NutraFlo
Protein & Biotech Products

Technical Bulletin #42

— FEEDING TRIAL PERFORMANCE REPORT —

SUMMARY: In a feeding trial conducted by a major United States feed company, pigs were fed diets containing DPS 50RD to evaluate the effects of replacing fishmeal or plasma on growth performance. Partial or entire replacement of spray-dried plasma protein with DPS 50RD in phase 2 starter diets did not significantly affect average daily gain, feed intake or feed/gain ratio. **Although no significant differences between treatments were observed in phase 3, subsequent feed efficiency in phase 4 was significantly improved for pigs fed diets containing DPS 50RD.** These observations suggest a positive carryover effect may exist for pigs fed DPS 50RD.

MATERIALS AND METHODS: A total of 192 pigs were delivered to the research facility at about 9 lbs. body weight and fed a common phase 1 diet for 7 days. Pigs were then blocked by initial weight and sex and assigned to one of 4 treatments at the end of phase 1 to provide 8 pens (6 pigs/pen) per treatment. Pens within each phase 2 treatment were randomly assigned to one of two groups in phase 3, providing 16 pens/treatment. All pigs received a common diet in phase 4. The experimental diets were equal in lysine, ME, calcium and phosphorus within each phase. All diets were pelleted (1/8 inch) for the trial. The following feeding regimen was employed:

Phase 1: 9 lbs. to 11 lbs. body weight. All pigs were fed a common diet containing plasma.

Phase 2: 11 lbs. to 15 lbs. body weight. The following treatments were compared:
1 - 4.0% plasma, 0.0% DPS 50 3 - 1.32% plasma, 2.68% DPS 50
2 - 2.68% plasma, 1.32% DPS 50 4 - 0.0% plasma, 4.0% DPS 50

Phase 3: 15 lbs. to 25 lbs. body weight. The following treatments were compared.
1 - 2.5% Fishmeal, 0.0% DPS 50 2 - 2.5% DPS 50, 0.0% Fishmeal

Phase 4: 25 lbs. to 45 lbs. body weight
All pigs were fed a common diet.

RESULTS AND DISCUSSION: Replacing plasma with DPS 50RD (0-100%) did not significantly effect average daily gain, average daily feed intake or feed/gain ratio for pigs in phases 2, 3, or 4 (Table 1). There were no cumulative effects observed in feed intake or daily gain when replacing plasma with DPS 50 (Table 1, Figure 1-3). There was however a tendency for a linear increase in feed/gain ratio during phase 4 and cumulatively in phases 3-4.

Performance was similar among treatments in phase 3 for feed intake, daily gain and feed efficiency. In phase 4 and cumulatively for phases 3 and 4 (Table 2) there were no significant differences in feed intake or gain. However, **pigs fed DPS 50RD in phase 3 had significantly better feed/gain ratio in phase 4 when compared to pigs fed fishmeal (Figure 4).**

In summary, DPS 50RD can effectively replace spray-dried plasma in phase 2 starter diets without compromising pig performance. Although pigs fed DPS 50RD or fishmeal had similar performance in phase 3, **DPS 50RD appears to have elicited a positive carryover effect on feed/gain ratio in phase 4.**

Table 1. Effect of Replacing Plasma with DPS 50 RD in Stage 2 on Performance of Nursery Pigs During Phases 2 to 4.

					P-Value		
% Plasma Replacement	0	33	66	100	Linear	Quadratic	Cubic
% Plasma	4.00	2.68	1.32	0.00			
% DPS 50RD	0.00	1.32	2.68	4.00			
Daily gain, lb							
Phase 2, 8 days	0.580	0.562	0.553	0.542	0.717	0.973	0.587
Phase 3, 14 days	1.062	1.077	1.055	1.046	0.607	0.695	0.703
Phase 4, 14 days	1.482	1.441	1.379	1.438	0.172	0.115	0.298
Cumulative, Phases 2-3	0.883	0.887	0.872	0.860	0.502	0.781	0.867
Cumulative, Phases 2-4	1.115	1.098	1.069	1.080	0.256	0.599	0.653
Daily Feed Intake, lb							
Phase 2, 8 days	0.566	0.572	0.546	0.555	0.537	0.923	0.496
Phase 3, 14 days	1.247	1.241	1.233	1.223	0.615	0.942	0.998
Phase 4, 14 days	2.076	2.041	1.985	2.051	0.559	0.313	0.523
Cumulative, Phases 2-3	0.995	0.994	0.983	0.976	0.589	0.918	0.905
Cumulative, Phases 2-4	1.413	1.392	1.372	1.385	0.501	0.618	0.828
Feed/Gain Ratio							
Phase 2, 8 days	1.003	1.027	0.990	1.041	0.631	0.708	0.359
Phase 3, 14 days	1.175	1.152	1.169	1.169	0.976	0.371	0.321
Phase 4, 14 days	1.399	1.416	1.440	1.426	0.083	0.244	0.433
Cumulative, Phases 2-3	1.130	1.122	1.126	1.138	0.601	0.425	0.952
Cumulative, Phases 2-4	1.267	1.269	1.283	1.283	0.093	0.888	0.417

Figure 1. Cumulative ADG Phases 2-4

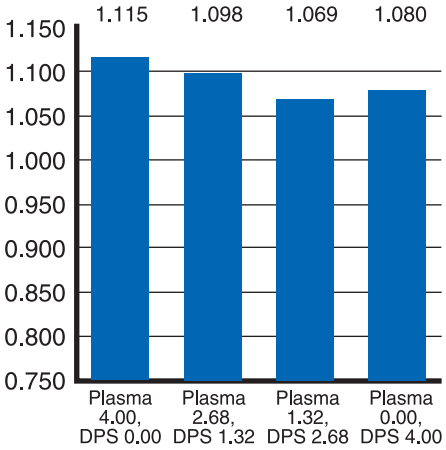


Figure 2. Cumulative ADFI Phases 2-4

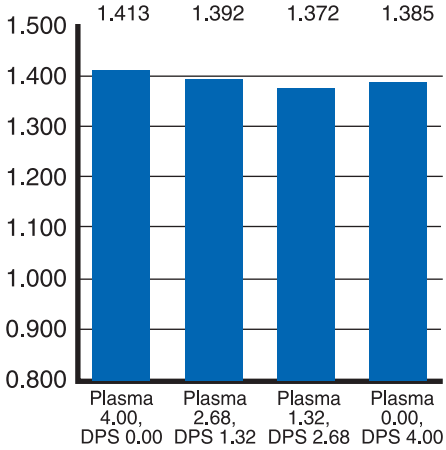


Figure 3. Cumulative F/G Phases 2-4

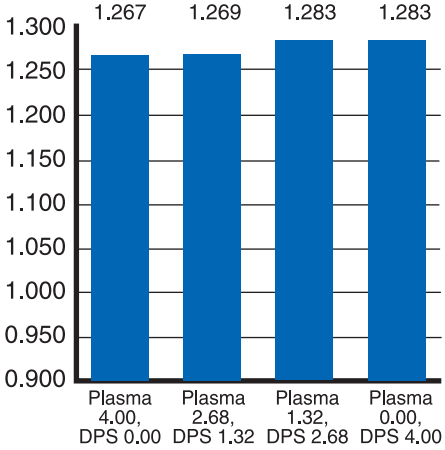
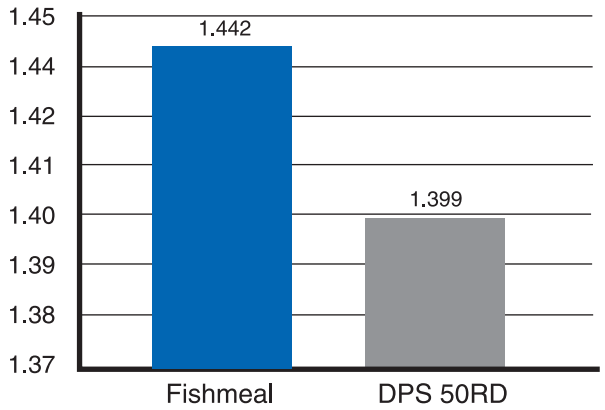


Table 2. Effects of Treatments on Performance of Nursery Pigs in Stages 2 and 3.

Replacement Rate %, Stage 2	0	33	66	100		
Plasma %	4.00	2.68	1.32	0.00	P-Values	
DPS 50RD	0.00	1.32	2.68	4.00	Ph 3 Trt.	Ph 2 x 3
Number of Pens/Treatment	8	8	8	8		
Number of Pigs/Treatment	48	48	48	48		
Daily Gain, lb						
Phase 3, 14 days:						
Fishmeal	1.087	1.065	1.092	1.040	0.483	0.596
DPS 50RD	1.037	1.090	1.018	1.053		
Phase 4, 14 days:						
Fishmeal	1.487	1.457	1.367	1.416	0.840	0.818
DPS 50RD	1.476	1.426	1.390	1.461		
Cumulative, Phases 3-4						
Fishmeal	1.286	1.256	1.230	1.224	0.844	0.824
DPS 50RD	1.257	1.258	1.204	1.256		
Daily Feed Intake, lb						
Phase 3, 14 days						
Fishmeal	1.280	1.252	1.276	1.219	0.251	0.779
DPS 50RD	1.213	1.231	1.191	1.226		
Phase 4, 14 days						
Fishmeal	2.131	2.098	1.991	2.039	0.286	0.677
DPS 50RD	2.021	1.983	1.979	2.063		
Cumulative, Phases 3-4						
Fishmeal	1.705	1.665	1.634	1.620	0.466	0.900
DPS 50RD	1.617	1.607	1.585	1.644		
Feed/Gain Ratio						
Phase 3, 14 days						
Fishmeal	1.177	1.176	1.169	1.172	0.249	0.509
DPS 50RD	1.173	1.129	1.169	1.165		
Phase 4, 14 days						
Fishmeal	**1.431**	**1.440**	**1.456**	**1.441**	**0.003**	**0.761**
DPS 50RD	**1.368**	**1.391**	**1.425**	**1.411**		
Cumulative, Phases 3-4						
Fishmeal	**1.323**	**1.325**	**1.328**	**1.324**	**0.003**	**0.426**
DPS 50RD	**1.286**	**1.277**	**1.316**	**1.307**		

Figure 4. Phase 4 Feed/Gain in Pigs Fed Either DPS 50RD or Fishmeal in Phase 3



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