KSU

Salt Level for Finishing Swine

R. H. Hines, B. A. Koch, and G. L. Allee

Summary

Two feeding trials involving 118 finishing pigs were conducted to determine minimum salt needed in finishing diets. Performance of pigs fed 0.2 to 0.5% salt diets did not differ significantly, but pigs fed 0.1% or no salt gained significantly slower and less efficiently. Therefore, 0.2% salt in the finishing ration for swine from 100 lbs. to 215 lbs. should meet finishing pigs' requirements.

Introduction

The National Research Council (NRC) (1968) lists the recommended salt in swine finishing diets as 0.5% of the diet. Confinement rearing of swine has increased as have liquid-manure handling systems. Liquid manure handling systems retain all mineral defecated which may build up specific minerals in the soil as application rates increase. This study was initiated to evaluate diets using less salt than recommended for swine finishing diets.

Procedure

General. Two trials were conducted to evaluate various salt levels for finishing hogs (110 and 135 lbs. to market weight). The pigs were housed in a modified, open-front building enclosed with polyethyline with supplemental heat from catalytic heaters. The floor was concrete slats over an oxidation ditch. Feed and water were supplied ad libitum. Pigs were weighed bi-weekly to determine rate of gain, feed intake and feed efficiency.

Trial I. Fifty-four Duroc and Yorkshire pigs averaging 135 lbs. were allotted according to weight, sex, and breed to three rations containing: (A) 0.5% salt, (B) 0.25% salt, (C) no salt. The basal diet (table 9) contained 16.0% crude protein, 0.79% lysine, 0.75% calcium and 0.60% phosphorous. Treatments were replicated with nine pigs per pen.

Table 9. Composition of basal ration for salt trials 1 and 2 with finishing pigs.

Ingredients:	%
Sorghum grain	76.1
Soybean meal (44%)	20.0
Limestone	1.0
Dicalcium phosphate	1.4
Vitamin, trace mineral, antibiotic	1.0
Salt[a]	0.5

[a]Salt Percentage adjusted as per treatments.

Trial II. Sixty-four Duroc and Yorkshire pigs averaging 110 lbs. were allotted according to weight, sex and breed to four rations containing: (A) 0.5% salt, (B) 0.3% salt, (C) 0.2% salt (D) 0.1% salt. Treatments were replicated with eight pigs per pen.
f

Results and Discussion

The results of trial 1 are summarized in table 10. Pigs fed no supplemental salt gained significantly slower than pigs fed rations containing either 0.5% or 0.25% salt. Pigs fed no salt consumed less feed per day and were 10% less efficient than pigs fed the NRC recommended 0.5% salt. Rate of gain and feed per pound of gain did not differ significantly between pigs fed 0.5% or 0.25% supplemental salt. Although the pigs receiving the ration with no added salt gained slowly, no physical symptoms of salt deficiency were noted.

The results of feeding pigs rations containing 0.1, 0.2, or 0.3% salt from 110 to 220 lbs. are summarized in table 11. Pigs fed rations containing 0.5, 0.3, or 0.2% supplemental salt gained similarily. They consumed approximately the same amount of feed each day with resulting feed efficiencies being similar. Pigs fed rations containing 0.1% salt gained significantly slower and were 6% less efficient. Results suggest 0.2% as the minimum salt needed for finishing rations.

Table 10. Performance of finishing hogs as affected by percentage of salt in rations.

Salt, %	0.5	0.25	0
No. pigs	18	18	18
Int. wt., lbs.	134.5	135.1	137.3
Final wt., lbs.	201.0	201.9	193.8
Daily gain, lbs.	1.38	1.40	1.16[a]
Daily feed int., lbs.	5.24	5.46	4.87
Feed/lb. gain, lbs.	3.80	3.90	4.20

[a]Differs significantly (P<.05).

Table 11. Performance of finishing hogs as affected by percentage of salt in rations.

Salt, %	0.50	0.30	0.20	0.10
No. pigs	16	16	16	16
Int. wt., lbs.	111.5	113.1	110.8	110.3
Final wt., lbs.	216.1	216.7	219.9	203.9
Daily gain, lbs.	1.84	1.82	1.90	1.64[a]
Daily feed int., lbs.	5.63	5.71	5.77	5.37
Feed/lb. gain, lbs.	3.06	3.14	3.04	3.27

[a]Differs significantly (P<.05).