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Simple and Complex Pig Starters Compared
R. H. Hines and B. A. Koch

Baby pigs have the ability to grow rapidly and efficiently. Creep rations at an early age enhance their potential. Most commercial creep rations contain feedstuffs to increase palatability and acceptability. Are these ingredients necessary or will rather simple starters produce similar gains?

Five starters were compared, varying from a simple corn-milo-soybean meal ration to a ration containing several palatability aiding ingredients--from 10 days of age to weaning at 28-35 days; and from 6 weeks to 10 weeks of age.

Experimental Procedure

Phase I. Creep rations were assigned randomly. Birth weight of litter was used as the initial weight and litter weaning weight as terminal weight. Rations used are listed in Table 12. All creeps were placed in the same location in the farrowing pens. The first few days that creep was offered, the ration was freshened every other day.

Phase II. One hundred fifty-five, 6-week-old pigs were used to compare starters from 6 to 10 weeks of age. The pigs were assigned to three replicates of the five starters. The pigs were housed in a controlled environment nursery. The 5' x 11' pens are totally slatted with a circulating oxidation ditch below. Each pen was fed ad libitum from a two-hole feeder and an automatic waterer. The pigs were lotted to balance litters and sex in each replicate.

Results and Discussion

Pigs receiving 101C consumed significantly more creep during phase 1 than pigs on any other starter ration (Table 13). Average intake per pig from 10 to 28 days was approximately 1-1½ lbs. Average weaning weights favored 101C and 101E starter rations. They were the medium and most complex rations. Weight gains and feed intake for pigs receiving the simple starter ration were comparable to those on the more expensive starters.

Although starter 101C showed a significant advantage in feed consumption during phase 1, the results reversed during phase 2. Average daily gains on starter 101C and 101A were significantly less than from the other three rations because daily feed intake was significantly less.

Summary

Ingredients that enhance palatability of creep starters may not be of significant value. Weight gains from five starters tested were comparable. Cost of gain during suckling and early post-weaning favor the simple ration. Acceptability of starter rations may be the result of freshness or pellet hardness instead of various appetite stimulators.

Table 12. Simple and complex starter ration formulas used.

Ration complexity ^A	+	++	+++	++++	+++++
	101A	101B	101C	101D	101E
A. Ingredient: lbs.					
Ground corn	665.0	541.0	425.0	---	477.0
Ground sorghum grain	665.0	541.0	425.0	965.5	477.0
Ground oats	---	---	---	200.0	200.0
Rolled oats	---	300.0	300.0	---	---
Alfalfa meal (17%)	---	---	---	40.0	60.0
Sugar	---	---	176.0	80.0	60.0
Soybean meal (50%)	600.0	300.0	260.0	300.0	300.0
Fishmeal	---	---	100.0	60.0	60.0
Meat & bone meal	---	---	---	100.0	100.0
Dried buttermilk	---	---	140.0	---	---
Dried skim milk	---	260.0	140.0	100.0	100.0
Dried whey	---	---	---	100.0	100.0
Edible fat	---	---	---	20.0	20.0
Limestone	20.0	16.0	8.0	---	---
DiCalcium phosphate	28.0	20.0	4.0	10.0	10.0
Salt	10.0	10.0	10.0	10.0	10.0
Trace mineral (5%Zn)	2.0	2.0	2.0	4.0	2.0
B. Premix, gms					
Vit A (10,000 IU/gm)	400.0	400.0	400.0	400.0	600.0
Vit D (15,000 IU/gm)	60.0	60.0	60.0	60.0	80.0
Vit E (44 IU/gm)	---	---	---	---	908.0
Vit K (Klotgen F, 16 Gm/lb)	---	---	---	120.0	120.0
B-Complex (Merck 1233) ^B	908.0	908.0	908.0	908.0	1360.0
Vit B ₁₂ (proform 20)	908.0	---	908.0	908.0	908.0
Choline chloride (25%)	---	---	---	---	908.0
Aureo SP 250	2272.0	2272.0	2272.0	2272.0	2272.0
Enzyme (zymo-Best)	---	---	---	---	112.0
Monosodium glutamate	---	---	---	---	2724.0
Cost per 100 lbs. ^D , \$	4.68	6.91	6.89	6.76	7.18
%protein ^C	20.1	20.7	20.6	20.5	21.7

A--Appraisal of complexity based on number of ingredients used. Simplest ration is + , etc.

B--Contains 80 gms of choline chloride, 24 gms of niacin, 8 gms of riboflavin and 16 gms of D-pantothenic acid per lb.

C--Courtesy of Kansas State University grain science and industry department laboratory.

D--Cost of ration as furnished by Manhattan Milling Company.

Table 13. Phase I: Gains from simple and complex starter rations fed pigs from 10 days of age to weaning.

Starter complexity	+ 101A	++ 101B	+++ 101C	++++ 101D	+++++ 101E
No. of litters	9	16	13	16	11
Av. no pigs/litter	9.9	8.6	8.8	8.4	8.5
Av. birth wt./pig, lbs.	3.0	2.9	3.0	2.9	3.0
Av. birth wt./litter, lbs.	29.2	24.7	26.4	24.2	25.7
Av. wean wt/pig, lbs.	14.6	13.8	17.0	15.7	17.2
Av. wean wt./litter, lbs.	144.6	118.4	149.2	132.2	147.0
Av. feed intake/pig, lbs.	.9	.9	1.7	.9	1.1
Av. weaning age, days	30	30	32	31	32

Table 14. Phase II: Gains from simple or complex starters fed 28 days after weaning

Starter complexity	+	++	+++	++++	+++++
	101A	101B	101C	101D	101E
<u>Average initial weight, lbs.</u>					
Rep 1	25.6	27.3	21.9	25.4	26.8
Rep 2	26.2	35.4	32.4	37.8	36.6
Rep 3	24.4	25.4	27.5	26.7	28.3
Av.	28.7	29.3	27.3	29.9	30.6
<u>Average final weight, lbs.</u>					
Rep 1	54.9	64.9	53.6	58.4	62.2
Rep 2	67.8	67.5	58.6	74.1	69.8
Rep 3	51.0	51.1	52.6	53.0	57.9
Av.	57.9	61.2	54.9	61.8	63.3
<u>Average daily gain, lbs.</u>					
Rep 1	1.05	1.34	1.13	1.18	1.26
Rep 2	1.13	1.15	.94	1.30	1.19
Rep 3	.95	.92	.90	.94	1.06
Av.	1.04	1.13	.99	1.14	1.17
<u>Average daily feed intake, lbs.</u>					
Rep 1	1.69	2.29	1.88	2.18	2.33
Rep 2	1.99	2.05	1.52	2.40	2.19
Rep 3	1.63	1.54	1.57	1.68	1.81
Av.	1.77	1.96	1.66	2.08	2.11
<u>Average lbs. feed per lb. of gain</u>					
Rep 1	1.61	1.71	1.66	1.85	1.85
Rep 2	1.76	1.87	1.62	1.85	1.84
Rep 3	1.72	1.67	1.74	1.79	1.71
Av.	1.70	1.75	1.67	1.83	1.80