



# **RESISTANCE TO AVAILABLE ANTIBIOTICS IN LACTATING COWS WITH MASTITIS**

(PRJ-0110-2016)

**University of Pretoria (ML van der Leek, Principal Investigator) -**

**Quarter 3 2016 (July 2016 till September 2016)**

## **Project goals**

**Goal 1 - Mastitis survey among SA milk producers; herd visits for verification of survey data; collection of additional data; analysis of the survey data; and writing up the SCC study: January to June 2016**

### **Achievements**

#### **Mastitis online survey**

The data originally collected was organized and cleaned in preparation for analysis. We have 149 surveys eligible for analysis, in various stages of completion as returned by respondents. These include the 20 herds that were visited. To follow:

An individualized follow-up survey will be resubmitted to all online survey respondents. It will be populated with their earlier answers.

We will seek official authorization from those who had agreed for us to access their milk testing data.

Data will be analysed outputting descriptive statistics and looking for associations between multiple variables and the following outcomes: somatic cell count (SCC), mastitis cases, mastitis culls and the length of stay of mastitis cows in the hospital. We have also collected a good amount of commentary.

We also completed a non-respondent survey that did reflect a similarity with the herd characteristics of the survey herds. Of interest are the reasons they did not participate:

|               | <b>Reason for not taking part in survey:</b>                       |
|---------------|--|
| <b>WC 1</b>   | Internet problem, couldn't open link                               |
| 2             | Unaware of survey/did not receive it                               |
| 3             | Unaware of survey/did not receive it                               |
| 4             | Unaware of survey/did not receive it                               |
| 5             | Unaware of survey/did not receive it                               |
| <b>EC 6</b>   | Did not have time to complete survey                               |
| 7             | Did not have time to complete survey                               |
| 8             | Unaware of survey/have been absent from office for quite some time |
| 9             | Can't remember if he did receive it or not                         |
| 10            | Unaware of survey/did not receive it                               |
| <b>KZN 11</b> | Unaware of survey/did not receive it                               |

|                   |  |
|-------------------|--|
| 12                | Unaware of survey/did not receive it                                     |
| 13                | Did not have time to complete survey                                     |
| 14                | Did not have time to complete survey                                     |
| <b>Central 15</b> | Unaware of survey/did not receive it                                     |
| 16                | Unaware of survey/did not receive it                                     |
| 17                | Unaware of survey/did not receive it                                     |
| 18                | Unaware of survey/did not receive it: computers stolen and missed emails |
| 19                | Unaware of survey/doesn't know if manger received it or not              |
| 20                | Did not have time to complete survey                                     |

### Mastitis herd visits and questionnaire

Twenty herd visits were conducted between July 12 and September 15. Five herds per region/province were selected at random, with herds of >200 cows eligible.

| Region               | Dates                    |
|----------------------|--------------------------|
| Central South Africa | 11 to 22 July            |
| KZN                  | 1 to 12 August           |
| EC                   | 22 August to 2 September |
| WC                   | 5 to 16 September        |

| Questionnaire   | Range      | Mean    | Median  | SD     |
|-----------------|------------|---------|---------|--------|
| Cows in milk    | 205 - 1462 | 649     | 451     | 398    |
| DIM             | 157 - 265  | 187     | 182     | 23     |
| Milk production | 14 - 40    | 20.75   | 17.1    | 7.6    |
| BMSCC           | 158 – 464  | 272,466 | 258,022 | 84,526 |

| Question   | Result                          |
|--|---------------------------------|
| Given the same level of profit, what is your management style?<br>High input, high production (questionnaire):<br>Low input, low production:<br>Other: | High=9<br>Low=8<br>Other=3      |
| Milk testing (questionnaire)   | Yes=8<br>No=12                  |
| Average number of mastitis cases (n=55) (survey)   | 33% per year<br>2.75% per month |
| Average number of mastitis culls (n=34) (survey)   | 7% per year<br>0.58% per month  |
| Routinely collect milk samples for bacteriology? (survey)  | 23/83 or 27.7%                  |
| Routinely request antibiograms? (survey)   | 17/83 or 20.5%                  |

We were very well received and owners &/or managers were eager to participate, sharing their data freely. We collected both new data, such as the timing of the milking routine and a variety of prices, and completed their original surveys. Following completion of the herd visits Leen Leenaerts left South Africa on September 23.

***No Non-achievements / underperformance has been reported***

## Goal 2 - Testing of mastitic milk samples at the milk laboratory of the Faculty of Veterinary Science, Onderstepoort (ongoing)

### **Achievements**

We now have a total of 328 samples representing 53 farms in the EC, KZN, LP, NW, WC & one from NAM. Dr Nenene Qekwana will assist in analysis and has started looking at the data.

**No Non-achievements / underperformance has been reported**

## Goal 3 - Collection and collation of microbial isolation and sensitivity testing data from other laboratories (ongoing)

### **Achievements**

Communication with Vetdiagnostix continues. Allerton, and Dr Caryn Shacklock, has agreed to participate following our meeting at a CPD even in Pietermaritzburg. A visit to the lab is needed to assess the effort that will be required to migrate the records from paper-based to digital. A visit to the Deltamune Milk Laboratory in Oudtshoorn, and meeting with Etienne van Zyl, confirmed their participation with about 3 years' worth of data available for analysis. I have met on several occasions with Dr Nenene Qekwana and we have agreed to his taking the lead in the compilation and analysis of the AMR data.

**No Non-achievements / underperformance has been reported**

## Goal 4 - Analysis of Somatic Cell Count (SCC) fluctuation data (ongoing)

### **Achievements**

After rebuilding the dataset we remained unable to analyse what was considered to be a sufficient sample. Modelling of a subset of 6,000 cows wasn't possible. We have turned to our Dutch colleagues for assistance.

### **Non-achievements / underperformance**

Struggling with data analysis.

### **Reasons for non-achievements / underperformance**

Large database.

### **Planned remedies for non-achievements / underperformance**

Keep pushing the next option for analysis.

## Income and expenditure statement

|                                    |   |
|------------------------------------|---|
| Income and expenditure statement   | <a href="#">AOY232 Ledger UP_CC_SUM.pdf</a> |
| Unnecessary spending during period | No  |

# Popular Report

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## Additional documentation

[milk sa update 161012.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 |