

Measures of oxidative stress in plasma and liver from pigs fed increasing levels of dietary thermally processed spray dried egg white.					
Measure of oxidation	Treatment <sup>1</sup>			Statistic <sup>2</sup>	
	0%	6%	12%	SEM	P-value
<b>Blood Plasma</b>					
PC, nmol/mL	59.6 <sup>ab</sup>	43.3 <sup>b</sup>	96.6 <sup>a</sup>	13.6	0.02
8-OH-dG, pg/mL	2997.9	2206.8	2512.3	334.2	0.28
ISP, pg/mL	54.6	55.5	54.8	2.5	0.97
<b>Liver</b>					
PC, nmol/mg	194.3 <sup>a</sup>	111.8 <sup>b</sup>	179.5 <sup>ab</sup>	23.4	0.04
8-OH-dG, pg/mg	472.3	434.3	471.1	44.9	0.80
ISP, pg/mg	202.8	215.4	224.5	23.1	0.80

<sup>1</sup> Difference in dietary treatments were created by the inclusion of no TP-SDEW (20°C), 6% TP-SDEW (100°C for 120 h) plus 6% SDEW or 12% TP-SDEW.

<sup>2</sup> Difference in superscript indicate significant difference ( $P \leq 0.05$ ).

Abbreviations: PC-protein carbonyls, 8-OH-dG- 8-OH-2'-deoxyguanosine, ISP-F<sub>2</sub>-isoprostanes

**Keywords:** oxidative stress, performance, protein oxidation, swine

## 245 Evaluation of Cellulose in Diets with and Without Added Zn on Nursery Pig Performance.

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A total of 1,296 pigs (PIC L337×1050; initially 4.8 kg) were used in a 42-d study to evaluate cellulose in diets with and without pharmacological levels of Zn on nursery pig performance. Our hypothesis was that added fiber (cellulose) may provide more benefit in diets without ZnO. Pens were assigned to 1 of 4 dietary treatments in a RCBD by BW with 27 pigs/pen and 12 pens/treatment. Dietary treatments were arranged in a 2×2 factorial with main effects of cellulose (0 vs 1%; J. Rettenmaier USA, Schoolcraft, MI) and Zn (200 vs. 3,000 mg/kg in phase 1 and 110 vs. 2,000 mg/kg in phase 2). Treatment diets were formulated in two phases fed from d 0 to 7 and 7 to 21 with a common diet fed from d 21 to 42 post-weaning. Pig weights and feed disappearance were collected weekly to determine ADG, ADFI, and G:F. On d 16 or 17, fecal samples were collected from 3 pigs/pen to determine fecal DM, and all pens were visually evaluated for fecal consistency. There were no Zn×cellulose interactions. For the experimental and overall period, pigs fed diets containing added Zn had increased ( $P < 0.001$ ) ADG, ADFI, G:F and BW while those that were fed cellulose had decreased ( $P < 0.05$ ) ADG. For fecal dry matter, there was no evidence for difference ( $P > 0.10$ ) between any of the treatments but those fed added ZnO had visually firmer feces as evidenced by lower ( $P < 0.001$ ) fecal scores. When fed a common diet from d 21 to 42, pigs previously fed added ZnO had increased ( $P < 0.001$ ) ADG (502 vs. 523 g/d) and ADFI (697 vs. 734 g/d). In conclusion, there were no interactive effects between added cellulose and Zn; however, cellulose reduced ADG while the inclusion of pharmacological levels of Zn improved all growth criteria.

**Table 1. Interactive effects of cellulose and added ZnO on nursery pig performance**

Item	Cellulose		No cellulose		SEM	Probability, $P =$		
	No ZnO	ZnO	No ZnO	ZnO		Cellulose	ZnO	Cellulose × ZnO
Day 0 to 21, experimental period								
ADG, g	150	201	160	215	5.29	0.011	<0.001	0.715
ADFI, g	296	324	308	329	6.52	0.161	<0.001	0.490
Gain:feed	0.507	0.623	0.520	0.654	0.0137	0.117	<0.001	0.493
Fecal dry matter, %	20.72	19.01	20.10	19.91	0.951	0.883	0.316	0.426
Fecal score <sup>1</sup> , avg.	3.46	3.06	3.78	3.03	0.150	0.268	<0.001	0.192

<sup>1</sup>Fecal scores were assessed on d 16 or 17 prior to the end of the experimental period (d 21) according to a 1-5 scale: 1) hard feces, 2) firm formed feces, 3) soft moist feces, 4) soft unformed feces, 5) watery feces.

**Keywords:** cellulose, growth, nursery