571 The effects of poultry fat and choice white grease on pork longissimus muscle quality. J. J. Engel*, J. W. Smith II, J. A. Unruh, R. D. Goodband, M. D. Tokach, and J. L. Nelssen, *Kansas State University, Manhattan.*

Eighty-four crossbred gilts (initially 60.3 kg) were used to evaluate the effects of added fat in finishing pig diets on longissimus muscle quality (LM). 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 slaughtered at 109 kg to evaluate longissimus quality traits. Pigs fed PF had greater cooking loss than those fed CWG (P<0.05). Increasing PF resulted in increased then decreasing cooking loss (quadratic P<0.05). Neither fat source or level influenced (P>0.05) other LM quality or sensory traits. These data indicate PF and CWG can be added to finishing pig diet with minimal affects on LM quality.

		Poultry Fat, %			Choice White Grease, %			
Item	Control	2	4	6	2	4	6	CV
Visual color	2.50	2.46	2.46	2.45	2.57	2.67	2.34	16.1
Visual firmness	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
WHC(FPP), %[c]	37.04	35.83	38.68	37.32	36.77	38.96	6.69	13.4
Drip loss, 24 h %	3.91	4.58	3.67	4.81	4.98	3.94	4.57	54.6
Cooking loss, %[a,b]	26.60	34.16	32.34	24.08	26.91	28.12	6.61	6.80
Shear force, kg	4.13	3.99	4.99	4.14	4.14	4.06	4.21	32.60

	Control	Poultry Fat, 6%	Choice White Grease, 6%	CV
Flavor intensity	5.75	5.67	5.68	2.70
Juiciness	5.47	5.35	5.43	6.60
Overall tenderness	6.15	6.34	6.23	12.50
Connective tissue amount	6.96	7.04	6.87	6.80
Myofibrilar tenderness	6.02	6.12	6.04	13.70

[a]PF vs CWG, P<0.05
[b]PF quadratic, P<0.05
[c]Filter paper press (FPP)

Key Words: Pork, Longissimus Quality, Poultry Fat

572 The effects of poultry fat and choice white grease on pork belly quality and bacon sensory evaluation. J. J. Engel*, J. W. Smith II, J. A. Unruh, R. D. Goodband, and M. D. Tokach, *Kansas State University, Manhattan.*

Eighty-four crossbred gilts (initially 60.3 kg) were used to evaluate the effects of added fat in finishing pig diets on belly and bacon quality. Poultry fat (PF) or choice white grease (CWG) was added at 2, 4, and 6% to a corn-soybean meal based control diet. Pigs were slaughtered at 109 kg to evaluate belly and bacon quality. Increasing PF decreased, then increased belly lean Minolta a* and b* values (P<0.05). Increasing CWG increased and then decreased Minolta b* values (P<0.05). As PF increased, bacon slicing score decreased. Bacon from pigs fed PF had higher sensory panel "off flavor" scores (P<0.05) than those fed CWG. Slicing scores and off flavor scores for pigs fed PF were still within acceptable quality ranges. These data indicate that increasing levels of PF or CWG can be added to finishing pig diets with minimal influence on belly and bacon quality.

		Poultry Fat, %			Choice White Grease, %			
Item	Control	2	4	6	2	4	6	CV
Minolta L*	48.17	46.84	46.91	47.00	47.70	47.65	47.05	5.80
Minolta a[a]	22.35	19.94	19.91	21.23	19.81	20.69	20.12	11.50
Minolta b[a,b]	9.59	8.63	7.82	8.69	8.35	8.13	8.67	17.40
Slicing score[c]	3.94	3.66	3.50	3.06	3.26	3.24	3.32	27.2
Cooking loss, %	37.3	34.94	37.09	35.59	36.12	36.19	35.5	11.6
Shear force, kg	5.95	5.83	5.99	5.90	5.38	5.48	5.84	27.40
Aftertaste	3.94	3.77	4.19	3.88	3.81	3.86	3.75	12.7
Off flavor[d]	1.26	1.39	1.31	1.38	1.27	1.24	1.27	15.1
Saltiness	5.11	4.82	4.96	4.83	5.01	4.85	4.88	6.6
Flavor intensity	5.60	5.32	5.44	5.39	5.39	5.33	5.30	5.2
Brittleness	5.27	5.38	5.40	5.21	5.47	5.28	5.34	10.3

[a]PF quadratic, P<0.05
[b]CWG quadratic, P<0.05
[c]PF linear, P<0.05
[d]PF vs CWG, P<0.05

Key Words: Pork, Quality, Poultry Fat

573 Effects of longissimus glycolytic potential on growth performance, carcass and meat quality characteristics. K. D. Miller*[2], M. Ellis[2], F. K. McKeith[2], and E. R. Wilson[1] [1]*Pig Improvement Company, Franklin, KY,* [2]*University of Illinois, Urbana.*

Animals (n=72) with glycolytic potential (GP) values ranging from 113.8 to 301.1 μmol/g of tissue, determined from live animal biopsy samples from the longissimus, were classified as having low (n = 24), moderate (n = 24), and high (n = 24) GP levels (154.3, 196.8, 253 ± 5.13 μmol/g, respectively; P < .001). The three GP classifications were compared for differences in growth performance, carcass, and meat quality characteristics. Growth and carcass traits were not different between GP classifications. However, meat quality measurements such as longissimus ultimate pH, subjective color score, longissimus Minolta L* values, and longissimus drip loss percent were significantly poorer for animals classified as having either high or moderate GP levels compared to those with low GPs. Compared to low and moderate GP animals, those with higher GP had significantly lower (P < .05) longissimus protein percent (24.1 vs. 23.8 vs. 23.3 for low, moderate; and high, respectively). Cooking loss was increased for high compared to low GP animals with samples from those with moderate being intermediate but not different (22.78 vs 21.13 vs 19.71; high, moderate, low, respectively P < .05). Taste panel tenderness (9.64 vs 8.72 vs 8.59; high, moderate, low, respectively; P < .001) and juiciness (8.58 vs 7.80 vs 7.92; high, moderate, low, respectively; P < .05) indicated better eating quality for high compared to low and moderate GP animals, These data indicate higher levels of GP, within the longissimus, has negative effects on water holding capacity, but positive effects on eating quality.

Key Words: Glycolytic potential, Meat quality, Longissimus

574 Regression relationships between longissimus glycolytic potential and growth performance, carcass and meat quality characteristics. K. D. Miller*[2], M. Ellis[2], F. K. McKeith[2], and E. R. Wilson[1], [1]*Pig Improvement Company, Franklin KY,* [2]*University of Illinois, Urbana.*

Glycolytic potential was determined on live-animal biopsy samples and post mortem samples taken from the longissimus of 72 pigs. The relationships between glycolytic potential and growth, carcass, and meat quality traits was investigated using regression analysis. Glycolytic potential values ranged from 113.8 to 301.1 mol/g and 91.0 to 270.5 mol/g for biopsy and post mortem samples, respectively. Growth and carcass traits showed minimal relationships with glycolytic potential with only regression between glycolytic potential and last lumbar backfat thickness (P < .05) and loin eye area (P < .05) being significant. However, meat quality measurements on the longissimus such as Minolta L* values, drip loss, ultimate pH, and cooking loss showed significant relationships with glycolytic potential determined on post mortem samples. (R^2 values = .10, .19, .24, and .11; correlation coefficients =.32, .43, -.49, and .34 P < .01, P < .001, P < .001, and P < .01, respectively). However relationships between these traits and glycolytic potential values determined from biopsy samples were weaker with R^2 values .06, .12, .10 and .06 and correlation coefficients .24, .34, -.31, and .25, respectively. Significant regressions were also detected between longissimus protein percent and glycolytic potential determined on both post mortem (P < .001) and live animal (P < .001) samples with a R_2 values of 0.20 and 0.17 and correlation coefficients of -.45 and -.41, respectively. These data indicate that reducing longissimus glycolytic potential levels may enhance pig meat quality.

Key Words: Glycolytic Potential, Meat Quality, Longissimus