

237 Effect of chlortetracycline (CTC) fed continually at low levels or in a high level "pulse" program in grower and finisher diets on gain variability and performance in lean genotype, high health pigs. G. Gourley¹ and T. Wolff², ¹Swine Graphics Enterprises, Webster City, IA and ²Hoffmann-La Roche, St. Charles, MO.

The objective of this study was to evaluate the effect of CTC on weight gain variation and performance in high health, lean genotype pigs when administered continually at 110 mg/kg of complete feed in grower diets followed by 55 mg/kg of complete feed in finisher diets vs. CTC pulsed at a 4.5 mg/kg BW level for approximately 1 wk out of every 4 wk vs. nonmedicated controls. Single-sourced pigs (n = 576), averaging 28 kg each, were randomized by weight and sex to 24 pens (24 pigs/pen). Pigs were separate sex fed corn-soy meal diets in a 5-phase feeding program, with gilts receiving lysine ranging from 1% to 0.64% and barrows from 1% to 0.55%. CTC fed continually at low levels reduced the SD (P = .012) and CV (P = .021) of liveweight distribution at the end of the finisher period compared to nonmedicated controls. Overall, both CTC treatments improved ADG (P = .009 for continual and P = .07 for pulse) over nonmedicated controls. Neither CTC treatment program impacted carcass characteristics and meat quality. In summary, CTC fed continually at low levels in grower-finisher diets reduced weight gain variation, and both the CTC low level continual and high level pulse programs positively impacted performance in high health, lean genotype pigs.

Item	CTC Level			
	0	110/55 mg/kg	4.5 mg/kg BW	CV
Grower-Finisher (Day 0-110, 28-117 kg)				
ADG, kg		.80 ^{ae}	.83 ^{bf}	.81 ^{abf} 24
ADFI, kg		2.31	2.37	2.33 2.6
F/G		2.90	2.85	2.86 3.3
End weight at Day 110, kg ^h				
SD		11.2 ^c	8.4 ^d	10.0 ^{cd} 23.4
CV		9.8 ^c	7.1 ^d	8.7 ^{cd} 26.7

^{a,b}P < .01.

^{c,d}P < .05.

^{e,f,g}P < .10.

^hVariation among pigs within pens.

Key Words: Pigs, Chlortetracycline, CTC

238 Variability in mixing efficiency and in laboratory analysis of diets at 25 experiment stations. NCR-42 and S-145 Regional Committees (presented by G. L. Cromwell), University of Kentucky, Lexington.

An experiment involving 25 stations in the North-Central and Southern Regions was conducted to assess uniformity in diet mixing among stations and to assess the variability among station labs in chemical analysis of diets. A fortified corn-soybean meal diet was mixed at each station using a common diet formula (except for vitamin-trace mineral additions). The diet was calculated to have 14% CP, .65% Ca, .50% P and 100 ppm added Zn (-125 ppm total Zn). Following mixing, samples were collected from the initial 45 kg of feed discharged from the mixer, after 25%, 50%, and 75% was discharged, and from the final 45 kg of discharged feed. The 5 samples were sent to a central location and distributed to 3 other stations, selected at random, for analysis of CP, Ca, P, and Zn (i.e., each lab analyzed 5 samples from 3 other stations). In addition, 2 commercial labs and 2 experiment station labs analyzed all 25 mixed diets. Overall analyses of the 5 samples were, respectively, CP: 13.4, 13.6, 13.4, 13.5, 13.4% (P < .06); Ca: .66, .67, .67, .66, .67%; P: .50, .51, .51, .50, .50%; and Zn: 115, 116, 112, 113, 120 ppm (P < .001). Diets were not uniformly mixed at all stations (station x sample; P < .02 for Ca, P < .001 for CP, P, and Zn). Among stations, the range of the 5 samples, averaged for CP, Ca, P, and Zn, varied from ±1.1% (i.e., 98.9 to 101.1% of the mean) to ±12.9%, with an overall average of ±5.2% (94.8 to 105.2%). Based on the labs that analyzed all diets, station mixed diets ranged from 11.8 to 14.6% CP, .52 to .73% Ca, .47 to .58% P and 71 to 182 ppm Zn. The CV among station diets for CP, Ca, P, and Zn were 4.6, 10.4, 4.5, and 17.8%, and among station labs were 4.4, 15.4, 11.5, and 16.3%, respectively. The results suggest that uniformity of diet mixes varies among experiment stations, that some stations miss their targeted levels of nutrients (especially Zn), and that the variability among experiment station labs in analysis of dietary Ca, P and Zn is quite large.

Key Words: Pigs, Feed mixing, Chemical analysis

239 The effects of poultry fat and choice white grease on longissimus muscle quality. J. J. Engel¹, J. W. Smith, II, R. D. Goodband, J. A. Unruh, M. D. Tokach, and J. L. Nelissen, Kansas State University, Manhattan.

Eighty-four crossbred gilts (initially 60.3 kg) were used in a growth assay to evaluate the effects of added fat in finishing pig diets on growth performance and carcass characteristics. Poultry fat (PF) or choice white grease (CWG) were added at 2, 4, and 6% to a corn-soybean meal based control diet. Pigs were blocked by weight and ancestry and allotted to one of the seven dietary treatments. The diets were fed in a meal form with a constant lysine:calorie ratio of 2.26 g lysine/Mcal ME. Pigs were slaughtered at 109 kg to evaluate pH and quality traits of the longissimus muscle. Increasing CWG tended (quadratic, P < .10) to improve visual color score. Pigs fed CWG tended (P = .10) to have greater visual firmness scores than pigs fed PF. Neither fat source or fat level affected the visual marbling score, 24 or 48 h drip loss. Increasing CWG decreased Hunter L* values and hue angle (quadratic P < .05 and .10, respectively) and increased the a*:b* ratio (quadratic P < .05). These data indicate that dietary PF or CWG had no adverse effects on longissimus quality.

Item	Control	Poultry fat, %			Choice White Grease, %			
		2	4	6	2	4	6	CV
Drip loss, 24 h %	2.26	2.94	2.41	3.60	3.19	2.34	2.88	64.2
Drip loss, 48 h %	3.91	4.58	3.67	4.81	4.98	3.94	4.57	54.6
Visual color ^a	2.50	2.46	2.46	2.45	2.57	2.67	2.34	16.1
Visual firmness ^b	2.86	2.66	2.81	2.66	2.83	3.02	2.80	16.2
Visual marbling	2.61	2.40	2.53	2.20	2.44	2.56	2.33	26.4
Hunter L* ^c	51.54	51.58	50.64	52.06	50.65	49.50	52.24	5.8
Hunter a*	11.45	11.52	11.85	13.00	12.10	11.00	11.19	18.4
Hunter b*	7.99	8.09	7.95	8.94	8.02	7.30	7.92	22.8

^aCWG quadratic, P < .10.

^bPF vs CWG, P = .10.

^cCWG quadratic, P < .05.

240 The effects of poultry fat and choice white grease on finishing pig growth performance and carcass characteristics. J. W. Smith, II¹, J. Engle, R. D. Goodband, J. A. Unruh, M. D. Tokach, and J. L. Nelissen, Kansas State University, Manhattan.

Eighty-four crossbred gilts (initially 60.3 kg) were used in a growth assay to evaluate the effects of added fat in finishing pig diets on growth performance and carcass characteristics. Poultry fat (PF) or choice white grease (CWG) were added at 2, 4, and 6% to a corn-soybean meal based control diet. Pigs were blocked by weight and ancestry and allotted to one of the seven dietary treatments. The diets were fed in a meal form with a constant lysine:calorie ratio of 2.26 g lysine/Mcal ME. Pigs were slaughtered when mean block weight averaged 109 kg to collect standard carcass measurements. Average daily gain was not affected (P > .10) by either fat source or level. Increasing CWG decreased ADFI (quadratic, P < .10). Feed efficiency was improved in pigs fed increasing PF or CWG (linear, P < .10 and .01, respectively). Dietary additions of PF or CWG did not affect (P > .10) longissimus muscle area (LMA) or tenth rib fat depth. These data suggest that added PF or CWG improves feed efficiency of finishing pigs without affecting carcass leanness.

Item	Control	Poultry Fat, %			Choice White Grease, %			
		2	4	6	2	4	6	CV
ADG, g	0.92	0.93	0.93	0.94	0.96	0.98	0.94	5.6
ADFI, g ^a	3.07	3.04	3.07	2.88	3.23	3.05	2.87	7.4
g:fb ^c	.30	.31	.31	.33	.30	.31	.33	6.2
LMA, CM ²	42.83	42.31	39.80	43.15	44.31	41.99	43.99	11.4
10 rib BF, cm	2.01	2.03	1.98	1.93	1.88	2.06	1.98	18.6
Lean, %	54.47	53.75	53.95	54.35	54.87	53.50	54.73	5.1

^aCWG quadratic, P < .10.

^bPF linear, P < .10.

^cCWG linear P < .01.