Farm Management Monitoring systems
The same platform that is used for the Farm Management Monitor can be used for studies of effects of additives/pharma on herd-based systems.
Platform for scientific studies

The same platform that is used for the Farm Management Monitor can be used for studies of effects of additives/pharma on herd-based systems.

The effects of the use of NutriTek (a postbiotic of Diamond V) at Salmonella-compromised farms on:
- Salmonella-shedding
- Milk-production
- Other factors
Salmonella antibody levels in the bulk tank of farm Xxy

Salmonella antibody levels in the bulk tank of a farm with high bacterial pressure
Salmonella antibody levels in the bulk tank of a farm with high bacterial pressure
Intervention

Salmonella antibody levels in the bulk tank of a farm with high bacterial pressure

1 active carrier
Salmonella antibody levels in the bulk tank of a farm with high bacterial pressure
Salmonella antibody levels in the bulk tank of a farm with high bacterial pressure.

- 1 active carrier
- 24 latent carriers
- 12 latent carriers
- 6 latent carriers
- 2 latent carriers

Intervention

Calving Management
Salmonella antibody levels in the bulk tank of a farm with high bacterial pressure

Salmonella antibody levels in the bulk tank of farm Xxy

History of Salmonella antibody levels in the bulk tank of farm Xxy

Infection phases Salmonella
Salmonella antibody levels in the bulk tank of a farm with high bacterial pressure

History of Salmonella antibody levels in the bulk tank of farm Xxy
Salmonella antibody levels in the bulk tank of a farm with high bacterial pressure

History of Salmonella antibody levels in the bulk tank of farm Xxy

NZO/DDO levels of Salmonella control

Salmonella antibody levels in percentage positivity PP

Negative

Positive

Dairy-FMM
Salmonella antibody levels in the bulk tank of a farm with high bacterial pressure

Salmonella antibody levels in the bulk tank of farm Xxy

Infection phases Salmonella

NZO/DDO levels of Salmonella control

History of Salmonella antibody levels in the bulk tank of farm Xxy
Salmonella antibody levels in the bulk tank of a farm with high bacterial pressure

History of Salmonella antibody levels in the bulk tank of farm Xxy

Research groups Salmonella/NutriTek study

NZO/DDO levels of Salmonella control

Infection phases Salmonella

Salmonella antibody levels in percentage positivity PP

N1
N2/N3
N3

N2/N3

Negative
Positive

Salmonella antibody levels in the bulk tank of farm Xxy
Study design

30 farms in total
-10 farms in each Research group R1, R2 and R3
-5 farms on NutriTek, 5 farms on placebo
-Double blind, only nutritionist knows who gets what
-6-10 months pre-study, no treatment, run lab monthly tests for Salmonella Ab, minerals, collect milk production and repro-data
-All farms start with treatment at the same time
Results

Salmonella antibody levels in the bulk tank of a farm with high bacterial pressure

### Salmonella Ab

<table>
<thead>
<tr>
<th>Salmonella Ab PP</th>
<th>&gt; 100 (N3)</th>
<th>&gt;80 (N2/N3)</th>
</tr>
</thead>
<tbody>
<tr>
<td>R 1A</td>
<td>9</td>
<td>17</td>
</tr>
<tr>
<td>R 1B</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>R 2A</td>
<td>8</td>
<td>10</td>
</tr>
<tr>
<td>R 2B</td>
<td>5</td>
<td>8</td>
</tr>
<tr>
<td>R 3A</td>
<td>17</td>
<td>33</td>
</tr>
<tr>
<td>R 3B</td>
<td>20</td>
<td>40</td>
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</table>
Results

*Salmonella antibody levels in the bulk tank of a farm with high bacterial pressure*

*Increased daily Milk per cow during trial*

*Initial daily milk per cow kg*

<table>
<thead>
<tr>
<th>Group</th>
<th>Milk per Cow Kg</th>
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<tbody>
<tr>
<td>A1</td>
<td>31.8</td>
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<tr>
<td>A2</td>
<td>27.3</td>
</tr>
<tr>
<td>A3</td>
<td>27.5</td>
</tr>
<tr>
<td>A</td>
<td>28.9</td>
</tr>
<tr>
<td>B1</td>
<td>27.1</td>
</tr>
<tr>
<td>B2</td>
<td>25.8</td>
</tr>
<tr>
<td>B3</td>
<td>27.8</td>
</tr>
<tr>
<td>B</td>
<td>26.9</td>
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</tbody>
</table>
Results

Salmonella antibody levels in the bulk tank of a farm with high bacterial pressure

Infection phases Salmonella
N2/N3
N1
N3
NZO/DDO levels of Salmonella control

Change in Efficacy of 1st insemination

+5.95% efficacy
P < 0.001

-5.13%

Research groups Salmonella/NutriTek study

Dairy-FMM
Conclusions

-Dairy-FMM with production data coupling is an elegant platform to study effects of additives and pharma.

-The use of a postbiotic/NutriTek suppresses the shedding of the Salmonella bacteria at lower numbers of latent carriers present at a farm (as is the case with a majority of farms).

-The use of a postbiotic/NutriTek ensures good milk production even at increased levels of bacterial pressure and shedding (+1.3 kg/cow/day).

-The use of a postbiotic/NutriTek ensures improved first insemination rates even at increased levels of bacterial pressure and shedding (+6%).
<table>
<thead>
<tr>
<th>PrioCheck Salmonella Ab (Thermo Fisher, PN 7610770)</th>
<th>Gemiddelde PP Tankmelk</th>
<th>%dieren besmet</th>
<th>SD</th>
<th>Gem-SD</th>
<th>Gem+SD</th>
<th>SEM</th>
<th>95% CI</th>
<th>N*</th>
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<tbody>
<tr>
<td>128</td>
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<tr>
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<td>2</td>
<td>0</td>
<td>-3--2</td>
<td>85</td>
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</table>

SD, standaard deviatie (standaard afwijking van het gemiddelde)
SEM, nauwkeurigheid van het gemiddelde (precision of mean)
95% CI, betrouwbaarheidsinterval, 95% kans dat het monster in de range valt
*N aantal metingen, 7 verschillende productie-lots