

Evaluation of *Staphylococcus aureus* vaccine in dairy cattle in New Zealand

Mark Bryan BVMS MACVSc(Epi) MVS(Epi); Shen-Yan Hea BVSc MANZCVs(Epi) MVS(Epi); Elena Knupfer DVM
VetSouth, Winton New Zealand

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Objective

To investigate the role of STARTVAC® vaccination for the management of mastitis in New Zealand dairy cows under field conditions, 15 farms across 3 main dairy regions in New Zealand were enrolled.



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Method

The differences in daily herd somatic cell counts (BMSSC), somatic cell count linear scores (SCCLS), and the proportion of animals with clinical mastitis (CM) were calculated between two subsequent seasons and compared between treatment groups. Three treatment groups included vaccinated (STARTVAC®), placebo (sterile water), and control (no intervention). A cut off value of 200,000 cells/ml was used to calculate the proportion of cows with mastitis, and the proportion of uninfected, new, recovered, chronic and repeat infections between two subsequent herd tests.

Results

Proportion differences of events between the seasons by treatment group

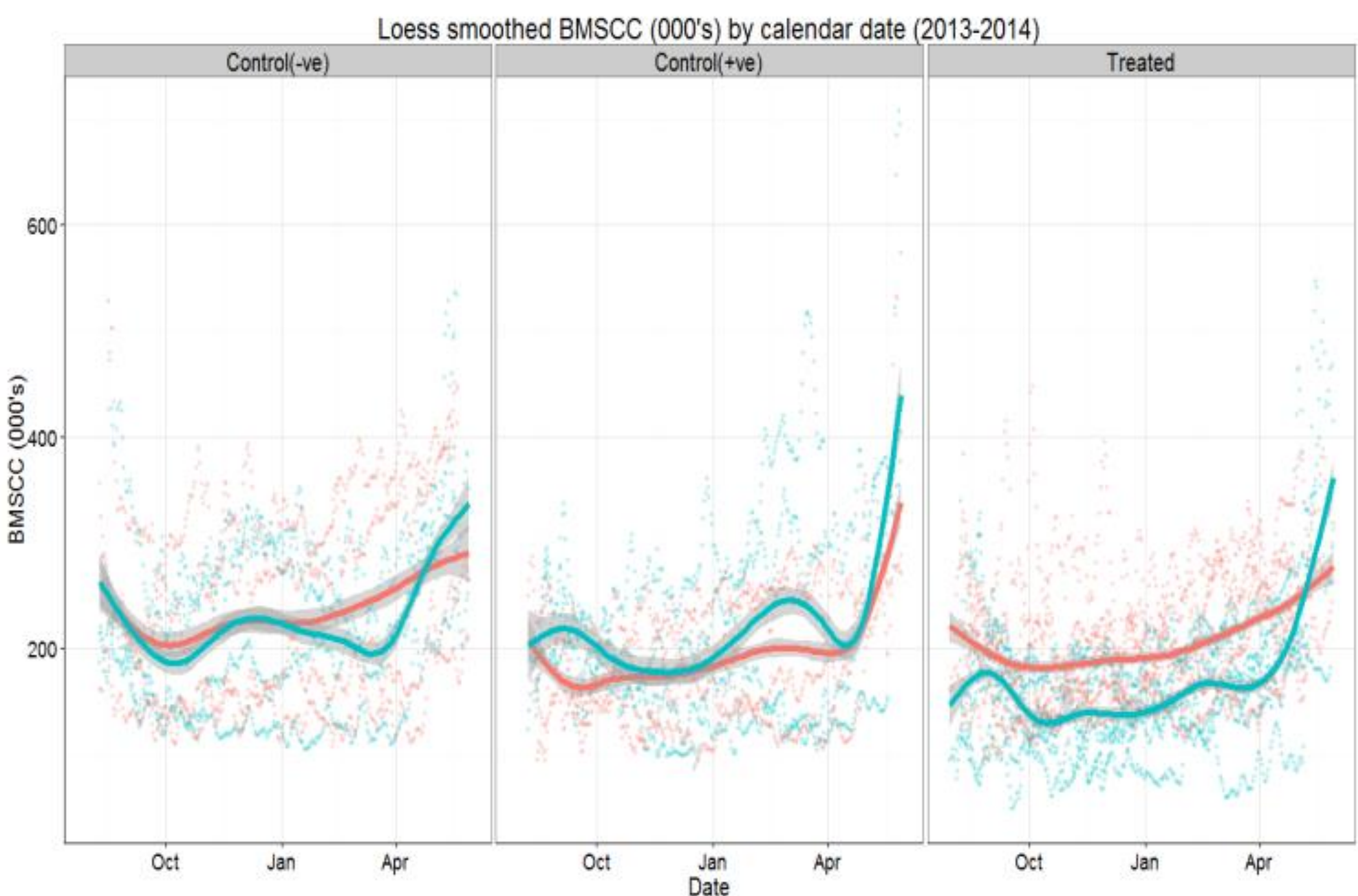
	new infections	uninfected	recovered infections	chronic infections	repeat infections
Control	1.5%	-2.5%	1.6%	0.4%	-1.0%
Placebo control	-0.4%	-0.7%	0.4%	1.6%	-0.8%
Vaccinated	-2.1%	4.8%	-0.3%	-2.2%	-0.2%

Intramammary infection proportion in between seasons by treatment group

A between season reduction in intramammary infections of 3.2% was observed in vaccinated group, whereas the control and placebo control herds experienced an increase of 0.8% and 1.3%, respectively.

A mastitis incidence risk of 10.9% was calculated for vaccinated herds, whereas control and placebo control herds averaged 8.6% and 8.9% respectively. The increase observed in the vaccinated group was attributed to a single farm experiencing a spring *Streptococcus uberis* outbreak.

Bulk Milk Somatic Cell Count trend by season and treatment



The placebo vaccinated control group experienced an increased mean BMSCC (+24.4), whereas the vaccinated group experienced a decreased mean BMSCC (-40.9) for the 2014 season.

When compared to the control group, vaccinated herds experienced an average reduction of 29.53 (000's) cell/mL, whereas the placebo vaccinated group experienced an average increase of 35.16 (000's) cells/mL.

"Placebo effect"

The results of this study suggest that the placebo effect of trial participation may have an effect on the outcome. Future large scale studies will be beneficial for our understanding of herd level response to vaccination, and to better understand the placebo effect of trial participation.

The results of this study suggest that STARTVAC® vaccination may have a positive effect on udder health and could be a useful tool for the management of mastitis under New Zealand field conditions.