Effect of Vaccination with Titanium 5 on Milk Production in Dairy Cattle
Elanco Study No. TR-09

Study overview

Although vaccine-related stress can be difficult to measure in cattle, researchers have found that vaccines can have a significant negative effect on milk production for several days following administration. This field trial was conducted to compare post-vaccination milk production in dairy cows receiving Titanium® 5 with that of controls.

Background information

- Included 82 healthy, early-lactation Holstein cows milked three times per day and not scheduled for breeding during the trial
  - Divided into first-lactation and multiparous groups — 36 and 46 cows, respectively
  - Within groups, rank-ordered by average milk production from Day -5 through Day -1
- Blocked by milk production, matched pairs were assigned randomly to two treatment groups:
  1) Titanium 5, administered subcutaneously (SQ) in the neck on Day 0
  2) Untreated controls
- Cows were observed for adverse reactions from Day 0 through Day 7
- Used a mixed-model, split-plot statistical analysis to evaluate daily milk production
- Titanium 5 is a modified-live virus vaccine that protects against bovine viral diarrhea (BVD) virus, types 1 and 2, infectious bovine rhinotracheitis (IBR), parainfluenza3 (PI3) and bovine respiratory syncytial virus (BRSV)

Table 1. Mean milk production by treatment group

<table>
<thead>
<tr>
<th>Treatment group</th>
<th>No. of animals</th>
<th>Milk production (lbs/hd/d)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Titanium 5</td>
<td>41</td>
<td>88.7</td>
</tr>
<tr>
<td>Unvaccinated control</td>
<td>41</td>
<td>87.9</td>
</tr>
</tbody>
</table>

Study results

Figure 1. Mean daily milk production by treatment group

Key finding

There was no significant difference in milk production between dairy cows vaccinated with Titanium 5 and the control group during the nine-day test period.


The label contains complete use information, including cautions and warnings. Always read, understand and follow the label and use directions.

Do not vaccinate within 21 days of slaughter.

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