



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

(PRJ-0080-2015)

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Year 2015 (January 2015 till December 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

During 2015 a total of 747 entries were put on the website, or 62 per month. The target of 50 per month was therefore met. This task will not continue in 2016 since it appears that members do not show interest to access this particular information. Instead it was decided to increase the number of publications interpreted by the author which could be of value/interest to members. Whereas the latter articles are put on the website and also published in "The Dairy Mail" under the heading "THE RESEARCH COLUMN", it is maybe also important to target publications such as the "Milk Essay" and the "MPO Milk Bulletin" to ensure a wider audience.

To accommodate the increase in 2016, the author has increased the target of THE RESEARCH COLUMN to two per month instead of one per month.

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". During the report period a total of 20 were interpreted and put on the website. The target is one per month (12 per year) and therefore the target was met. The subjects were a variety covering amongst others the fields of rumen buffering of the cow, concerns of cow mastitis organisms having an effect on people in contact, public concerns of enhancers used to increase production, alternatives used in

the concentrate mix to reduce feeding costs, udder health and mastitis-causing organisms, high-fibre concentrates as substitute for maize in cow diets, the effect of dietary energy source on the metabolism of the cow, oregano in rumen fermentation, INTERGIS of the ARC and the importance of specific amino acids to the cow.

In addition, a number of articles (11 in total) with relevance to dairy farmers and the R & D Programme was sourced, sent through to relevant farmers, researchers and RPEC members and debated where applicable. The details are in the Quarterly Reports. Task 2 is considered valuable as it makes farmers aware of R & D results in South Africa and the researchers to be contacted. It is also valuable for the R & D Programme since it involves the researchers and opens up debate in current and future projects.

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 article per month to be added to "The Research Column" on the website was met as 23 contributions were made during 2015. Some of these were monthly published in "The Dairy Mail" under the regular "Research Column" of the author. A wide variety of subjects were covered, amongst others: the effect of nutrient balance in cow diets on milk heat stability; the problem of biofilm formation in sanitizing and food safety and non-conventional treatment to deal with it; the interesting effect of selection for residual feed intake on grazing behaviour, the positive effect of paired-housing on growth of pre-weaned calves, the effect of starch and monensin on metabolism and production; heat-treated colostrum to calves; financial results on pasture; dextrose solution and endometritis; the effect of stocking rate on soil nitrate in pasture, and whether the ranking of cows in terms of RFI is influenced by energy concentration of the diet. It is anticipated that this contribution will increase in 2016 as indicated above.

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

An updated inventory was entered on the website. This covers the major R & D capacities in the country, their projects and publications. It is impossible to get a 100% correct inventory as some researchers simply do not respond to the request for information. The inventory nevertheless provides a valuable overview.

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

1) Progress with MoA's: The MoA with the Western Cape (WCDA) driven by a Steering Committee is functioning well. However, the Milk Producer Group which is essential to debate and put needs on the table still needs to become functional. A further benefit of the WCDA is the WC Agricultural Research Forum (WCARF) where representatives of different disciplines discuss networks, R & D needs, capacities and sources of funding. Milk SA has benefitted by being a member of the WCARF. The MoA with KZN was supposed to be signed by the parties in January 2015; it does appear that their legal authorities are now satisfied and hopefully it will soon be functioning. The MoA document with the Eastern Cape has shown little progress in 2015; corrections were made as suggested by them some time ago, but nothing has happened since. Discussions to facilitate the anticipated MoA's with the ARC and Stud Book have been careful and diplomatic because of the sensitivity associated with milk recording and performance measurement. However, the stance has been taken that ownership of the data is with farmers and breed societies (and therefore the industry), which implies that the ARC, Stud Book, Breedplan, Dairy MC etc. are merely service providers, and this will be the approach adopted when discussions commence. In the case of the ARC, the plant breeding facility at Cedara will be part of the negotiations.

2) Networks and communications: The SESCORDER 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 and one at Cedara on 4 November 2015. At the latter Meeting a strong case was advanced to co-ordinate pasture research, but with the increasing tendency to feed more concentrates on pasture, a natural linkage with TMR systems begin to evolve, which may indicate to drawing TMR expertise and producers into the SESCORDER dispensation, rather than forming an independent TMR grouping. Further communications and/or visits were with those institutions that are responsible for the R & D programmes funded, i.e. UP (Fasciolosis and Mastitis), UKZN (Mastitis) and VNet (Disease Monitoring). The Milk Flocculation programme has also received impetus with a visit to UFS to discuss their proposals. These have been approved by the RPEC and the Board and will commence in 2016. The cow nutrition part of the programme which will be the responsibility of Outeniqua is regularly discussed and is

Non-achievements / underperformance

Lack of progress with the MoA's with KZN and the EC

Reasons for non-achievements / underperformance

The lack of progress is a result of delays on the side of the provinces

Planned remedies for non-achievements / underperformance

Discussions/negotiations will be resumed in 2016

taking shape as results from a pilot study provide directives for hypotheses. Upon further discussions with the Red Meat Industry and UKZN the principle of a national bio-control programme for Fasciola and nematode control was accepted. The anticipated division is that the Fasciolosis project will be funded by the Dairy Industry and the nematode project by the Red Meat Industry (RMRD SA). A Fasciolosis project proposal has been submitted by UKZN. With regard to the envisaged programme on Performance and Genetic Monitoring of the National Herd, valuable discussions were held with the MPO CEO, SA Stud Book and the WCDA.

Some recent initiatives with relevance to the Performance and Genetic Monitoring Programme (since called the Integrated Genetic and Performance Programme [IGPP]) are the following: The IGPP is gaining momentum with discussions with ARC, Stud Book and the Western Cape on the practicality of using Residual Feed Intake (RFI) as efficiency selection parameter. This can be implemented on station and also on farm, but farms will differ in application method. The possibility of a genomics programme for dairy cattle has also been exploited. The Technology Innovation Agency (TIA) approached Prof van Marle-Koster of UP for a protocol which was subsequently developed together with the author, and which is envisaged to be approved in April 2016 (if the funds is available). As a third initiative, the possibility of accessing performance data from automated systems to analyse for genetic and other parameter progress was discussed by the CEO and the author with Dairy MC, ARC and Stud Book representatives on 16 October 2015. The initiative proved promising.

With our Fasciolosis and associated parasite programme, it is of particular concern that Helminthology capacity at the UP Onderstepoort Faculty is declining. To share our concern, Dr Chris van Dijk and the author visited the Dean (Prof Darrell Abernethy) on 4 December. It should be mentioned that this concern was also shared with the Red Meat Industry which will welcome any initiative in this regard. The possibility of establishing a Chair with financial support by industries, the DAFF and pharmaceutical companies was discussed. The Chair can link all R & D in the country in these and related disciplines, apart from having its own programme. This will be taken forward during 2016.

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 discussed under Goal 5 above are also relevant here. The CRN's with respect to the R & D programmes are satisfactory: Negotiations were successful to further strengthen co-operation: (1) In the liver fluke programme with project leader Dr 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, 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 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, Stud Book logix system (Dr van der Westhuizen) for supporting data and a meteorologist (Mr Mkhwanazi) of SA Weather Service to link observations with weather data.

As far as the progress on the projects that were evaluated by the RPEC since September 2015 is concerned, the status is as follows: As mentioned under Goal 5, two projects on milk flocculation were approved and will commence early 2016: one on heat associated enzymatic changes (Project leader: Dr Myburgh, UFS) and one on Psychrotrophic damage (Project leader: Prof Hugo, UFS). As far as the possible cow nutrition influence on flocculation is concerned, a pilot study was done at Outeniqua with Prof Meeske as Project leader. The author will discuss the results in January/February 2016 whereafter the protocol will be taken further. A Bio-control project on Fasciolosis, that will link with the project of Dr van Wyk at Onderstepoort, will also commence early in 2016. This will be done under the leadership of Prof Laing of UKZN, with post-doc Dr Ahmed as Project leader. Lastly, if the application for the envisaged genomics project is successful, expertise input will come from all major centres in the country, including UP, UFS, US, Fort Hare, ARC, Stud Book, Breedplan and several international groups.

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 R & D Forum was cancelled because of cost and will also not be revived in future, since the structures, R & D fields and priority projects until at least 2020 have been put in place. However, the Outlook and Research Fields and Subjects documents until 2020 are dynamic and can change as new priorities come on the table or current projects are completed.

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

Four Meetings of the RPEC were held during 2015, on the 4th of March, the 19th of May, the 9th of October (a non-scheduled Meeting) and on the 3rd of November. The primary discussions of the March Meeting were on the finalization and contracts of the projects concerned with liver fluke and mastitis, evaluation of interim reports of the National Disease Monitoring and Extension System and The Microbiological Quality of Milk, and concept proposals on milk flocculation. In addition, memoranda were also put on the table by the author concerning: "Managerial and genetic analyses in the SA dairy herd", "Rural development, including environmental challenges and responsibilities" and "Biological control of persistent diseases of livestock".

At the May Meeting time was primarily spent on the R & D projects in the system. All the to be funded projects at the time received the green light from the RPEC, contracts were signed, are progressing well and progress reports at the time were evaluated. Assistance was provided to Project Leaders that did not complete their progress reports according to specifications. R & D Projects (titles) which were on the system at the time 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 Monitoring and Extension System for the Dairy Industry, and 5) Characterization of coliform bacteria and Escherichia coli from fresh milk to determine the prevalence of possible pathogenic types.

The special Meeting of the 9th of October commenced dealing with the 2016 proposed budget and the associated project proposals. In addition, a specific task was to evaluate the R & D outlook to 2020 by the author and the associated research fields and subjects.

The RPEC Meeting of 3 November coincided with the SESCORDER Meeting. A primary function was to further evaluate the budgets of the 2016 projects mentioned above for recommendation to the Board. Recommendations were also made with regard to changes to the Goals and Procedures. These projects will commence early in 2016.

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

Structural arrangements on the projects that are running and those that will commence in 2016 have been accommodated and the contracts signed. There were no difficult issues regarding IP to negotiate. With the mastitis project on bacteriophage predation of the pathogens by the UKZN, Plant Health Products (PHP) is a co-worker and it was initially thought that PHP could be a cofunder with IP implications. PHP was visited by the CEO and the Programme Manager, and it proved not to be the case.

The final report of Project leader Prof Buys [Characterization of coliform bacteria and Escherichia coli in fresh milk to determine the prevalence of possible pathogenic types] was discussed with her and her final report plus anticipated articles have been submitted in the last quarter.

The Genomics Project submitted to the TIA, was developed together with Prof van Marle-Koster of the UP in terms of both technical and managerial content. A Technical Committee accomodating all available expertise will be formed. The Programme Manager R & D will facilitate. The Management Committee accomodating the Project Leader and stake holders in the Dairy Industry will be chaired by the Programme Manager R & D.

No Non-achievements / underperformance has been reported

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

These issues have been 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", as well as their application to the RMRD SA for the project on bio-control of Nematodes.

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

This is continuously attended to. Until now, Milk SA funds have been sufficient to meet project budgets. This is not expected to change in 2016, therefore outside sources may have to be accessed at a later stage. If the application of the Genomics project is successful, it is expected that it would be funded by the TIA with funding from the dairy Industry only indirectly (making animals available) and in kind.

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

Dealt with under Task 4 above

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

The final Report has been completed. The author was requested to review a scientific paper resulting from the work for "Water SA". This was done during October. Comment: The Report which is available from the Water Research Commission contains some valuable information; however the study had particular shortcomings which were indicated by the evaluation committee. The resulting paper for Water SA was rejected.

No Non-achievements / underperformance has been reported

Income and expenditure statement

Income and expenditure statement	MSA Meissner Budget & Expenditure Year 2015.docx
Unnecessary spending during period	No

Popular Report

No file has been uploaded

Additional documentation

No file has been uploaded

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