
Two experiments were conducted to determine the effects of various soybean preparations on growth performance in nursery pigs, on growth performance, carcass characteristics, and stomach lesions in finishing pigs. For the nursery experiment, 144 pigs (4 kg avg BW) were fed in three phases from d 0 to 35 postweaning (i.e., d 0 to 7 at 5.5% lysine, d 7 to 21 at 1.25% lysine, and d 21 to 35 at 1.15% lysine). Treatments were a 2 × 3 × 2 factorial (SBM-based regimen, a dry-extrusion regimen, and a conventional processing soy product regimen) factorial arrangement. Pigs were fed the SBM-based regimen, a dry-extrusion regimen, and a conventional processing soy product regimen for 21 d. Each dietary treatment was formulated to 9.5% lysine, 65% Ca, and 55% P. Apparent total tract digestibilities of DM (P < 0.04) and GE (P < 0.01) were greater for soybean meal vs. dry-extruded soybean meal and for extrusion-solubilized soybean meal vs. dry-extruded soybean meal. Net energy was increased by extrusion-solubilized soybean meal. Results indicated that SBM-based regimen was better at reducing stomach lesions than the extrusion-solubilized regimen. Therefore, SBM-based regimen should be considered for further research.

Key Words: Pigs, Soybeans, Extrusion, Sulfite

Sodium sulfite and extrusion affect the nutritional value of soybean products for nursery pigs. L. L. Burnham, J. D. Hancock, I. H. Kim, T. L. Gugle, and R. H. Hines, Kansas State University, Manhattan.

A total of 150 weanling pigs (avg initial BW of 6.5 kg) was used in a 28-d growth assay to determine the effects of sodium sulfite as an extrusion enhancer for soy products. Treatments were: 1) SBM (21%), 2) SBM with sodium sulfite added (SBM + S), 3) extruded SBM (Ext SBM), 4) SBM extruded with sodium sulfite (Ext SBM + S), 5) extruded whole soybeans (Ext SB), and 6) whole soybeans extruded with sodium sulfite (SB + S). All ingredients were formulated to a 3 × 2 factorial. The extruded soybean preparations were processed in a dry-extruder (Insta-Pro) with barrel temperatures of 160°C for SBM and 147°C for soybeans. For d 0 to 14, pigs fed greater ADG/ (P < 0.02) with lower G/F (P < 0.007) compared to pigs fed the extruded soy products. For d 14 to 28, there were no differences.

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A total of 416 pigs (initially 4.3 kg and 15 of age) was used in a 28-d growth assay to evaluate the effects of spray-dried plasma source on starter pig performance. Pigs were blocked by weight and allotted to one of four dietary treatments in a randomized complete block design with 8 pens per treatment. Spray-dried plasma sources were tested: bovine, porcine, and plasma collected from calves. Plasma sources (5%) and lactose replaced dried skim milk in the control diet to form the experimental diets. Experimental diets were fed during phase I (d 0 to 14 postweaning) and all pigs were fed a common phase II (d 14 to 28 postweaning) diet. Plasma sources were formulated to 1.5% lysine and 42% methionine. The phase II diet was formulated to 1.25% lysine and 36% methionine. Phase I diets were fed as a pelleted form and the phase II diet was fed in a mash form. From d 0 to 7, pigs fed the diets with plasma grew faster (P < 0.05) than pigs fed the control diet and the pigs fed the diet containing sow plasma were more efficient (P < 0.05) than the pigs fed the control diet. From d 0 to 14, pigs fed diets containing porcine and bovine plasma grew faster (P < 0.05) than the pigs fed the control and bovine plasma diets. Pigs either swine plasma source were more efficient (P < 0.05) than pigs fed the control diet. During phase II when pigs were fed a common diet, pigs that were fed diets containing sow and bovine plasma diets in phase I had higher feed intakes (P < 0.05) than pigs that were fed the control diet. Overall (d 0 to 28), pigs fed the porcine plasma diet grew faster (P < 0.05) and pigs fed the sow plasma diet more efficiently (P < 0.05) than pigs fed the control diet. In conclusion, plasma source influenced starter pig performance in this trial. Plasma of a porcine origin promoted greater ADG from d 0 to 14 postweaning than bovine plasma.

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Spray-Dried Plasma Source

<table>
<thead>
<tr>
<th>Control</th>
<th>Bovine</th>
<th>Porcine</th>
<th>Sow</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADG g</td>
<td>116</td>
<td>154</td>
<td>168</td>
</tr>
<tr>
<td>G/F</td>
<td>76</td>
<td>81</td>
<td>86</td>
</tr>
</tbody>
</table>

*Means in rows with different superscripts differ (P < 0.05).