

THE EFFECT OF DIFFERENT DRY COW THERAPY TREATMENTS ON MILK QUALITY IN A DAIRY HERD UNDERGOING ORGANIC CONVERSION

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SUMMARY

Fifty-one pedigree Holstein dairy cows were allocated to one of three dry period treatments; antibiotics, an organic alternative or an external teat sealant. Milk samples were taken on three occasions and analysed for quality. Antibiotics were the most effective at keeping somatic cell count (SCC) low, although all SCC remained low. The organic alternative significantly reduced *Streptococcus* isolates. The sealant was the least effective.

INTRODUCTION

In organic dairy farming, the reduction in use of prophylactic medicines requires positive health management. This can be supported by the use of alternative treatments, e.g. herbal or homeopathic preparations. In conventional dairying dry cows rely on antibiotics to protect against mastitis infections. It is, therefore, vital that suitably effective alternatives are found. This trial involved the use of three different preventative treatments and recorded the resulting effect on cow health and milk quality.

MATERIALS AND METHODS

The trial began in June 2002 and was completed in April 2003. Fifty-one animals, selected according to their calving date, were randomly allocated to one of three treatment groups. Treatments applied at drying off were:

Abbreviation	Treatment	Product
AB	Antibiotics	Cepravin, Schering-Plough
Org	Organic alternative therapy	Cinnatube, Nutragena
Seal	Sealant	Dryflex, DeLaval Ltd

Duplicate sets of 25 ml quarter milk samples were taken directly from the teat by hand, into sterile tubes and transported at <5°C, following a strict protocol, on three occasions:

1	One week before drying off	Period -1
2	One week after calving	Period +1
3	Five weeks after calving	Period +5

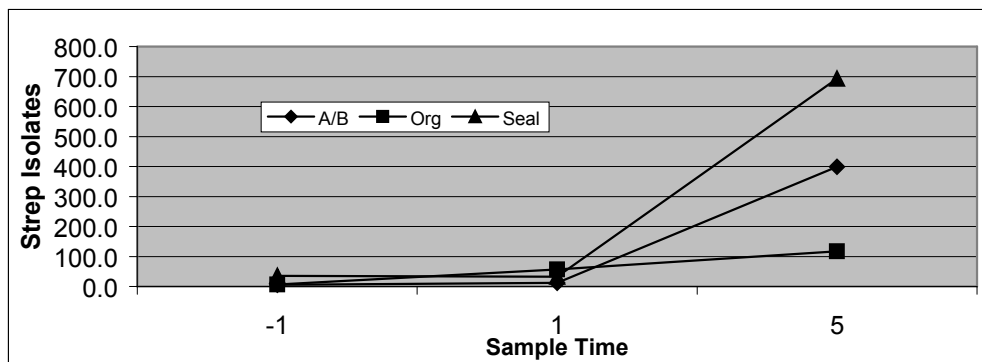
One set of samples was analysed for SCC. The other sample was analysed for Total Viable Count (TVC), Streptococcus spp., Staphylococcus spp. and coliforms. Animals were monitored during the dry period every three days for signs of mastitis. A scoring system that used 0 as an indication of no infection rising to 3 for clinical mastitis was devised to indicate the level of any infection.

RESULTS

- All trial animals consistently scored zero (no infection) during the dry period, and no animals were clinically infected with mastitis during the trial period.
- Period had a significant effect on Strep spp. ($p < 0.001$), and Staphs ($p < 0.01$).
- The Org treatment significantly reduced Strep isolates ($p < 0.001$) at period +5 ($x = 117.2$) compared with the other treatments (AB $x = 398.7$, Seal $x = 693.4$) (Figure 1)
- Cows allocated to the sealant group had significantly increased TVC ($p < 0.05$) before treatment but not in periods +1 and +5.
- Mean group SCC were highest at period +1 for the Org group ($p < 0.001$). SCC were reduced by period +5, with no significant differences between treatments.
- The incidence of mastitis treatment in the main herd was 38/120 (32%), during the trial period.

Figure 1 shows the mean Strep. isolates per group. All +5 samples were taken from September onwards when Strep. populations tend to increase (1)

Figure 1 Mean streptococcal isolations per trial group (n=204)



DISCUSSION AND CONCLUSIONS

The teat sealant performed less well than the other treatments. Applied to teats for one week at the beginning and end of the dry period, it does not provide adequate protection for the full dry period. Sealant would be an ineffective alternative to antibiotics. The organic product was effective in the third period at lowering SCC and Strep. numbers. This appears to be an alternative to antibiotics. The antibiotics kept the SCC values consistently low. The low incidence of mastitis (0/51) for the trial group may reflect attentive management, but the main herd reflects results from a separate six-year study that showed up to 27% of a converting herd developed mastitis (2).

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