EFFECTS OF ANTIBIOTICS ON PERFORMANCE OF FINISHING SWINE

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Story in Brief

Two trials involving 192 finishing hogs fed from approximately 120 to 230 lb were conducted to study the effect of feeding Bambermycin or Bacitracin Methylene Disalyclate on performance. Pigs fed the antibiotics tended to have greater average daily gain than those fed the control diet. Pigs fed of Bambermycin at the rate of 4 grams per ton of feed had a higher average daily gain than pigs fed the control diet. No significant differences among treatments were noted for average daily feed intake, feed efficiency or scanned backfat thickness.

(Key Words: Swine, Bambermycin, Bacitracin Methylene Disalycate.)

Introduction

Antibiotics have been extensively used in swine feeds in the United States for nearly 40 years to improve weight gain and feed utilization. It is generally agreed that the response to antibiotics is less as the pig increases in age. Zimmerman (1986) reviewed health and performance data from over 25,000 pigs and reported that the improvement in daily weight gain and feed efficiency is considerably less for older pigs as compared to starter pigs. However, Hagsten el al (1978) reported that the response from feeding Bambermycin as measured by daily weight gain and feed efficiency was greater for pigs in the finishing period than in the growing period.

It is also speculated that antibiotics may be less beneficial for specific pathogen free (SPF) swine than conventional swine. Thus, the purpose of this study was to evaluate the efficacy of feeding low levels of two different antibiotics to SPF finishing swine as measured by average daily gain and feed efficiency.

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Materials and Methods

Two trials involving a total of 192 Yorkshire and Hampshire barrows and gilts from the Oklahoma State University nationally accredited SPF swine herd[6] were conducted in confinement on slotted floors. Each trial consisted of 24 pens of pigs (4 pigs per pen) fed from approximately 120 to 230 lb. All pigs had previously been in slotted floor confinement from 60 to 120 lb and fed a corn-soybean meal based type diet (.80% lysine) containing 50 gm of chlorotetracycline per ton of feed.

All pigs were randomly allotted within breed and sex to four treatments. Treatments were: 1) control diet 2) control diet + 30 gm of Bacitracin Methylene Disalyclate (BMD) per ton of feed 3) control diet + 2 gm of Bambermycin[7] (BA-2) per ton of feed; and 4) control diet + 4 gm of Bambermycin[7] (BA-4) per ton of feed (Table 1). All diets were formulated to contain .65 % lysine. Pigs were individually removed from test weekly when they reached 230 lb and scanned with an ILIS Preg Chek Series TPM + machine for backfat thickness at the first rib, last rib and last lumbar vertebrae.

Results and Discussion

The results of the combined trials are presented in Table 2. Pigs fed the antibiotics tended to have greater average daily gain than the pigs fed the control diet with the pigs fed 4 grams of Bambermycin per ton of feed (Treatment 4) having a higher average daily gain ($P<.01$) than those fed the control diet (Treatment 1). No significant differences were noted among treatments for average daily feed intake, feed efficiency or scanned backfat thickness.

The results of these trials demonstrate that Bambermycin fed to finishing hogs from SPF herds may result in significantly higher average daily gain.

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[6]Nationally accredited SPF herds are monitored quarterly for pneumonic lesions, turbinate atrophy, swine dysentery, pseudorabies, brucellosis, lice and mange. Any clinical evidence of these diseases results in loss of accreditation.

[7]Trade name is Flavomycin manufactured by Hoecsht-Roussel Agri-Vet Co., Sommerville, NJ.

Table 1. Composition of control diet.

Ingredients	% of Diet
Yellow corn	81.65
Soybean meal, 44%	15.75
Calcium carbonate	.85
Dicalcium phosphate	1.10
Salt	.50
Vitamin-trace mineral mix[a]	.15
Total	100.00
Calculated composition	
Metabolizable energy, kcal/lb	1457
Crude protein, %	14.12
Lysine, %	.65
Calcium, %	.61
Phosphorus, %	.50

[a]Supplied 800,000IU Vitamin A, 80,000 IU Vitamin D, 3,400 IU Vitamin E, 4,000 mg d-pantothenic acid, 5,400 mg niacin, 800 mg riboflavin, 660 mg menadione, 4 mg Vitamin B12, 80,000 mg choline chloride, 18 mg selenium, 5 g manganese, 18 g zinc, 18 g iron, 2 g copper and 36 mg iodine per lb of premix.

Table 2. Effect of antibiotics on performance of finishing swine[a].

Item	Treatment			
	Control (1)	BMD (2)	BA2 (3)	BA4 (4)
Pigs/treatment,no.	48	46[b]	48	47[c]
Initial weight, lb	118.4	117.9	119.0	118.2
Final weight, lb	230.5	232.0	234.3	231.4
Avg. daily gain, lb	1.61[d]	1.66[de]	1.66[de]	1.72[e]
Avg. daily feed intake, lb	5.52	5.60	5.72	5.75
Lb feed/lb gain	3.43	3.37	3.45	3.35
Scanned backfat thickness, in	.87	.87	.88	.90

[a] Least squares means.
[b] Two pigs removed from treatment because of poor performance Necropsy examination indicated gastric ulcers.
[c] One pig died. Nercropsy examination indicated bronchopneumonia.
[d,e] Means in the same row with different superscripts differ ($P < .01$).

Literature Cited

Hagstin, I. et al. 1978. Effect of bambermycins on performance of growing-finishing swine. J. Anim. Sci. 47:1233.

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