

439 Influence of forage inclusion level on growth performance and feeding behavior in finishing steers. M. C. Ruch*, T. C. Gilbery, S. R. Underdahl, M. L. Bauer, K. C. Swanson, *North Dakota State University, Fargo.*

Forty-four steers (452 ± 4.6 kg) predominately of Angus and Simmental origin were used in a randomized block design to determine the effects of forage inclusion level on growth performance and feeding behavior in finishing steers. Steers were fed dry-rolled corn based diets which included a mixture of hay and corn silage as the forage source. Dietary treatments were 5%, 10%, 15%, or 20% forage. Diets were fed for 84 days. Feed intakes and feeding behavior were measured using the Insentec system. A visit was defined as each time the Insentec system detected a steer at a bunk. A meal was defined as eating periods which may include short breaks separated by intervals not longer than 7 min. Animals were weighed the first 2 days, then every 28 days after, and finally the last two days of the study. Steers were slaughtered with an average weight of 625 kg. There was a linear decrease ($P \leq 0.02$) in DMI intake, ADG, and G:F as forage inclusion increased. Number of visits and meals per day and eating time per visit, per meal, and per day were not affected by forage inclusion. Feed DMI per visit did not differ between treatments but eating rate per meal decreased linearly ($P < 0.001$) with increasing forage inclusion. Eating rate (g/min) responded quadratically ($P = 0.04$) with the greatest eating rate observed in the 10% forage treatment. Hot carcass weight and dressing % decreased ($P = 0.02$) linearly as forage inclusion increased. These results indicate that a decrease in forage inclusion in a finishing diet will increase DMI, ADG, and G:F as well as increase DMI per meal.

Key Words: behavior, finishing steers, forage, growth

440 Evaluation of further processing methods for soybean meal in diets for nursery pigs.

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A total of 296 mixed sex pigs (PIC 327 $\times$ 1,050; 6.5 ± 1.4 kg BW and 21 d of age) were used in a 31-d experiment evaluating the effect of further processing methods for soybean meal on nursery pig growth performance. There were 11 replicate pens per treatment with 6 or 7 pigs per pen. At weaning, pigs were allotted to pens by initial weight to 1 of 4 treatments in a completely randomized design. A 3-phase diet series was used with experimental diets fed during phase 1 (d 0 to 7) and phase 2 (d 7 to 20), and a common diet fed during phase 3 (d 20 to 30). Experimental treatments were: 1) Negative control (NC: 38.5% SBM and 25% dried whey), 2) Fermented soybean meal processing method 1 (FSBM1; Nutraferma, Sioux City, IA), 3) Fermented soybean meal processing method

Table 440.

	NC	FSBM1	FSBM2	ETS	SEM	$P <$
d 0 to 7						
ADG, g	76 ^{ab}	74 ^{ab}	96 ^b	64 ^a	11.7	0.07
ADFI, g	172	162	162	141	16.5	0.32
G:F	0.415 ^a	0.457 ^a	0.604 ^b	0.445 ^a	0.050	0.03
d 0 to 31						
ADG, g	360	351	362	358	12.4	0.81
ADFI, g	541	526	530	525	16.7	0.76
G:F	0.664	0.665	0.680	0.678	0.013	0.46

Table 441.

	NC	Plasma A	Plasma B	Nutri-Gold	SEM	$P <$
d 0 to 10						
ADG, g	82 ^a	129 ^c	125 ^c	102 ^b	5.0	0.001
ADFI, g	124 ^a	156 ^c	141 ^b	123 ^a	3.0	0.001
G:F	0.660 ^b	0.832 ^a	0.885 ^a	0.821 ^a	0.029	0.001
d 0 to 24						
ADG, g	234 ^a	252 ^b	257 ^{bc}	242 ^{ab}	4.7	0.01
ADFI, g	299 ^a	324 ^b	321 ^b	304 ^a	5.7	0.01
G:F	0.785	0.778	0.802	0.798	0.009	0.19

^{a,b,c} Means without a common superscript differ $P < 0.05$.

2 (FSBM2; Nutraferma, Sioux City, IA), and 4) Enzymatically treated soybean meal (ETS; Hamlet Protein, Findlay, OH). Diet formulation was based on a common SID Lys level (1.35%). Diets 2, 3 and 4 contained 28.5% SBM and 25% dried whey and specialty soybean meal sources were added at 5% in both phase 1 and 2. Feed was pelleted in phases 1 and 2, while the phase 3 common diet was fed in meal form. From d 0 to 7, pigs fed FSBM2 had increased ($P < 0.05$) ADG and d 7 BW compared to pigs fed ETS, and increased G:F ($P < 0.05$) compared to all treatments. No other differences ($P > 0.10$) were observed for growth or pig BW during phase 2, phase 3 or for the overall experiment. In summary, further processed soybean meal sources did not improve nursery pig growth compared to traditional soybean meal.

Key Words: fermented soybean meal, nursery pig, protein sources

441 Evaluation of bovine plasma source and whole dried milk in nursery pig diets on growth performance.

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A total of 360 barrows and gilts (PIC 359 $\times$ C29; initially 6.2 ± 1.4 kg BW and 19 d of age) were used in a 24-d experiment evaluating different specialty ingredients on nursery pig growth performance. This experiment was conducted in a commercial environment (Cooperative Research Farm Nursery; Sycamore, OH). At weaning, pigs were allotted to pens by initial BW to 1 of 4 treatments in a completely randomized design. There were 9 replicate pens per treatment with 10 pigs per pen. Experimental diets were fed from d 0 to 10 with a