Table 1.

Phase 2, d 5-16							
SID Ile &Val:Lys	NC.50/ .65	.45/ .60	.45/ .65	.50/ .60	.50/ .65	PC .50/ .65	SEM
ADG	283[c]	227[a]	259[b]	251[b]	290[c]	297[c]	8.0
GF	1.01[b]	.84[a]	.89[a]	.87[a]	.96[b]	.98[b]	.03
Phase 3, d 16-27							
SID Ile &Val:Lys	NC.55/ .67	.50/ .62	.50/ .67	.55/ .62	.55/ .67	PC .55/ .67	SEM
ADG	477[cd]	397[a]	441[b]	396[a]	454[bc]	501[d]	10.3
GF	.77	.82	.77	.77	77	.81	.02

[abcd] (P < .01).

Key Words: isoleucine, pigs, valine

210 Nutrient analysis of sorghum dried distillers grains with solubles from ethanol plants located in the western plains region. K. M. Sotak,* R. D. Goodband, M. D. Tokach, J. M. DeRouchey, S. S. Dritz, and J. L. Nelssen, *Kansas State University, Manhattan.*

Samples of sorghum dried distillers grains with solubles (DDGS) were collected and analyzed to establish a nutrient database and evaluate the quality and consistency between and within 5 ethanol plants in the Western Plains region. Four plants were located in Kansas and 1 in Texas. Four plants contributed 4 samples each and 1 plant contributed 5 samples from different manufacturing lots of DDGS. Each sample was analyzed for AA, DM, CP, crude fiber, crude fat, ash, NDF, ADF, Ca, P, trace minerals, GE, and starch. In addition, DE (Ewan, 1989), ME, and NE (Noblet and Perez, 1993) were calculated from the nutrient analysis. Of the 5 plants, 3 produced pure sorghum DDGS samples while 2 produced mixed sorghum and corn DDGS samples, with sorghum representing 60 or 70% of the DDGS. For the pure sorghum DDGS, the overall sample average means for each nutrient and SD on a DM basis were: DM (89.5%, 0.96), CP (34.2%, 3.78), crude fat (10.5%, 1.10), ash (4.4%, 0.83), NFE (40.3%, 3.47), crude fiber (10.6%, 1.48), ADF (26.4%, 4.96), NDF (35.1%, 5.34), starch (4.3%, 0.72), calculated DE (3,439 kcal/kg), calculated ME (3,206 kcal/kg), calculated NE (2,025 kcal/kg), Ile (1.37%, 0.14), Leu (3.84%, 0.63), Lys (0.88%, 0.06), Met (0.55%, 0.13), Thr (1.04%, 0.09), Trp (0.26%, 0.02), Val (1.67%, 0.15), Ca (0.01%, 0.2), and P (0.72%, 0.20). Mean particle size was 670 ± 186 µ. The mixed sorghum and corn DDGS samples' means and SD on a DM basis were: DM (90.27%, 0.30), CP (32.69%, 1.34), crude fat (11.30%, 0.40), NFE (40.63%, 1.82), crude fiber (11.30%, 0.68), ADF (22.07%, 2.28), NDF (36.73%, 1.46), calculated DE (3245 kcal/kg), calculated ME (3044 kcal/kg), calculated NE (1988 kcal/kg), Lys (0.87%, 0.03), Met (0.55%, 0.16), Thr (1.05%, 0.04), Trp (0.24%, 0.01), and P (0.74%, 0.07). The standard deviations among sorghum DDGS plants were similar to that within plants for most nutrients. Results of these analyses can be used by nutritionists to better utilize sorghum DDGS in swine diets.

Key Words: dried distillers grains with solubles, nutrient analysis, sorghum

211 Vomitoxin concentration in nursery pig diets and effectiveness of commercial products to mitigate its effects. J. A. Barnes,* J. M. DeRouchey, M. D. Tokach, R. D. Goodband, S. S. Dritz, J. M. Nelssen, and E. Hansen, *Kansas State Univeristy, Manhattan.*

A total of 180 pigs (10.4 kg BW; 34 d of age) were used in a 21-d trial to evaluate the effects of vomitoxin concentration in nursery diets and effectiveness of commercial products to mitigate vomitoxin′s negative effects on performance. Treatments were arranged in a completely randomized design with 6 pigs/pen and 6 pens/treatment. All diets included 17% dried distillers grains with solubles (DDGS). Pens of pigs were allotted to 1 of 5 treatments, of a control (PC) diet with corn-soybean meal and low vomitoxin (0.8 ppm) DDGS, a negative control (NC) containing 4 ppm dietary vomitoxin from contaminated DDGS (12 ppm), and the negative control with 0.1% Biofix Plus (B, ADM Alliance Nutrition; Quincy, IL, USA), 0.15% Cel-can (Value-Added Science & Technologies; Mason City, IA, USA) plus 0.5% bentonite clay (C), or 0.25% Defusion Plus (D, North American Nutrition Co., Inc.; Brookville, OH, USA). All diets tested at or below cautionary levels for Fumonisin B1 and Zearelenone. From d 0 to 10, pigs fed the NC, B, C or D had poorer ($P < 0.05$) ADG and ADFI than pigs fed the PC. Pigs fed the PC diet had improved G:F ($P < 0.05$) compared with pigs fed the NC, B, or C with pigs fed diets containing D being intermediate. For the total experimental period, pigs fed the PC diet had greater ($P < 0.05$) ADG, ADFI, and final BW than pigs fed any 4 ppm vomitoxin-contaminated diet. Pigs fed D had greater ADG ($P < 0.05$) than pigs fed the NC diet or diets containing B, or C. Pigs fed the PC diet had improved G:F ($P < 0.05$) compared with the NC, B, or C, while pigs fed D had greater G:F ($P < 0.05$) than pigs fed the NC. While no mitigation product in a diet with 4 ppm vomitoxin restored performance to the PC diet, Defusion Plus improved performance over the NC diet.

Table 1. Effects of vomitoxin and commercial products on nursery pig performance

	Positive Control (PC)	Negative Control (NC)	Biofix Plus (B)	Cel-can + bentonite clay (C)	Defusion Plus (D)	SEM
d 0 to 10						
ADG, g	487[a]	313[b]	305[b]	316[b]	324[b]	17.8
ADFI, g	709[a]	522[b]	512[b]	518[b]	502[b]	23.8
G:F	0.69[a]	0.60[b]	0.60[b]	0.61[b]	0.65[ab]	0.019
d 0 to 21						
ADG, g	585[a]	419[c]	409[c]	418[c]	469[b]	14.9
ADFI, g	895[a]	719[b]	687[b]	699[b]	739[b]	29.6
G:F	0.66[a]	0.59[c]	0.60[bc]	0.60[bc]	0.64[ab]	0.016
Final BW, kg	22.6[a]	19.2[c]	19.0[c]	19.2[c]	20.4[b]	0.40

[abc]Means in the same row with different superscripts differ ($P<0.05$).

Key Words: pig, vomitoxin, mycotoxin

212 Effect of dietary leucine and isoleucine levels on amino acid serum concentration and expression of an intestinal amino acid transporter in pigs. V. Méndez[1], A. Morales[1], M. Cervantes*[1], A. B. Araiza[1], M. Barrera[2], and D. González[1], *[1]ICA, Universidad Autónoma de Baja California, Mexicali, Baja California, México, [2]Universidad Autónoma de Sonora, Hermosillo, Son, México.*

Branched chain (BC) amino acids (AA; Leu, Ile, and Val) share at least one intestinal transporter for absorption. So, the dietary content of one may affect the intestinal absorption of the other AA. These AA, especially Leu, is recognized as an activator of mTOR, the protein synthesis regulator in muscle cells. An experiment was conducted to determine if adding Leu and Ile to a lysine-fortified diet affects the expression of the jejunal AA transporter (B0) mRNA, and the serum