Two pigs/replicate were randomly selected and bled at the first and last weeks of the trial to determine the serum total proteins, albumin, globulin, creatinine, urea, cholesterol, and glucose. All statistical data were subjected to ANOVA, and, where statistical significance were observed, the means were compared using the Duncan's multiple range test (SAS). The results indicated that the increasing levels of MO resulted in increased levels of crude fibre (5.83, 6.57, 6.83, 7.05, 7.27, and 7.38%) and decreased levels of predicted metabolizable energy (ME) contents of the diets (3531.01, 3459.51, 3447.60, 3416.08, 3410.05, and 3372.47 Kcal ME/kg), while the dry matter intake (0.85, 0.84, 0.80, 0.82, 0.87, and 0.85 kg) was not ($P > 0.05$) affected for the 0, 25, 30, 35, 40, and 45% MO levels, respectively. The diets and the constituent nutrients were efficiently utilized in terms of G:F (0.56, 0.54, 0.58, 0.54, 0.56, and 0.54), ME intake per gain (6361.82, 6277.67, 5991.78, 6382.28, 6067.30, and 6199.02 Kcal ME) to support comparable ($P > 0.05$) gains (0.47, 0.49, 0.48, 0.47, 0.51, and 0.48 kg), though slight variations were observed with the ME intake. The performance of pigs fed up to 45% MO replacement of maize were comparable ($P > 0.05$) to those fed the maize-based control diet.

Key Words: maize offal, weaned pigs, non-conventional feedstuff

0757 The effects of standardized ileal digestible lysine level with or without tribasic copper chloride on growth performance, carcass characteristics, and fat quality in finishing pigs. K. F. Coble*[1], S. S. Dritz[1], J. L. Usry[2], J. E. Nemechek[1], M. D. Tokach[1], J. M. DeRouchey[1], R. D. Goodband[1], J. C. Woodworth[1], and G. M. Hill[3], *[1]Kansas State University, Manhattan, [2]Micronutrients, Social Circle, GA, [3]Michigan State University, East Lansing.*

A total of 1248 pigs (initially 28.9 kg BW) were used in a 120-d study to determine the effects of added tribasic copper chloride (TBCC; IntelliBond C; Micronutrients, Indianapolis, IN) and increasing standardized ileal digestible Lys on growth performance, carcass characteristics, liver Cu concentration, and carcass fat quality in finishing pigs. Pens of pigs were allotted to one of six dietary treatments, balanced on average pen weight in a randomized complete block design with 26 pigs per pen and eight replications per treatment. Treatments were arranged in a 3 × 2 factorial with main effects of SID Lys (85, 92.5, and 100% of the estimated requirement) and added Cu (0 or 150 ppm) from TBCC. All diets were corn-soybean meal-based with 30% distiller's dried grains with solubles, 15% bakery meal and 17 ppm Cu from $CuSO_4$ provided from the trace mineral premix. There were no TBCC × SID Lys interactions observed for growth performance or liver Cu concentrations. Increasing SID Lys increased ($P < 0.01$) ADG, G:F and final BW (Table 0757). Pigs fed 150 ppm TBCC tended ($P < 0.10$) to have increased ADG, G:F and final BW. Liver Cu concentrations were greater ($P < 0.01$) in pigs fed TBCC and tended to decrease (quadratic; $P < 0.09$) as SID Lys increased. In pigs fed TBCC, jowl fat iodine value (IV) calculated from the fatty acid analysis of all three fat layers, increased with increasing SID Lys but not in pigs fed diets without TBCC (Lys × TBCC interaction; $P < 0.03$). In summary, SID Lys did not influence the response to TBCC is this experiment.

Key Words: finishing pig, copper, lysine, iodine value

0758 Effects of hard red winter wheat particle size on finishing pig growth performance and caloric efficiency. J. A. De Jong*, J. M. DeRouchey, M. D. Tokach, R. D. Goodband, and S. S. Dritz, *Kansas State University, Manhattan.*

A total of 288 pigs (43.8 kg BW) were used in an 83-d trial to determine the effects of hard red winter wheat particle size on finishing pig growth performance and caloric efficiency. Caloric efficiency (CE) was calculated using the ingredient energy values from NRC (2012) ME and INRA (2004) NE. Pigs were allotted to one of three dietary treatments with six pens/treatment and eight pigs/pen. The same wheat–soybean meal-based diets were used for all treatments. Diets were fed in mash form. The three dietary treatments included hammer-mill ground wheat to particle sizes of) 728, 579, and 326 µm, respectively. From d 0 to 40, decreasing wheat particle size decreased (linear; $P < 0.03$) ADFI (2.29, 2.24, 2.20 kg), but improved (quadratic; $P < 0.01$) G:F (0.400, 0.413, 0.409) and

Table 0757. Dietary SID Lys level with or without tribasic copper chloride in finishing pigs

	TBCC, ppm						Probability, $P <$ [1]		
	0			150				SID Lys	
SID Lys, %	85.0	92.5	100.0	85.0	92.5	100.0	TBCC	Linear	Quadratic
d 120 BW, kg	122.8	125.4	126.2	123.7	125.8	129.0	0.07	0.01	0.76
ADG, kg	0.80	0.81	0.82	0.80	0.82	0.84	0.10	0.01	0.74
ADFI, kg	2.18	2.20	2.19	2.19	2.19	2.23	0.65	0.23	0.95
G:F	0.365	0.370	0.373	0.365	0.374	0.380	0.09	0.01	0.58
Liver Cu, ppm	13	13	12	33	33	26	0.01	0.18	0.09
Jowl IV[2]	84.2	84.6	83.6	82.7	83.6	85.5	0.74	0.16	0.87

[1]SEM were 1.52, 0.007, 0.032, 0.004, 3.3, and 0.801 for d 120 BW, ADG, ADFI, G:F, liver Cu, and jowl IV, respectively.
[2]Linear TBCC × Lys interaction ($P < 0.03$).