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Added pyridoxine for finishing-pig rations

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Summary

Pyridoxine added to finishing rations at two levels did not improve pig performance. Performance of pigs receiving a 20% crude protein broiler ration equalled, but was not better than, that of pigs receiving a standard 16% crude protein ration.

Introduction

Pyridoxine functions in the coenzyme, pyridoxal phosphate, and it also is involved in amino acid decarboxylation, transamination, removal of sulfhydryl groups, and tryptophan metabolism. Thus it can be postulated that fast-growing, meat-type animals may respond to extra pyridoxine. Some evidence in the literature supports that hypothesis. In a recent broiler feeding trial supplemental pyridoxine improved both growth rate and feed efficiency.

Procedure

Eighty-four York-Duroc crossbred pigs averaging near 45 kg. (100 lbs.) were divided into 12 groups according to weight, sex, and litter. Groups were randomly assigned to treatments of one of three levels of added pyridoxine (0.0, 3.0, 15.0 mg./kg.) and 2 of protein (20.0 and 16.0% crude protein) replicated. The 20% crude protein

diet was grain-soybean meal with 2.5% alfalfa meal and 5.0% animal fat. The 16% crude protein diet was similar with grain and soybean meal adjusted to reduce the crude protein level. The trial began in January.

Pigs were housed in the controlled-environment nursery for two weeks then moved to the finishing barn, a modified open-front building enclosed with polyethylene and heated by a catalytic heater in each pen, and fed for an additional 7 weeks. Both barns have slatted floors over oxidation ditches. Feed and water were supplied ad libitum in each barn. Pigs were individually weighed bi-weekly to determine rate of gain, feed intake, and feed efficiency.

Results and Discussion

Performances of the pigs are summarized in table 32. Calculated and analyzed crude protein and pyridoxine values for the diets are shown in table 33. Analyzed crude protein values for the diets agreed quite well with calculated values, but not for pyridoxine values. All reported pyridoxine values were lower than calculated, however, the ratio between treatment groups was as calculated. Performance factors measured indicated no differences in pig performance. We cannot yet explain discrepancies between calculated and analyzed dietary values for pyridoxine.

Table 33. Calculated and analytical¹ values of selected nutrients in diets fed experimental pigs.

Calculated C.P.	Analyzed C.P.	Calculated pyridoxine	Analyzed pyridoxine	Analyzed calc.
%	%	Mg./Kg.	Mg./Kg.	%
20.8	21.3	7.01	0.90	13
20.8	21.7	10.01	6.39	64
20.8	21.2	22.01	11.91	54
16.2	16.6	6.53	1.61	24
16.2	17.0	9.53	4.41	46
16.2	16.9	21.53	14.11	65

¹Crude protein analyses from K.S.U. Animal Science and Industry Dept. laboratory.

Pyridoxine analyses courtesy of Thompson-Hayward, Kansas City, Kan.

Table 32. Performance¹ of pigs receiving diets containing indicated protein and pyridoxine².

Diet Calculated: C.P. %	Pyr. Mg./Kg.	Initial wt. Kg. (lb.)	Final wt. Kg. (lb.)	Avg. D. Gain Kg. (lb.)	F/G Ratio	Avg. D. Intake Kg. (lb.)
20.8	7.0	43.3(95.4)	97.6(215.1)	0.88(1.93)	2.62	2.30(5.1)
20.8	10.0	45.6(100.6)	100.8(222.3)	0.89(1.96)	2.73	2.44(5.39)
20.8	22.0	44.4(98.0)	94.8(208.9)	0.81(1.79)	2.72	2.22(4.89)
16.2	6.5	44.1(97.3)	98.7(217.7)	0.88(1.94)	2.63	2.34(5.17)
16.2	9.5	44.0(96.9)	96.7(213.1)	0.85(1.88)	2.73	2.34(5.15)
16.2	21.5	44.3(97.7)	96.3(212.3)	0.84(1.85)	2.64	2.22(4.90)

¹Each value represents 14 pigs fed 62 days.

²Supplemental pyridoxine furnished by Thompson-Hayward Chemical Co., Kansas City, Kan.