ment start. Heat detection rate following prostaglandin use for unobserved estrus was decreased in treated animals compared to controls (44% compared to 69%) however, there was no difference in pregnancy rate in these animals (25% compared to 22%). Multiparous animals treated with rBST experienced a significant decrease in pregnancy rate after the initial 21 day period of treatment through the end of the study period (150 DIM) compared to controls (29% in treated compared to 43% in controls).

Overall

Multiparous treated animals appeared to have the greatest reproductive loss compared to controls. We observed a 11-12% decrease in percent pregnant at 150 DIM in multiparous animals independent of early estrus observation. However the pregnancy rates over time were different in animals observed in estrus prior to initiating treatment compared to animals without observed estrus. If animals were observed in estrus prior to initiating rBST there was a transient reduction in pregnancy rate followed by similar pregnancy rates through 150 DIM. Multiparous animals not observed in estrus prior to initiating rBST initially had similar pregnancy rates, but as lactation progressed, cumulative pregnancy rates lagged when compared to controls. In primiparous animals there was a 5% decrease in percent pregnant at 150 days in animals with observed estrus prior to treatment start and 10% decrease in animals without observed estrus prior to initiating rBST. These differences were smaller than those in multiparous animals and statistically nonsignificant, perhaps due to fewer observations.

It was interesting to note that the dairies with the best overall milk yield response tended to have minimal decreases in reproductive performance. Also, we observed that cows with early observed estrus activity had a greater milk yield response than cows with no observed estrus prior to initiating rBST.

A Field Study of Calves Persistently Infected with the Bovine Viral Diarrhea Virus, Type I and II, in a Pennsylvania Dairy Herd

T. R. Drake, A. E. Castro, A. L. Hattel, W. Stoffregen, and **A. Smith**
Animal Diagnositc Laboratory
Veterinary Science Department
College of Agriculture
Pennsylvania State University
University Park, PA
W. H. Crawford
Private practitioner

An outbreak of bovine viral diarrhea (BVD) virus infection with severe clinical manifestations occurred in seven herds of cattle primarily in Northwest PA during the spring of 1994. The acute deaths and respiratory disease with high morbidity and mortality occurring in these herds were atypical of known BVD infections which usually occur as mucosal disease or abortions.

The largest of the seven herds, composed of approximately 250 adult cattle, experienced about 50% morbidity and 10% mortality. A minimum of 15 cows aborted and many abnormal calves were delivered in the months succeeding the clinical disease outbreak. Based on virologic blood testing of calves during this period, five calves persistently infected (PI) with the BVD virus and seven calves not persistently infected but with varying amounts of serum neutralizing antibody to the virus were housed as a study group.

The study was designed to evaluate the pathogenesis and dynamics of the infection in a field situation by routine sampling of body fluids, secretions, and excretions for virus isolation, microplate ELISA assay to detect PI animals, and serum neutralization to ascertain the level of circulating antibody to the BVD virus. Calves that died or became terminally ill during the course of the study were necropsied and the tissues evaluated by immunohistochemistry, virus isolation, and

immunofluorescence procedures, to assess the possible predilection of the virus for the kidney.

Results indicated that PI calves remained infected during the 6 month study period and consistently shed infective virus, predominantly in the nasal secretions. However, certain PI calves that received passive immunity in the colostrum at birth did not have circulating virus in the serum for a short period of time after birth. PI calves appeared to have specific but consistent concentrations of virus in their serum, possibly reflecting an equilibrium between the replication of virus and the individual host response.

Calves that were not PI were routinely screened for loss of protective immunity and for infection by the BVD virus present in the environment. An age matched naive calf with no previous exposure and no detectable passive antibody to the BVD virus was introduced into the study group to determine the time frame of potential virus infection and immune response. A summary of these findings will be presented.

Evaluation of Four Therapies of Papillomatous Digital Dermatitis in Dairy Cattle

W.M. Guterbock, *DVM, MS*
C.L. Borelli, *MS*
University of California, Davis
Veterinary Medicine Teaching and Research Center
18830 Road 112,
Tulare, California 93274
D.H. Read, *BVSc,PhD*
California Veterinary Diagnostic Laboratory Service
105 W. Central Avenue
San Bernardino, California 92412

One hundred and forty-seven Holstein cows in three Central California dairy herds, housed in open corrals with shades, with active Papillomatous Digital Dermatitis (hairy footwart) lesions were randomly assigned to one of five treatment groups. Treatments were a) 37% formaldehyde (F), applied topically once with no bandage (n=38); b) systemic ceftiofur (Naxcel, The Upjohn Company) (N), 1gm SID IM for 3 days (n=31); c) topical lincomycin/spectinomycin (LS 50, The Upjohn Company) (L), 33.4 mg/ml lincomycin and 66 mg/ml spectinomycin on cotton balls under a duct tape bandage (n=33); d) topical oxytetracycline, 100 mg/ml in a propylene glycol base (T) on cotton balls under a duct tape bandage (n=31); e) control (C), dry cotton balls with a duct tape bandage (n=32).

Cows were recruited for the study by checking the whole lactating herd in the milking parlor by aiming a jet of water at the rear feet. Cows that responded by indicating pain, or cows with visible footwart lesions were examined on a tilt table, as well as cows that were suspected by dairy management of having footwarts. Cows with footwarts that were found to be painful on digital pressure were randomly assigned to one of the treatment groups using cards in sealed envelopes. Personnel did not know which treatment would be used on a given cow before she was enrolled.

Lesions were measured and described at enrollment and again at d7, d14, and, if not yet fully recovered, at d28 after treatment. Cows were evaluated for lameness at d1, d3, or d4, d7, d10 or d11, d14, d21, and d28 after treatment. Bandages were removed at d7, so that at subsequent evaluations personnel were blinded to treatment group. Fully Recovered Lesions (FRL) were those where no sign of the lesion persisted (lesion was indistinguishable from surrounding tissue). Lesions that could not be identified but which were dry, pale, or pink and not bloody or painful, and where the cow was not lame, were considered Healed Lesions (HL). Cows that did not have HL or FRL at d14 were considered treatment failures and were retreated with L or T. Final determination of success or failure of treatment was made at d28 on those cows not called treatment failures at d14. Measurements of lesions, especially of depth, proved to be too variable and inconsistent and were not analyzed.