

## Materials and Methods

Cows suffering from clinical mastitis are randomly allocated to either intramammary antibiotics, or mucosal application of a homoeopathic remedy (SSC 30c – a combination of sulphur, silica and carbo vegetabilis). Clinical parameters are recorded daily until clinical evidence of mastitis is absent. Changes in somatic cell count and milk production are recorded, and repeated milk culture is used to establish a bacteriological cure. Time to recovery, milk yield, reduction in somatic cell count and success in achieving a bacteriological cure will be compared for the two treatments.

## Summary

The presentation will give preliminary results of this study and a review of alternative mastitis therapies.

## References

1. Hovi M, Roderick S: An investigation of the incidence, treatment strategies and financial implications of mastitis in organic and conventionally managed UK dairy herds. An attachment to a Scientific Report to the Ministry of Agriculture, Fisheries and Food (MAFF), 1999.
2. Soil Association: The organic food and farming report 1998. Soil Association, Bristol, UK, 1998.

# Effects of Endometritis at the Beginning of the Breeding Period on Reproductive Performance in Dairy Cows

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## Introduction

Diagnosis of bovine endometritis by traditional methods, such as rectal palpation or observation of vaginal discharge, is subjective and lacks sensitivity. However, the value of endometrial cytology in diagnosis of bovine endometritis has been established. The objective of this study was to determine the effect of endometritis, diagnosed by endometrial cytology, on reproductive performance in dairy cows.

## Materials and Methods

Uterine endometrial samples were collected via uterine lavage on 115 Holstein cows at the beginning of the breeding period (54 to 60 days in milk (DIM)). Uterine lavage was performed by inserting a catheter into the body of the uterus, via the cervix, and infusing 40 ml of sterile saline into the uterine body. The lavage fluid was agitated—forcing the saline into the uterine horns—and aspirated from the uterus. The uterine lavage fluids were centrifuged, and a thin-layer smear was made from cells from the uterine lavage and stained with Diff-Quick (Dade Diagnostics) and examined un-

der microscope. Cows were assigned to one of four endometritis classifications based on number of neutrophils per high power field (HPF). Endometritis classifications were as follows: endometritis negative (1 neutrophil/HPF), mild endometritis (1-2 neutrophils/HPF), moderate endometritis (3-7 neutrophils/HPF), and severe endometritis (8 neutrophils/HPF). The effect of endometritis at the beginning of the breeding period on first service CR was analyzed using logistic regression. Ease of calving, periparturient disease, ECM, artificial insemination technician and parity were assessed as potential confounding variables. The final logistic regression model for first service CR included parity and endometritis classification. Effects of endometritis at the beginning of the breeding period were evaluated by estimate of odds ratios and p values.

## Results and Conclusions

Some 52% (60/115) of cows were classified positive for endometritis. For cows with endometritis, 23% (27/115) had mild endometritis, 19% (22/115) had moderate endometritis, and 10% (11/115) had severe endometritis. For all cows, first-service CR was 50% (57/115). First-

service CR were 69% (38/55), 41% (11/27), 27% (6/22), and 27% (3/11) for cows with no endometritis, or for cows with mild, moderate, or severe endometritis, respectively. Cows with mild, moderate, or severe endometritis were 4.2 ( $p < 0.01$ ), 7.7 ( $p < 0.01$ ), and 5.3 ( $p < 0.01$ ) times less likely to be pregnant following first service,

respectively, compared to cows with no endometritis. These data suggest that endometritis at the beginning of the breeding period has a high incidence rate, is associated with decreased first service CR, and that CR decreases as the severity of endometritis increases.

# Results of a Seven-Year Surveillance of Milk Safety Related to Use of Ceftiofur Sodium and Ceftiofur Hydrochloride

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## Introduction

In 1991 and 1998, respectively, Pharmacia Animal Health (PAH) received FDA approval to use Naxcel® Sterile Powder (ceftiofur sodium) and Excenel® Sterile Suspension (ceftiofur hydrochloride) in lactating dairy cattle. Currently, these cephalosporin (penicillin-family) products are the only two that can be used with no milk-discard period. Since 1991, PAH has received about 50 complaints each year where milk adulteration incidents allegedly resulted following proper (labeled) use of these products. To resolve these complaints, we developed a system to determine what actually caused these adulterations.

## Materials and Methods

High-pressure liquid chromatography (HPLC) conclusively identified the violative antibiotic(s) in most (80%) of these reported adulterations.

## Results and Conclusions

See Tables 1 and 2, below. When used by their labeled routes of administration, Naxcel and Excenel have not caused a single adulteration incident. When used in an extra-label manner (i.e., by intra-mammary infusion), Naxcel and Excenel have caused adulterations. When improper use of Naxcel/Excenel has not caused the adulterations reported to us, the cause has invariably been determined to be either penicillin g or cephalosporin, with amoxicillin, ampicillin, and cloxacillin only rarely identified.

**Table 1.** Cases of adulteration by year.

Adulterations due to:	1994	1995	1996	1997	1998	1999	2000
Ceftiofur metabolite residues	0	0	0	0	0	0	0
Parent ceftiofur residues [extra-label/intramammary use]	8	33	17	12	18	18	3
Other beta-lactams	23	22	13	20	18	26	19
Inhibitor detected, no positive ID	2	2	3	2	3	1	0
Negative [no inhibitor found]	3	5	8	6	9	4	5
Total No. Cases	36	62	41	40	48	49	27