARCH COLUMN May 2015.docx
MSA THE RESEARCH COLUMN June 2015.docx
MSA THE RESEARCH COLUMN June 2015 (2).docx
MSA THE RESEARCH COLUMN May 2015 (2).docx
MSA ITEMS FOR AGENDA OF SESCORD MEETING OF 20 MAY AT OUTENIQUA.docx
MSA Memo to RPEC_R & D Progr to 2020 (2).docx
MSA ITEMS FOR AGENDA OF RPEC MEETING OF 19 MAY 2015 AT OUTENIQUA.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