

Efficacy of a new teat sealant alone or combined with an existing dry cow antibiotic in a selective dry cow therapy program.

Swinkels, J. M.¹, A. Deterink², M. Holstege², A. Schmenger³, G. D. Kempe², T. Bruggink², P. Penterman⁴, C. Schepenzeel², A. Velthuis² and V. Kromker⁵

INTRODUCTION

Restriction on antibiotic use put pressure on farmers to switch from blanket dry cow therapy to selective dry cow therapy (SDCT) in which cows are selected to be treated with antibiotics only when they are intramammary infected at dry off.

The use of teat sealants to prevent new infections are an important requisite to successfully implement SDCT programs.

A new internal teat sealant was recently introduced on the market.

OBJECTIVE

The objective of this study is to confirm the effect on udder health of the new teat sealant in a SDCT program both when used alone and when combined with antibiotic.

MATERIALS AND METHODS

Seven herds were selected based on proximity to either Hannover, Germany (n=4), or Deventer, The Netherlands (n=3) were selected. 'High' SCC cows (Group A, > 200k cells/ml in at least 1 of the last 3 DHI tests before dry off, n=45) were treated intramammary with antibiotic (CEFA-SAFE®, MSD Animal Health), and an ITS (SHUTOUT®, MSD Animal Health) in all 4 quarters. 'Low' SCC cows (Group B) < 200k cells/ml in all 3 DHI tests before dry off, n=45) only received ITS in all 4 quarters.

Milk samples for bacteriology and SCC were taken at dry off and at d3 postcalving to determine effects on udder health. General health, including clinical mastitis cases, were monitored from dry off until 30 days in the following lactation. Body condition score, teat end callosity, milk production and leakage, and udder pressure were measured to determine their influence on udder health.

To determine cure and prevention rates a univariate and multivariate model was created to compare the 2 treatment groups.

Efficacy of a new teat sealant (ShutOut®) alone or combined with an existing dry cow antibiotic (CEFA-SAFE®) in a selective dry cow therapy program is in line with results found in other trials.



To download this paper, scan the QR code!

RESULTS

Figure 1 shows the study design for the 2 different cow level treatment Group A and B from dry off (SD0) until 30 days postcalving (SDC30).

Prevalence of mastitis pathogens identified both at dry off and at day 3 after calving are shown in Table 1.

Pathogens with the highest prevalence in quarters from high SCC cows at dry off were Staph. aureus, Coagulase Negative staphylococci, and no growth.

Despite farmers were trained in sampling hygiene technique before the study, contamination of samples was between 19.6-29.2 % on average, and varied substantially between farms.

Results of selective dry cow therapy of both treatment groups on cure and prevention of intramammary infections based on bacteriology are shown in Table 2.

These data show cure rates (85.9 and 91.4%) and prevention rates (75% and 69.4%) as found in this study are in line with results found in the available literature (Swinkels et al., 2021, Rabiee and Lean, 2013).

AUTHORS' AFFILIATION

- MSD Animal Health, Global Ruminants BU, P.O. Box 31, 5830 AA Boxmeer, The Netherlands.
- Royal GD, P.O. Box 9, 7400 AA Deventer, the Netherlands.
- Faculty II, Microbiology, Hannover University of Applied Sciences and Arts, Hannover, Germany.
- MSD Animal Health, P.O. Box 31, 5830 AA Boxmeer, The Netherlands.
- Faculty of Health and Medical Sciences, Department of Veterinary and Animal Sciences, Section for Production, Nutrition and Health, University of Copenhagen, Copenhagen, Denmark.

FIGURE 1. Study design.

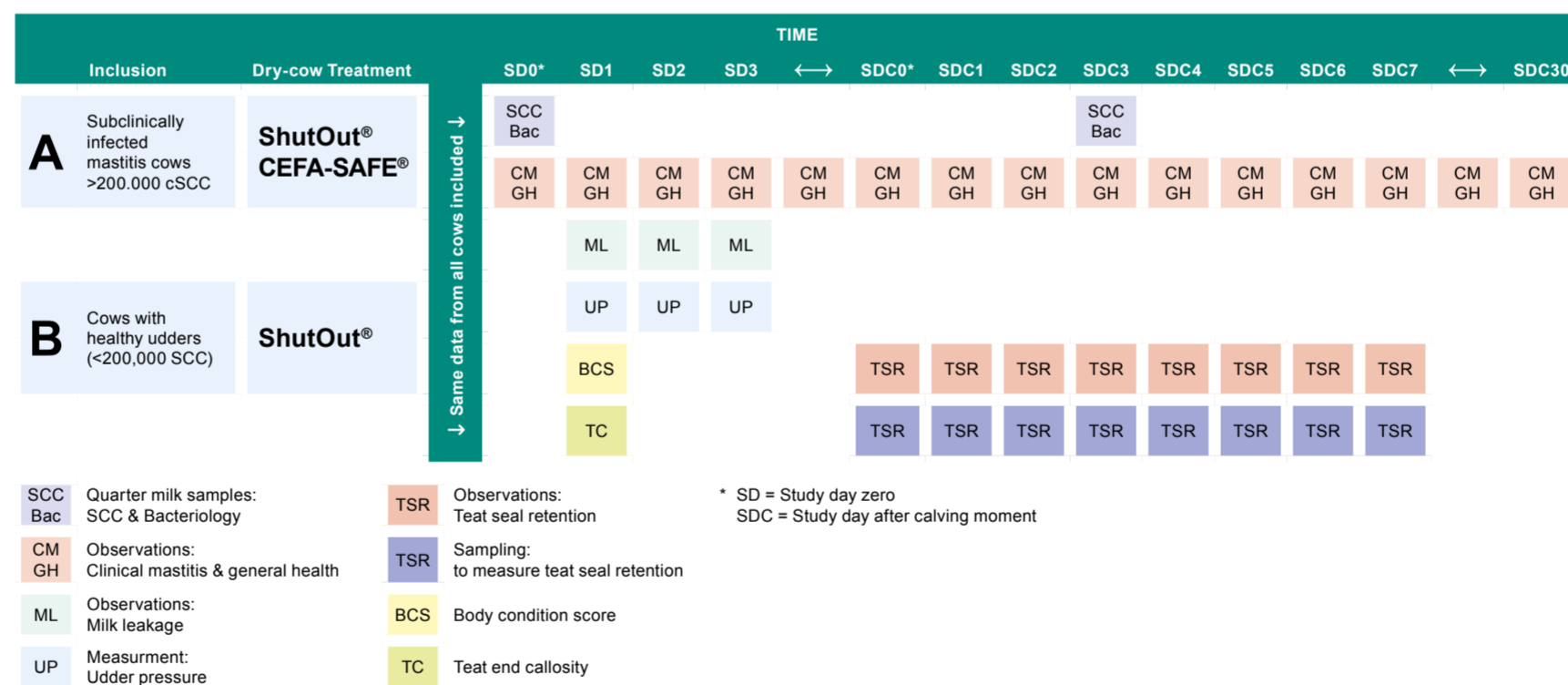


TABLE 1. Prevalence of mastitis causing pathogens at quarter level in % and # of quarters between brackets, in both high and low SCC cows at dry off and after calving.

Treatment Group	At dry off				After Calving			
	H-SCC*		L-SCC*		H-SCC*		L-SCC*	
n	N quarters	%	N quarters	%	N quarters	%	N quarters	%
Staph. aureus	40/347	11.5	4/381	1.1	9/315	2.9	4/343	1.2
Strep. uberis	4/347	1.2	0/381	0.0	1/315	0.3	1/343	0.3
Strep. dysgalactiae	0/347	0.0	2/381	0.5	0/315	0.0	1/343	0.3
Lactococcus spp	11/347	3.2	6/381	1.6	2/315	0.6	2/343	0.6
Enterococcus spp	5,347	1.4	7/381	1.8	0/315	0.0	2/343	0.6
E. coli	3/347	0.9	2/381	0.5	4/315	1.3	2/343	0.6
Coagulase negative staphyloc	73/347	21.0	83/381	21.8	29/315	9.2	49/343	14.3
Contaminated	68/347	19.6	86/381	22.6	92/315	29.2	84/343	24.5
No Growth	108/347	31.1	153/381	40.2	155/315	49.2	182/343	53.1

* H-SCC = 'High' SCC cows (Group A, > 200k cells/ml in at least 1 of the last 3 DHI tests before dry off, n=45), treated with antibiotic + ITS;

L-SCC = 'Low' SCC cows (Group B, < 200k cells/ml in all 3 DHI tests before dry off, n=45), treated with ITS only.

TABLE 2. Univariate model outcome of quarter level bacteriological cure and prevention rates of the 2 cow level treatment groups, high and low SCC cows at dry off.

	High SCC cows		Low SCC cows	
	95% CI	95% CI	95% CI	95% CI
Quarter level cure rate % (# quarters)	85.9 (91/106)	77.7-91.9	91.4 (85/93)	83.8-96.2
Quarter prevention rate % (# quarters)	75.0 (51/68)	63.0-84.7	69.4 (75/108)	59.8-77.9