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DIETS FOR EARLY WEANED PIGS

R. W. Seerley

Several expensive ingredients are normally included in baby pig rations for optimum performance of the pigs. Some of these ingredients are rolled (hulled) oats, dried skimmilk, dried whey, sugar and high levels of antibiotics. They are added to improve palatability, increase digestibility of the ration and protect the pigs from scours and harmful microflora. Most of the rations are highly fortified with vitamins. All of these materials, plus pelleting, make the ration rather expensive. Studies at the Minnesota station have shown that pigs do well on the sophisticated rations, but the response over a more simple ration is not always enough to pay the cost of these more expensive ingredients.

An experiment was initiated here to study diets for young pigs. The study is expected to last several years and cover several aspects of the nutrition for young pigs.

The first trial was designed to compare corn-soybean meal-type rations with a ration containing some rolled oats, dried skimmilk and sugar as well as some corn, soybean meal, minerals, vitamins and an antibiotic.

Experimental Procedure

Three trials have been conducted to compare the two rations when fed separately and simultaneously to pigs weaned at 3 weeks of age and fed for 6 weeks on the trials. The treatments were:

- Lot 1 - S-1 ration (multiple ingredients)
- Lot 2 - S-2 ration (corn-soybean meal)
- Lot 3 - S-1 and S-2 rations simultaneously in separate feeders

Composition of the rations is shown in table 1. The calculated crude protein content of the rations is 20%. Water and feed were provided ad libitum. The feed was placed in round Kumfort Kup feeders. Small quantities of feed were placed in the feeders frequently to keep the feed fresh. The rations were not pelleted.

Pigs were confined inside in trials 1 and 3, but they were permitted outside in a concrete floored pen in trial 2. Pigs were weighed weekly and weekly feed consumption data were collected.

Table 1. Composition of Rations

	S-1	S-2
Gr. shelled corn	340	690
Rolled oats (hulled)	300	--
Soybean meal (50%)	180	275
Dried skim milk	100	--
Sugar	50	--
Dicalcium phosphate	14	20
Limestone	6	6
T.M. salt	5	5
Trace mineral	0.5	0.5
Vitamin-antibiotic premix ^a	+	+
Calculated analysis		
Crude protein, %	20.0	20.0
Calcium, %	0.79	0.82
Phosphorus, %	0.69	0.70

^a Premix provided 1135 I.U. vitamin A, 340 I.U. vitamin D, 4 mg. riboflavin, 8 mg. pantothenic acid, 16 mg. niacin, 20 mg. choline, 10 mcg. vitamin B₁₂, 1.13 gm. SP-250 per pound of ration.

Results

A summary of the three trials is shown in table 2. Pigs fed the corn-soybean meal ration (S-2) or S-1 and S-2 simultaneously gained 7 and 10% faster than pigs fed the multiple ingredient ration (S-1). The difference in daily gain appeared to be related to a difference in feed consumption. Pigs fed the S-1 ration had a lower daily feed intake than the other two groups of pigs. Although one objective of the multiple ingredient ration is to improve feed consumption, this did not occur in any of the three trials. Furthermore, the same trend was established at 3 weeks as well as at the end of the trials.

Feed conversion was better with the S-1 ration, which suggests that some of the ingredients were more easily digested. However, the cost of production was still higher than the corn-soybean meal ration. A combination of both rations appeared to be best for maximum gains, but the combination was not necessarily better for feed conversion. It should be pointed out that pigs were fast growing pigs in all of these trials. They averaged between 65 to 70 lb. on all the rations at 9 weeks of age.

Figure 1 illustrates a definite preference for the S-1 ration when S-1 and S-2 were fed to the same pigs. There was a decrease of consumption of both rations in the second week. The pigs were apparently still adjusting to the early weaning and they may have been under the greatest stress during the second week. The consumption of S-1 leveled off during the last week of the trials, but the consumption of S-2 doubled during the last week. The pigs were apparently changing their preference and ratio of consumption between the two feeds. There was considerable variation of consumption of the two feeds between the three trials, which is another indication that several different feeds would be ideal for maximum gains.

Table 2. Summary of Three Trials

	Trial	S-1 Multiple ingredients	S-2 Corn- soybean meal	S-1 and S-2 simulta- neously
Number of pigs	1	16	15	16
	2	12	12	11
	3	13	14	14
Av. initial wt., lb. (Combined av.)		16.8	16.8	16.8
Av. final wt., lb. (Combined av.)		65.8	68.8	70.8
Av. daily gain, lb.	1	1.01	1.06	1.14
	2	1.27	1.36	1.37
	3	1.25	1.32	1.38
	Av.	1.16	1.24	1.28
Av. daily feed, lb.	1	2.05	2.27	2.36
	2	2.37	2.56	2.68
	3	2.18	2.53	2.61
	Av.	2.18	2.44	2.53
Av. feed per lb. gain, lb.	1	2.02	2.13	2.07
	2	1.86	1.87	1.96
	3	1.74	1.92	1.89
	Av.	1.87	1.97	1.97

This research illustrates two important points. First, excellent performance can be obtained when pigs are weaned at 3 weeks of age and fed a corn-soybean meal type ration. Secondly, when one ration is preferred over another ration by early weaned pigs, it does not necessarily mean that they will also gain faster on the preferred ration. Palatability of rations is important, but there are degrees of palatability. S-1 and S-2 were palatable rations, but S-1 had the edge on S-2 when pigs had a choice of feed (S-2 was not unpalatable). However, feed intake was increased by the S-2 ration when pigs did not have a choice between the two rations. In other words, the idea that "they like this feed" is not necessarily a good single criterion to evaluate a feed. More criteria such as rate of gain and feed efficiency should be used to accurately evaluate the feed.

The price of the S-1 and S-2 rations was estimated to be \$5.87 and \$3.33 per hundred weight, respectively. The cost per hundred weight gain was \$10.98 and \$6.56 with the S-1 and S-2 rations, respectively. The difference represents a large savings with the corn-soybean meal type ration.

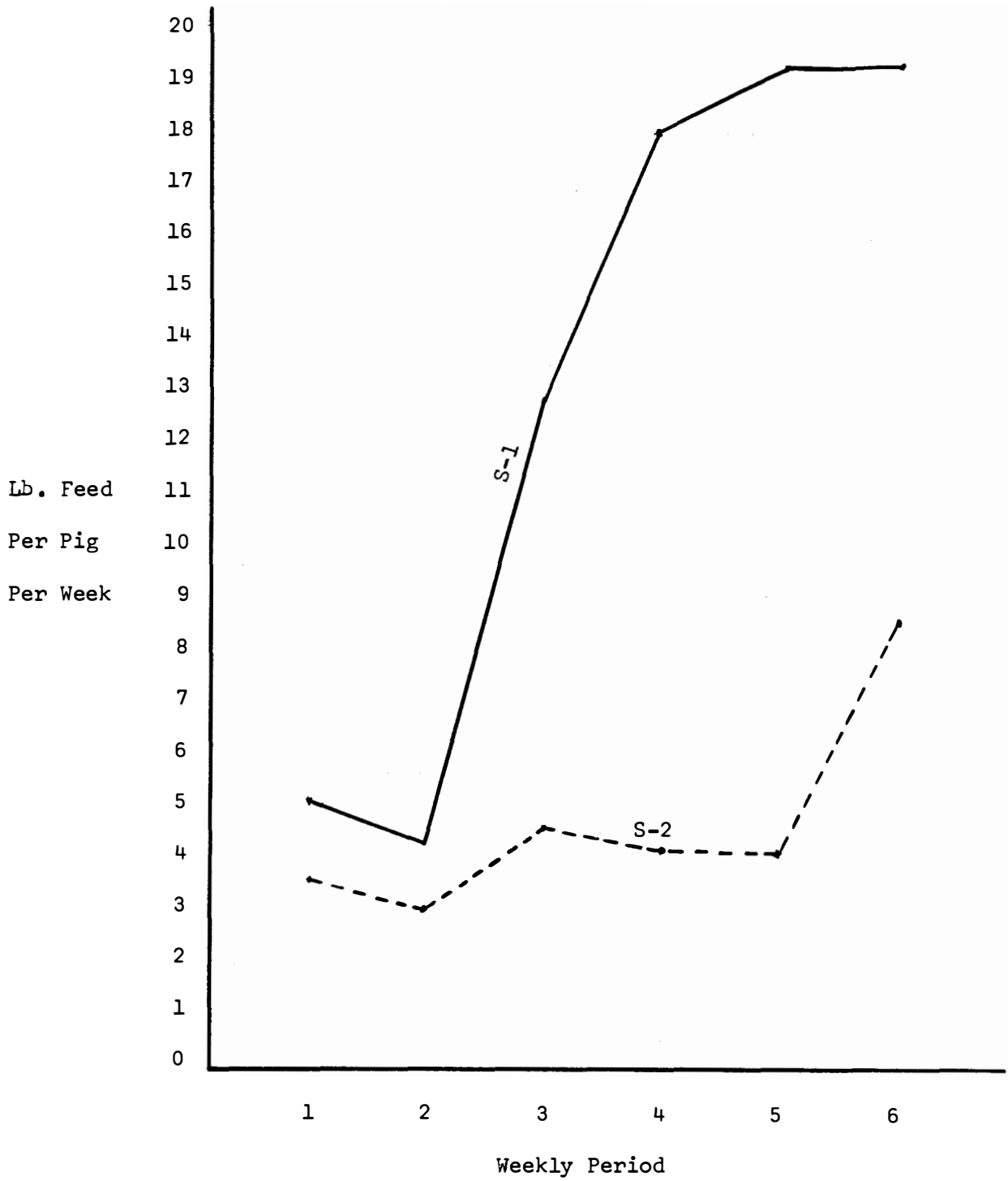


Figure 1. Average feed consumption by pigs fed both rations simultaneously.