thirty days before farrowing to weaning. A total of twenty sows (Landrace × Yorkshire) were randomly assigned to treatments. Dietary treatments consisted of 1) CON (basal diet), 2) FG1 (CON + 0.1% Fermented Aged Garlic Feed Additive), 3) FG2 (CON + 0.2% Fermented Aged Garlic Feed Additive), and 4) IFG (CON + 0.1% Imported Fermented Aged Garlic Feed Additive). All diets based on corn and soybean meal were provided and formulated to meet or exceed the NRC (2012) following a lactating sow feed program; sows were fed two times a day, with restricted feeding, and were allowed ad libitum access to water. The lactation period was 21 d. The growth performance, blood profiles, and nutrient digestibility of sows were analyzed at farrowing and weaning, and the fecal diarrhea score of piglets was measured every week. All data were subjected to the statistical analysis as a randomized complete block design using the GLM procedures of SAS (SAS Inst. Inc., Cary, NC), and the pen was used as the experimental unit. Before carrying out statistical analysis of the microbial counts, logarithmic conversion of the data was performed. Differences among treatment means were determined using Duncan's multiple range tests with a $P < 0.05$ indicating significance. In this study, body weight loss of sows fed FG1, FG2, and IFG treatments was significantly lower ($P < 0.05$) than that of sows fed the CON diet during the lactating period. Piglets of sows fed the FG1, FG2, and IFG diets had higher body weight at week 3 and the end of the experiment ($P < 0.05$). ADG of piglets was significantly higher when sows were fed the FG2 and IFG diets rather than the CON diet at week 1 ($P < 0.05$). Fecal microflora population of piglets was decreased in the FG1, FG2, and IFG treatments ($P < 0.05$). Therefore, the results of this study suggested that Fermented Aged Garlic Feed Additive could improve the growth performance of sows and piglets.

Key Words: blood characteristics, fermented garlic, growth performance

282 **Effects of a novel protease enzyme (CIBENZA) on finishing pig growth performance and carcass characteristics.** E. W. Stephenson[1,*], J. M. DeRouchey[1], J. Escobar[2], J. C. Woodworth[1], M. D. Tokach[1], R. D. Goodband[1], S. S. Dritz[1], *[1]Kansas State University, Manhattan, [2]Novus International, Inc., St. Charles, MO*

A total of 1,170 pigs (PIC 337 × 1050; initial BW 25.5 kg) were used in a 131-d study to determine the effects of a protease enzyme on growth performance and carcass characteristics of finishing pigs. Dietary treatments consisted of 1) a positive control diet formulated to provide 90% of the estimated standardized ileal digestible (SID) Lys requirement, 2) a negative control diet formulated to provide 90% of the SID Lys requirement minus the expected nutrient release (approximately 27 kcal/kg and 3.4% Lys) from the protease enzyme (CIBENZA DP100, Novus International, Inc., St. Charles, MO), and 3) the negative control diet with the addition of 0.05% CIBENZA DP100 (600,000 U protease/g). Pens of pigs were randomly allotted to 1 of the 3 treatments, with 26 pigs per pen and 15 replicates per treatment. Pigs were harvested (average final BW of 132 kg) at a commercial facility. Overall (d 0 to 131), pigs fed the positive control diet had an increased ($P < 0.05$) ADG of 0.02 kg compared to pigs fed the negative control diet. Pigs fed the negative control diet plus CIBENZA DP100 had increased ($P < 0.05$) ADFI (2.7%) and a tendency for improved ($P = 0.09$) ADG (1.8%) compared to pigs fed the negative control diet without the enzyme. No differences were observed in ADG, ADFI, or G/F between pigs fed the positive control and those fed the negative control plus the protease enzyme, which suggests that the release values attributed to the enzyme were accurate. The only observed effect on carcass characteristics was for yield, in which the pigs fed the negative control diet with enzyme had a lower ($P < 0.05$) carcass yield (0.9 percentage units) compared to pigs fed the negative control diet without enzyme. These data suggest that the protease enzyme CIBENZA DP100 will elicit improved growth performance when added to diets formulated at 90% of the pig's estimated SID lysine requirement.

Table 282.

Item	Positive control	Negative +DP100	Negative control	SEM
d 131, kg	133.3[a]	132.6[ab]	130.2[b]	1.253
ADG, kg	0.831[a]	0.826[abx]	0.811[by]	0.006
ADFI, kg	2.184[ab]	2.207[a]	2.148[b]	0.021
G:F	0.381	0.375	0.378	0.003
HCW, kg	98.4	97.4	96.8	0.903
Yield, %	73.8[ab]	73.5[a]	74.4[b]	0.262

[a,b]Superscripts differ, $P < 0.05$. [x,y]Superscripts differ, $P < 0.10$.

Key Words: finishing pigs, growth, protease enzyme

283 **Impact of an endo-1,4-β-D-mannanase in nursery diets on two genetic populations of pigs selected for soybean meal allergic response.** J. E. Ferrel[1,*], F. A. Cabezon[2], A. P. Schinckel[2], B. T. Richert[2], J. S. Radcliffe[2], T. S. Stewart[2], *[1]Elanco Animal Health, Greenfield, IN, [2]Purdue University, West Lafayette*

A trial was conducted to evaluate 28% soybean meal (SBM) inclusion, with or without endo-1,4-β-D-mannanase (Hemicell-HT 1.5X, Elanco Animal Health, Greenfield, IN) enzyme on nursery pigs from two genetic lines selected for high (HL) and low (LL) sensitivity to soy proteins. Forty-eight pigs (initial BW = 5.87 kg ± 0.05; 23 d age) were weaned into group pens with free access to a soy-free corn-milk product based diet. After a 4 d adaptation, pigs were allocated in a randomized complete block design into individual pens, 12 pen replications per treatment, blocked by ancestry and BW, assigned to one of two dietary treatments in a 2 × 2 factorial arrangement for 14 days. Experimental diets consisted of 28% SBM and 28% SBM + 0.08 MU/kg mannanase. Feed intake and BW were recorded at d 7 and d 14. Data were analyzed using PROC