the finisher (d 0). At that time, control and vaccinated mean pig weights were not different (26.5±0.79 vs. 26.6±0.77 kg, $P = 0.90$). Overall, there were no gender × vaccine interactions ($P > 0.22$) for ADG, ADFI or G:F. From d 0 to 112, control and vaccinate pig performance was similar (ADG:0.89±0.012 vs. 0.87±0.012 kg, $P = 0.45$; ADFI: 2.43±0.037 vs. 2.43±0.036 kg, $P = 0.94$; G:F: 0.37±0.003 vs. 0.36±0.003, $P = 0.15$). This resulted in no difference ($P = 0.79$) in off-test (d 112) weights between control (123.3±1.75 kg) and vaccinated (122.7±1.72 kg) pigs. These data indicate that this subunit PRRSv vaccine did not affect finishing pig performance or mortality in this commercial herd.

Key Words: pig, PRRSv, vaccine

13 Effects of porcine circovirus type 2 (PCV2) and *Mycoplasma hyopneumoniae* (*M. hyo*) vaccine strategy and gender on commercial pig performance and carcass characteristics. J. R. Bergstrom[1], M. L. Potter*[1], M. D. Tokach[1], S. C. Henry[2], S. S. Dritz[1], J. L. Nelssen[1], R. D. Goodband[1], and J. M. DeRouchey[1], [1]*Kansas State University, Manhattan*, [2]*Abilene Animal Hospital, P.A., Abilene, Kansas*.

A total of 1,993 pigs (7.4 kg and 25 d of age) were used to evaluate the effects of PCV2 and *M. hyo* vaccine strategies on performance and carcass characteristics. Vaccine strategies were: 1) 1 mL of CircoFLEX and 1 mL MycoFLEX (BI; Boehringer Ingelheim, St. Joseph, MO), administered together or 2) 2 mL Circumvent PCV and 1 mL Myco Silencer ONCE (IN; Intervet/Schering-Plough Animal Health, Millsboro, DE) administered as separate injections twice. Pigs, farrowed over 3-wk, were ranked by birth weight within litter and gender then randomly allotted to vaccine treatments. Pigs were vaccinated according to label at weaning (BI and IN) and d 22 (IN only). Individual pigs were weighed at weaning, d 22, 44, entry to finisher (Avg d 73), and off-test (Avg d 155) to measure ADG. Carcass data was obtained from a subsample of pigs. Data were analyzed with main effects of vaccine, gender, and their interaction with litter as a random effect. There were no vaccine × gender interactions ($P > 0.05$) for any responses. Overall ADG was greater ($P < 0.01$) for barrows than gilts (761 vs. 693 g) resulting in barrows weighing 10.8 kg more at off-test than gilts. After HCW adjustment, gilts were leaner (53.3 vs. 51.8%; $P < 0.01$) than barrows. During the nursery phase, IN-vaccinated pigs had decreased (564 vs. 578 g; $P < 0.01$) ADG compared with BI-vaccinated pigs with the largest negative effect after the second dose of IN vaccines (d 22 to 44: 618 vs. 651 g, $P < 0.01$). Finishing ADG was increased ($P = 0.04$) for IN-vaccinated pigs (871 g) compared with BI-vaccinated pigs (858 g). As a result, there was no difference ($P > 0.13$) in overall ADG, off-test weights (BI: 120.5 kg; IN: 120.2 kg), or HCW-adjusted lean percentage (BI: 52.6%, IN: 52.5%) between vaccine strategies. Wean-to-finish mortality rate was not affected (BI: 3.9%, IN: 3.3%, $P = 0.49$) by vaccine strategy. Although IN vaccines reduced nursery pig performance, vaccine type did not affect overall performance or carcass characteristics.

Key Words: growth, PCV2, vaccine

14 Influence of halothane sensitivity on growth and meat quality in pigs. R. O. Bates*, M. E. Doumit, N. E. Raney, E. E. Helman, and C. W. Ernst, *Michigan State University, East Lansing*.

We have previously reported that a proportion of pigs, homozygous normal for HAL1843, were halothane sensitive and this was associated with poor meat quality when pigs were handled aggressively. This study was conducted to evaluate halothane sensitivity in HAL1843 normal pigs, and ascertain the association of halothane sensitivity with ADG and meat quality. A total of 363 pigs across four farrowing groups (REP), from seven Landrace sires and 38 Yorkshire-Landrace F1 dams, were tested at nine wk of age for halothane sensitivity using a closed system that delivered 5% halothane at 2 L/min for three (group 1) or two (groups 2-4) min. After 1 min limb rigidity (RIGID) was evaluated on a 1-4 scale, and limb tremors (TREM) and mid-section discoloration (MSD) were evaluated on a 1-3 scale with 1 indicating no reaction. Testing was repeated two days later. At 10 wk of age, pigs were moved to finishing pens and not moved again until marketing. Within REP, pigs were harvested in one of two groups and at marketing moved 91 m, weighed, tattooed, loaded and transported 550 km to a commercial harvest plant. After overnight rest pigs were harvested and loin muscle pH taken at 45 min (pH45) after stun. After an 18 hr chill, loin muscle pH (pHu), CIE L*, a*, b*, color (1-6) and marbling (1-10) scores and fluid loss percent (FLP) were collected. Generalized linear mixed models were used to estimate repeatabilities (REPEAT). On the binomial scale, REPEAT for RIGID for the front right and left legs were 0.24 and 0.31, respectively, while rear right and left leg REPEAT were 0.19 and 0.17, respectively. The REPEAT for front right and left leg TREM were 0.16 and 0.20, respectively. The ADG was not influenced by incidence of RIGID, TREM or MSD. Carcasses from pigs with RIGID scores of 1 vs those with higher scores had higher pH45 (5.97 vs 5.88; $P < 0.06$), similar pHu (5.47 vs 5.49; $P = 0.32$), lower FLP (4.6 vs 5.0; $P < 0.07$) and lower color score (2.08 vs 2.40; $P = 0.10$). Pigs exhibiting limb rigidity during halothane challenge had lower pH45 and higher fluid loss.

Key Words: pig, halothane, meat quality

15 (Invited ASAS Animal Science Young Scholar) Effects of diet on behavioral and neurophysiological indicators of aggression in pigs. R. Poletto*[1,2], B. T. Richert[1], R. L. Meisel[3], H. W. Cheng[2], and J. N. Marchant-Forde[2], [1]*Purdue University, West Lafayette,IN*, [2]*USDA Livestock Behavior Research Unit, West Lafayette, IN*, [3]*University of Minnesota, Minneapolis*.

Aggression can affect health, well-being, and profitability of pigs. Feeding ractopamine (RAC), a β-adrenoreceptor agonist, enhances growth but may heighten aggression. In contrast, tryptophan (TRP), the precursor for serotonin (5-HT), may lessen aggressive behavior in pigs. To test these hypotheses, we investigated behavioral and neurophysiological variables related to aggression. In study 1, 64 finishing pigs (16 pens/sex) were fed control (CTL) or RAC (5 mg/kg for 2 wk, then 10 mg/kg for 2 wk). Behaviors were evaluated, and blood and brain samples were analyzed with HPLC for catecholamines and 5-HT. Feeding RAC raised behavioral activity compared to CTL fed pigs (26.1 vs. 22.2 0.9%, $P < 0.01$). Gilts fed RAC had an increase in fight actions (54.9%) while actions decreased in CTL barrows (44.0%), CTL gilts (24.4%), and RAC barrows (10.0 %, $P< 0.05$); all subgroups engaged in fewer fights ($P > 0.10$). Regardless of dietary treatment, gilts' blood 5-HT was lower than barrows (2.4 vs. 2.0 ± 0.1 µg/mL, $P = 0.09$). Levels of 5-HT and its metabolite were lower in the brain of gilts and RAC-fed gilts, respectively, $P < 0.05$). Expression of 5-HT1B receptor gene was suppressed in amygdala of gilts compared to barrows, which showed an over- expression of the gene (−1.3 vs. 1.1 fold, $P < 0.05$). In study 2, 48 gilts (6/pen) were fed CTL or high-TRP (250% of CTL) diet for 6 d at 3 and 6 mo with social handling from 45 d to 6 mo. Behaviors were evaluated and blood samples were analyzed for TRP and 5-HT. High-TRP feeding raised blood TRP of gilts at both ages (3 mo. 180.7%, and 6 mo. 85.2%) and raised blood 5-HT in 3 mo. old gilts (20.3%) when compared to baseline measures ($P < 0.05$). The TRP enhanced diet also reduced total fights (14.8 vs. 22.8 ± 3.0, $P < 0.05$),