levels within the parameters suggested by the NMC Machine Milking Committee recommendations. Testing can be done at several locations in the milk hose simultaneously to evaluate vacuum drop across specific components between the claw and the milk line.

Physiologic parameters to predict milk yield following clinical mastitis in dairy cattle

D. A. Moore, *DVM, MPVM;* **W. M. Sischo,** *DVM, PhD;* **J. C. Fedon,** *BS*
Department of Veterinary Scienc
The Pennsylvania State University
115 Henning Building
University Park PA, U.S.A. 16802

A cohort study was designed to evaluate the physiologic response of cows to naturally occurring coliform mastitis. Measured physiologic parameters were used in a model to predict subsequent mature-equivalent 305-day (ME305) milk production. In particular, the study was directed to determine: 1) the association of coliform (*E. Coli* and *Klebsiella sp.*)and gram positive (coagulase negative *Staphylococcus* and *Streptococcus* non-agalactiae) mastitis and subsequent liver cell damage by measuring serum sorbitol dehydrogenase (SDH), 2) the effect of coliform and gram positive mastitis on peripheral blood white blood cell counts (WBC) and packed cell volume (PCV), and 3) the value of physiologic parameters to predict the production outcome of a case of clinical mastitis. Over a one-year period, complete bacteriologic, production, and physiologic data were collected on 78 cases of clinical mastitis (22 coliform, 22 gram positive, 34 no growth). Using multiple linear regression analysis, predictive parameters from day 5 after clinical case were seen in cows with coliform and gram positive mastitis. These included SDH (increases were associated with higher ME305), WBC (increases were associated with higher ME305), and PCV (increases were associated with decreased ME305). Such a model could be useful to dairymen and veterinary practitioners in estimating a prognosis for a cow's recovery to profitability.

A placebo-controlled trial of an Escherichia coli J5 bacterin and the ribotyping-based assessment of coliform bacteria diversity on a dairy farm.

Rubén N. González, David J. Wilson, Philip M. Sears and Ariel L. Rivas
Quality Milk Promotion Services
Cornell University
Ithaca, NY 14850-1268

To evaluate the efficacy of an experimental *Escherichia coli* J5 bacterin to prevent natural occurring clinical coliform mastitis (CCM) in dairy cows during a whole lactation period, and to determine which of the three proposed immunization schedules was associated with a higher protection against CCM, we conducted a randomized, double-blind, placebo-controlled clinical trial on a commercial dairy in central New York State. Furthermore, bacteria isolated from clinical cases were assessed by automated ribotyping. Holstein cows (n=240) were administered either the bacterin (whole cell of *E. coli* J5 plus metabolizable oil as adjuvant, n=180) or the placebo (saline plus adjuvant, n=60) in the supramammary lymph node region. The immunization or placebo dose administration schedules compared were: **1**, at 7, 8, and 9 month gestation; **2**, at drying off, 4 weeks later during the dry period, and at calving; **3**, at drying off, at calving, and at 90 days in lactation. The period of surveillance for cows in the trial began immediately after calving and continued for the entire lactation (range= 262-305 days). A total of 50 cows, 23 immunized and 27 controls, were diagnosed as