

74 Economic impact of preconditioning on feeder cattle through the weaning phase. J. M. Lynch¹, P. L. Houghton¹, L. R. Corah², and G. L. Stokka². ¹Heartland Cattle Company, McCook, NE, ²Kansas State University, Manhattan.

The objective of this data set was to evaluate the economic impact of preconditioning feeder cattle on feedlot performance, morbidity, and mortality. In October, 1995, 3,565 head of freshly weaned, English-bred calves were received into a weaning facility in southwest Nebraska. Calves were determined to be preconditioned if they had received both viral and pasteurella vaccines prior to weaning (PRECOND; n=2,315) and all other calves were considered to have no preconditioning (CTRL; n=1,250). Cattle were processed within 24 h of arrival and booster vaccinations were given when appropriate. Average days on feed in the weaning yard were similar between PRECOND and CTRL calves (52.4 and 50.3 d, respectively), while average daily gain (1.02 vs 0.84 kg/d) and cost per kg of gain (\$.29 vs \$.37/kg gain) were improved (P<.01) when calves received vaccinations 14 to 21 d prior to weaning. A decrease (P<.01) in per head processing (\$7.48 vs \$9.10) and medicine costs (\$1.39 vs \$5.27) were also observed in PRECOND calves when compared to CTRL calves during the weaning phase. Only 10.6% of the PRECOND calves were treated for sickness while 34.7% of the CTRL calves were treated at least once (P<.01). Mortality tended to be lower for PRECOND calves compared to CTRL calves, although both groups were low (0.26% vs 0.48%, respectively). The average total cost per head was similar for PRECOND and CTRL calves (\$73.62 vs \$72.79, respectively) indicating PRECOND calves gained an additional 8.63 kg with virtually no additional inputs. Theoretical break-evens were calculated to be \$2883 and \$2978/kg for PRECOND and CTRL cattle, respectively, reflective of lower costs and increased performance in PRECOND cattle. These results suggest producers should get a return on their money invested in preconditioning programs that include protection against IBR, BVD, PI3, BRSV, and pasteurella.

Key Words: Feeder cattle, Preconditioning, Economics

75 Farm specific modeling of growth, protein and fat accretion, and nutrient requirements of finishing pigs on commercial swine farms. J. W. Smith, II, M. D. Tokach, A. P. Schinckel, S. S. Dritz, J. L. Nelssen, and R. D. Goodband. Kansas State University, Manhattan and Purdue University, West Lafayette.

Accurate estimates of nutrient requirements are difficult to obtain on commercial swine farms. Therefore, an extension program was initiated using real-time ultrasound to measure protein and fat accretion curves in order to estimate feed intake and nutrient requirements. On each farm, 40 barrows and 40 gilts were weighed and scanned every three weeks during the grow-finish period. Weight, age, backfat, and longissimus muscle area were used to determine growth, protein, lean, and fat accretion curves. Energy intake and nutrient requirements were estimated based on the needs for maintenance and protein and fat accretion. Regression equations generated from the data allow results to be presented in graphical form and allow estimation of nutrient requirements at any weight. Correlation coefficients for the regression equations ranged from .94 to .99 (P<.05). As an example, lysine requirement curves (g/d) for two of the farms are presented in the figure. These farms had similar genetics, but large differences in lysine requirements due to their production system and management. Lysine requirements were much greater in the early grower (23 to 50 kg) and lower in the late finisher (> 80 kg) than previously being fed on these farms. This extension program provides a simple, relatively low cost method of estimating nutrient requirements specific for individual swine farms.

Key Words: Pigs, Growth, Requirement

76 Single vs two- or three-diet sequences for finishing pigs. G. R. Parker, R. D. Coffey*, K. M. Laurant, G. L. Cromwell, M. D. Lindemann, and J. R. Randolph, University of Kentucky, Lexington.

An experiment involving 144 SPF Yorkshire pigs was conducted to assess a single diet vs a 2- or 3-diet sequence during the finishing period from 53 to 111 kg BW. Pigs of medium lean growth genotype were used in the study. Corn-soybean meal diets were fed, and the treatments were: (1) a single diet of .65% lysine from 53 to 111 kg BW, (2) .70% lysine from 53 to 81 kg followed by .60% lysine to 111 kg BW, and (3) .70% lysine from 53 to 73 kg, then .60% lysine from 73 to 90 kg, followed by .55% lysine to 111 kg BW. There were 8 replicate pens of 6 pigs (3 barrows, 3 gilts) per pen for each treatment. The pigs were housed in an open-front building in 1.2 m x 6.7 m pens with concrete floors. The experiment was conducted in the fall (Aug-Oct). At the end of the experiment, all pigs were longitudinally scanned for backfat and loin depth by Realtime ultrasound to estimate carcass lean percentage. Growth rates (kg/d) from 53 to 73 kg (.75, .82, .80), from 53 to 81 kg (.77, .82, .81), and from 53 to 90 kg (.80, .84, .83) were greater (P<.05) for the 2- and 3-diet sequences than for the single diet. Feed:gain followed a similar pattern to 73 kg (3.18, 3.00, 3.07; P<.05). Overall growth rates followed a similar pattern as during the early stages of the test (.84, .86, .86 kg/d; nonsignificant). Feed:gain tended (P<.10) to be better for the 2- vs the 3-diet sequence (3.55, 3.49, 3.63). Backfat was not affected by treatment (22.7, 23.1, 22.8 mm; 21.2, 21.2, 21.0 mm adjusted to 104 kg), but loin depth was greater in pigs fed the 2-diet sequence as compared with the 3-diet sequence (P<.05) or the single diet (P<.10) (5.13, 5.25, 5.10 cm). Estimated percentage carcass lean followed the same trend (51.8, 51.9, 51.9%). Estimated lean gain was .318, .327, and .327 kg/d, respectively. The results indicate that .65% lysine during the early portion of the finishing period was too low to permit optimal lean growth rate of the pigs. Also, reducing the lysine to .55% during late finish seemed to decrease loin depth.

Key Words: Pig, Lysine, Sequence.

77 Johne's Disease: A Hidden Threat. J. R. Stabel. USDA/ARS/National Animal Disease Center, Ames, IA.

Paratuberculosis (Johne's disease) is a chronic, progressive enteric disease of ruminants caused by infection with *Mycobacterium paratuberculosis*. Cattle become infected with *M. paratuberculosis* as calves but often do not develop clinical signs until 2 to 5 years of age. Clinical disease is characterized by chronic or intermittent diarrhea, emaciation, and death. Although animals with clinical disease are often culled from the herd, animals with subclinical paratuberculosis may cause economic losses due to reduced milk production and poor reproductive performance. Although the economic impact of paratuberculosis on the national cattle industry has not been determined, it is estimated to exceed \$1.5 billion per year. Diagnosis of subclinical paratuberculosis is difficult. Bacteriologic culture is the most definitive method of diagnosis but is time consuming and labor intensive. Serological assays are not useful because animals do not develop an antibody response until the clinical stages of disease. Development of assays to measure cell-mediated immunity is critical to accurate detection of paratuberculosis in subclinically infected animals. Although not considered a zoonotic agent, *M. paratuberculosis* has been identified in intestinal biopsy tissue from patients with Crohn's disease, an inflammatory enteritis in humans. Currently, the potential human health risk is being addressed by research evaluating pasteurization of dairy products in the United States.

Key Words: Johne's, ruminants