



Fasciola hepatica: Impact on Dairy Production and Sustainable Management on Selected Farms in South Africa

(PRJ-0060-2015)

J.A. van Wyk (University of Pretoria) -

Quarter 1 2015 (January 2015 till March 2015)

Project goals

Goal 1 - Investigations on four dairy farms, selected on the strength of farmer perception of the production effect of *Fasciola* sp. on milk production on their farms.

Achievements

1. 20-21 JANUARY: Accompanied by Dr Heinz Meissner, visited the Eastern Cape to meet the farmers selected by MILKSA to take part in the project, discuss the implications and scope of the project as well as the input that would be required from them, and obtain a commitment from each.

Visits 20 Jan.:

- (i). Mr Rynus Gerber on the farm De Vlei. He did agree to take part in the project, but did seem somewhat reticent.
- (ii). Mr Nigel Lok and his manager on the farm Robhoek, Mr Louis van den Berg.
- (iii). Dr Louis Hoek, Veterinarian of the SouthernCross Veterinary Clinic, for discussions on processing of the livers of slaughtered dairy cows, for *Fasciola* sp. recovery, as well as the possibility of partaking in the project, if necessary.
- (iv). Dr Bernadine van den Berg, of the Witelsbos Vet Consulting Rooms. She was selected by MILKSA as the veterinarian to be responsible for aspects of the project, such as taking of samples from the animals in the project and overseeing the running thereof on the farms involved.

Visits 21 Jan.:

- (i). Mr Mr Louis de Bruijn, manager of all of the farms belonging to Mr. Trevor Elliot. We met on the farm, Gradita, with Mr De Bruijn and the local managers of the farms Gradita and Veelgeluk, Messrs Christo le Roux and Hennie Bronkhorst. The position on both farms regarding the presence of and problems with *Fasciola* spp. was discussed at the meeting and the impression of both Dr Heinz and Van Wyk was that both of the farms would be included in the project, as projected by MILKSA. However, on the following visit of Van Wyk and Van

Non-achievements / underperformance

Communication was indeed inadequate initially in the project. The income-expenditure report for the first quarter is not included as yet, as explained below.

Reasons for non-achievements / underperformance

As a result of distance, lack of experience of Van Wyk and Van Rensburg with dairy farming and limited availability of the farmers and farm managers involved, for discussions, as well as the early birth of Dr Van den Berg's first baby, liaison with the farmers was admittedly inadequate initially. However, this has improved substantially, even though perhaps not to the extent of the open-heartedness to which Van Wyk had become accustomed over his working life with farmers.

A complication was the fact that the first draft of the project contract was received only in February, and that due to the time required for the finalisation of the contract, which was finally signed only on 6 March, and with the first funds only

Rensburg to the farm (see below) Mr De Bruijn refused us entry to Veelgeluk, and averred that this farm was not part of the initial discussions, and that he had also not received permission from his Head Office to allow the farm to be included in the project.

(ii). Mr Lourens Gildenhuys, on the farm Oudebosch.

(iii). Met with the farmers involved in the project, for a group discussion.

2. 9-13 MARCH (trip made by car, to be able to transport equipment and supplies). As stated above, on this occasion Mr De Bruijn refused the project team entry to Veelgeluk, so that farm could not be visited, and Mr Gerber informed us that he was not prepared to continue with the project, for the reason that his farm, De Vlei, had been selected as a control farm "unaffected" by *Fasciola* and that it was inconvenient for him to continue. However, Van Wyk & Van Rensburg visited the other farms for discussions on the project, and on each farm visited all the relatively wet/marshy spots, which could serve as habitats for the snail intermediate hosts of the *Fasciola* sp. parasite. On each of the potential spots mud and herbage sampling was done for the presence of the snails, and on the strength of this a selection of spots was made for future routine sampling.

COMMENT: This is a very slow process and exacting, since at each spot cans of water are required for sifting mud for the recovery of the snails, some of which are less than 2 mm in length.

3. 30 MARCH: Van Wyk and Van Rensburg met at the North-West University in Potchefstroom with Dr K.N. de Kock, for very fruitful discussions on freshwater and mud snail taxonomy, identification and sampling. During his working career Dr De Kock, now working much the same as Van Wyk as extraordinary lecturer, was the person who sampled the entire country and parts of Namibia and Botswana and compiled a map of the snails of the entire region.

4. 7 APRIL: Van Wyk accompanied Dr Heinz Meissner to the Tsitsikamma for a meeting with the farmers involved. The meeting was requested by the farmers because of what they perceived as inadequate communication with them on the project. The meeting can be regarded as successful, since problems involved, were resolved.

5. 20-23 APRIL: The project team visited all of the farms, including Veelgeluk, in which case the impasse had been resolved by MILKSA in discussions with those concerned, and this constituted the first of the scheduled monthly sampling events as part of the snail survey, a most important component of the project. Discussions were also held with Dr Alf Lategan of the CapeCross Veterinary Clinic concerning the sampling, storage and dispatching of the project samples, and the team did the training required in relation to the preparation of the faecal samples for transporting to Onderstepoort.

During the visit to Gradita on 21 April the team had the good fortune that Prof. Johannes Charlier, who is arguably the most experienced researcher globally in the field of the present project and was brought to South Africa by the company, CEVA, was able to join us in part of the snail survey on the farm. Of interest from the visit is that: (i) The original project plan submitted in the

becoming available to Van Wyk on 7 April 2015. The process also took up much of Van Wyk's time in addressing the problems encountered with the initial funding (with which the University of Pretoria does not provide Van Wyk help before the specific project funding is received), while time had to be spent on other preparations for the project, such as the writing of a variety of "manuals" for farmers and veterinarians. Meanwhile other funds had to be arranged, and the amounts involved from different sources have not as yet been allocated to the present *Fasciola* project, thus presently delaying the completion of the income-expenditure report that is required according to the contract.

Planned remedies for non-achievements / underperformance

The problem has been solved through communication(!) and institution of certain routines in relation to times either opportune or inopportune to the farmers.

September, 2014 application for the present project was practically identical to that of a more extensive trial conducted by Charlier in Belgium, but of which Van Wyk was not aware. The results of the trial were reported only close to the end of 2014 in an article that was received by Van Wyk only during the first two months of 2015. (ii) The methods devised in the present trial for mud sampling for snail recovery also closely resembled that of Charlier, although he took note of what he experienced here, saying that the differences were superior to what he had used in Belgium.

COMMENT: Despite the agreement at the meeting of 7 April that help in the form of a farm hand and transport where farm roads would be unsuited to the small cars rented by the project team, would be provided per farm, this occurred only on Oudebosch; no help was forthcoming on Robhoek and Veelgeluk, but even though transport was also not provided, a very good farmhand was made available on Gradita. As a result of much rain over the two weeks preceding our visit, the team got seriously stuck in mud on Gradita and more lightly on Veelgeluk. In both cases the car became so covered in mud, even including the roof and sides of the car and to an extent the interior of the car because the windows were slightly open at the top, that it could not be used further without cleaning, or returned to the company without cleaning. This caused the project team to have to spend upward of 3 hours over the two days to remove the mud from the car. Furthermore, on Veelgeluk more than an hour was spent removing large rocks (in relation to the ground clearance of the car) from a road that had to be traversed in order to reach some of the important sampling sites, and there was a risk of damage to the car if the wrong track were to be selected on two stretches of the road.

Goal 2 - Small-scale questionnaire survey on appraisal of farmer perception and knowledge of Fasciola sp. specifically and worms of cattle in general for use in Phase 1 and as background to later phases, should the results of Phase 1 be judged to merit further investigation.

Achievements

Making use of a questionnaire of Prof. Charlier of Belgium, one has partially been drawn up along similar lines and translated into Afrikaans and English for use in the present project. It was scheduled for the first two months of the project, but because of the change in local veterinarians playing the major role in the project, namely from Dr Van den Berg, to the CapeCross veterinary practice, this has temporarily been shelved until the completion of the negotiations with the latter. The intention is also to do some training in the method in which the survey is to be done as regards the exact way the questions are to be put, before the first questionnaires are to be completed. To save costs, the plan is for the

Non-achievements / underperformance

The survey is planned to involve only a relatively small number of farmers, and as explained above, there has not been anyone available for conducting it.

Reasons for non-achievements / underperformance

The survey is planned to involve only a relatively small number of

questionnaire to be completed on routine visits by the different veterinarians in the practice to a variety of farmers, in contrast to special visits to this end.

farmers, and as explained above, there has not been anyone available as yet for conducting it.

Planned remedies for non-achievements / underperformance

The plan is rapidly to complete the questionnaire form once the negotiations have been completed.

Goal 3 - Evaluation of prevalence and seasonal cycling of Fasciola sp. on the selected farms.

Achievements

This aspect of the project is planned to continue over the entire duration of Phase I, that is up to the end of July 2016, granted continuation with the project after the end of 2015. To this end, the snail survey has commenced, and the first faecal samples for worm egg counting have been received during the present week.

No Non-achievements / underperformance has been reported

Goal 4 - Evaluation of mode of transmission on each farm, for the parasite to be able to cycle to the extent of causing losses in milk production.

Achievements

As above, the evaluation is scheduled for the duration of Phase I of the project, and that has commenced with the first snail sampling and receipt of faecal samples from the cattle involved per farm.

No Non-achievements / underperformance has been reported

Goal 5 - Small-scale evaluation of anthelmintic efficacy against the Fasciola sp. populations per farm, in order to get a preliminary impression concerning the presence or absence of anthelmintic resistance. The reason for the limited extent of this aspect of the project is to obtain data for evaluation of the need for later inclusion of more farms in anthelmintic testing.

Achievements

Anthelmintic efficacy assessment is planned for occasions where relatively high worm egg counts are encountered in the faeces of some of the animals shortly before they are to be dewormed, and as the first faecal samples have only just been received, there are not results to go on as yet.

No Non-achievements / underperformance has been reported

Goal 6 - Formulation of options for sustainable management of Fasciola sp. on each of the farms.

Achievements

The formulation of options is scheduled for the end of the project, however, it has already commenced and is to be continued throughout Phase 1 of the project, with each consecutive visit to the farms involved.

Non-achievements / underperformance

N/A

Reasons for non-achievements / underperformance

N/A

Planned remedies for non-achievements / underperformance

N/A

Goal 7 - Telemetric activity monitoring (with the use of a low-cost system) as possible adjunct to worm management. Of importance, however, is that the nature of the telemetric data is such as to require specialised data evaluation expertise. Evaluation of the large data sets to be obtained from the production of the dairy cows will be facilitated by inclusion with the telemetric data evaluation. However, due to the complexity of the analyses, results of only preliminary nature are to be expected in Phase 1.

Achievements

A telemetric system is to be employed on one of the farms, but the necessary funding required for purchasing the equipment and consumables for the system has only very recently become available, hence the monitoring has not commenced as yet. However, according to availability of the what are required, it is envisaged that the sytem will be installed in June or July. Meanwhile, arrangements are already being made for obtaining detailed milk volume and analysis data from Robhoek, which will form a crucial part of the project for the envisaged planning concerning improved application of available software for statistical analysis.

No Non-achievements / underperformance has been reported

Income and expenditure statement

Income and expenditure statement	MILKSA-F.hep_PRJ-0060_Fin Rep. Jan-Jun 2015.pdf
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