

Effects of Oregano Supplemented Diets on Nursery Pig Performance

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Charlwit Kulchaiyawat, undergraduate research intern;
Mark Honeyman, professor, department of animal science

Summary and Implications

There is increasing public concern over the use of subtherapeutic antibiotics in livestock feed. Some companies are exploring alternative feed supplements, such as oregano. A study was conducted at the ISU Swine Nutrition Farm to study the effects of oregano-supplemented diets on nursery pig performance. A total of 80 pigs were used in the study and were weighed weekly for four weeks. Five treatment diets were fed: control (no additive), carbadox, 0.5%, 1.0%, and 2.0% added oregano. Pig performance was calculated as ADFI, ADG, and FE. The data were analyzed using the GLM model of SAS.

Overall, feeding oregano diets to nursery pigs resulted in no improvement in performance. Also, the carbadox-supplemented diet did not improve pig performance compared with the non-supplemented diet. Research could be continued through finishing. There may be an initial period of adjustment to the oregano at the higher levels.

Introduction

Oregano is an alternative feed additive that may have potential to replace subtherapeutic antibiotics in swine feed. As consumers are becoming more concerned about resistant strains of bacteria and food safety, antibiotic use in livestock feed may be limited. The study used different levels of oregano fed to nursery pigs and measured pig performance compared with diets with no additive or with carbadox added. An earlier study conducted by Iowa Lakes Community College determined that feeding oregano to pigs resulted in some improved performance, however the oregano product that was used in this study is 25 times stronger than the previous product used. The objective of the study was to determine if feeding oregano would improve performance of nursery pigs.

Methods and Materials

The study was conducted at the ISU Swine Nutrition Farm near Ames, IA, using 80 nursery pigs. At weaning, pigs were divided into 20 pens. They were randomly allotted and balanced by pen for genetic line, litter, and weight. All pigs were fed commercial pelleted diets the first week postweaning. The experimental diets were fed for the next four weeks. Feed waste was kept to a minimum. The first two weeks the pigs were fed twice daily and then were changed to self feeders for the remainder of the trial. At weekly intervals the pigs and feeders were weighed. ADFI,

ADG, and feed efficiency were calculated. One pig was removed due to rectal prolapse during the fifth week. Data were analyzed using GLM model of SAS with diet treatment as the variable. The experimental unit was a pen of four pigs.

Experimental Diets. One of five dietary treatments was randomly assigned to each pen. The treatment diets were: control, 0.5%, 1.0%, 2.0% oregano, and carbadox supplemented (Table 1). The diets were mixed in meal form at the ISU Swine Nutrition Farm. The diets were formulated to meet or exceed the nutritional needs of the pigs. The diets had 23.4% CP, 1.49% Lys, 0.95% Ca, 0.52% Avail. Phos, and 1,522 kcal/lb ME.

Housing. A temperature-controlled room was used with 24 pens (4 ft. × 4 ft.) with total slatted floors. The four corner pens were not used in the study. Self feeders and nipple waterers were available in each pen.

Fecal Score. A fecal score of 1–5 was given to each pen on a daily basis. The scoring was done subjectively on a daily basis.

Fecal Score

- 1 – normal, formed feces, dry anus
- 2 – some paste, some formed, clean hindquarters
- 3 – pasty/runny, dirty hindquarters
- 4 – runny, wet/dirty hindquarters and tail
- 5 – watery, wet hindquarters and tail

Results and Discussion

Feeding diets supplemented with oregano or carbadox to nursery pigs had no improvement ($P > 0.05$) in pig performance (ADFI, ADG, or FE, Table 2) overall. No major scour outbreaks were observed during the study (Table 4). As the pigs on oregano ate more, there was a slight increase in the scour score. Some feed consumption reluctance for the higher concentrations of oregano diets were observed with a compensatory improvement in ADFI and ADG as the trial went on (Table 3).

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Table 1. Treatment diet formulation.

<u>Diet</u>	<u>Control</u>	<u>Oregano</u>			<u>Carbadox</u>
Ingredient %		0.5%	1.0%	2.0%	
Corn	44.80	44.30	43.80	42.80	43.80
SBM-48	38.34	38.34	38.34	38.34	38.34
Whey	10.00	10.00	10.00	10.00	10.00
Corn Oil	3.00	3.00	3.00	3.00	3.00
Lysine	0.15	0.15	0.15	0.15	0.14
Threonine	0.05	0.05	0.05	0.05	0.05
Methionine	0.12	0.12	0.12	0.12	0.12
Dical Phos	2.05	2.05	2.05	2.05	2.05
Limestone	0.83	0.83	0.83	0.83	0.83
Salt	0.25	0.25	0.25	0.25	0.25
Selenium	0.05	0.05	0.05	0.05	0.05
Vit. Premix	0.30	0.30	0.30	0.30	0.30
Min Premix	0.06	0.06	0.06	0.06	0.06
Oregano	--	0.50	0.10	0.20	--
Carbadox	--	--	--	--	1.00
	100.00	100.00	100.00	100.00	100.00

Table 2. Performance of nursery pigs supplemented with oregano (4 weeks).

	<u>Control</u>	<u>0.5% Oregano</u>	<u>1.0% Oregano</u>	<u>2.0% Oregano</u>	<u>Carbadox</u>	<u>SEM</u>
Pigs, head	20	20	20	20	19	
Beg wt, lbs	17.1	17.6	18.1	18.1	17.8	
End wt, lbs	46.5	48.1	47.5	48.0	50.9	
ADFI lbs/d ^a	1.4	1.5	1.4	1.5	1.6	0.1
ADG lbs/d ^a	1.1	1.1	1.1	1.1	1.2	0.1
F:G ^a	1.3	1.3	1.4	1.5	1.3	0.1

LS means in the same row did not differ (P>0.05).

Table 3. Means of pig performance on oregano supplemented diets (weekly).

		<u>Control</u>	<u>0.50%</u>	<u>1.00%</u>	<u>2.00%</u>	<u>Carbadox</u>	<u>SEM</u>
ADFI							
lb/d	Cumulative	1.4	1.5	1.4	1.5	1.6	0.1
	Week 1	0.7	0.7	0.6	0.6	0.9	
	Week 2	1.1	1.1	1.1	1.2	1.5	
	Week 3	1.7	1.7	1.7	1.8	1.8	
	Week 4	2.1	2.4	2.3	2.4	2.2	
ADG							
lb/d	Cumulative	1.1	1.1	1.1	1.1	1.2	0.1
	Week 1	0.5	0.5	0.4	0.4	0.7	
	Week 2	0.9	0.8	0.8	0.8	1.2	
	Week 3	1.3	1.3	1.4	1.4	1.3	
	Week 4	1.5	1.7	1.6	1.7	1.6	
F:G							
	Cumulative	1.3	1.3	1.4	1.4	1.3	0.1
	Week 1	1.3	1.3	1.6	1.4	1.2	
	Week 2	1.3	1.4	1.4	1.6	1.2	
	Week 3	1.2	1.2	1.3	1.3	1.4	
	Week 4	1.5	1.4	1.4	1.5	1.4	

Table 4. Average weekly fecal scores.

	<u>Control</u>	<u>0.50%</u>	<u>1.00%</u>	<u>2.00%</u>	<u>Carbadox</u>
Week 1	1.7	1.2	1.9	1.1	1.2
Week 2	1.6	1.6	1.7	1.4	1.5
Week 3	1.4	1.5	1.6	1.6	1.5
Week 4	<u>1.4</u>	<u>1.4</u>	<u>1.5</u>	<u>1.7</u>	<u>1.3</u>
Average score	1.5	1.4	1.7	1.5	1.4