SYMPOSIA AND ORAL SESSIONS

Nonruminant Nutrition: Co-product Feedstuffs

151 Effects of wheat middlings and choice white grease (CWG) in diets on the growth performance, carcass characteristics, and carcass fat quality in growing-finishing pigs. J. A. Barnes,* J. M. DeRouchey, M. D. Tokach, R. D. Goodband, S. S. Dritz, and J. M. Nelssen, *Kansas State University, Manhattan.*

A total of 288 pigs (42.3 kg BW) were used in an 87-d study to determine the effects of wheat middlings and CWG on growth performance, carcass characteristics, and carcass fat quality of finishing pigs. Pens of pigs were randomly allotted by weight and gender to 1 of 6 dietary treatments (6 pens/treatment). Treatments were arranged in a 2 × 3 factorial with main effects of wheat middlings (0 or 20%) and CWG (0, 2.5, or 5%). Diets were corn-soybean meal-based with 15% dried distillers grains with solubles and fed in 4 phases with constant SID lys:ME within each phase. There were no CWG × wheat middlings interactions ($P \geq 0.12$) for any of the criteria evaluated. Overall, (d 0 to 87), feeding 20% wheat middlings decreased ($P < 0.001$) ADG and G:F. Pigs fed diets with increased CWG had increased ADG (quadratic, $P < 0.03$) and G:F (linear, $P < 0.01$). Pigs fed diets containing 20% wheat middlings had decreased ($P < 0.01$) final BW; while there was a tendency for increased final BW ($P < 0.09$) as dietary CWG increased. Pigs fed wheat middlings had decreased carcass yield ($P < 0.05$), HCW ($P < 0.003$), BF depth ($P < 0.04$), and loin depth ($P < 0.001$), while jowl fat iodine value increased ($P < 0.001$). Additionally, pigs fed CWG had a tendency for increased BF depth (linear, $P < 0.06$) and increased (linear, $P < 0.01$) jowl fat iodine value. The lower dietary energy and decreased bulk density of diets with wheat middlings reduced pig performance, carcass yield and weight, and increased jowl fat IV. Increasing diet energy with CWG can help mitigate the negative effect on live performance; however, additional energy from CWG does not eliminate the negative impact of wheat middlings on carcass yield, carcass weight, and jowl IV.

Table 1.

Wheat middlings, %	0	0	0	20	20	20	
Fat, %	0	2.5	5.0	0	2.5	5.0	SEM
ADG, kg	1.05	1.05	1.08	0.99	0.98	1.04	0.013
ADF, kg	3.06	3.03	3.04	3.07	2.97	3.00	0.046
G:F	0.344	0.347	0.357	0.322	0.332	0.347	0.004
Final BW, kg	133.8	135.2	136.9	128.2	128.9	132.8	2.155
Carcass yield,%	73.3	73.9	73.4	72.8	72.9	72.8	0.407
HCW, kg	98.1	99.9	100.5	93.4	94.0	96.7	1.797
Lean, % [a]	52.9	52.2	52.4	52.6	52.4	52.2	0.298
Backfat, mm[a]	21.3	22.7	22.3	20.0	20.3	21.8	0.723
Loin depth, mm[a]	65.4	64.1	64.2	61.6	61.0	62.9	0.694
Jowl IV	71.6	72.4	72.3	73.4	73.7	75.1	0.343

[a]adjusted to a common HCW.

Key Words: DDGS, pig, wheat middlings

152 Effects of corn dried distillers grains with solubles (DDGS) and increasing wheat middlings on growth performance, carcass traits, and fat quality in growing-finishing pigs. J. A. Barnes,* J. M. DeRouchey, M. D. Tokach, R. D. Goodband, S. S. Dritz, and J. L. Nelssen, *Kansas State University, Manhattan.*

A total of 288 pigs (46.6 kg initial BW) were used in an 84-d growth trial to evaluate the effects of wheat middlings and corn DDGS on growing-finishing pig growth performance, carcass traits, and fat quality. Pens of pigs were balanced by initial weight and gender and randomly allotted to 1 of 4 treatments with 8 pigs per pen (4 barrows and 4 gilts) and 9 pens per treatment. Treatments included a corn-soybean meal-based control diet, the control diet with 30% DDGS, or the diet with 30% DDGS plus 10% or 20% wheat middlings. Diets were fed in 4 phases, and formulated to constant SID lys:ME within each phase. Overall, pigs fed increasing wheat middlings had decreased (linear; $P \leq 0.02$) ADG and poorer (linear; $P \leq 0.01$) G:F and tended to decrease final BW (linear; $P \leq 0.07$). There were no differences ($P = 0.68$) in ADFI. Feeding 30% DDGS did not influence growth performance ($P > 0.11$). For carcass traits, increasing wheat middlings decreased (linear; $P < 0.01$) carcass yield and HCW and tended to decrease (linear; $P < 0.06$) loin depth. Pigs fed wheat middlings had decreased (quadratic; $P < 0.02$) BF and increased (quadratic; $P < 0.01$) percentage lean. Pigs fed 30% DDGS had decreased ($P < 0.03$) carcass yield and BF depth ($P < 0.01$), while increasing percentage lean ($P < 0.03$) and jowl fat IV ($P < 0.001$). Adding wheat middlings to the diet did not ameliorate the negative effects of DDGS on jowl fat IV value. Ingredients such as DDGS and wheat middlings can reduce feed cost; however, the impact on growth and carcass quality must be understood to determine net profitability.

Table 1

DDGS, %	0	30	30	30	
Wheat middlings, %	0	0	10	20	SEM
ADG, kg/d[b]	1.05	1.04	1.00	0.99	0.014
ADFI, kg/d	3.22	3.11	3.10	3.09	0.046
G:F[b]	0.327	0.333	0.324	0.322	0.003
Final BW, kg	134.9	133.8	131.0	129.8	1.50
Carcass yield, %[ab]	74.2	73.4	72.7	72.1	0.27
HCW, kg[b]	100.1	98.1	95.3	93.6	1.12
Lean, %[acd]	51.0	51.7	51.0	51.7	0.002
Backfat, mm[acd]	24.9	22.9	24.0	21.9	0.58
Loin depth, mm[d]	61.3	61.5	59.9	60.0	0.56
Jowl IV[a]	70.6	76.5	76.0	77.4	0.56

[a]DDGS differ (yes vs. no), $P<0.05$. [b]Wheat midds differ, Linear $P < 0.05$. [c]Wheat midds differ, Quadratic $P<0.05$. [d]adjusted for common HCW.

Key Words: DDGS, pig, wheat middlings

153 Effects of tallow and DDGS on pig performance and carcass characteristics. J. M. Pomerenke*[1], G. C. Shurson[1], S. K. Baidoo[2], and L. J. Johnston[3], *[1]University of Minnesota, St. Paul, [2]Southern Research and Outreach Center, Waseca, MN, [3]West Central Research and Outreach Center, Morris, MN.*