growth promoting effect in the absence of a disease challenge was seen in this experiment.

Key Words: Post-weaning Diarrhea, Pig, Bacteriocin

158 Effects of PCV2 vaccine on growth performance and mortality rate of pigs in a PCV2–positive commercial swine herd. J. Y. Jacela*, S. S. Dritz, M. D. Tokach, J. M. DeRouchey, R. D. Goodband, J. L. Nelssen, R. C. Sulabo, and J. R. Bergstrom, *Kansas State University*, *Manhattan*.

A total of 1,470 pigs (8.8 kg) were used in a swine farm with a history of Porcine Circovirus Disease (PCVD) to evaluate the effects of two commercial Porcine Circovirus Type 2 (PCV2) vaccines on growth and mortality rates. The first vaccine was administered a week after weaning (1–dose; Suvaxyn™ PCV2 One Dose, Fort Dodge®) while the second was administered at weaning and three wk later (2–dose; Circumvent™ PCV, Intervet®). A group of unvaccinated pigs served as a control group. Individual weights were taken at d 0 (weaning), 113, 143, and 152 (off–test). Pigs commingled during the growing period. A subsample of necropsied pigs had histopathologic lesions associated with PCVD. On d 113, the 2–dose group was heavier ($P < 0.05$) than the control group (86.5 vs 82.5 kg) with the 1-dose group intermediate (85.4 kg). At d 143, both the 1-dose and the 2-dose pigs were heavier than the control pigs by 3.4 and 4.6 kg ($P < 0.05$), respectively, with the two vaccinated groups not significantly different. The 2–dose group was heavier ($P < 0.05$) than the controls (120.2 vs 116.4 kg) while the 1–dose group was intermediate (118.8 kg) at off test. Weight gap between vaccinates and controls were smaller at off–test compared to d 143 due to a wider on–test days variability as a result of multiple marketing days. The 1–dose and 2–dose groups had greater ADG ($P < 0.05$) compared to the controls from d 0 to 113 (676 and 689 vs 653 g), d 0 to 143 (717 and 726 vs 694 g), and at off-test (726 and 735 vs 703 g). From d 113 to 143 and off test, ADG between groups were not different suggesting that the increase in growth rate in vaccinated pigs occurred from d 0 to 113. No significant difference in mortality rates between treatments were observed but each vaccinated group had numerically lower mortality than control pigs (7.8 and 7.7 vs 11.0%). Both vaccines in this trial were effective in mitigating the effects of PCV2 virus on growth performance of pigs in a PCV2–positive herd.

Key Words: PCVD, PCV2, Vaccine

159 Effect of feeding *Mucuna pruriens* to sheep on helminth parasite infestation in lambs. C. M. Huisden*, A. T. Adesogan, J. M. Gaskin, C. H. Courtney, A. M. Raji, and T. Kang, *University of Florida*, *Gainesville*.

Mucuna pruriens is a tropical legume anecdotally reputed to have anthelmintic properties. The aim of this study was to determine if ingestion of Mucuna seeds reduces helminth parasite infestation in lambs. Thirty-six Dorper x Katahdin ram lambs (± 6 months old, 28.8 ± 5 kg body weight) were dewormed subcutaneously with levamisole (2 ml/45.4 kg), balanced for fecal egg counts and body weight, and randomly allocated to 3 treatment groups. The 12 lambs in each treatment group were randomly assigned to 4 pens, each containing 3 lambs. All lambs were fed ad libitum amounts of an isonitrogenous (14% CP), isocaloric (64% TDN) total mixed ration in which the main protein supplement was cotton seed meal or Mucuna. Treatments consisted of a control diet, a diet in which Mucuna replaced cotton seed meal and a further treatment that involved administering levamisole (2 ml/45.4 kg) to lambs fed the control diet. Lambs were adapted to diets for 2 wk and trickle infected three times per wk by gavage with infectious Haemonchus contortus larvae (2000 larvae/lamb) for 3 wk. Subsequently, 2 lambs per pen were necropsied and the third lamb was grazed on bahiagrass pasture for 14 d and then necropsied. Levamisole treatment decreased fecal egg counts by 87% (58 vs. 445 eggs/g) and abomasal worm counts by 83% (1170 vs. 202 worms/lamb). Mucuna intake did not affect fecal egg counts (412 vs. 445 eggs/g) or abomasal worm counts (958 vs. 1170 total worms), though a numerical ($P \geq 0.10$) reduction was evident. Neither levamisole nor Mucuna treatment affected anemia indicators [FAMACHA (2), packed cell volume (32.4%) and blood protein (6 g/dl)], daily feed intake (2.5 kg), final body weight (37.9 kg), average daily gain (0.31 kg/d) and dressing (48.8%). Mucuna intake did not reduce infection in lambs fed a high quality diet. Pathological signs of infection were obscured, most likely by a combination of well balanced rations and lambs of breeding known to be at least somewhat inherently resistant to this parasite as compared to highly improved breeds. Future studies should examine if Mucuna exhibits anthelmintic properties in more susceptible lambs fed poorer quality diets.

Key Words: *Mucuna*, Haemonchus, Anthelmintic

160 The effect of the synthetic glucocorticoid dexamethasone on clock gene expression in bovine neutrophils. S. J. Nebzydoski*, L. M. Nemec, and T. F. Gressley, *University of Delaware*, *Newark*.

Glucocorticoid induced suppression of neutrophil function contributes to cattle disease. Although circadian rhythms drive immune function in other species, the role of circadian rhythms on bovine neutrophil function is unknown. A study was conducted to determine the influence of the synthetic glucocorticoid dexamethasone (dex) on circadian rhythms of gene expression in bovine neutrophils. Six Holstein steers averaging 225 kg were injected with either saline (control) or dex (0.1 mg/kg BW). One wk later the opposite treatments were administered. Photoperiod was controlled with lights on at 0700h and off at 1700h which roughly coincided with the natural sunrise and sunset. Neutrophils were collected from blood sampled by jugular catheters at 0, 4, 8, 12, 16, 20 and 24h following administration of treatment. Quantitative real-time PCR was used to determine mRNA expression of *L-selectin* and multiple clock genes including *Bmal1*, *Clock*, *Per1*, *Rev-erb*α and *CK1*ε relative to the expression of the housekeeping genes *RPS9* and β-*actin*. A mixed model was used to quantify the effects of treatment (dex vs. control), time (0, 4, 8, 12, 16, 20, 24h) and their interaction on gene expression. Treatment affected expression of *L-selectin*, *Clock*, *Per1* and *Rev-erb*α ($P<0.001$) and tended to affect *Bmal1* ($P=0.07$). Relative to the control treatment, dex decreased expression of *L-selectin* 2-fold, *Bmal1* by 14%, *Clock* by 79% and *Rev-erb*α by 47%. Expression of *Per1* increased 26-fold. Time affected *Clock*, *Per1*, *Rev-erb*α and *CK1*ε ($P<0.01$). Expression of *Clock*, *Per1* and *CK1*ε peaked at 4h and reached a nadir at 24h. *Rev-erb*α expression peaked at 4h and was lowest at 16h. An interaction between treatment and time was found for *Clock* and *CK1*ε ($P \leq 0.001$). Relative to the saline treatment, dex depressed *Clock* expression at all times with the greatest difference at 8h and the least difference at 20h. Additionally, *CK1*ε expression increased at 4 and 8h but decreased at 20h after dex treatment ($P \leq 0.05$). Glucocorticoid induced changes in circadian rhythms of gene expression may be important in regulating the functionality of bovine neutrophils.

Key Words: Clock Genes, Dexamethasone, Neutrophils